

THE EARLY BRONZE AGE SITE OF ASHQELON, AFRIDAR—AREA M

AMIR GOLANI

Salvage excavations carried out within the Early Bronze Age site of Ashqelon, Afridar (map ref. NIG 1585/6210, OIG 1085/1210), prior to construction of a new housing complex, uncovered further remains of the extensive EB I settlement located near the coast, less than two kilometers northeast of Tel Ashqelon (Fig. 1).¹ Numerous salvage excavations have been carried out at the site by the Israel Department of Antiquities and Museums (IDAM), later the Israel Antiquities Authority (IAA; Brandl and Gophna 1993; Garfinkel 1999; 2008; Baumgarten 2004; Braun and Gophna 2004; Golani 2004; Gophna 2004; Khalaily 2004), and by Ben Gurion University in Be'er Sheva' (unpublished). Each of these excavation

areas was designated by a letter (Areas A–K excavated by the IDAM and the IAA, Area 10 by Ben Gurion University and Area L by the Hebrew University, Jerusalem; see Fig. 1). Consequentially, the present excavation is designated Area M.²

THE EXCAVATION

Area M is situated c. 30 m north of Area F, excavated by Khalaily (2004), and c. 15 m northeast of Area J, excavated by Baumgarten (2004; Plan 1). Prior to excavation, 2–4 m of an overlying sand dune were removed by mechanical equipment, exposing the top of a dark brown layer containing sherds, small stones and decayed organic remains. This layer was revealed only in the southern portion of the area to be developed, near the previous excavations of Areas F and J. A limited number of trial probes were conducted in Sqs A3, B3 and C4, immediately to the northeast of the main excavated remains (see Plan 1), revealing a light brown matrix that was nearly devoid of occupational remains. Two mechanical trenches located c. 65 m southeast of the main excavated area also revealed *in situ* remains, 1.2 m below a dark brown, sandy layer that was covered by at least 4 m of an overlying, modern sand dune. These remains were not excavated. The archaeological remains in Area M may perhaps be viewed as the fringes of the settlement previously excavated in Areas F and J, or conversely, the edge of a localized habitation cluster within a larger settlement that was dispersed throughout the Afridar area.

Two strata dated to EB IA were discerned in Area M (Plans 2, 3), and two installations of

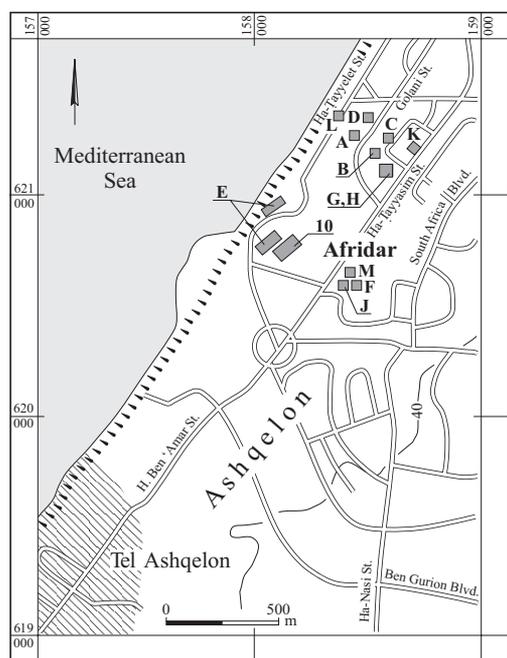
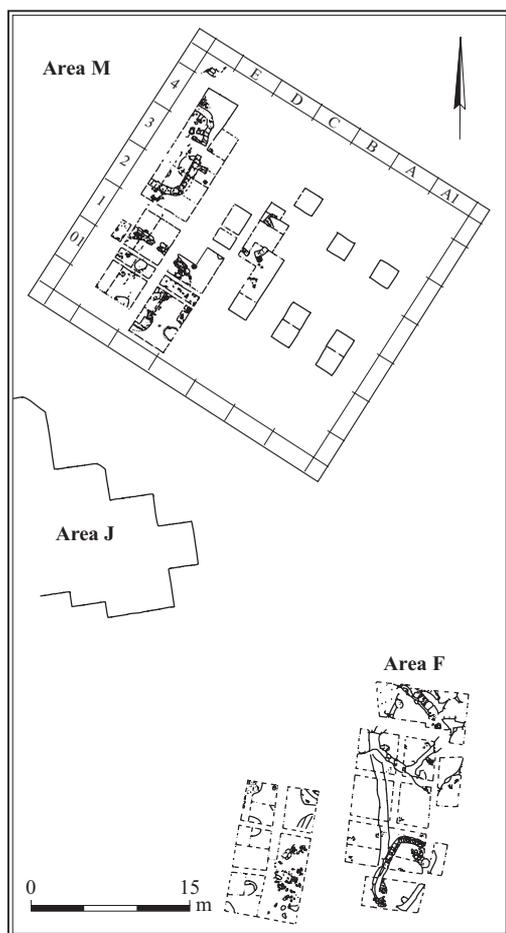


Fig. 1. Location map of all excavation areas.



Plan 1. Area M in relation to Areas F and J.

later date were partially exposed (Plan 3), one of which is a tomb (not excavated), probably dating to the Roman or Byzantine period. The initial settlement at the site (Stratum II) was founded upon the light brown sands of a natural sand dune. Though a limited number of artifacts were recovered from the very top of the dune, excavation deeper into this feature revealed it as sterile. In the southwestern portion of the excavated area, a later occupation (Stratum I) lay above the earlier habitation of Stratum II, whose scope was more restricted. In the northern portion of the excavated area, the Stratum I remains were found directly upon the sand dune.

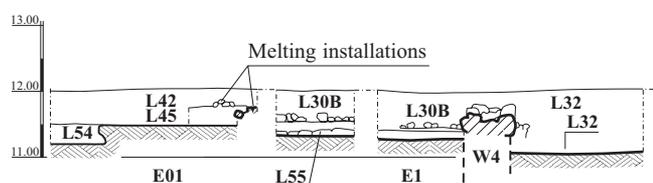
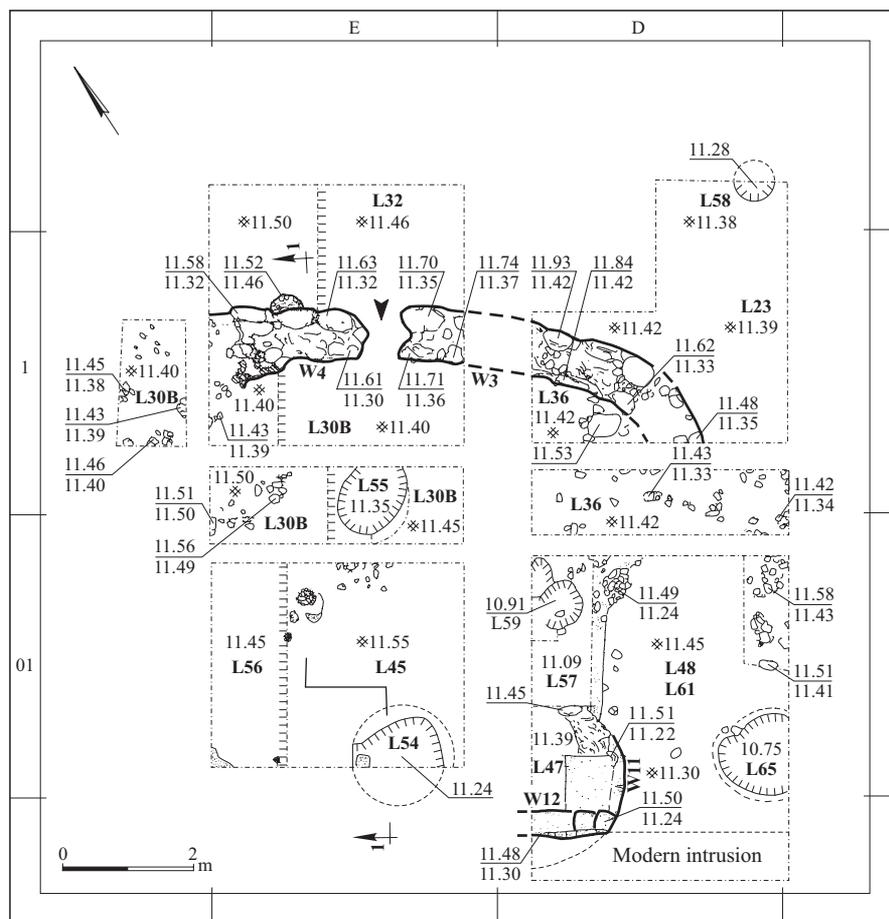
Stratum II (Plan 2; Fig. 2)

Elements attributed to Stratum II were identified in a limited area only (Sqs D–E/01–1), consisting of several disjointed architectural features of unclear plan and associated floors and pits. In Sqs D1, E01 and E1, the Stratum II remains were found sealed by a Stratum I surface (L18, L42, L9), while no remains of Stratum I were identified in Sq D01.

A large segment of a slightly curving wall (W3) was revealed in Sqs D–E/1 and E1, built of two rows of large and medium-sized *kurkar* stones with smaller chinking stones in between, preserved to a maximum of two courses. The stones of the wall were set in an upright position, creating deep recesses between the rows that were filled with dark brown earth. At its southern extremity, W3 formed a slight curve, yet excavations further to the south did not reveal any continuation of this wall. At its northern end, W3 was separated from W4 by a 0.5 m gap, possibly an entrance (Fig. 2). Only 2 m of W4 were exposed; this wall did not continue further west.

Both W3 and W4 were founded directly upon a sterile, natural sand dune. An associated beaten-earth surface (L32) was located to the northeast of the two walls and a similar surface (L23) was identified to the east of W3. In the eastern portion of Sq D1, a shallow, rounded pit (L58) was revealed dug into the light brown, sterile sands from the L23 surface.

To the southwest of W3 and W4, another beaten-earth surface (L30B, Sq E1 and L36, Sq D1) was unearthed, interspersed with many small *kurkar* stones and much dark brown debris, which included numerous pottery sherds, animal bones and other organic remains. A shallow, rounded pit (L55), filled with dark gray-black debris, was uncovered, dug into the sands of the underlying dune from the L30B surface (Fig. 2). This habitation level sloped slightly upward, to the south, where its continuation was excavated as L45 (Sq E01). A shallow, bell-shaped pit (L54), full of compacted, dark gray-black debris, was dug 0.3 m into the light brown sands from the L45



Plan 2. Stratum II: plan and section.

surface (Plan 2: Section 1–1). A small probe (L56) was excavated in the western portion of the square, and revealed the L45 surface to be founded upon the sterile sand dune.

The continuation of this same surface (L45) was also identified in the adjoining square to the southeast (L61, Sq D01), below a buildup of dark brown habitation debris (L48), found interspersed with several concentrations of small *kurkar* stones. Two pits (L65, L59)

were cut from the surface into the sand, full of dark gray-black debris. A limited probe (L57) revealed the surface to be founded upon the sterile sand dune.

On the southwestern side of Sq D01, a large modern intrusion cut through Stratum II architectural remains of unclear plan and function, consisting of a curving mudbrick wall (W11) upon a foundation of small *kurkar* stones. Wall 11 appears to have bonded with mudbrick



Fig. 2. Stratum II, Sq E1, looking northwest. The gap between W3 and W4 is at lower right; Pit 55 is visible at lower left with an associated surface (L30B) at upper left and center.

W12, preserved two courses high. Though W12 had been cut, the positioning of the mudbricks appears to indicate that the wall continued toward the northwest, outside the excavated area. Both walls are attributed to Stratum II, as the L61 surface and the L48 debris upon it were directly associated with W11.

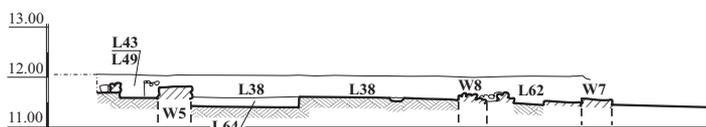
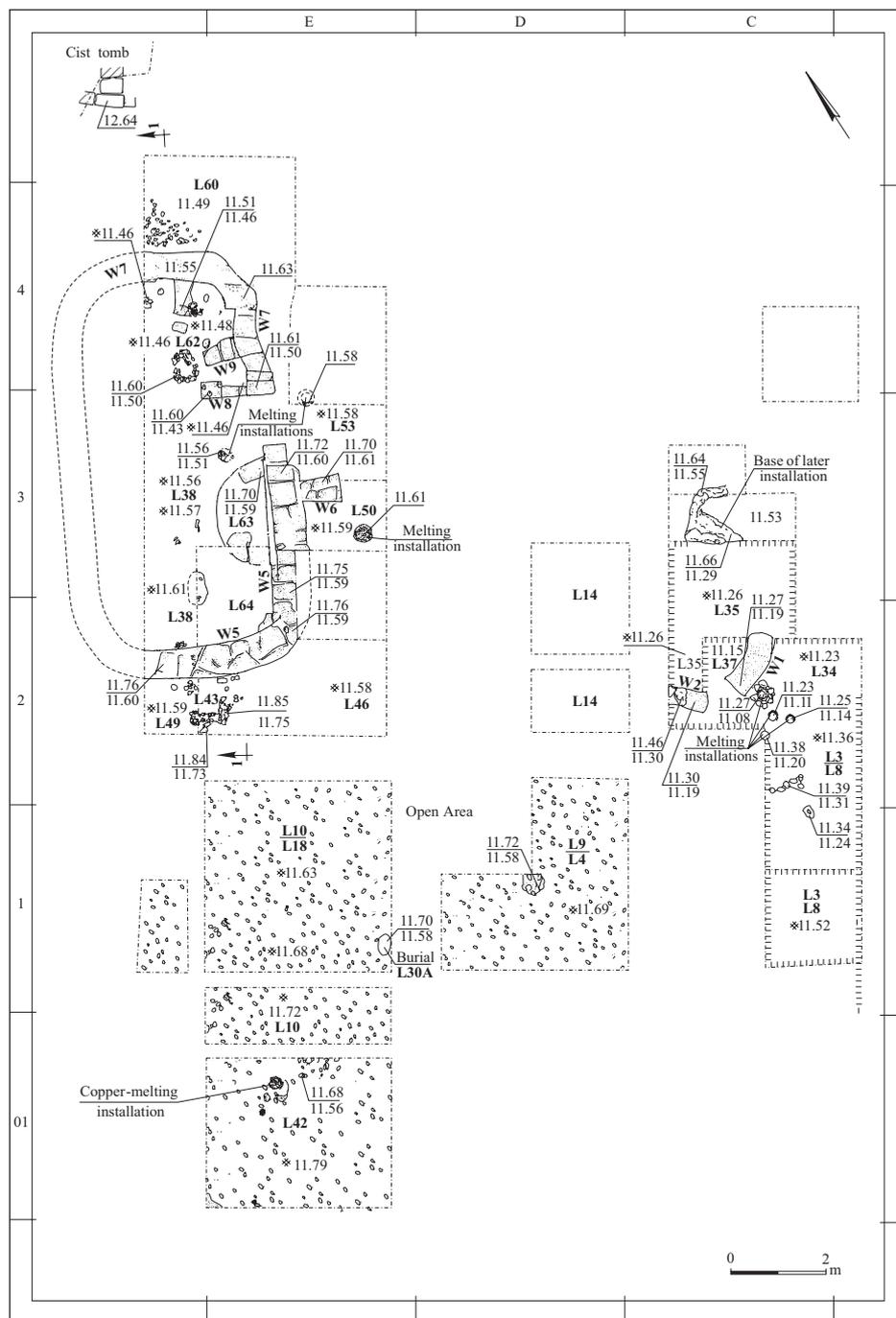
Stratum I (Plan 3; Figs. 3–7)

Remains of the final settlement phase were uncovered less than 0.5 m below the base of the overlying dune, most of which was removed by mechanical equipment. Stratum I was composed of a dark brown layer of occupation debris. In the northern portion of the excavated area, an oval-shaped mudbrick building was preserved to a maximum height of two courses (Fig. 3). The walls were not constructed upon a stone foundation and often only the lower portion of the first course was revealed, built of one to two rows of mudbricks with no clear arrangement. The mudbricks were 6–10 cm thick and of various shapes, including square (c. 50 × 50 cm) and rectangular (c. 25 × 50 cm), with angled or rounded corners. All were made

of the local *husmas*, a marly, light colored, compacted soil containing *kurkar* chips.

The building is a broadroom with a one-meter-wide entrance in its eastern wall. Outside the entrance, remains of a copper-melting installation were identified, embedded within a beaten-earth surface (L53). This installation is composed of a small, shallow, conical pit lined with stones and plaster, into which a crucible covered with hot coals was placed. Similar installations were found in Ashqelon—Afridar Area E2 (Type 1; see Golani 2004:17–18). South of the entrance, a short wall segment (W6) screened off access to this opening. South of W6, an associated beaten-earth surface (L50) also included a copper-melting installation. The southern continuation of the L50 surface was identified at the southern end of the building, where it was excavated as L46 and L49. To the north of the building (W7), no clear floor was identified, though a concentration of small stones (L60) was exposed.

Within the structure, a beaten-earth floor (L38), founded upon the light brown sands of the dune, was exposed in a small probe (L64),



1-1

Plan 3. Stratum I: plan and section.



Fig. 3. Oval building of Stratum I, looking north.

within the inner curve of the southern apse. The northern apse of the building was divided into several small spaces by three short mudbrick walls (W8, W9 and W10) abutting W7 (Fig. 4). They were preserved only a few centimeters above the beaten-earth floor (L62) in this area. The small size of these rooms suggests they were probably intended for storage.

Within the northern apse near the entrance to the rooms is a small rounded recess in the floor surrounded by small stones (Fig. 4). This recess may indicate the position of a large post for support of the roof. Within the southern apse, a shallow rounded pit sunken into the floor was found full of compacted *husmas*, the same material used in the construction of the mudbricks. This feature may also have served as a posthole. Both these elements are located along the presumed central axis of the building.

Although the western half of this building was not excavated, the plan of the structure, as delineated by W5 and W7, may be reconstructed



Fig. 4. Northern apse of the Stratum I oval building, looking southwest; note the stone-lined post-hole installation at upper center.

as oval with a reasonable degree of certainty. The inner measurements of the building would have been 4×8 m, providing at least 30 sq m of floor space.

Several additions were made to this structure at a slightly later phase, including the construction of a low, semicircular mudbrick platform (L63) abutting W5 from inside the building, adjacent to the doorway. To the southwest of the building, a concentration of small stones appears to have formed a square-shaped installation (L43) adjacent to W5 (Fig. 3), possibly for storage or the support of a large vessel. This feature was found above an earlier surface associated with the base of W5 (L46, L49).

To the south of the building, an open area devoid of architectural remains was exposed in Sqs D1, E01 and E1 (L9, L18, L42), consisting of small, randomly scattered *kurkar* stones overlaid by debris (L4, L10). In Sqs D1 and E1, this Stratum I habitation level was found overriding W3 and W4 of Stratum II. In Sq E01, this same habitation level (L42) sealed the Stratum II remains, while it was missing in Sq D01, where it was possibly removed by the modern mechanical activity in this area prior to excavation. Near the southern corner of Sq E1, a large convex fragment of a ceramic jar (Fig. 9:12) covering an infant burial was revealed sunken into the habitation level next to W3 of Stratum II (Fig. 5). Only a fragmentary skull vault, lower jaw and some postcranial bones were preserved, indicating that the interment was of a newborn or a developed fetus.³

In Sq E01, the Stratum I habitation level (L42) contained two adjoining copper-melting installations, dug into the mudbrick debris of the Stratum II occupation.

To the southeast of the building and the open area described above, additional Stratum I habitation surfaces were revealed in Sqs C2 and C1. Although the absolute heights of these remains would appear to associate them with Stratum II, whose surfaces to the west are somewhat higher, they are related to the Stratum I occupation due to their relative stratigraphic



Fig. 5. The skull of an infant burial (L30A), upper center, which was originally covered by a large storage-jar fragment (Fig. 9:12).

position directly below the sand dune covering all the EB remains.

The remains in these two squares included two mudbrick wall segments (W1 and W2) of unclear plan and function, in proximity to a cluster of melting installations. Wall 1, preserved 1.4 m long and 0.1 m high, curves slightly. A gap of 0.6 m separated this wall from W2, preserved 0.11 m high. Within this gap, a complete juglet (Fig. 9:14) was exposed upon a beaten-earth surface (L35) covered by charcoal and ash, while nearby, a large fragment of a basalt mortar (Fig. 11:2) was revealed next to the wall (Fig. 6). Upon W2, a row of medium-sized *kurkar* stones was laid, possibly serving as another course to this wall. Wall 2 did not continue into the adjoining square, D2, though the Stratum I habitation level in this square was identified in the excavation of L14. The beaten-earth surface (L35) to the north of W1 and W2 was founded upon the natural sand dune, exposed in a limited probe (L37).

To the south of these walls, another beaten-earth surface (L34) inclined moderately toward the south, where it was excavated as L8, overlaid by a debris layer (L3). Sunken



Fig. 6. The L34 and L35 habitation level next to W1 and W2 of Stratum I. Note the complete juglet (Fig. 9:14) in center, next to the corner of W2, and the remains of a basalt mortar-bowl (Fig. 11:2) next to W2 in upper center.

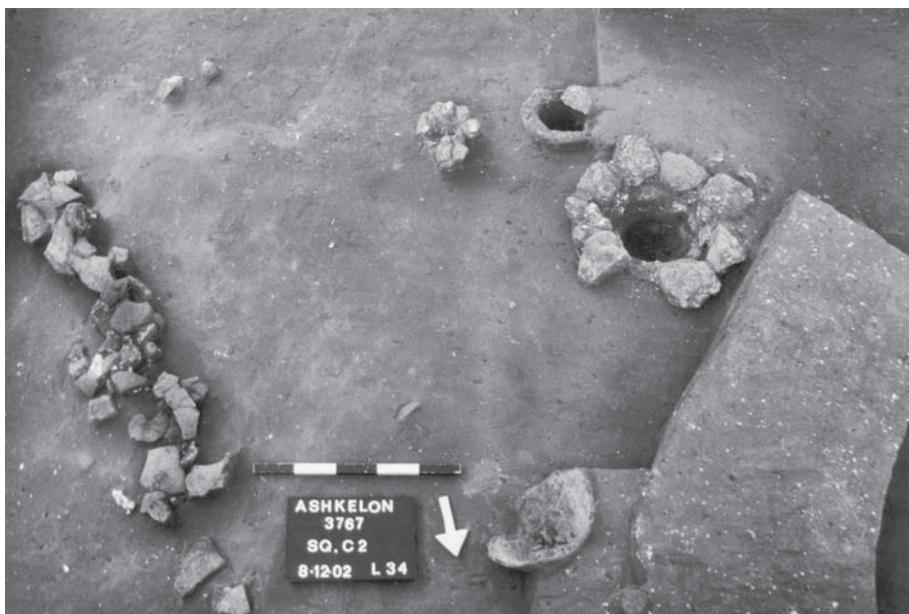


Fig. 7. A cluster of melting installations next to W1 at right, upon the L34 beaten-earth surface. Crushed pottery (Fig. 9:10) is visible on the surface at far left.

within this surface was a cluster of melting installations along with crushed pottery and small stones (Fig. 7). One of the melting installations was well-preserved, consisting of

a conical depression 0.12 m deep, lined with reddish clay that showed signs of burning. The top of this feature on Surface L8 was ringed with small stones.

Later Remains

Within the overlying sand dune that covered the Early Bronze Age remains, two features of a much later date were partially damaged by bulldozer activity prior to excavation (Plan 3). In Sq C3, at the base of the sand dune and directly upon the dark brown layer, was a bed of small *kurkar* stones set in a light gray mortar, a portion of which penetrated deeply into the Stratum I habitation level. Though fragmentary, this construction appears to be the remains of an installation, possibly a tomb, which was shaved away by the bulldozer. No datable finds were recovered from within this installation or its immediate vicinity.

In the very northern corner of the excavation area, within the sands just over half a meter above the base of the dune, was a tomb built of well-dressed *kurkar* ashlar. The bulldozer had removed a portion of the masonry, exposing articulated human skeletal material within the confines of what appears to have been a cist tomb. This feature was not excavated.

THE FINDS

POTTERY

The ceramic material presented in this report has been culled from selected loci of clear stratigraphic context associated with either Stratum II or I (see Appendix 1). Though these strata represent two distinct and superimposed habitations, the morphology and technology of these two ceramic assemblages are very similar and no clearly significant variances were observed in the type frequencies from each stratum. Though a few of the forms appear to have been exclusive to one stratum or the other (see below), the number of diagnostic sherds within the securely associated loci was not deemed large enough to enable a clear chronological differentiation between the two (see Yekutieli 1992; 2000). The ceramic assemblages of Strata II and I are therefore discussed as a single unit. Nevertheless, a characteristic assemblage of each stratum is presented separately in Figs. 8–10.

Technology

Due to the relatively low firing temperature of the ceramic vessels and the salinity and abrasive nature of the surrounding soil matrix, the vast majority of the pottery was recovered in a very worn and crumbly state. The material was so friable that in the field it was only ‘dry cleaned’, as immersion in water would have caused many of the sherds to disintegrate into mud.

The majority of the pottery recovered from Strata II and I is handmade. Some of the bowls were made on a slow wheel, as evidenced by string-cut bases and horizontal wheel marks on the body. Most of the larger store jars are thick-walled with numerous inclusions. On the whole, the vessels exhibit a rough finish. Only a few vessels bear faint traces of a red wash, though this surface treatment may have worn off due to the degenerative nature of the soil composition. Plastic decoration, usually in the form of small, consecutive indentations made by the thumb or another instrument of similar size on or just below the rim (here termed a scalloped, pie-crust or thumb-indented rim), is common on bowls, holemouth and store jars.

Typology

The typological designations used in this report follow those formulated during the processing of the ceramic assemblage of Ashqelon, Afridar—Area E (Golani 2004), and are based on four major groups of vessels: bowls, holemouth jars, store jars, and juglets. Each of these major pottery groups was further divided into types, designated by Roman numerals. Lacunae in the typological sequence simply indicate the absence of that form from the ceramic assemblage of Area M, while designations not found in the publication of Area E are new, though these forms may also occur in typological schemes of other excavated areas at the site.

Bowls

(I) *V-Shaped Bowls* (Strata II–I; Figs. 8:1–4; 9:1, 2).— This form is prevalent in both strata. The example in Fig. 8:1 bears a string-cut base. Commonly found during the Chalcolithic

period, V-shaped bowls continue well into EB I, as attested in previous excavations at Ashqelon, Afridar—Area E (Golani 2004: Fig. 22:1–9); Area F, Strata I–II (Khalaily 2004: Figs. 6:5;

11:1–3, 5–16); Area J, Strata 6–5 (Baumgarten 2004: Figs. 9:1; 10:1, 2; 15:2); Area G (Braun and Gophna 2004: Fig. 17:1, 3, 4, 6, 7)—and at other sites, such as Nizzanim Stratum 5

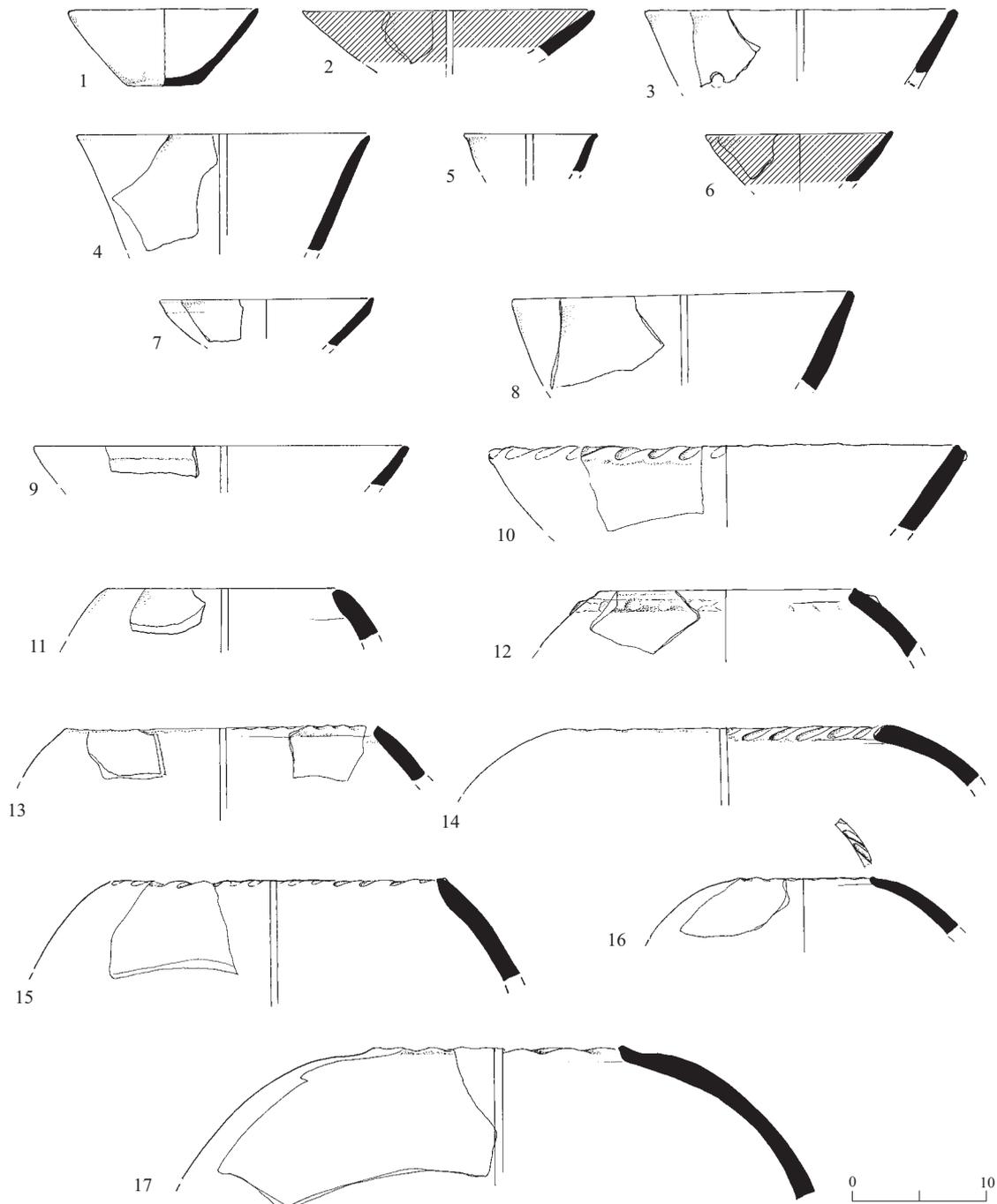


Fig. 8. Stratum II pottery: bowls and holemouth jars.

◀ Fig. 8

No.	Type	Locus	Reg. No.	Description
1	I Bowl	17	1064-1	Light brown-orange clay, small white grits, string-cut base, poorly fired
2	I Bowl	32	1054-1	Light brown-orange clay, small white grits, gray core, red wash, poorly fired
3	I Bowl	36	1180-1	Light brown-orange clay, small white grits, poorly fired, hole drilled on side
4	I Bowl	57	1176-1	Light brown-orange clay, small white and gray grits, well fired
5	IV Bowl	36	1116-1	Brown-orange clay, small white grits, gray core, well fired
6	IV Bowl	55	1165-1	Light brown-orange clay, small white grits, gray core, red wash, well fired
7	IV Bowl	36	1099-1	Light brown-orange clay, small white and gray grits, poorly fired
8	IV Bowl	32	1065-1	Light brown-orange clay, small white grits, well fired
9	V Bowl	32	1161-1	Gray-brown clay, small white grits, poorly fired
10	VI Bowl	57	1176-2	Light brown-orange clay, small white grits, gray core, well fired
11	I Holemouth	32	1161-2	Light brown-orange clay, small white and gray grits, poorly fired
12	IV Holemouth	61	1188-1	Light brown-orange clay, small white and gray grits, poorly fired
13	IV Holemouth	36	1093-1	Light brown-orange clay, small white and gray grits, poorly fired
14	VI Holemouth	36	1180-2	Light brown-orange clay, small white and gray grits, gray core, poorly fired
15	VI Holemouth	30b	1081-1	Light brown-orange clay, small white and gray grits, poorly fired
16	VI Holemouth	23	1033-1	Gray clay, small white grits, poorly fired
17	VI Holemouth	61	1188-2	Light brown-orange clay, small and medium white and gray grits, poorly fired

(Yekutieli and Gophna 1994: Fig. 12:16, 18, 19), Site H in the Besor region (Roshwalb 1981: Fig. H.4:1–7), and Tel Ḥalif Terrace Strata II and V (Dessel 1991: Figs. 14:3; 37:13).

(IV) *Thick Bowls with Pinched Rims* (Strata II–I; Figs. 8:5–8; 9:3).— Appearing in both strata, this form has thick walls and the end of the rim is slightly pinched, usually on the outside. Such bowls are found in the Chalcolithic period, as at Site O in the Besor region (Roshwalb 1981: Fig. O.5:4) and Tell el-Ḥesi (Coogan 1989: Fig. 4:12), as well as in EB I, as at Besor Site H (Roshwalb 1981: Fig. H.4:19, 21), Tel Ḥalif Terrace Strata II–III, and the ‘Silo Site’ Stratum II (Dessel 1991: Figs. 37:10, 11; 38:8, 25; Alon and Yekutieli 1995: Fig. 20:9) and in previous excavations at Ashqelon, Afridar—Areas E (Golani 2004: Fig. 23:1, 2) and G (Braun and Gophna 2004: Fig. 17:1, 5, 9).

(V) *Hemispherical Bowls with Flaring Rims* (Stratum II; Fig. 8:9).— This form, with a

generally hemispherical body and out-flaring rim, was found only in Stratum II. It occurs in the Chalcolithic period, as at Abu Maṭar Stratum III (Commence-Pellerin 1987: Fig. 18:6), as well as in EB I, as at Tel Ḥalif Terrace Strata III–IV and the ‘Silo Site’ Strata I and III (Dessel 1991: Fig. 33:5, 7; Alon and Yekutieli 1995: Figs. 15:18; 23:13), Besor Site H (Roshwalb 1981: Fig. H.4:17, 18, 20), Lakhish Caves 1509 and 1534 (Tufnell 1958: Pl. 56:14, 23, 31), and in previous excavations at Ashqelon, Afridar—Area E (Golani 2004: Fig. 23:3–7) and Area F Stratum I (Khalaily 2004: Fig. 6:7).

(VI) *Thick, Straight-Sided Bowls with Thumb-Indented Rims* (Strata II–I; Figs. 8:10; 9:4).— These large, thick-walled, V-shaped bowls with a continuous indented pie-crust decoration on the rim appear in both strata. This form is also known in the Chalcolithic period, for example at Besor Site M (Roshwalb 1981: Fig. M.4:2) and Abu Maṭar (Commence-Pellerin 1987: Fig. 22:4, 8) and also in EB I, as at Tel Ḥalif Terrace Stratum IV

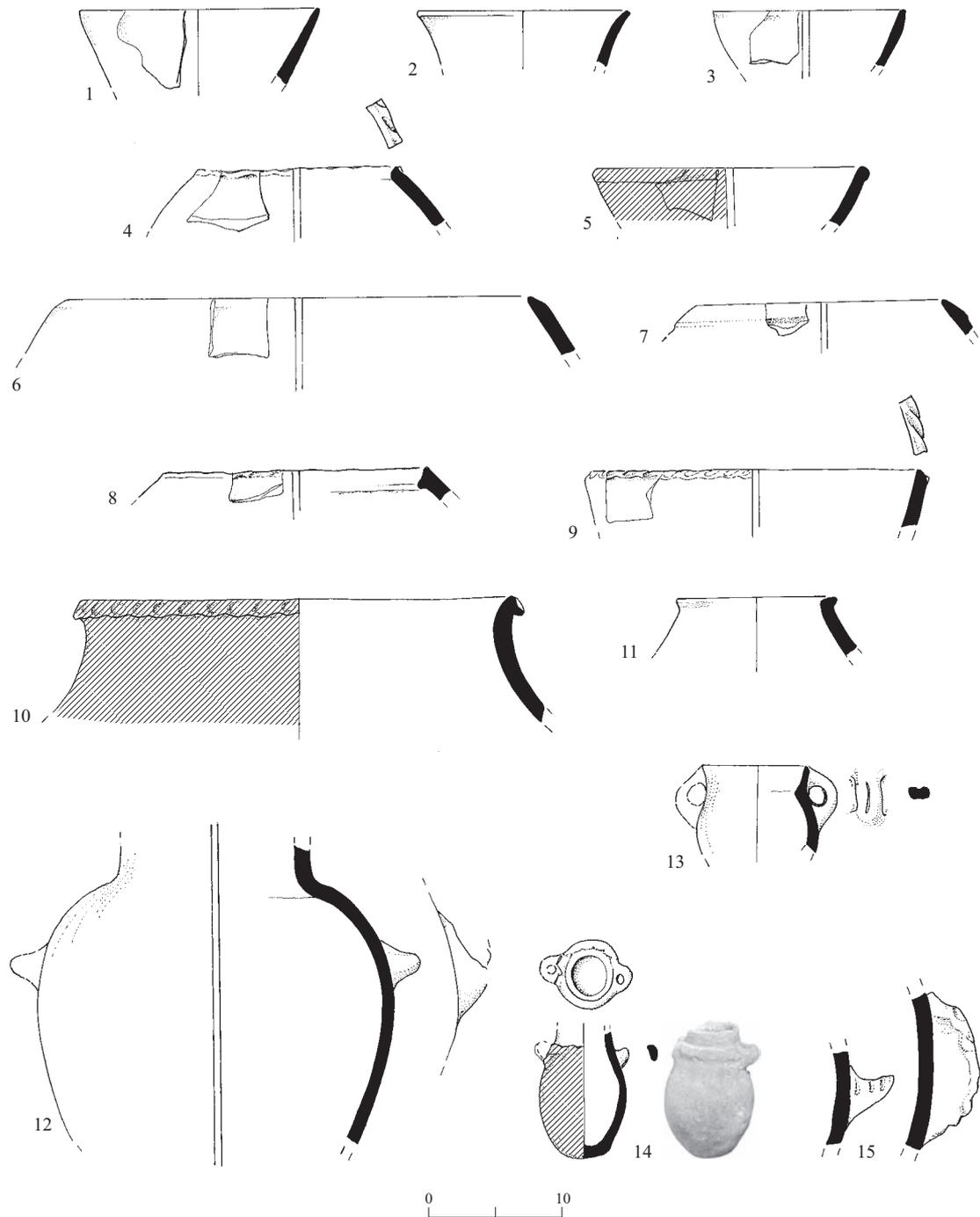


Fig. 9. Stratum I pottery.

◀ Fig. 9

No.	Type	Locus	Reg. No.	Description
1	I Bowl	53	1173-1	Light brown-orange clay, small white grits, gray core, poorly fired
2	I Bowl	6	1124-1	Pale-brown clay, small white grits, poorly fired
3	IV Bowl	4	1051-1	Light brown-orange clay, small white grits, gray core, poorly fired
4	VI Bowl	24	1052-1	Light brown-orange clay, small white grits, brown core, poorly fired
5	VII Bowl	38	1133-1	Light brown-orange clay, small white grits, gray core, red wash on ext., poorly fired
6	I Holemouth	8	1014-1	Brown clay, small white grits, gray core, poorly fired
7	I Holemouth	10	1089-1	Light brown-orange clay, small white grits, gray core, poorly fired
8	V Holemouth	24	1100-1	Brown clay, small white grits, gray core, poorly fired
9	VI Holemouth	10	1145-1	Light brown-orange clay, small white grits, gray core, poorly fired
10	II Store jar	34	1095-1	Light brown-orange clay, small white grits, gray core, red wash on ext., poorly fired
11	V Store jar	60	1193-1	Light brown-orange clay, small white grits, gray core, poorly fired
12	Store jar	30A	1085-1	Light brown-orange clay, small white grits, poorly fired
13	Store jar	10	1089-2	Light brown-orange clay, small white grits, gray core, well fired
14	Juglet	35	1059-1	Light brown-orange clay, small white grits, gray core, red wash on ext., poorly fired
15	Ledge handle	10	1089-3	Light brown-orange clay, small white grits, gray-brown core, poorly fired

(Dessel 1991: Fig. 28:4), Azor Stratum I (Golani and van den Brink 1999: Fig. 4:11, 12), and in previous excavations at Ashqelon, Afridar—Area E (Golani 2004: Fig. 23:8–11), Area F Stratum II (Khalaily 2004: Fig. 12:2, 4, 5), Area J Stratum 2 (Baumgarten 2004: Fig. 13:3) and Area G (Braun and Gophna 2004: Fig. 17:11–13).

(VII) *Bowls with Rounded, Folded-Over Rims* (Stratum I; Fig. 9:5).— Found only in Stratum I, this is a thick-walled, V-shaped bowl with slightly rounded walls and a rounded, folded-over rim. Similar bowls are known from EB I at Taur Ikhbeineh Phases II–III (Oren and Yekutieli 1992: Fig. 9:4), Ashqelon, Afridar—Area F Stratum I (Khalaily 2004: Fig. 6:1–3) and Area J Strata 1, 2 and 4 (Baumgarten 2004: Figs. 11:1; 13:1; 14:1). This form is common during the very end of EB IA (EB IA2) and continues into the beginning of EB IB (EB IB1; see Yekutieli 2000:131–132).

Holemouth Jars

(I) *Plain Holemouth Jars with Tapering Rims* (Strata II–I; Figs. 8:11; 9:6, 7).— Found in both

strata, this is a simple form appearing in a wide range of sizes and fabrics. Such jars are known throughout the Chalcolithic period and EB I (Golani 2004: Fig. 24:1–6; Braun and Gophna 2004: Fig. 20:1, 2).

(IV) *Holemouth Jars with Rope Decoration below the Rims* (Stratum II; Fig. 8:12).— Found only in Stratum II, the distinguishing feature of this type is a molded rope decoration below the rim. Similar jars have been found at Tel Halif Terrace Stratum V (Dessel 1991: Fig. 20:5), at Ashqelon, Afridar—Area E dated to early EB IA (Golani 2004: Fig. 25:4–8), and in Area G (Braun and Gophna 2004: Fig. 20:14).

(V) *Holemouth Jars with Sculpted Rims* (Stratum I; Fig. 9:8).— Found only in Stratum I, this form has a thickened, truncated rim with a slightly protruding lower and upper lip, often decorated with an impressed rope design on the top. Though antecedents of this form may be found in the Chalcolithic period, as at Besor Site M (Roshwalb 1981: Fig. M.4.:18) and Abu Maṭar (Commence-Pellerin 1987: Fig.

24:4, 5 [depicted as basins]), this distinctive form is more frequent in EB IA in the southern Shephelah and the coastal plain, for example at Azor Strata I–II (Golani and van den Brink 1999: Figs. 6:3–9; 11:3–6), Ashqelon, Afridar—Area E (Golani 2004: Fig. 26:1), and Area J Stratum 6 (Baumgarten 2004: Fig. 15:6). This type has been assigned to the latter part of EB IA (EB IA2; Yekutieli 1992:31–34).

(VI) *Holemouth Jars with Scalloped Rims* (Strata II–I; Figs. 8:13–17; 9:9).— Appearing in both strata, this is the most common type of holemouth jar, having a tapering, upturned rim decorated with an impressed rope decoration. Though this form begins during the Chalcolithic period, as at Shiqmim BP II (Levy 1987: Fig. 12.8:3), Abu Maṭar (Commence-Pellerin 1987: Fig. 26:9) and Besor Site A (Roshwalb 1981: Fig. A.11:7), it becomes much more common during EB I in the southern Shephelah and coastal region, as at Besor Site H (Roshwalb 1981: Fig. H.5:3), Tel Ḥalif Terrace Strata II, IV–V (Dessel 1991: Figs. 20:1, 3; 21:12, 14), Ashqelon, Afridar—Area E (Golani 2004: Fig. 26:5–10), Area F Strata I–II (Khalaily 2004: Figs. 7:6, 8, 12; 14:7), Area J Strata 5–3 (Baumgarten 2004: Figs. 10:14; 11:16, 17; 12:7, 8; 16:5), and Area G (Braun and Gophna 2004: Fig. 20:8–13).

Store Jars

(II) *Large, Thick-Walled Jars with Sloping to Vertical Necks, Flaring Rims and Thumb Indentations on Rims* (Strata II–I; Figs. 9:10; 10:1, 2).— Found in both strata, these are large, roughly made and poorly fired vessels. In southern Canaan they appear exclusively in EB IA, where they have been found at Azor Strata I–II (Golani and van den Brink 1999: Figs. 5:3; 10:8, 9), Taur Ikhbeineh Phases III–V (Oren and Yekutieli 1992: Figs. 10:13; 11:3; 12:14), Nizzanim Strata 4–5 (Yekutieli and Gophna 1994: Figs. 11:5; 12:7), Besor Site H (Roshwalb 1981: Fig. H.5:1) and Ashqelon, Afridar—Area E (Golani 2004: Fig. 27:3, 4, 6), Area J Strata 6 and 3 (Baumgarten 2004: Figs. 9:11; 12:6;

15:3), and Area G (Braun and Gophna 2004: Fig. 19:10, 12).

(III) *Large to Medium-Sized Store Jars with Flaring Necks and Scalloped Rims* (Stratum II; Fig. 10:3).— These large roughly made and poorly fired vessels are found only in Stratum II. They are frequent in early EB I in the southern Shephelah and coastal plain at such sites as Azor Stratum I (Golani and van den Brink 1999: Fig. 5:5), Ashqelon, Afridar—Area E (Golani 2004: Fig. 27:7–9), Area F Stratum I (Khalaily 2004: Fig. 8:1), Area J Strata 6, 5 (Baumgarten 2004: Figs. 9:10; 10:7; 15:5; 16:3), and Area G (Braun and Gophna 2004: Fig. 19:5, 13).

(IV) *Large to Medium-Sized Store Jars with Simple Out-Turned Rims* (Stratum II; Fig. 10:4).— This simple non-diagnostic form is found only in Stratum II.

(V) *Medium-Sized Store Jars with Sloping Necks and Pronounced, Out-Turned Rims* (Stratum I; Fig. 9:11).— Found only in Stratum I, these are relatively delicate jars, common at southern EB I sites such as Besor Site H (Roshwalb 1981: Fig. H.5:19), Tel Ḥalif Terrace Strata III–IV (Dessel 1991: Figs. 14:4; 22:1; 24:4), Ashqelon, Afridar—Area E (Golani 2004: Fig. 28:2, 3), and Area J Stratum 6 (Baumgarten 2004: Fig. 10:5).

(VI) *Large to Medium-Sized Store Jars with Sloping Necks* (Stratum II; Fig. 10:5–7).— Found only in Stratum II, this type has a simple rim, sometimes slightly out-turned (Fig. 10:6, 7). Similar forms are known from EB IA contexts at such sites as Nizzanim Stratum V (Yekutieli and Gophna 1994: Fig. 12:2), Azor Strata I–II (Golani and van den Brink 1999: Figs. 5:2; 10:10–12), Lakhish Caves 1500, 1503, and 1540 (Tufnell 1958: Pls. 56:26; 57:59, 70), Tel Ḥalif Terrace Strata III and V (Dessel 1991: Fig. 23:3, 4), Ashqelon, Afridar—Area E (Golani 2004: Fig. 28:7), Area F Stratum II (Khalaily 2004: Fig. 14:9), and Area J Strata 4, 3 (Baumgarten 2004: Figs. 11:10; 12:5).

Varia

A rim from a wide-mouthed store jar or a wide bowl (Fig. 10:8), with red wash on the interior and exterior, was recovered in Stratum II. The form is reminiscent of Egyptian-type 'rolled-rim' jars such as those found at Tel Ḥalif Terrace Stratum II (Dessel 1991: Fig. 42:2, 3, 7) and Taur Ikhbeineh Phases III–IV (Oren and Yekutieli 1992: Fig. 13:19), though the fabric indicates a locally made product.⁴

A distinctive type of small jar with a squat bulbous form, sharply carinated neck and plain tapering rim from which a handle extends to the shoulder (Fig. 9:13), was recovered in Stratum I. A straight vertical incision is on the handle. An identical mark on a handle is known from Taur Ikhbeineh Phases III–IV (Oren and Yekutieli 1992: Fig. 12:5). Similar jars are known from southern early EB I contexts such as Lakhish Cave 1520 (Tufnell 1958: Pl. 57:44), Ashqelon,

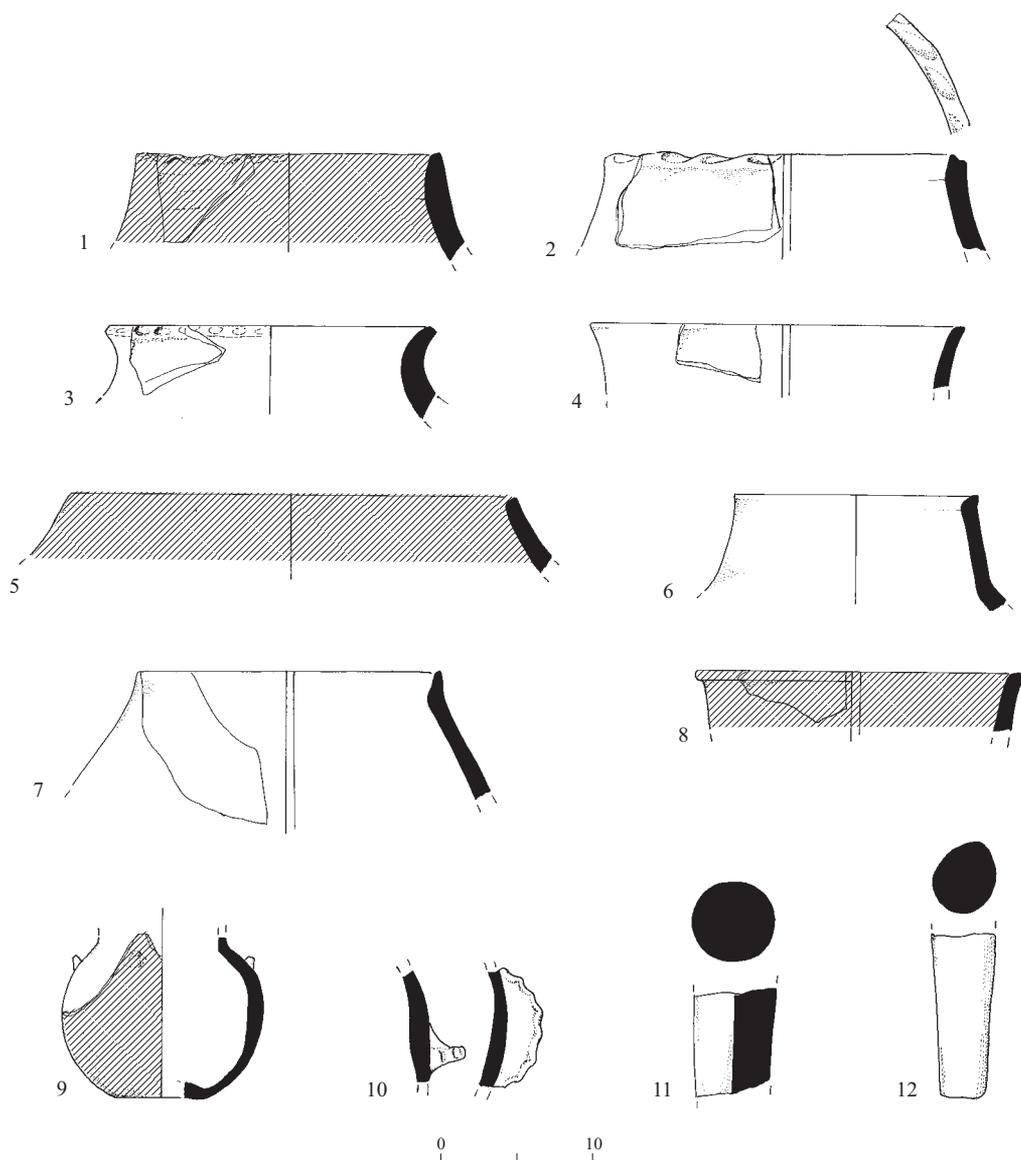


Fig. 10. Stratum II pottery: store jars and varia.

◀ Fig. 10

No.	Type	Locus	Reg. No.	Description
1	II Store jar	32	1065-2	Light brown-orange clay, small to large white grits, gray core, red wash, poorly fired
2	II Store jar	30B	1081-2	Light brown-orange clay, small white grits, gray core, poorly fired
3	III Store jar	45	1162-1	Light brown clay, small to large white grits, gray core, poorly fired
4	IV Store jar	36	1074-1	Light brown clay, small white and gray grits, gray core, well fired
5	VI Store jar	36	1067-1	Light brown-orange clay, small to large white grits, gray core, red wash, poorly fired
6	VI Store jar	48	1146-1	Light brown clay, small white and gray grits, poorly fired
7	VI Store jar	61	1188-3	Light brown clay, small white and gray grits, gray core, poorly fired
8	Store jar	61	1188-4	Brown clay, small to medium white and gray grits, red wash, poorly fired
9	Store jar	36	1093-2	Light brown-orange clay, small white grits, gray core, red wash on ext., poorly fired
10	Ledge handle	57	1172-1	Brown clay, small to medium white and gray grits, poorly fired
11	Cornet base	17	1025-1	Brown clay, small to medium white grits, gray core, poorly fired
12	Cornet base	32	1054-2	Light brown-orange clay, small to medium white and gray grits, gray core, poorly fired

Afridar—Area E (Golani 2004: Fig. 28:11 [with sloping neck and handle on shoulder only]) and Area F Stratum I (Khalaily 2004: Fig. 10:2, 3).

A nearly complete Type I small elongated juglet (Stratum I; Fig. 9:14), missing a rim, was found upon a Stratum I surface (L35; see Fig. 6). The jug was crudely handmade over a core, with a low molded ridge on the sloping shoulder that has two opposing pierced lug handles. A similar juglet, without lug handles yet with two opposing stringing holes just below the rim from Ashqelon, Afridar—Area E (Golani 2004: Fig. 29:1), was dated to early EB IA.

A small fragment of a squat, flat-based jar with red wash on the exterior and one or more knobs on the shoulder was recovered on a Stratum II floor (Fig. 10:9).

Type II ledge handles, slightly upturned with widely spaced, shallow thumb indentations along the edge, were found in deposits associated with both Strata II and I (Figs. 9:15; 10:10). Ledge handles are one of the hallmarks of the Early Bronze Age. They occur at all EB I sites in the northern Negev and the southern Shephelah, but are generally absent from Chalcolithic sites in the same region. Ledge

handles are one of the strongest indications that all or most of the ceramic assemblages of Strata II–I are to be attributed to EB I.

Cornet bases (Fig. 10:11, 12) were found in deposits associated with both Strata II and I. The previous excavations at Ashqelon, Afridar—Area E raised the possibility that the cornet, long considered a Chalcolithic *fossile directeur*, may actually have a limited continuation into early EB IA (Golani and Segal 2002:143; Baumgarten 2004: Figs. 10:16; 16:6, 7; Braun and Gophna 2004: Fig. 21:1; Golani 2004: Fig. 30:1, 2; Khalaily 2004: Fig. 13:1–4), as is the case with many of the other ceramic forms found at the site.

Summary

In general, the bowl forms in the Strata II–I repertoire at Ashqelon, Afridar—Area M are all known from Chalcolithic and EB I contexts in the southern Shephelah of Israel except for Bowl Type VII, uncovered only in Stratum I, which finds parallels in EB IA. Although some of the holemouth forms have antecedents in the Chalcolithic period, all fit comfortably within the southern EB IA horizon. The repertoire of

store jars also corresponds well with an EB IA date, as do the juglets, the ledge handles and even the cornets.

A number of forms found exclusively in Stratum I do, however, suggest an occupation that may be chronologically restricted to the end of EB IA (EB IA2), or even into the early portion of EB IB (EB IB1; see Yekutieli 2000).⁵ Type VII bowls with rounded, folded-over rims (Fig. 9:5) and Type V holemouth jars with sculpted rims (Fig. 9:8) have been held to be typical of EB IA2 (Yekutieli 1992:31–34; 2000:137), and the pronounced folded-out rim of the pithos shown in Fig. 9:10 is more akin to EB IA2 forms, as at Taur-Ikhbeineh (Oren and Yekutieli 1992: Fig. 11:3), than its EB IA1 predecessors, which are generally characterized by indentations on a vertical or sloping rim, as

at Nizzanim (Yekutieli and Gophna 1994: Fig. 12:7). Other decorative elements such as loop handles with a deep vertical cut that resemble a double loop handle (Fig. 9:13) may also indicate a date late in EB IA or early in EB IB (Yekutieli 2000:137). In summary, the ceramic evidence clearly posits occupation at the site during EB IA, with a more refined analysis perhaps indicating an EB IA1 association for Stratum II and EB IA2 for Stratum I.

THE GROUNDSTONE ASSEMBLAGE

A limited number of groundstone artifacts were recovered in the excavation.

Rubber/Abrader (Fig. 11:1).—A roughly cuboid object with at least four faceted sides, produced

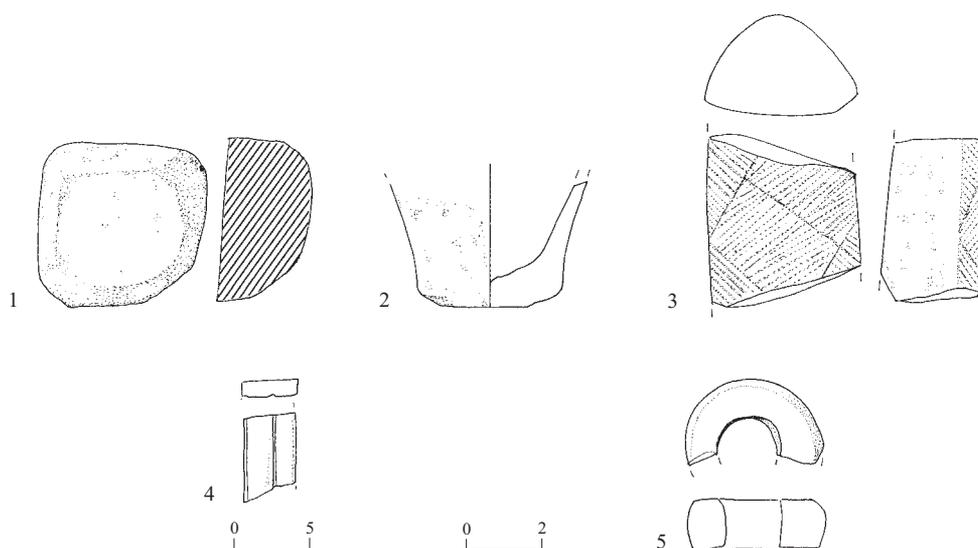


Fig. 11. Groundstone artifacts.

No.	Object	Locus	Reg. No.	Description
1	Rubber/abrader	34	1071-1	Chalk; roughly worked on all sides
2	Mortar	34	1061-1	Non-vesicular basalt
3	Fenestrated stand fragment	48	1131-1	Non-vesicular basalt; shallow incised decoration on one side
4	Fenestrated stand fragment?	28	1045-1	Non-vesicular basalt; deep incised decoration
5	Spindle whorl	17	1064-2	Non-vesicular basalt; ground down on both sides

by grinding. It is made of soft chalkstone, not very efficient for use as a grinder and even less so as a pounding stone. Stones of similar shape and size, usually made of a harder material, such as basalt or limestone, are known from Early Bronze Age contexts at Qiryat Ata (Rowan 2003:187), 'Arad (Amiran et al. 1978: Pl. 80:9–11, 13–15), Jericho (Dorrell 1983:552), and Ashqelon, Afridar—Area E (Rowan 2004:85, 87).

Basalt Mortar (Fig. 11:2).— One nearly complete profile of a basalt mortar was found upon a surface (L34) adjacent to W2 (Fig. 6), associated with Stratum I. Although the rim is missing, this object appears to represent a Type 3A flat-based vessel with straight or slightly flared walls (Rowan 1998). The production of basalt bowls is well-known during the Chalcolithic period, continuing into EB I (Braun 1990; Rowan 1998).

Fenestrated Stand Fragments (Fig. 11:3, 4).— One fragment of the leg of a fenestrated stand with a triangular cross section (No. 3) was recovered from debris upon a habitation level (L48) associated with Stratum II. Fenestrated basalt bowls were common during the Chalcolithic period (Levy 1986:95–96; van den Brink, Rowan and Braun 1999) and may have continued into early EB I; see, for example, a fragment from Ashqelon, Afridar—Area G (Braun and Gophna 2004: Fig. 24:1). One side of this object has an incised decoration of boxes filled with parallel lines, a decorative pattern known from the Chalcolithic sites of Gerar (Gilead 1995: Fig. 7.1:6) and Teleilat Ghassul (Mallon, Koeppl and Neuville 1934: Fig. 23:1).

Another enigmatic fragment, which may belong to a fenestrated stand (Yorke M. Rowan, pers. comm.), consists of a well-polished, rectangular piece of a basalt vessel with a rectangular cross section, broken off on three sides, with a deep, straight incision on one of the flat planes (Fig. 11:4). A parallel to this well-polished vessel with a thin cross section and vertical incisions was not found.

Spindle Whorl (Fig. 11:5).— A fragment of a spindle whorl of non-vesicular basalt was retrieved from L17, a surface that ran up to W3 and is associated with Stratum II. The whorl, 1.4 cm thick and 3.7 cm in diameter, weighs 16.1 g. As only half of the whorl was found, its original weight may be approximated as 32.2 g. Both sides of the whorl are ground flat, as is the circumference, providing a nearly square section. This form of whorl, usually made of basalt stone, is quite common in EB I–II contexts throughout Canaan, as at Qiryat Ata, where it is designated as a Type 4 Ring Basalt Whorl (Shamir 2003:210, 214, Fig. 7.5:11), Azor (Golani and van den Brink 1999: Fig. 17:2), and Nizzanim (Yekutieli and Gophna 1994: Fig. 17:4). Such whorls have also been found at Ma'adi in the Nile delta, possibly imported from Canaan (Rizkana and Seeher 1988:53; Yekutieli 1992:56). These objects, hafted on suspended spindles, provided continuous rotary motion on the flywheel principle, enabling the twisting of fibers to fashion thread (Barber 1991:70–78; Shamir 1996). At Tell Abu al-Kharaz in Jordan, an EB I basalt ring whorl was found with a preserved wooden pin, apparently of a spindle (Fischer 1993: Pl. 13).

THE FLINT ASSEMBLAGE

Hamoudi Khalaily

In the present excavation at Ashqelon, Afridar—Area M, 193 flint artifacts were recovered from Strata I–II: 85 items (44%) from Stratum I and 108 (56%) from Stratum II (see Table 1). Waste material comprises over 40% of the total number of artifacts, the majority of which were produced from high-quality, fine-grained flint of Eocene origin. Outcrops of this raw material are found in the northern Negev and the Shephelah (Rosen 1997). The vast majority (95%) of the flakes and blades were knapped from 'Canaanite' cores. Large amounts of Canaanite core waste were also noted in the flint assemblage of Ashqelon, Afridar—Area F (Khalaily 2004:144). As a whole, the flint industry from Strata I–II in Area M is

homogenous and no appreciable differences were observed between the two strata. For this reason, the two assemblages are treated here as a single unit.

Of the four cores recovered in the excavation, three are of high-quality brown Eocene flint. Three cores were exhausted, while one exceptionally large core (Fig. 12) displays faceted platforms, a large debitage surface and a small area of whitish cortex. This core resembles Canaanite cores from Har Haruvim in northern Israel (Shimelimitz, Barkai and Gopher 2000).

The Canaanite Industry

The Canaanite industry includes typical Canaanite blades and tools. A total of 11

Table 1. The Flint Assemblage from Area M

Type	Str. I	Str. II	Total	%
Primary Elements	-	1	1	0.6
Flakes	25	29	54	28.0
Blades	9	13	22	11.5
Bladelets	4	10	14	7.3
CTEs	1	-	1	0.6
<i>Total Debitage</i>	<i>39</i>	<i>53</i>	<i>92</i>	<i>48.0</i>
Chunks	8	6	14	7.0
Chips	20	26	46	24.0
<i>Total Debris</i>	<i>28</i>	<i>32</i>	<i>60</i>	<i>31.0</i>
Cores	3	1	4	2.0
Tools	15	22	37	19.0
<i>Total</i>	<i>85</i>	<i>108</i>	<i>193</i>	<i>100.0</i>

Canaanite blades were encountered, mostly fragmented segments characterized by trapezoidal cross sections and faceted platforms. The proximal ends are missing on six of the blades, the remaining five are missing the distal ends.

The tool category includes retouched and sickle blades, burins, tabular scrapers and retouched flakes, all common types shaped on Canaanite blanks. The retouched and sickle blades (19) were produced on brown and dark brown Eocene flint and were broken distally or proximally, probably for use as composite tools. Fourteen of these tools display sickle gloss, either on one or two working edges (Fig. 13:1–5). A few of the blades have a natural back, while others exhibit semi-abrupt retouch in the shaping of the back (Fig. 13:6).

Three burins were produced on blades (Fig. 13:7) and one borer shaped by abrupt retouch had a broken tip (Fig. 13:6). Other tools include two retouched flakes and two segments of tabular scrapers, the latter lacking any cortex on their dorsal surfaces.

The Non-Canaanite Industry

Nine non-Canaanite artifacts were recovered from Area M, most from Stratum I (L7, L30A, L42). The raw material used to produce these artifacts is either semi-chalcedony (n = 6) or chalcedony (n = 3), ranging in color from light brown to light gray. This material is totally

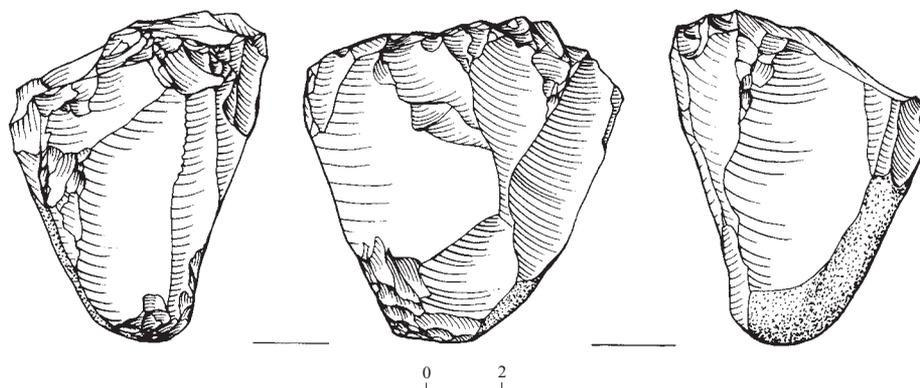


Fig. 12. EB I flint Canaanite core.

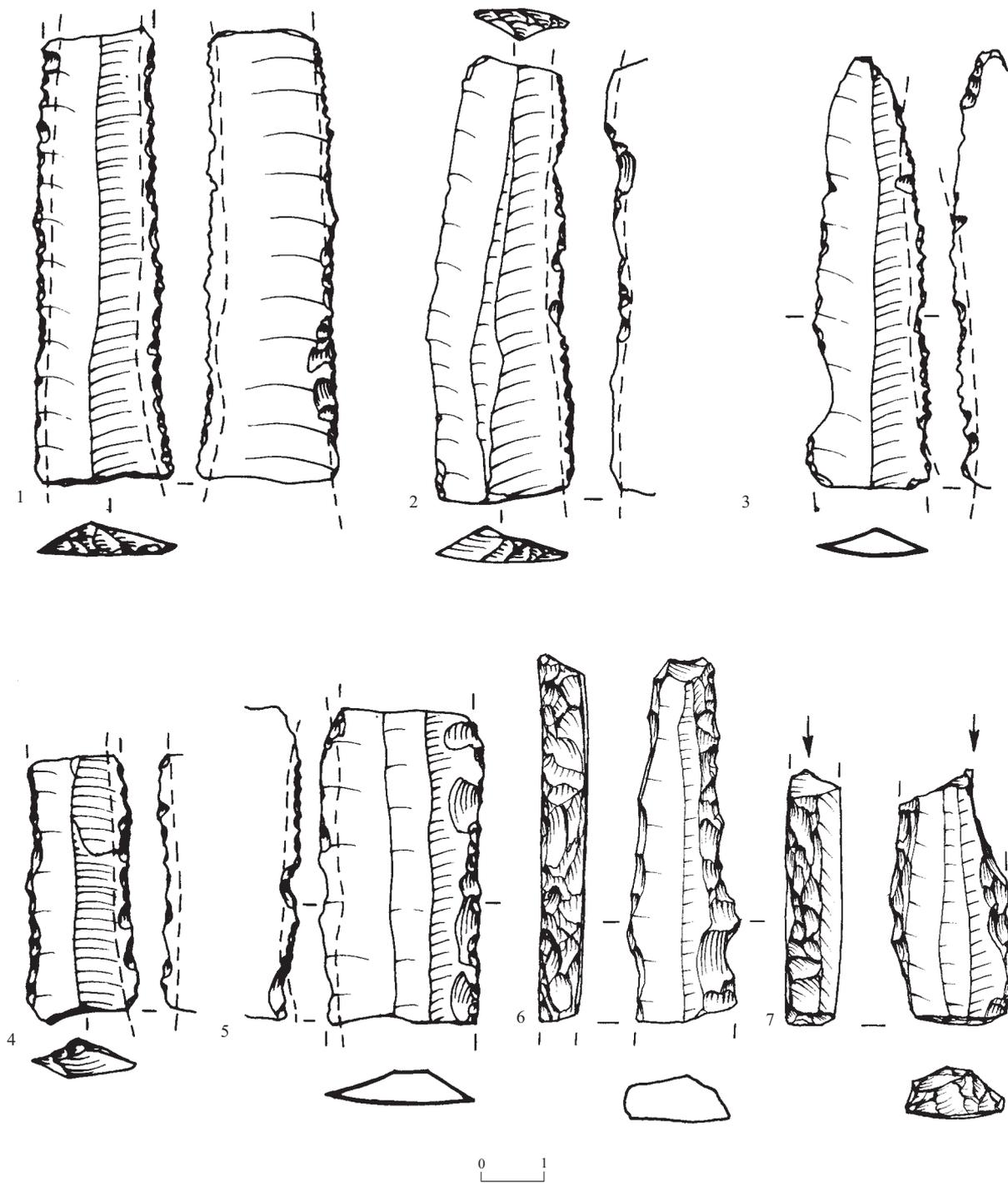


Fig. 13. EB I flint tools: (1-5) sickle blades; (6) borer; (7) burin.

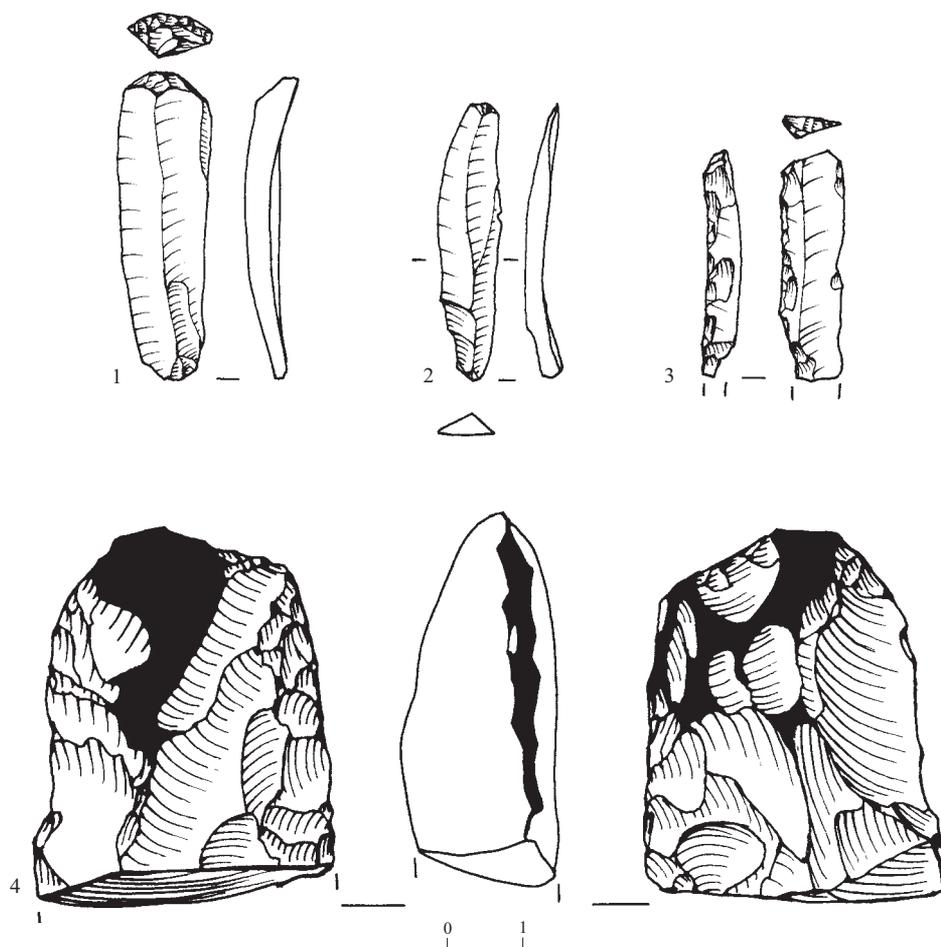


Fig. 14. EB I flint tools: (1) endscraper; (2) micro-endscraper; (3) sickie blade; (4) axe.

different from the Eocene flint used for most of the assemblage.

Five tools were identified: one endscraper on a blade (Fig. 14:1), one micro-endscraper (Fig. 14:2; see Gilead 1984), one backed and truncated sickie blade (Fig. 14:3), one borer, and one axe (Fig. 14:4). These tools are not characteristic of the Canaanite industry and are generally not present in Early Bronze Age lithic assemblages, but rather are typical of the Chalcolithic period (Hermon 2003).

Summary and Conclusions

The lithic assemblage from Ashqelon, Afridar—Area M is dominated by the Canaanite industry, which is the hallmark of the Early Bronze Age flint industry. Almost half

the assemblage consists of debitage products. Similar assemblages have been analyzed from other excavations at Ashqelon, Afridar (Khalaily 2004:144–152; Zbenovich 2004a; b).

While several of the Canaanite blades and sickie blades could have been imported to the site as final products (Rosen 1983), the presence of Canaanite cores, never before discovered at Ashqelon, Afridar, indicates that some of the elements of this industry were produced on-site. The few non-Canaanite tools recovered are typical of the Chalcolithic lithic industry. Elements of Chalcolithic material culture were also discerned in Area F (Khalaily 2004), adjacent to the present excavation. These elements could be intrusive, or more likely represent cultural holdovers that may

characterize the initial stages of EB IA in southern Canaan.

THE ARCHAEOZOOLOGICAL MATERIAL

Moshe Sade

The 429 identifiable domesticated animal bones, discussed in this report, originated from loci that are associated with both excavation strata, Stratum I (20 loci) and Stratum II (23 loci).⁶ The bones were identified as belonging to sheep/goat (*Ovis aries/Capra hircus*), cattle (*Bos taurus*), horse (*Equus caballus*), donkey (*Equus asinus*), pig (*Sus scrofa*) and dog (*Canis familiaris*). The assemblage of the non-domesticated species is very small: a skull fragment of a Nile perch (*Lates niloticus*) and one very worn fish vertebra, apparently of a dolphin (*Delphinus delphis*) from Stratum II; and a skull and teeth of a mole (*Spalax ehrenbergi*), one shell fragment of a box turtle (*Cheloniidae*, unidentified sp.), one fragment of a land snail (*Punctum lederi*), and two fragments of marine bivalves, one Lamarck (*Clyemeris violascens*) and one fragment of a Linne (*Nassa nutabillis*) from Stratum I.

Methodology

Except for the sieved material from loci identified as habitational surfaces, the majority of the faunal sample was hand collected, resulting in the selection of more complete bones and the loss of fragmented and smaller ones (Payne 1972). Analysis of the bones was conducted using von den Driesch's (1976) criteria for measurement. Identification of the bones was carried out according to Schmid (1972), although diagnostic bones of sheep/goat that could enable a conclusive distinction between the two species were not identified. The metapodial bones from the major identified species were divided into four categories: left distal (LD), left proximal (LP), right distal (RD) and right proximal (RP) (see Tables 3, 5) in order to determine the Minimum Number of Individuals (MNI). This method, in which the highest number from among the four categories

is considered the MNI for each species, is especially relevant for assessing the economic development of sedentary populations (Klein and Cruz-Urbe 1984). Ageing and survivorship profiles within the faunal assemblage were not calculated, as examples of epiphyseal fusion and dental eruption were too small for any relevant analysis. Similarly, the size of the sample does not warrant a meaningful analysis of body-part distribution as outlined by Horwitz and Tchernov (1989).

Stratum II

The Stratum II domesticated faunal assemblage is composed of 98 identifiable bones. More than half (52%) are of sheep/goat, while cattle compose 28.6%, horse 1%, donkey 7.1%, pig 9.2% and dog 2% (Table 2). The predominance of sheep/goat in relation to all other domesticated species reflects the main branch of the domesticate economy of the settlement at this time.

The relatively small proportion (9.2%) of pig bones is consistent with other southern Early Bronze Age sites in semi-arid zones (Grigson 1995). It should be noted, however, that the frequency of pig bones in each of the Ashqelon, Afridar Areas E, F and G is twice that of Area M. In the former three areas, most of the pigs were apparently killed before they reached maturity, suggesting they were raised for meat (Whitcher Kansa 2004:288), whereas those from Area M were all mature individuals. The pig bones from Area M comprise mandibular remains, probably due to the durability of these bones. The horse remains consist of one premolar fragment, which, due to its especially large size, may have come from a domesticated animal (*Equus caballus*). Though only a fragment, this tooth is at least 50% larger than the same tooth from a domesticated donkey (*Equus asinus*). Horses may have been domesticated as early as the Chalcolithic period in the northern Negev (Grigson 1993; 1995) and may appear in small numbers at Early Bronze Age sites (Davis 1976). The determination of a domesticated horse species is reliant primarily on size of

Table 2. Stratum II: Distribution of Domesticated Mammal Bones in Stratum II

Species Bones	<i>Ovis aries/ Capra hircus</i> (Sheep/goat)	<i>Bos Taurus</i> (Cattle)	<i>Equus caballus</i> (Horse)	<i>Equus asinus</i> (Donkey)	<i>Sus scrofa</i> (Pig)	<i>Canis familiaris</i> (Dog)	Total
Horn core	2	1					3
Mandibula	4	3			2		9
Molar	10	3		1	3		17
Premolar	4		1	2	1		8
Scapula	4	1					5
Humerus	4				1		5
Radius	2						2
Ulna	1					1	2
Os carpale		3					3
Pelvis	3	2					5
Tibia	1						1
Metapod	6	7		2			15
Calcaneus	1						1
Astragalus	2				1		3
Phalanx I	1	3					4
Phalanx II		2		1			3
Vertebra atlas		1					1
Vertebra axis	1					1	2
Vertebra lumbar	4						4
Vertebra coccyx		1					1
Costa	1	1		1	1		4
<i>Total</i>	<i>51</i>	<i>28</i>	<i>1</i>	<i>7</i>	<i>9</i>	<i>2</i>	<i>98</i>
%	52.04	28.57	1.03	7.14	9.18	2.04	100.00

bones and their discovery outside the presumed ancient range of the wild horse, *Equus ferrus*. It should be noted that recent research has shown that the range of the wild horse extended farther than previously thought (Levine 1999), indicating that the small number of horse bones may be of a wild rather than domesticated species. However, in the present analysis, the horse is tentatively considered a domesticate.

As the faunal assemblage from Stratum II is relatively small, most of the species are represented by an MNI of one individual (Table 3).

Stratum I

The Stratum I assemblage is much larger than that of Stratum II, comprising 331 identifiable

Table 3. Stratum II: Left and Right Metapodial Bones of Domesticated Mammals

Species	<i>Ovis aries/ Capra hircus</i>		<i>Sus scrofa</i>		<i>Canis familiaris</i>	
	R	L	R	L	R	L
Humerus D	1	2	1			
Radius P	1					
Ulna P	1				1	
Tibia D		1				
Calcaneus		1				
Astragalus		2	1			

domesticated mammal bones. However, despite the larger sample, the bones were very fragmented, enabling only a basic analysis of taxa identification. The fragmentary nature of the bones was not only due to their detrimental

Table 4. Stratum I: Distribution of Domesticated Mammal Bones

Species Bones	<i>Ovis aries/ Capra hircus</i> (Sheep/Goat)	<i>Bos Taurus</i> (Cattle)	<i>Equus caballus</i> (Horse)	<i>Equus asinus</i> (Donkey)	<i>Sus scrofa</i> (Pig)	<i>Canis familiaris</i> (Dog)	Total
Horn core	1						1
Cranium	2	12					14
Maxilla	3				1		4
Mandibula	19	4		5	3	1	32
Molar	49	1	1	2	8		61
Premolar	24	1	1	3	3		32
Incisor	1			3			4
Canin				1			1
Scapula	10	3			1		14
Humerus	7			2	2		11
Radius	7						7
Ulna	3	2		1	1		7
Metacarpus	2	1			1		4
Os carpal	1	2		1			4
Pelvis	5						5
Femur		1					1
Tibia	5						5
Astragalus		3					3
Metatarsus	1			1			2
Metapod	25	1	1		5		32
Os centrotarsus	2	1		1			4
Phalanx I	9	1					10
Phalanx II	7	3					10
Phalanx III	4	2					6
Vertebra axis	2	1				1	4
Vertebra lumbar	10	3		2			15
Vertebra coccyx	1						1
Costa	23	11			3		37
<i>Total</i>	<i>223</i>	<i>53</i>	<i>3</i>	<i>22</i>	<i>28</i>	<i>2</i>	<i>331</i>
%	67.37	16.01	0.90	6.64	8.46	0.62	100.00

preservation, but also the fact that many of them were broken in the past for marrow or as a result of the dismemberment of the animal.

The distribution of the domesticated species from Stratum I shows a marked increase in the amount of sheep/goat (67.4%) at the expense of other domesticates such as cattle (16%). Other species such as horse, donkey, pig and dog remained in relatively low percentages (Table 4). The horse remains consist of two teeth—a

molar and premolar, along with a metapodial bone. The size of the teeth exceeds by 50% their counterparts in donkeys, while the metapode can be decisively paralleled with examples from domesticated species from later periods. Although these factors are still insufficient to determine conclusively whether these remains originated from a wild or domesticated horse, it is here included in the domesticated assemblage.

The larger faunal assemblage of Stratum I is of better resolution than Stratum II (see Tables 5, 6). The dramatic increase in the proportion of sheep/goat in the assemblage at the expense of cattle is not only consistent with southern Early Bronze Age faunal assemblages in semi-arid zones, but may also be an expression of dryer climatic conditions during Stratum I.

Faunal Remains from Area Mas Compared with Other Assemblages from Ashqelon, Afridar

Previous excavations at Ashqelon, Afridar, Areas E, F and G (Golani 2004; Khalaily 2004; Braun and Gophna 2004) have provided a broad faunal assemblage of over 4000 identifiable bones that has been comprehensively analyzed (Whitcher Kansa 2004). This large assemblage may be compared with the present one from Area M, although the analyses of Whitcher Kansa did not consider the MNI factor in the assemblage, nor did she differentiate between the various strata of each area, treating the entire faunal assemblage retrieved in each excavation area as indicative of one continuous occupation. Therefore, in order to correlate the data from Area M with that from

other excavated areas at the site, the total number of identifiable domesticated taxa from Area M (n = 429) was collated together, as in Areas E, F and G (Whitcher Kansa 2004:282, Fig. 3, Table 7).

A comparison of the relative frequencies of domesticated fauna in Areas E, F, G and M, all of which are assumed to belong to the same site, may serve to illuminate intra-site variations. Area F, which included several domestic buildings in the uppermost Stratum I occupational phase (Khalaily 2004), is adjacent to Area M and theoretically should show similar faunal variability. Area E, at a distance of some 400 m to the northwest of the last two areas, was not characterized as a domestic area but rather as an 'industrial area' with numerous pits full of refuse, probably as a result of processing materials to be used in other areas of the site (Golani 2004). Area G was of a similar domestic nature to Areas F and M, yet was some 500 m to the north (Braun and Gophna 2004).

Any meaningful comparison must consider those domesticated faunal species that contributed to the local diet or were used

Table 5. Stratum I: Left and Right Metapodial Bones of Domesticated Mammals

Bones	Species	<i>Ovis aries/ Capra hircus</i>		<i>Bos taurus</i>		<i>Equus asinus</i>		<i>Sus scrofa</i>	
		R	L	R	L	R	L	R	L
Humerus	D	1	6			1	1		2
Radius	P		2						
Radius	D	1							
Ulna	P	1	2	2		1		1	
Metacarpus	P		2	1					
Metacarpus	D	1	1						
Femur	P				1				
Tibia	D	3	2						
Astragalus				3					
Metatarsus	P	1					1		

Table 6. Stratum I: MNI of Domesticated Mammals

Species	Sheep/Goat	Cattle	Horse	Donkey	Pig	Dog	Total
No.	6	3	1	1	2	1	14
%	42.86	21.43	7.14	7.14	14.29	7.14	100.00

for labor, such as cattle and donkeys. Thus, variations in dogs are not of any real significance between areas of the site.

Both similarities and differences can be discerned between the areas. Area M has the highest percentage of sheep/goat, almost twice that of Areas E and F, yet this proportion is not far removed from that of Area G (Fig. 15). As Area G had the largest and thus the most reliable sample of identifiable bones, these higher figures may be a more accurate reflection of the actual faunal assemblage. The amount of cattle is roughly similar in all areas except Area F, which exhibits a significantly larger proportion. Interestingly, Areas E, F, and G share similar pig frequencies, yet these are consistently twice that found in Area M. The fact that Area F is adjacent to Area M highlights the problematic nature of the data; these discrepancies cannot be explained simply by different collecting strategies and may be indicative of intra-site variability resulting from different herding and consumption practices of different family units living side by side within the site. Donkeys make up a substantial percentage of the fauna in Area E, located at the periphery of the site, becoming much rarer in other areas. This has been demonstrated to be the result of their preferential use for labor and not as a part of the

diet, hence their concentration in a non-domestic area of the site (Whitcher Kansa 2004:290–291).

While there are variations in the faunal assemblages from all the excavated areas, the strong similarities suggest that any differences are a result of function and slightly differing dietary and herding practices among groups of people residing at the same site.

Discussion

Assuming that the entire faunal assemblage of each area is representative of a single early EB IA occupational phase at Ashqelon, Afridar, and that differences between areas are due to variances in intra-site function and/or herding and dietary habits of individual families, an average for each faunal category from all the areas together may serve to characterize a sedentary settlement of the initial EB IA of southern Canaan. These figures (Fig. 16) indicate an economy dominated by sheep/goat (55%), though cattle (22.76%) and pig 15.7% comprise a sizeable percentage. Donkeys, with a residual 5.49%, are probably present as draft animals.

Similar faunal assemblages are found at most EB IA sites in the southern, semi-arid regions of Israel (e.g., Taur Ikhbeineh, see Kolska Horwitz et al. 2002). In contrast, sites to the north (e.g.,

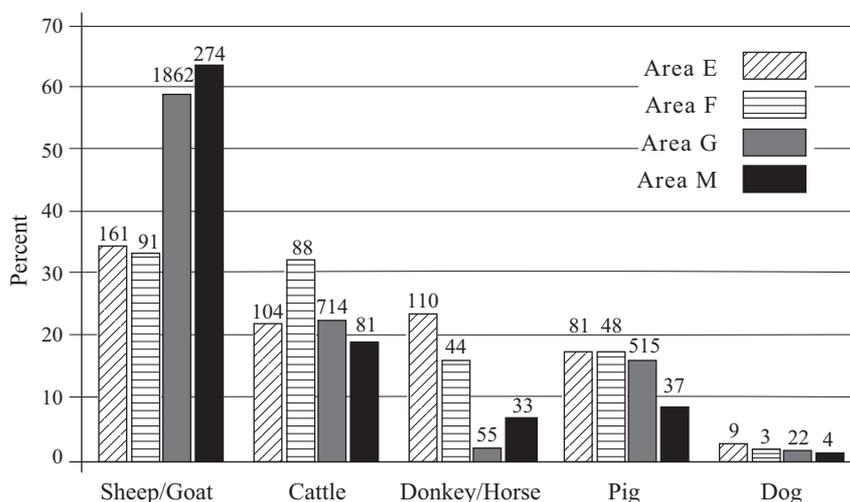


Fig. 15. Comparison of the frequency of domesticated taxa at Ashqelon, Afridar—Areas E, F, G and M.

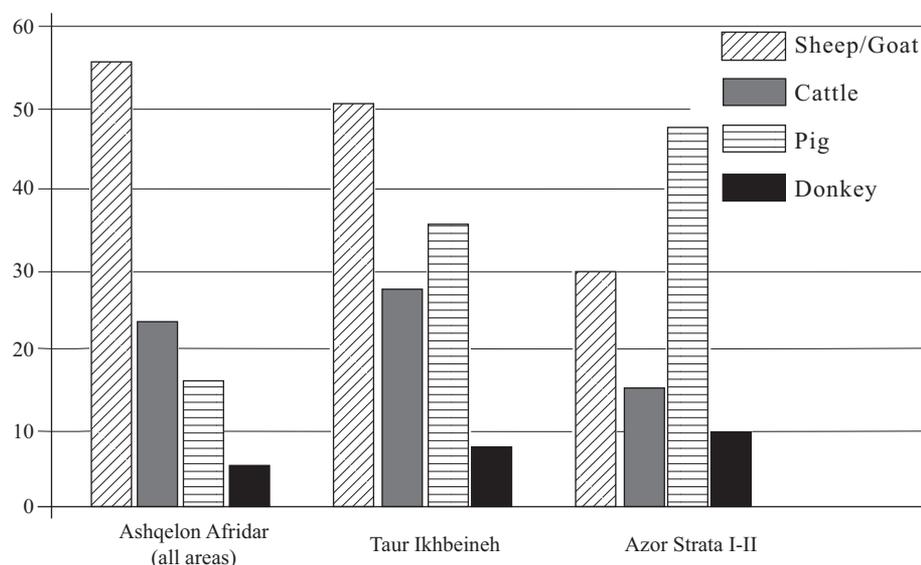


Fig. 16. Comparison of frequency of domesticated fauna at Ashqelon, Afridar (all areas), Taur Ikhbeineh and Azor.

Azor, see Kolska-Horwitz 1999), located in an ecological environment in close proximity to abundant water sources, are dominated by pig, with sheep/goat comprising a smaller frequency (Fig. 16). These examples serve to highlight the environmental factor in the domesticated faunal assemblage of EB IA.

RADIOCARBON DATING

Elisabetta Boaretto

Numerous carbon samples were collected during the course of excavations at Ashqelon, Afridar—Area M. Three samples of olive pits were submitted to the radiocarbon laboratory

at the Weizmann Institute, Rehovot. Due to their small size, after pretreatment following the procedure in Yitzhaq et al. 2005, the samples were measured using the Accelerator Mass Spectrometry technique. All three samples originated from debris upon Stratum II beaten-earth surfaces that were covered by similar surfaces of Stratum I. However, since the samples were all small olive seeds, the possibility that they originated in a Stratum I fill, or had moved down into the Stratum II levels, cannot be completely discounted.

The ^{14}C dates (Table 7) are presented in conventional radiocarbon years BP (before present = 1950) in accordance with international

Table 7. Radiocarbon Dates of Olive Pits

Rehovot Radiocarbon No.	^{14}C Age $\pm 1\sigma$ Years BP	Calibrated Age $\pm 1\sigma$	Calibrated Age $\pm 2\sigma$	Provenance	% PDB $\delta^{13}\text{C}$
RTT 4672	4805 ± 40	3600 (68.2%) 3510 BCE	3680 (93.8%) 3500 BCE 3430 (1.6%) 3400 BCE	Str. I, L40, B1103	-22.1
RTT 4673	4780 ± 40	3620 (68.2%) 3520 BCE	3660 (87.3%) 3500 BCE 3450 (8.1%) 3370 BCE	Str. II, L30B, B1081	-22.8
RTT 4674	4705 ± 40	3630(2.7%) 3610 BCE 3510(14.6%) 3480 BCE 3440 (50.9%) 3370 BCE	3650 (95.4%) 3350 BCE	Str. II, L30B, B1047	-22.5

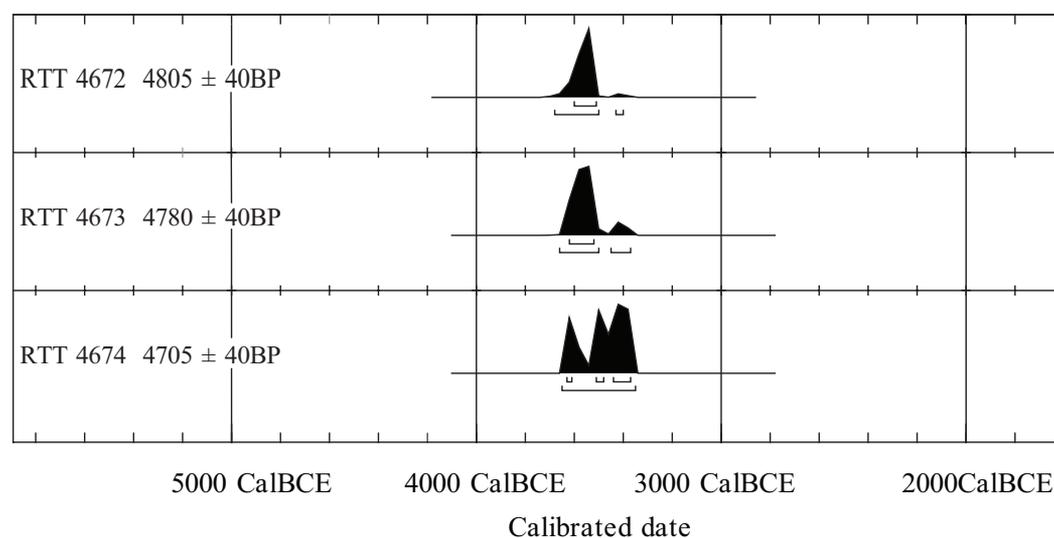


Fig. 17. Age probability distribution of the radiocarbon samples from Ashqelon, Afridar.

conventions (Stuiver and Polach 1977:355–363). All calculated ^{14}C dates have been corrected for fractionation so the results will be equivalent with the standard $\delta^{13}\text{C}$ value of -25‰ (wood). Calibrated ages in calendar years were obtained following calibration tables from Reimer et al. (2004), by means of the OxCal v. 3.10 Bronk Ramsey program (2005 version).

The radiocarbon results are summarized in Fig 17. Calibrated ages are relative to ± 1 standard deviation ($\pm 1\sigma$) and ± 2 standard deviation ($\pm 2\sigma$). For the $\pm 1\sigma$ deviation there is a 68.2% probability that the real age is included in the limits indicated, for the $\pm 2\sigma$ deviation this probability is 95.4%. In cases where more than one time interval is possible, the relative probability is given between the time limits.

The age probability distributions for each of the three samples are presented in Fig. 17.

DISCUSSION

The exact boundaries of the EB I site at Ashqelon, Afridar are unclear, as it appears to have been a non-nucleated site dispersed over a large area, much of which is gradually being destroyed by accelerated modern development.

The agglomeration of excavations in Areas F, J and M offer a glimpse into one of the settlement clusters within the site, featuring a domestic context with storage facilities, where industrial activities related to copper processing also took place. This is in contrast with the nature of the finds in Areas E1 and E2 (Golani 2004), which was characterized exclusively by industrial and storage facilities.

The remains of curvilinear architecture, a typical EB IA feature in both southern and northern Canaan, were discerned in both Strata II and I. However, the walls in Stratum II were built primarily of stone, while those in Stratum I were made of mudbricks. The Stratum II structures may have been partially dismantled for stones by the later Stratum I builders, although the Stratum I inhabitants appear to have made much less use of stone in their architecture.

The ceramic repertoire recovered from Strata II–I can be clearly associated with EB IA in southern Canaan and is similar to that retrieved from Strata I–II in Area F and Strata 6–4 in Area J. Indeed, the oval mudbrick building in Stratum I of Area M is nearly identical in plan and size to that uncovered in Area J

Stratum I (Khalaily 2004: Plan 3). The ceramic assemblage from both strata in Area M may be firmly associated with the EB IA of southwestern Canaan, which has been further divided into EB IA1 and EB IA2 (see Yekutieli 1992). In terms of absolute chronology, EB IA1 has been dated to 3650–3500 BCE, and EB IA2 to 3500–3350 BCE (see Yekutieli 2000: Table 8.3). The three radiocarbon dates from Area M, all originating from seeds, provide a restricted chronological range for the Strata II and I settlements and are a welcome addition to the growing corpus of radiocarbon dates from the site of Ashqelon, Afridar (see Golani and Segal 2002).

The three dates obtained in this excavation are very close to each other. Based on the associated uncertainty of the \pm standard deviation, the dates cannot really be distinguished from one another. A chronological sequence based on these three dates is not possible, as the archaeological context is not well defined. Two

of the dates, RTT 4673 and RTT 4674, originate in the same locus (L30B), and their time range, from 3660 BCE to 3350 BCE, covers both EB IA1 and EB IA2 (Yekutieli 2000: Table 8.3). The weighted average of RTT 4673 and RTT 4674 results in an age of 4743 ± 28 BP for L30B, with the corresponding calibration, relative to $\pm 2\sigma$, covering a range of 3650 BCE–3360 BCE.

At least two of the dates, RTT 4672 and RTT 4673, fall squarely at the very end of the first half of the fourth millennium BCE and serve to corroborate the attribution of Stratum II to EB IA1. These dates originate in L40 and L30B, respectively, yet may be associated with the same stratigraphic horizon. The third date, RTT 4674, also originating in L30B, appears to be slightly later, with a date at the very end of this period. On the other hand, it may also represent an intrusive olive stone from overlying Stratum I.

Appendix 1. Locus List

Locus	Square	Description	Stratum
1	A1	Below sand dune; dark brown debris	I?
2	B1	Below sand dune; dark brown debris	I?
3	C1	Below sand dune; dark brown debris upon habitation level	I
4	D1	Below sand dune; dark brown debris upon habitation level	I
5	E1	Below sand dune; dark brown debris above habitation level	I
6	E2	Below sand dune; dark brown debris above W5	I
7	D2	Below sand dune; dark brown debris	I?
8	C1	Below L3; dark brown makeup of habitation level	I
9	D1	Below L4; dark brown makeup of habitation level	I
10	E1	Below L5; dark brown debris upon habitation level	I
11	E2	Below L6; dark brown debris above habitation level	I?
12	D2	Below L7; dark brown debris above habitation level	I
13	B1	Below L2; dark brown debris	I?
14	D2	Below L12; dark brown debris upon habitation level	I
15	B1	Below L13; loose, light brown sands, sterile at bottom	–
16	C1	Below L8; brown debris	II?
17	D1	Below L9; combined with L23	II
18	E1	Below L10; dark brown makeup of habitation level	I
19	E3	Below sand dune; dark brown debris above habitation level	I?
20	D2	Below L14; loose, light brown sands	–

Appendix 1. (cont.)

Locus	Square	Description	Stratum
21	C1	Below L16; loose, light brown sands, sterile at bottom	–
22	D2	Below L20; loose, light brown sterile sands	–
23	D1	Below L17; dark brown debris upon floor east of W3	II
24	C2	Below sand dune; dark brown debris above surface	I
25	E2	Below L11, W5; probe within loose, light brown sands, sterile at bottom	–
26	C3	Below sand dune; probe into dark brown matrix	–
27	E1	Below L18; dark brown debris above floor south of W3 and W4	II?
28	E3	Below L19; probe into loose, light brown sands, sterile at bottom	–
29	-	Unused locus number	–
30A	E1	Below L27; infant jar burial	I
30B	E1	Below L27; dark brown debris upon surface south of W3 and W4	II
31	C3	Below L26; loose, light brown sterile sands	–
32	E1	Below L18; debris upon floor and floor make-up north of W4	II
33	A1	Below L1; loose, light brown sands with limited finds; sterile at bottom	–
34	C2	Below L24; dark brown debris upon floor southeast of W1	I
35	C2	Below L24; dark brown debris upon floor north of W1 and W2	I
36	D1	Below L9; dark brown debris upon floor south of W3	II
37	C2	Below L35; probe into floor makeup down to light brown sands	I–II?
38	E2/E3	Below L11, L19; dark brown debris upon floor within southern portion of building	I
39	E1	Below L30; fill of light brown sands below floor south of W3 and W4	II?
40	D1	Combined with L36	II
41	D01	Below sand dune; dark brown debris	I?
42	E01	Below sand dune; dark brown debris upon habitation level	I
43	E2	Below L11; dark brown debris within stone installation adjacent to W5	I
44	D01	Below L41; dark brown debris	I?
45	E01	Below L42; dark brown debris upon habitation level	II
46	E2	Below L11; dark brown debris upon floor; equals L49	I
47	D01	Below L44; debris between W11 and W12	II
48	D01	Below L44; dark brown debris upon habitation level	II
49	E2	Below L11; dark brown debris upon floor level; equals L46	I
50	E2/E3	Below L11; dark brown debris upon floor south of W6	I
51	A3	Below sand dune; probe into dark brown matrix	–
52	B3	Below sand dune; probe into dark brown matrix	–
53	E3	Below L19; dark brown debris upon floor north of W6	I
54	E01	Below L45; dark gray-black debris within pit	II
55	E1/ D01	Below L30; dark gray-black debris within pit	II
56	E01	Below L45; dark brown makeup of habitation level down to light brown sands	II
57	D01	Below L48; probe into dark brown debris; equals L61	II
58	D1	Below L23; dark gray-black debris within pit	II
59	D01	Below L57; dark gray-black debris from bottom of pit	II
60	E4	Dark brown debris northeast of W7	I

Appendix 1. (cont.)

Locus	Square	Description	Stratum
61	D01	Below L48; dark brown makeup of habitation level; equals L57	II
62	E3	Below L19; debris upon habitation level, W9 and W10	I
63	E2/E3	Below L11, L19; dismantlement of semicircular mudbrick podium	I
64	E2	Below L38; probe below floor level down to light brown sands	I–II
65	E01	Below L61; dark gray-black debris within pit	II

NOTES

¹ The excavations, directed by the author on behalf of the IAA (Permit No. A-3767), were carried out between November 2002 and January 2003 and financed by the developing contractor, Peretz Negev Constructors Ltd. Work in the field was assisted by Shlomi Navon (administration), Dov Porotzki (field surveying) and Yaakov Huster, Pirhiya Nahshoni and Dov Nahlieli, of the IAA Southern District. Olga Shorr restored the pottery, Irena Berin prepared the plans for publication, Carmen Hersch drew the small-find artifacts, and Leonid Zeiger drew the flint objects. Photographs were taken by the author. For a preliminary report on this excavation, see Golani 2005.

² The designation 'Area M' replaces the earlier designation, 'Area L' (Golani 2005). Area L now

represents the Neolithic site at Ashqelon (Garfinkel 1999, 2008).

³ Dr. Yossi Nagar, IAA anthropologist, examined and identified the osteological remains.

⁴ A microscopic examination of the sherds carried out by Anat Cohen-Weinberger, IAA petrographer, determined that the vessel was not of Egyptian origin and that the fabric was indeed local.

⁵ The author wishes to thank Dr. Y. Yekutieli for his generous assistance and helpful comments concerning the ceramic material from the excavation.

⁶ The author would like to thank Omri Lernau, for his identification of one dolphin vertebra, and A. Golani, for his helpful comments, careful reading and editing of the text.

REFERENCES

- Alon D. and Yekutieli Y. 1995. The Tel Ḥalif Terrace 'Silo Site' and Its Implications for the Early Bronze Age I. *'Atiqot* 27:149–189.
- Amiran R., Paran U., Shiloh Y., Brown R., Tsafirir Y. and Ben-Tor A. 1978. *Early Arad I: The Chalcolithic Settlement and the Early Bronze City*. Jerusalem.
- Barber E.J.W. 1991. *Prehistoric Textiles*. Princeton.
- Baumgarten Y.Y. 2004. An Excavation at Ashqelon, Afridar—Area J. *'Atiqot* 45:161–184.
- Brandl B. and Gophna R. 1993. Ashqelon—Afridar. *ESI* 12:89.
- Braun E. 1990. Basalt Bowls of the EB I Horizon in the Southern Levant. *Paléorient* 16:87–96.
- Braun E. and Gophna R. 2004. Excavations at Ashqelon, Afridar—Area G. *'Atiqot* 45:185–242.
- Brink E.C.M. van den, Rowan Y.M. and Braun E. 1999. Pedestaled Basalt Bowls of the Chalcolithic: New Variations. *IEJ* 49:161–183.
- Commége-Pellerin C. 1987. *La poterie d'Abou Matar et de l'Ouadi Zoumeili (Beersheva) au IV^e millénaire avant l'ère chrétienne* (Cahiers Centre de Recherche Français de Jérusalem 3). Paris.

- Coogan M.D. 1989. Chalcolithic Remains in Field III. In B.T. Dahlberg and K.G. O'Connell eds. *Tell el-Hesi: The Site and the Expedition*. Winona Lake. Pp. 169–176.
- Davis S.J.M. 1976. Mammal Bones from the Early Bronze Age City of Arad, Northern Negev, Israel: Some Implications Concerning Human Exploitation. *Journal of Archaeological Science* 3:153–164.
- Dessel J.P. 1991. *Ceramic Production and Social Complexity in Fourth Millennium Canaan: A Case Study from the Halif Terrace*. Ph.D. diss. University of Arizona. Tucson.
- Dorrell P. 1983. Appendix A: Stone Vessels, Tools and Objects. In K. Kenyon and T.A. Holland eds. *Jericho V*. London. Pp. 487–575.
- Driesch A. von den. 1976. *A Guide to the Measurement of Animal Bones from Archaeological Sites* (Peabody Museum Bulletin 1). Cambridge, Ma.
- Fischer P. 1993. Tell Abu al-Kharaz: The Swedish Jordan Expedition 1991, Second Season Preliminary Excavation Report. *ADAJ* 37:297–305.
- Garfinkel Y. 1999. The Neolithic Site of Ashkelon (Afridar Area L), 1997, 1998. *IEJ* 49:141–143.
- Garfinkel Y. 2008. *Neolithic Ashkelon* (Qedem 47). Jerusalem.
- Gilead I. 1984. The Micro-Endscraper: A New Tool Type of the Chalcolithic Period. *Tel Aviv* 11:3–10.
- Gilead I. 1995. *Grar: A Chalcolithic Site in the Northern Negev* (Beer-Sheva 7). Be'er Sheva'.
- Golani A. 2004. Salvage Excavations at the Early Bronze Age Site of Ashqelon, Afridar—Area E. *'Atiqot* 45:9–62.
- Golani A. 2005. Ashqelon, Ha-Tayyasim St. *HA-ESI* 117 (29.12.2005). http://www.hadashot-esi.org.il/report_detail_eng.asp?id=282&mag_id=110 (Accessed 27.6.2006).
- Golani A. and van den Brink E.C.M. 1999. Salvage Excavations at the Early Bronze Age IA Settlement of Azor. *'Atiqot* 38:1–49.
- Gophna R. 2004. Excavations at Ashqelon, Afridar—Introduction. *'Atiqot* 45:1–8.
- Golani A. and Segal D. 2002. Redefining the Onset of the Early Bronze Age in Southern Canaan: New Evidence of ¹⁴C Dating from Ashqelon Afridar. 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. 135–154.
- Grigson C. 1993. The Earliest Domestic Horse in the Middle East?—New Finds from the Fourth Millennium of the Negev. *Journal of Archaeological Science* 20:645–655.
- Grigson C. 1995. Cattle Keepers of the Northern Negev: Animal Remains from the Chalcolithic Site of Grar. In I. Gilead. *Grar: A Chalcolithic Site in the Northern Negev* (Beer-Sheva 7). Be'er Sheva'. Pp. 377–452.
- Hermon S. 2003. *Socio-Economic Aspects of Chalcolithic (4500–3500 BC) Societies in the Southern Levant—A Lithic Perspective*. Ph.D. diss. Ben Gurion University of the Negev. Be'er Sheva'.
- Horwitz L.K. and Tchernov E. 1989. Animal Exploitation in the Early Bronze Age of the Southern Levant: An Overview. In P. Miroshedji ed. *L'urbanisation de la Palestine à l'âge du bronze ancien: bilan et perspectives* (BAR Int. S. 527). Oxford. Pp. 279–296.
- Khalaily H. 2004. An Early Bronze Age Site at Ashqelon, Afridar—Area F. *'Atiqot* 45:121–160.
- Klein R.G. and Cruz-Urbe K. 1984. The Analysis of Animal Bones from Archaeological Sites. In *Prehistoric Archaeology and Ecology*. Chicago. Pp. 24–38.
- Kolska Horwitz L. 1999. The Fauna. In A. Golani and E.C.M. van den Brink. Salvage Excavations at the Early Bronze Age IA Settlement of Azor. *'Atiqot* 38:33–39.
- Kolska Horwitz L., Tchernov E., Mienis H.K., Hakker-Orion D. and Bar-Yosef-Mayer D.E. 2002. The Archaeozoology of Three Early Bronze Age Sites in Nahal Besor, North Western Negev. 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. 107–134.
- Levine M. 1999. Botai and the Origins of Horse Domestication. *Journal of Anthropological Archaeology* 18:29–78.
- Levy T.E. 1986. The Chalcolithic Period: Archaeological Sources for the History of Palestine. *BA* 49:82–108.
- Levy T.E. 1987. *Shiqmim I: Studies Concerning Chalcolithic Societies in the Northern Negev Desert, Israel (1982–1984)* (BAR Int. S. 356). Oxford.
- Mallon A., Koeppel R. and Neuville R. 1934. *Teleilat Ghassul I*. Rome.
- Oren E.D. and Yekutieli Y. 1992. Taur Ikhbeineh: Earliest Evidence for Egyptian Interconnections. In E.C.M. van den Brink ed. *The Nile Delta in Transition: 4th–3rd Millennium B.C.* Tel Aviv. Pp. 361–384.
- Payne S. 1972. Partial Recovery and Sample Bias: The Results of Some Sieving Experiments. In E.S. Higgs ed. *Papers in Economic Prehistory*. Cambridge. Pp. 49–64.

- Rizkana I. and Seeher J. 1988. *Maadi II: The Lithic Industries of the Predynastic Settlement*. Mainz.
- Rosen S.A. 1983. The Canaanite Blade and the Early Bronze Age. *IEJ* 33:15–29.
- Rosen S.A. 1997. *Lithics after the Stone Age: A Handbook of Stone Tools from the Levant*. Walnut Creek.
- Roshwalb A.F. 1981. *Protohistory in Wadi Ghazze: A Typological and Technological Study Based on the Macdonald Excavations*. Ph.D. diss. University of London. London.
- Rowan Y.M. 1998. *Ancient Distribution and Deposition of Prestige Objects: Basalt Vessels during Late Prehistory in the Southern Levant*. Ph.D. diss. University of Texas. Austin.
- Rowan Y.M. 2003. The Groundstone Assemblage. In A. Golani. *Salvage Excavations at the Early Bronze Age Site of Qiryat Ata* (IAA Reports 18). Jerusalem. Pp. 183–202.
- Rowan Y.M. 2004. The Ground Stone Assemblage from Ashqelon, Afridar—Area E. *'Atiqot* 45: 85–96.
- Schmid E. 1972. *Atlas of Animal Bones—For Prehistorians, Archaeologists and Quaternary Geologists*. Amsterdam.
- Shamir O. 1996. Loomweights and Whorls. In D.T. Ariel and A. De Groot eds. *Excavations at the City of David 1978–1985 IV: Various Reports* (Qedem 35). Jerusalem. Pp. 135–170.
- Shamir O. 2003. Spindle Whorls. In A. Golani. *Salvage Excavations at the Early Bronze Age Site of Qiryat Ata* (IAA Reports 18). Jerusalem. Pp. 209–215.
- Shimelimitz R., Barkai R. and Gopher A. 2000. A Canaanite Blade Workshop at Har Haruvim, Israel. *Tel Aviv* 27:3–22.
- Stuiver M. and Polach H.A. 1977. Discussing Reporting ¹⁴C Data. *Radiocarbon* 19:355–363.
- Tufnell O. 1958. *Lachish IV: The Bronze Age*. London.
- Whitcher-Kansa S. 2004. Animal Exploitation at Early Bronze Age Ashqelon, Afridar: What the Bones Tell Us—Initial Analysis of the Animal Bones from Areas E, F and G. *'Atiqot* 45:279–297.
- Yekutieli Y. 1992. *The Early Bronze Age of South-Western Canaan: Settlement, Economy, and Society*. M.A. thesis. Tel Aviv University. Tel Aviv (Hebrew).
- Yekutieli Y. 2000. Early Bronze I Pottery in Southwestern Canaan. In G. Philip and D. Baird eds. *Ceramics and Change in the Early Bronze Age of the Southern Levant* (Levantine Archaeology 2). Sheffield. Pp. 129–152.
- Yekutieli Y. and Gophna R. 1994. Excavations at an Early Bronze Age Site near Nizzanim. *Tel Aviv* 21:162–185.
- Yizhaq M., Mintz G.I.C., Khalaily H., Weiner S. and Boaretto E. 2005. Quality Controlled Radiocarbon Dating of Bones and Charcoal from the Early Pre-Pottery Neolithic B (PPNB) of Motza (Israel). *Radiocarbon* 47:193–206.
- Zbenovich V.G. 2004a. The Flint Assemblage from Ashqelon, Afridar—Area E. *'Atiqot* 45:63–84.
- Zbenovich V.G. 2004b. The Flint Assemblages from Ashqelon, Afridar—Areas G and J. *'Atiqot* 45:263–279.