

NGSBA Archaeology

Volume 1 - 2012



The Nelson Glueck School of Biblical Archaeology
Hebrew Union College - Jewish Institute of Religion



Y.G. Contract Archaeology Ltd.

NGSBA ARCHAEOLOGY

Volume 1 – 2012



The Nelson Glueck School of Biblical Archaeology
Hebrew Union College - Jewish Institute of Religion
www.ngsba.org

Editor-in-chief: David Ilan

Board of Editors:

Yehuda Govrin, Yorke Rowan, Yifat Thareani
(Itzhak Paz will join the board for Vol. 2)

Editorial Co-ordinator: Conn Herriott

Translation: Nissim Golding-Meir

Editing: David Ilan and Conn Herriott

Maps, Preparation of Illustrations, Cover: Conn Herriott

Printed by: Rahash Press, Bar-Lev Industrial Park, Israel

© 2012 THE NELSON GLUECK SCHOOL OF BIBLICAL ARCHAEOLOGY
HEBREW UNION COLLEGE
13 KING DAVID STREET, JERUSALEM 94101

ISSN 2227-9008

Cover Illustrations:

Front: Building B2 at Yesodot (see p. 17, Fig. 2.7)

Back: The Yesodot Plaque Figurine (see p. 61, Fig. 5.1)

Letter from the Editor

This volume represents the first issue of our new print journal *NGBSA Archaeology*. This complements the online journal which was initiated in 2010 (<http://ngsba.org/en/ngsba-excavation-reports>). The Nelson Glueck School of Biblical Archaeology (NGSBA) is relatively new to the rough-and-tumble world of contract archaeology and, together with our partner Y.G. Archaeology Ltd, we have started off slow and small. As we gain experience we will submit bids for more complex projects. Given the current scale of work, this journal will be an occasional publication that will come out as we finish preparing excavation reports. An electronic version of each report will be published rapidly after excavation is completed and will, of course, be more easily available. Its articles will be updated from time to time, until the final print publication is submitted, at which point the electronic version will be final.

NGSBA Archaeology will also publish preliminary reports of our research-oriented projects. At present these include the ongoing (since 1966) Tel Dan project (now directed by the author) and the Tel Arad water system (directed by Y. Govrin). We may also decide at a later juncture to publish other excavation-related research. One step at a time... Readers should view this volume as a first effort, to be improved with subsequent issues—we welcome your feedback.

The NGSBA was established in 1965 in Jerusalem by Nelson Glueck as a research arm of the Hebrew Union College. More information can be found on our website: www.ngsba.org. Y.G. Archaeology Ltd was founded in 1996 by Y. Govrin. More information can be found about the firm at: <http://ngsba.org/en/contract-archaeology>.

David Ilan

CONTENTS

Map of Reported Sites	6
PART 1	
Salvage Excavations at Yesodot (Khirbet Umm el-Kalkha): the Middle and Late Bronze Age Settlement	9
Chapter 1: Background to the Salvage Excavation and The Natural Environment – <i>Yehuda Govrin and Nathan Ben-Ari</i>	11
Chapter 2: Stratigraphy and Excavated Features – <i>Yehuda Govrin</i>	14
Chapter 3: The Ceramic Assemblage – <i>Nathan Ben-Ari and David Ilan</i>	25
Chapter 4: Petrographic Analysis – <i>Nissim Golding-Meir</i>	56
Chapter 5: The Female Plaque Figurine – <i>Nathan Ben-Ari</i>	60
Chapter 6: The Groundstone Assemblage – <i>David Ilan, Nathan Ben-Ari and Dov Levitte</i>	63
Chapter 7: The Chipped Stone Assemblage – <i>Conn Herriott</i>	69
Chapter 8: The Archaeozoological Finds – <i>Moshe Sade</i>	75
Chapter 9: Mollusc Shells – <i>Conn Herriott</i>	77
Chapter 10: Summary and Conclusions – <i>Yehuda Govrin, Nathan Ben-Ari and David Ilan</i>	79
Appendix 1: Yesodot Area B: List of Loci and Walls	85
PART 2	
Salvage Excavation at Nahal Sayif – 2004 <i>Yehuda Govrin</i>	95
Salvage Excavation and Documentation of Sites at Nahal Gov – 2004 <i>Yehuda Govrin</i>	99
Salvage Excavation at Hatrurim Mine – 2005 <i>Yehuda Govrin</i>	109
Salvage Excavation at Khirbet Butz – 2010 <i>Conn Herriott</i>	117
Salvage Excavation at Bet Dagan – 2005 <i>Yehuda Govrin</i>	125



Map of reported sites.

PART I

SALVAGE EXCAVATIONS AT
YESODOT (KHIRBET UMM EL-KALKHA):
THE MIDDLE AND LATE BRONZE AGE SETTLEMENT

Final Report

Yehuda Govrin, Nathan Ben-Ari and David Ilan

With contributions by

Nissim Golding-Meir, Conn Herriott, Dov Levitte and Moshe Sade

CHAPTER 1

BACKGROUND TO THE SALVAGE EXCAVATION AND THE NATURAL ENVIRONMENT

Yehuda Govrin and Nathan Ben-Ari

Background

Yehuda Govrin

As part of the widening of Route 3 on the west side of the Judean Hills, the Israel National Roads Company (INRC) was required by the Israel Antiquities Authority (IAA) to perform an archaeological survey and test excavations in the area of the agricultural village of Yesodot (Arabic: Khirbet Umm el-Kalkha).

The IAA survey was conducted by Y. Dagan, L. Barda and S. Golan (2009). This was followed

by a test excavation, initially with mechanical equipment and later by hand, under the direction of IAA archaeologist H. Torga.

As a result of these investigations, which indicated significant archaeological activity, the INRC was required to commission a large-scale salvage excavation. The company divided the site into two sections, with separate excavation tenders for each. Y.G. Archaeology Ltd won the tender for the western section, Area B (with academic sponsorship from the Nelson Glueck School of Biblical Archaeology, Hebrew Union College), and

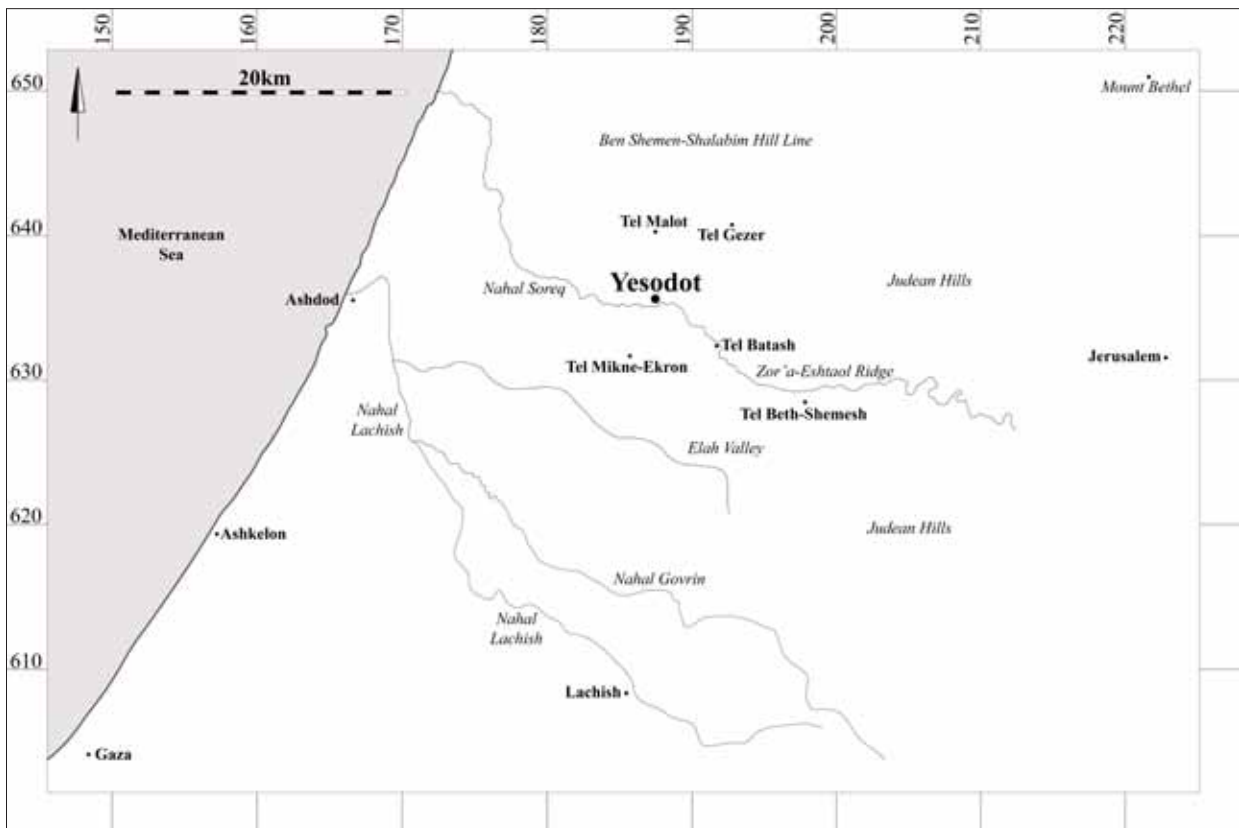


Fig. 1.1. The regional setting of the Yesodot excavation site (New Israel Grid: 187032–635295).

the Israeli Institute of Archaeology (sponsored by the Institute of Archaeology of Tel Aviv University) won the Area A tender.

Area B covered ca. 2000m² (or eighty 5.0 x 5.0m squares; Fig. 1.2). The excavation commenced in July 2006 and was completed in October, under the direction of Y. Govrin with area supervisors G. Hillel-Habasus and A. Clonimus-Cohen.

The Natural Environment of Yesodot

Nathan Ben-Ari

General background

The site of Yesodot (Khirbet Umm el-Kalkha) is situated on a wide alluvial terrace (ca. 86.0–88.0m ASL), in the western Judean Shephelah, between the eastern coastal plain and the upper Shephelah (see Fig. 1.1). Within this region Nahal Soreq forms

something of a natural border between two sectors, as follows:

The area north of Nahal Soreq and south of the Shalabim-Ben Shemen hill line. To the west of this area lies the central coastal plain, while to the east rises Mount Bethel, part of the Judean Hills. This zone is characterized by rounded hills descending from higher land to the east (such as the Yalo hills, which reach 380.0m above sea level (ASL) and then extend down to low elongated western spurs.

The area south of Nahal Soreq. This zone is located between Nahal Soreq to the north and Nahal Govrin to the south. To the west it is bordered by the central coastal plain and to the east by a series of fertile valleys on the margins of the Judean Hills (such as the Elah Valley). This zone is characterized by a chain of flat-topped limestone hills (part of



Fig. 1.2. Aerial photograph of the excavation area (looking east), with Route 3 on the left, the Y.G. Archaeology/Hebrew Union College excavation area (Area B) in the foreground, and the Israeli Institute of Archaeology/Tel Aviv University excavation area (Area A) in the background.

the Zor'a-Eshtaol ridge) with wide interspersing alluvial plains. The area is also characterized by high hills in the east (365.0–380.0m ASL) which descend to low hills in the west.

Locational and environmental data

The site of Yesodot is located ca. 200.0m from the northern bank of Nahal Soreq, which drains the plain and was probably an important water source for the site's inhabitants, at least seasonally (Fig. 1.1). Additional water was supplied by wells which probably were dug close to the riverbed (such wells are marked on modern maps, e.g. Be'er Yesodot). The area of Yesodot presently enjoys an average annual precipitation of ca. 400–600mm.

The northern part of the terrace plain is comprised of several soil types: Mediterranean brown forest soils with a presence of lime, Rendzina

mountain soils, and alluvial soils. The soils of the southern plain are slightly different from those of the north, being mostly brown alluvials with a presence of lime and brown-red sandy soils. The soils of both zones are highly fertile and well-suited for agriculture (Nir 1970: 187-189; Shavit 1992: 7-17; Dagan 2001: 12-22).

The site of Yesodot is located on a major route that links the central coastal plain with the hill country via Latrun, an important junction leading to Jerusalem and Hebron. During the Middle and Late Bronze Ages the Shephelah region was densely settled. This is evident from the number of sites in the vicinity of Yesodot (Fig. 1.1): Tel Gezer (ca. 8.0km to the north), Tel Migne-Ekron (ca. 3.5km to the southwest), Tel Batash (ca. 5.5km to the southeast) and Tel Beth Shemesh (ca. 13.0km to the southeast), to mention but a few.

References

- Dagan, Y. 2001. *The Settlement in the Judean Shephela in the Second and First Millennium B.C.: A Test-Case of Settlement Processes in a Geographic Region* (Ph.D. dissertation). Tel Aviv. (Hebrew)
- Dagan, Y., Barda, L. and Golan, S. 2009. Hirbat Umm Kalha: Survey of Highway 3. *Hadashot Arkheologiyot* 121. http://www.hadashot-esi.org.il/report_detail_eng.asp?id=1221&mag_id=115
- Nir, D. 1970. *Geomorphology of Israel*. Jerusalem. (Hebrew)
- Shavit, A. 1992. *The Ayalon Valley and its Vicinity during the Bronze and Iron Ages* (MA dissertation). Tel Aviv. (Hebrew)

Acknowledgements

We thank to the Israel National Roads Company for commissioning this project, and for all their help throughout the course of its execution. G. Hillel-Habasus and A. Clonimus-Cohen served as the area supervisors. Dov Porotsky conducted the architectural drafting and drew the preliminary plans.

In the post-excavation phase, Conn Herriott helped in data and material processing. Shimrit Salem carried out selective ceramic restoration. Avshalom Karasik and the team of the 3-D Scanning Lab at the Institute of Archaeology of the Hebrew University executed most of the pottery drawing. Noga Ze'evi illustrated selected, more complex artifacts and advised us on matters concerning the format and presentation of digital images. Assaf Peretz photographed selected artifacts.

In the sphere of intellectual collaboration, we thank Gilad Jaffe for his help with matters of material culture and different aspects of the Middle Bronze Age. Mario Martin patiently explained what and why objects are not Egyptian and Rachel Ben-Dov shared her expertise in Late Bronze Age pottery. Itzhak Paz and Assaf Nativ generously shared their insights and manuscripts from their excavations at the neighboring Yesodot – east site (Area A). We would also like to thank our recently drafted board of editors for their input as well—we are all overcommitted and it is no small thing to commit to one more task.

David Ilan, Yehuda Govrin and Nathan Ben-Ari

CHAPTER 2

STRATIGRAPHY AND EXCAVATED FEATURES

Yehuda Govrin

Introduction

Artifacts recovered in the test and salvage excavations in Area A (the eastern part of the site excavated by the Israeli Institute of Archaeology) provide conclusive evidence for a layered settlement, occupied in the Neolithic (8300–4400 BCE), the Chalcolithic (4400–3600 BCE), and the Middle and Late Bronze (MB: 1900–1550 BCE; LB: 1550–1200 BCE) periods.

Area B, which lies on the western edge of this *tel*, covers ca. 2000m² (eighty 5.0 x 5.0m squares; Fig. 2.2). The excavations exposed two occupation phases here, from the MB and LB periods. Architectural remains were constructed on sterile ground at an average altitude of 81.0m ASL. Remains from later periods were not found in this area, and the 28 archaeologically sterile test squares dug at the west end of Area B (Area Ba) confirmed that our excavation reached the Bronze Age settlement's western limit (longitudinal coordinate: 187030, New Israel Grid). It seems that the Area B remains constitute the western periphery of the *tel* centered in Area A, rather than a separate settlement, at least in the MB (the LB may be another story: see below).

Area B was divided into two sections, Area Ba to the west and Bb to the east.

Area Ba (west portion of the site)

Our investigation in this area consisted of 28 squares: A1–7, B1–7, C1–7, and D1–7. The following are the excavation results. The topsoil was a heavy, stoneless, dark brown clayish soil (grumosol). This soil was archaeologically sterile. The north row of squares (D) contained recent waste material deposits and the remains of a British Mandate road.

Test probes (2.0 x 1.0m) were manually excavated to a depth of 1.0m in fourteen sampled squares (see

fold-out plan on inside back cover). In all of these test probes a sterile clayish soil was found—brown in color, including well-sorted limestone chunks, and devoid of archaeological remains. In three of the test probes (B4, B7, C2), at the Israel Antiquities Authority's (IAA) request excavation was extended to a depth of 1.5m. These deep squares were also lacking in archaeological remains.

A test trench was machine-excavated along the south side of Area Ba, again at the request of the IAA. This trench measured 25.0m in length and was dug to a depth of 3.0m. The entire length of the trench was consistent in its archaeological sterility and soil type. It was concluded from these excavation results that Area Ba contained no archaeological remains.

Area Bb (east portion of the site)

Fifty-eight 5.0 x 5.0m squares were excavated in this section. The following is a summary of our findings.

Row D (the north row, adjacent to Route 3): The topsoil in these eight squares (D8–16) was a dark brown, stoneless grumosol including lime fragments, lacking archaeological remains. Only recent rubbish deposits and Mandate-period road vestiges were evident. Manual test probes measuring 2.0 x 1.0m and 1.0–1.5m deep were excavated in four sampled squares (see fold-out plan on inside back cover; L352–354, L360). In all of these squares the same archaeologically sterile soil was found.

Row C (south of Row D): This row was also divided into eight squares (C8–16). The northern halves of the squares contained only archaeologically sterile grumosol. However, in the southeast corners of the squares we found archaeological remains and therefore excavated deep test probes. In several

cases wall sections belonging to the northern wing of Building B1 were revealed (see below). These wall sections were generally one course high and two wide, and had been cut by a previous deep test probe which ran through the southern sides of the Row C squares (see fold-out plan on inside back cover).

Building B1: This building (Figs. 2.3-2.6) was located at the west end of Area Bb. The structure was

rectangular, measured ca. 25.0 x 12.0m (300.0m²), and was built along an east-west axis. For the most part only its wall foundations and surface paving survived. These architectural remains were very close to the surface, at depths of 0.1–0.4m. At the west end of the building a large stone was found *in situ* (Fig. 2.3). This was probably an entrance threshold. The partial plan of the interior suggests rectangular rooms, some of which were paved with

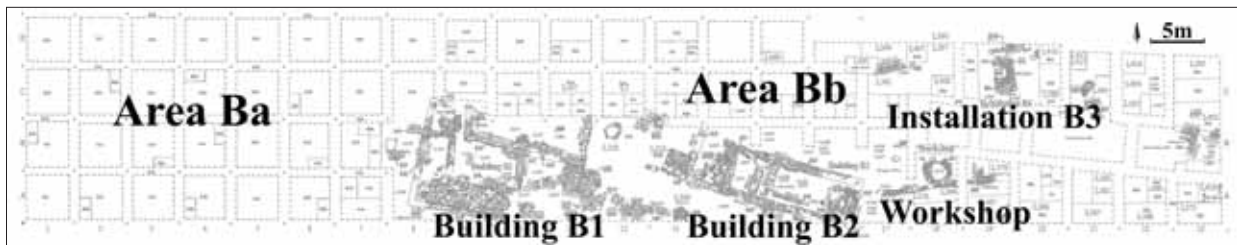


Fig. 2.1. General plan of Area B, showing sub-areas and main structural features (for detailed plan, see fold-out plan on inside back cover).



Fig. 2.2. General view of Area B (looking east), with Area Ba in the foreground. This section of the site was found to be devoid of artifacts and archaeological remains. Notice the deep test channel on the south side of the area (in the right foreground).



Fig. 2.3. Area Bb (looking east). In the foreground is a large threshold stone from Building B1. The north side of the building was destroyed (left foreground), probably during construction of the Mandate-period road.



Fig. 2.4. Building B1: the paved room in the southwest side of the building (looking east).

large flagstones interspersed with small stones. The stone paving survived best in the southwestern room (L139, Fig. 2.4), and sections were also preserved in other rooms. This paving reinforced the compact earth floor.

The structure walls were preserved only in their bottom course. The bases of the surviving walls were made of large- and medium-sized stones. Walls could be one course wide (e.g. WA091¹, an



Fig. 2.5. Building B1.

external wall) or two courses wide (e.g. WB082, an internal wall).

In the building area we excavated two deeper test probes (2.0 x 1.5 x 1.5m). These showed that the building was constructed in a single phase. Under its initial, MB II occupation stratum was exposed sterile soil, from which no additional archaeological finds were retrieved.

The overall impression is of a structure built of sun-dried mud bricks, set on stone foundations. However, this impression must be tempered by the fact that much of the western, northern and eastern portions of the building did not survive and, despite being exposed to a length of 7.0m, the southern wall (WA091) was not fully excavated because it ran beyond the area of excavation.

The findings, which were sparsely scattered on the room floors, were comprised of one complete smashed LB cooking pot (L150, field no. 1070/1) found *in situ* between walls WA102 and WB101, and sherds of bowls, kraters, cooking pots, jugs, storage jars, Cypriot imports, groundstone and flint implements. Most of these dated to the LB period, but some to the MB. The mixed nature of these finds suggests that the building was constructed in the MB and was re-used in the LB.

Building B2: This building (Figs. 2.7-2.10) was located immediately east of Building B1, and was also rectangular in plan and oriented east-west. It measured 20.0 x 5.0m (ca. 100.0m²). The building's outline was found almost completely intact.

¹ Walls are numbered according to a system whereby 'W' (standing for 'wall') is followed by the square number (e.g. 'A09') and then a sequential registration number (e.g. '1').

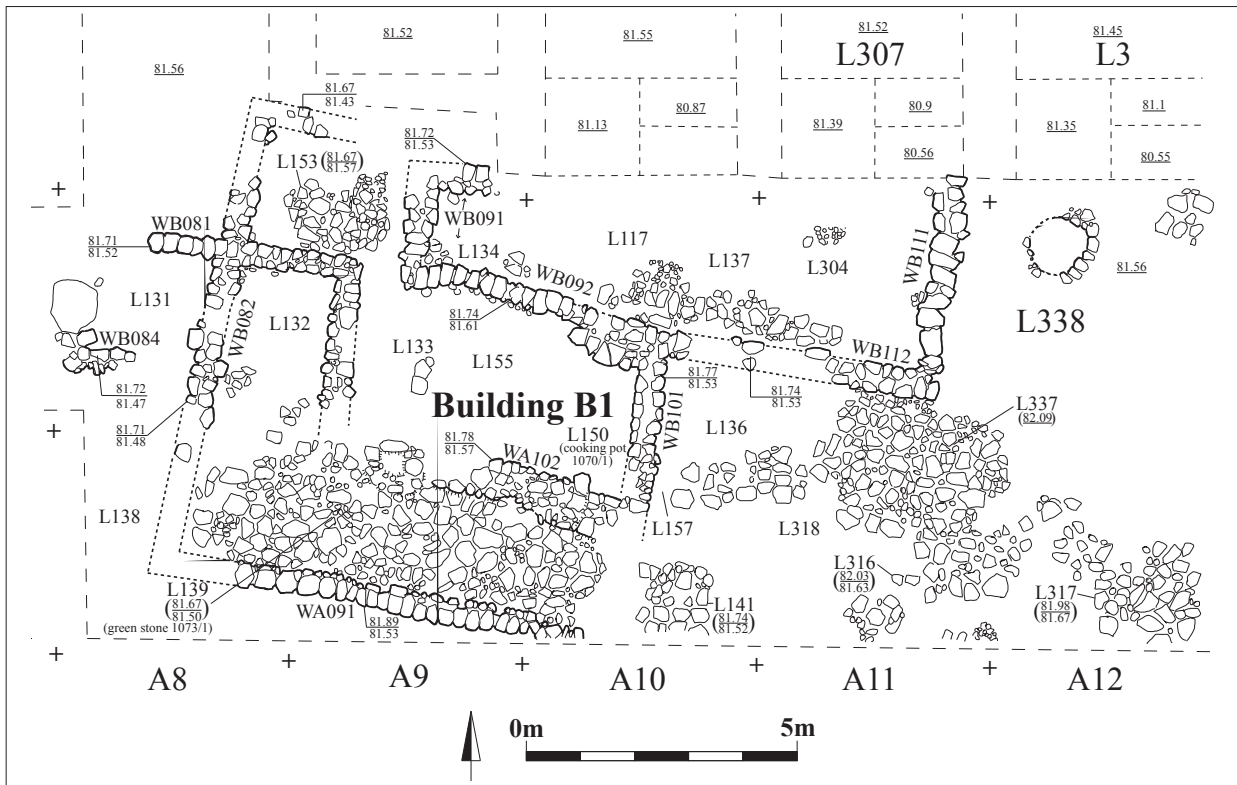


Fig. 2.6. Plan of Building B1.

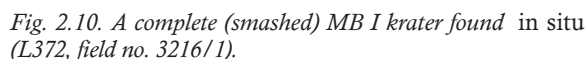
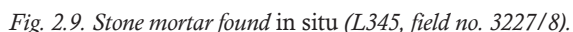
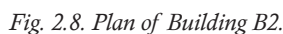
The dominant feature within the building was a long rectangular space (Figs. 2.7-2.8), west of which were smaller rooms with relatively well-preserved paved floors. The building's walls were 0.5–0.7m wide and constructed of small and medium-sized stones. The walls survived to a height of 0.1–0.3m. The state of preservation of the south and east walls was better (they survived to about three courses high).

At the east end of the building a 3.5 x 1.5m room paved with small stones was found (WA1611). At the center of the building was a long room, measuring 6.5 x 3.0m (L332, L345, L372). Close to the southeast corner of this room a stone feature was found with a fragmented stone mortar (L345, field no. 3227/8) at its center. Near this bowl a number of broken potsherds were found, also *in situ*. Against the southern wall of the room a 3.5m-long stone bench (WA151) was exposed. An additional (probable) bench (WB1528) was identified against the western wall. This latter bench was built of one large limestone block—which cracked *in situ*—on



Fig. 2.7. Building B2.

the north side of which were placed a number of additional smaller limestone blocks. A small spread of building stone collapse was found between the stone benches. Here a complete smashed MB III/LB I krater was found *in situ* (L372, field no. 3216/1). West of the central room was a subsidiary room (L371), measuring ca. 3.0 x 1.5m.



West of Building B2 and along the same axis was an additional room (L370), which appears to

have comprised one element in what was a partially-paved building complex abutting Building B2. This complex had been partially dug during IAA testing (Torga's Square E1). Room L370 measured 3.7 x 2.7m and its floor was paved with small and medium-sized stones. The southern (WA1411, 3.5 x 0.8m) and western (WB131, 4.75 x 0.8m) walls of this room were built of large stones, one course wide and high. The Room L370 findings included sherds of MB and LB bowls, cooking pots, storage jars, a jug, and a stand.



Fig. 2.11. An almost complete storage jar (L339, field no. 3204/1) found in situ in the possible potters' workshop.



Fig. 2.12. The potters' kiln (L378) (looking southeast).

A pottery-rich surface (L310, 339 and 375) was exposed north and east of Building B2. The pottery of this surface is MB I and MB II in date. It is comprised of sherds of bowls, kraters, cooking pots, juglets, jugs, storage jars, pithoi and stands. The impression is that, like its neighbor, Building B2 was constructed of sun-dried mud bricks on a stone wall base. Unfortunately, damage to the building made further clarification of the architecture impossible. The wall foundations and the paving of this building were found very close to the surface and many horizontal and vertical striations on the limestone walls and paved surfaces of both buildings B1 and B2 testify to plow damage.

As in Building B1, the mixed nature of findings suggests that the building was founded during the MB period and re-used in the LB, although the



Fig. 2.13. The vertical clay flues at the edge of the kiln (looking north).

area adjacent to Building B2 to the north was rich in MB I and MB II pottery, but held very little LB material, suggesting that the LB re-use was less extensive than the MB occupation. In the MB this was an integral part of the building, perhaps serving as a courtyard. Another possibility is that during the LB re-use of the building the new inhabitants threw MB rubbish outside the building.

Wall (WA176): This 10.0m-long stone wall was exposed east of Building B2. The wall ran southwest-northeast, was 0.3m wide, survived to one-two courses, and was built of small stones. The wall curved slightly south towards its east end, following the area's contours, and its east end abutted the corner of a building of which only the southwest corner survived (WB1920, WB1921).

Interpreted as a boundary wall, WA176 is understood as defining the southern limit of the abovementioned pottery workshop. An additional 2.0m section of wall (WB177) found ca. 4.0m north of WA176 is believed to demarcate the workshop's northern limit. The walls resembled each other in their general features. The quantitative richness of the pottery in the L339 area supplements the evidence for this being a pottery manufacturing area. The kiln found here is discussed below.

Potters' Kiln (L378): Immediately north of WA176 the remains of a probable pottery workshop were uncovered. Within this area was a pit-like feature



Fig. 2.14. Detail of the clay flues (looking east).



Fig. 2.15. The clay flues' lower openings, close to the bottom of the kiln.

roughly circular in plan (Figs. 2.12-2.15). This was undoubtedly a potters' kiln. Its diameter was ca. 2.0m. Outside the kiln's cut, a number of flue holes made of clay were visible, their rims facing upward (Figs. 2.12-2.14). These flue holes had diameters of ca. 0.1m and were spaced 0.1–0.3m apart. Beside the north cut of the kiln was a dressed limestone block (0.5 x 0.35 x 0.1m) and two stone walls (Fig. 2.12). Fragments of a badly-damaged ceramic floor were found both close to the flue holes and also inside the kiln.

Upon excavation, the kiln was found to have been dug into the sterile soil to a depth of ca. 1.2m from the surface (and 0.5m from the contemporaneous ceramic floor level). The fill was very different from the natural soil in both color and texture. It contained many sherds (most of them dated to the

MB period, but some—probably intrusive—were LB sherds), as well as slag, ash, burnt clay, a chalice or stand fragment and a ceramic lid.

There were two circular apertures close to the bottom of the kiln's northwest side (Fig. 2.15). The vertical-facing flues at the edge of the kiln extended down to link with these two openings near the bottom of the kiln. These pipes supplied the necessary air flow, and the lid may have served to cover the tops of the pipes and helped to control the air flow itself, aided perhaps by the dressed limestone block. The two stone walls built against the kiln's northwest side gave structural support to the flues. In the chamber surrounding the kiln were found the remains of slag (Fig. 2.16), ash, burnt clay, and potsherds. It seems that the kiln was of the vertical type found at many MB sites in the coastal plain region (Wood 1990: 26-33; cf. Singer-Avitz and Levy 1992; Kletter and Gorzalczany 2001).

A continuation of this pottery workshop area may have been uncovered in adjacent squares previously excavated by the IAA (Dagot 2004; Dagan *et al.* 2009).

Squares A19–22, B19–22: These parallel square rows were excavated east of the workshop complex. They were bordered to the north by the five IAA test squares (C30–34) and to the south by the southern excavation limit and a cypress boulevard. In these squares no architecture was found. A surface rich in potsherds and ash was exposed at a depth of ca. 0.6m below ground level (L365–7). This gray-brown surface was 0.2–0.4m thick and upon full exposure was shown to lie on the sterile subsoil at an average depth of 1.0m below ground level. In all squares this surface was shown to follow the natural slope of the ground from southwest down to northeast (this slope probably indicates the former existence of a small tributary to the east of the excavation area, evidenced also by the white pebbles found at the bottom and east section of Square A23 (L414). Sterile subsoil was reached in the bottom of all test sections dug in these squares.

Wall (WD1715): This wall was exposed very close to the surface at the centre of Squares C17 and

D17. Vestiges of the Mandate-period road—which probably destroyed most ancient remains closer to the surface—were removed from the top of the wall. The extant length of WD1715 was ca. 3.0m, surviving only one course high. The wall's thickness was 0.8m and it was built of large stones placed two wide. From test probes cut through its west and east ends it is clear that this wall had a single construction phase, set directly on a soil matrix devoid of cultural material. At the base of the wall's west end (L391) a small dipper juglet (field no. 3291/1) was found *in situ* (Fig. 2.17). Perhaps this was a foundation deposit. This wide wall could have been part of a two-storey building dated to the MB and the LB and was probably part of a



Fig. 2.16. Clay lumps and slag from the pottery kiln and adjacent areas.



Fig. 2.17. A complete dipper juglet (L391, B3291/1) found *in situ* under the level of Wall WD1715.

structure that continued north, under the present Route 3, severely damaged by construction of the Mandate-period road. Most of the sherds were of storage vessels. An MB I building with similar walls—probably a public building—was exposed in Area A by the Israeli Institute of Archaeology expedition (Paz and Nativ, in preparation).

Installation B3: The remains of a small rectangular installation were found in Squares C19 and D19 (Fig. 2.18), between the IAA's southern probes and Route 3. The installation measured 2.8 x 1.8m and was built along a north-south axis. Its walls were constructed of large and medium-sized stones placed two wide. The walls' preserved height was one course, 0.2–0.3m above the contemporary surface. As in other structures in Area Bb, the upper walls of the Installation B3 were probably constructed of sun-dried mud bricks which did not survive (the flat wall tops suggest as much). The structure may have been accessed from the west side, where almost no wall was constructed (though this may simply be a question of preservation). Installation B3's interior was paved with pebbles and cobbles, a surface that survived mostly intact. It is possible that this installation was related to the nearby pottery workshop, perhaps functioning as a sheltered location for the gradual controlled drying of ceramic vessels prior to firing.



Fig. 2.18. Installation B3 (looking south).

A badly-damaged wall section (WD1918) was exposed north of and parallel to Installation B3. In its construction this wall resembles the above-mentioned WA176 in Squares A17–18. It is possible that this wall demarcated the northern limit of the industrial area which incorporated the pottery workshop. WD1918 most likely continued northeast under the existing road (Route 3).

Waste Pit (L410, L415): In two deep probe sections within adjacent Squares D20 and D21 a pit was found containing large quantities of potsherds, ash, burnt stones, burnt pebbles, pottery slag and non-descript burnt ceramic lumps (Fig. 2.19). The pit's diameter was ca. 4.0m and its depth ca. 2.0m. The northern half of the pit was under Route 3 and therefore could not be excavated. In section the various fills could be seen to slope down toward the center of the pit. Many of the sherds deposited in this pit were body parts of large storage jars, but also sherds of bowls, a votive chalice, vats, stands, kraters, cooking pots, juglets and jugs. In the vast majority of cases the original vessels could not be reconstructed due to a dearth of rim and base fragments. However, enough indicative sherds were recovered to date this waste pit to the MB I and II.

Southwest of this waste pit, in a section excavated in the southeast corner of Square C19, we found a deposit moderately rich in sherds and ash immediately overlying subsoil (L418, ca. 2.0m deep). This context was thinner in the north (0.2m) than in the south (0.5m), and sloped down towards the south, in keeping with the natural topography of the area (an ancient tributary flowed from west to east immediately to the south, where the IAA test pits were dug). This context may have been related to the waste pit, to Installation B3 and to the pottery production in the area.

Squares C21, D21: Above Pit 415, just below the surface in Square D21 and extending south into Square C21 was a 0.4m-thick layer of gray soil rich in pottery and burnt ceramic fragments (L411). In some places this layer overlay a light-brown alluvial soil (L403) which was stratigraphically above the



Fig. 2.19. A section of the L415 waste pit, showing potsherds in the fill.



Fig. 2.20. Walls WC211 and WC212 in Square C21.

L415 waste pit. A cluster of small and medium-sized stones (L393) was spread over part of L411. This pile of stones was investigated and found to contain no architectural remains.

In the southeast corners of C21 and D21 deep probes were dug. In C21, at a depth of 2.2m below the surface, portions of two small walls were exposed (WC211, WC212, L403; Fig. 2.20). The north wall (WC211) ran northeast–southwest, and was preserved to a length of ca. 1.5m, width of 0.4m (one course) and height of ca. 1.0m. This wall was built of large and medium-sized stones and was preserved to an average height of four courses. Ca. 1.0m south of this wall a parallel wall section was exposed (WC212). This wall was built of large stones and was preserved to a length of ca.



Fig. 2.21. In right center, the cluster of large stones at the base of the C23 section, with WB2323 and WC2325 to the left (looking west).



Fig. 2.22. Area Bb (looking west), with the five test squares excavated by Torga (IAA) in the center.

1.0m and a height of ca. 0.4m. These walls were probably small dams of a sort, for collecting clayish alluvium from this slope for pottery manufacturing purposes. The sherds found in L403 are of bowls, krater, pithoi and storage jars, dated to the MB I or MB II.

Squares C22, D22: In the northwest corner of Square D22 a deep probe was excavated (L416). This 1.5m-deep probe cut into a gray soil mixed with many sherds, none of them indicative. An additional deep probe (L413) was excavated in C22. This probe, 2.0m deep, reached a light brown clayish soil. Between the surface and this deep, clayish layer was a ca. 1.5m-thick gray soil (L412). At the top of this layer was found a concentration of burnt

material fragments mixed into the soil. However, in these squares no architectural remains were found. The artifacts found in these two squares included sherds of bowls, a stand, kraters, cooking pots, jugs and storage jars, all dated to the MB I, MB II (less) and LB I periods.

Squares C23, D23: These two squares were located at the eastern end of Area B. In a deep probe (L402) dug close to the southeast corner of C23 a number of large stones were found at a depth of ca. 2.3m. As a result it was decided to expand this probe. The soil in these squares was gray, friable and contained large amounts of sherds (among them sherds of bowls, a cooking pot, jugs, storage jars and a ceramic slag, dated to the MB and LB periods). This layer was ca. 2.0m thick and sat on a sterile clayish soil with poorly-sorted white lime fragment inclusions. This sterile layer sloped slightly down from north to south. It appears that the above-mentioned cluster of large stones found on top of this sterile layer—visible on the right in Figure 2.21—had no architectural connection with walls WC2322, WC2325 and WB2323 immediately to the south (discussed below).

Square B23: This square was located east of the test probe dug in this area by the IAA (Fig. 2.23). Portions of two or three walls were exposed here at a depth of ca. 1.0m below the surface. The east



Fig. 2.23. WB2323 and WC2325, the foundations of an MB building's corner, with the doorpost socket stone in the foreground; WB2322 is in the background (looking east).

wall (WB2322) was ca. 1.0m long and built of small stones roughly two courses wide. The west wall section (WC2325, WB2323) included the northeast corner of a building (Figs. 2.21, 2.23). These walls appear to have been built mostly of sun-dried bricks set on (the surviving) stone foundations. In the building, close to WB2323 was found a flat stone with a conical perforation at its centre (Fig. 2.23). This stone was probably used as a socket stone for a wooden door hinge (inward-opening). The pottery that was found between walls WB2322, WB2323 and WC2325 was comprised of sherds of bowls, a votive bowl, a chalice, a krater, cooking pots, jugs, storage jars and a clay stopper, dated mostly to the MB I and II periods, but some to the LB. In addition, the rim of a Roman juglet was also found close to the surface.

Square A23: This square was located near the southeast corner of the excavation area. In a deep probe dug in the northeast corner of the square (L414) a sterile soil layer was reached at a depth of ca. 1.7m below the surface. A layer of white pebbles was exposed in the eastern section of the square. Close to the southwest corner of the deep probe a pit 1.0m in diameter was discovered, in which were found a number of stones, a few potsherds (non-indicative) and a flint sickle blade.

Summary

The buildings and features found in Area B represent the western limit or outskirts of a larger settlement

at Yesodot. The north side was cut by Route 3 and the Mandate-period road. To the east, in Area A, the site continues on the other side of an ancient tributary for which we found evidence. To the south the site extends under a grapefruit grove, also beyond the limit of our excavation.

The Area B buildings are of a 'courtyard house' type common in the MB and LB (Ben-Dov 1992). The stratigraphy and artifacts did not unequivocally show which buildings and occupation surfaces belonged to which phase of the ancient settlement.

Within Area Bb there seems to have been something of an 'industrial area' for pottery manufacturing. Here a pottery workshop (L379) and kiln (L378) were unearthed, as well as associated features such as buildings (Installation B3), waste pits (L415), and possible dams for collecting clay alluvium (L403). Unfortunately the five test squares excavated by the IAA (not published)—running through the center of this 'industrial area'—truncated the area's strata and damaged several structures and features.

It appears that the ancient tributary adjacent to the eastern end of Area B was useful for this local industry. Near the banks of the stream much pottery manufacturing waste was deposited (L415). The pottery workshop was built in this area in order to easily collect alluvial clay. This location was also on the periphery of the settlement, sparing it from kiln smoke and other waste.

References

- Ben-Dov, M. 1992. Middle and Late Bronze Age dwellings. In: Kempinski, A. and Reich, R. (eds.). *The Architecture of Ancient Israel*. Jerusalem. Pp. 99-104.
- Dagan, Y., Barda, L. and Golan, S. 2009. Khirbat Um Kalkha: Survey of Highway 3. *Hadashot Arkheologiyot* 121. http://www.hadashot-esi.org.il/report_detail_eng.asp?id=1221&mag_id=115
- Dagot, A. 2004. Khirbat Umm Kalkha. *Hadashot Arkheologiyot* 116. http://www.hadashot-esi.org.il/report_detail_eng.asp?id=33&mag_id=108
- Kletter, R. and Gorzalczany, A. 2001. A Middle Bronze Age II Type of Pottery Kiln from the Coastal Plain of Israel. *Levant* 33: 95-104.
- Paz, I. and Nativ, A., in preparation. *Khirbet Um-Kalkha: A Neolithic, Chalcolithic and Middle Bronze Settlement in the Lower Shephela, Israel* (working title). (Salvage Excavation Reports). Tel Aviv.
- Singer-Avitz, L. and Levy, Y. 1992. An MB IIA kiln at the Nahal Soreq site. *'Atiqot* 21: 9-17 (Hebrew), 174 (English summary).
- Wood, B.G. 1990. *The Sociology of Pottery in Ancient Palestine*. Sheffield.

CHAPTER 3

THE CERAMIC ASSEMBLAGE

Nathan Ben-Ari and David Ilan

The Shephelah region constitutes one of the most settled areas in the southern Levant. Extensive surveys and excavations at some of the region's sites over the past four decades have led to a reasonable understanding of its material culture. Although several major sites still await publication, the general typological sequence (especially for the Late Bronze Age) is well known. This chapter describes the pottery assemblage recovered from Area Bb. We compare the assemblage to those of nearby published sites and discuss Yesodot's relationship to these sites and to the regional hierarchy.

Methodology and Quantitative Analysis

The excavation yielded a rich pottery assemblage dating to the Middle and Late Bronze periods (henceforth MB and LB). All sherds were collected in excavation, then washed and subjected to initial sorting in the field. This sorting entailed keeping all sherds from loci with potential for restoration, and keeping all diagnostic sherds from the remaining loci. Diagnostic sherds (rims, bases, handles and decorated sherds) were registered by field number and an additional sequential number (for example, field no. 3240/3). All of the pottery baskets were tagged and bagged, and at the end of the excavation were taken to the restoration lab where further ceramic processing was conducted, along with illustration and photography, where deemed useful. Some 1757 sherds were retained initially, after the field sorting, and brought to the lab, among them one near-complete juglet and three other restorable vessels. The identifiable sherds (based on diagnostic features such as rims) were classified into vessel types and subtypes, following the nomenclature used in the following publications: Tel Dan (Ilan, forthcoming); Tel Aphek (Beck 2000a-b, Gadot 2009, Yadin 2009); Tel Batash (Panitz-Cohens

2006), and Lachish (Singer-Avitz- 2004a-b; Yannai 2004). After classification the sherds were counted in order to calculate a 'minimum number of individual items' (henceforth MNI) for each type or subtype of vessel. This resulted in quantitative estimates and typological frequencies.

The pottery assemblage is presented by period (and sub-period where possible) and according to type. This is because the site stratigraphy was not clear-cut and there were no positively sealed contexts. MB and LB sherds were frequently found in the same matrix and for some types it is hard to distinguish between the two periods. The following table presents the general distribution of vessel types:

*Table 3.1. Count of selected diagnostic MB and LB sherds.
Rims only

Type	No.	%
Bowls*	212	24.5
Chalices	14	1.6
Kraters*	36	4.2
Vat*	2	0.2
Skillets?*	2	0.2
Cooking pots	177	20.5
Jugs	73	8.4
Juglets	13	1.5
Jugs/Jars	50	5.8
Storage jars	199	23.0
Pithoi	35	4.1
Local imitation of imported ware	6	0.7
Imported ware (including local imitations)	18	2.1
Stands	19	2.2
Lamps	5	0.6
Varia	3	0.4
Total diagnostics	864	100%
Jug/Jar handles	584	
Jug/Juglet handles	24	
	1472	

The typological frequencies were compared to those of the pottery assemblages of neighboring sites. In this regard it is important to emphasize that the MB material available for comparison is quite limited. Three major MB sites in the vicinity of Yesodot were excavated over the past 30 years: Gezer to the northeast, Tel Migne-Eqron to the southwest and Tel Batash to the southeast. However, the amount of data available concerning the MB strata at these sites is very limited. A similar problem exists at more distant sites, such as Tel Beth-Shemesh to the southeast. This situation required us to seek comparisons with more distant sites in the southern Shephelah (Lachish), the central coastal plain (Aphék), and Samaria (Shiloh). By contrast, the LB strata at the above-mentioned sites are richer and more informative, exhibiting good comparisons and enabling a better understanding of the material culture that characterized the LB in the Yesodot vicinity and the Shephelah region in general.

The Middle Bronze Age Pottery Assemblage

Local Pottery

Bowls

The MB bowl assemblage can be categorized according to the following types:

1. Open (platter) bowls.
2. Hemispherical/globular bowls.
3. Deep bowls.
4. Carinated bowls.

Open (platter) Bowls

This is the dominant bowl type in both the MB and LB assemblages. In the MB these bowls are open and have curved walls. In most cases inclusions were not visible (with the exception of a few rims). Of the MB I bowl rims a wide variety of molded rims were recorded: simple (Fig. 3.1:4, 13), thickened (Fig. 3.1:5), squared (Fig. 3.1:10; Fig. 3.2:2) and hammer profile (inverted and everted, Fig. 3.2:1).

Fig. 3.1.

No.	Vessel	Field no.	Locus	Notes
1.	Open bowl	3240/3	375	
2.	Open bowl	3341+1/2	415	Interior radial burnish
3.	Open bowl	3309/10	404	Red paint on the interior and exterior rim
4.	Open bowl	3301/2	404	Red paint on the interior and exterior rim; traces of cross motif; interior is burnished
5.	Open bowl	3254/2	375	Red paint on the rim
6.	Open bowl	3335/2	413	Red paint on the upper and exterior sides of the rim
7.	Open bowl	3171/1	339	Interior radial-burnished and red-slipped; traces of slip on the rim exterior
8.	Open bowl	3309/2	404	
9.	Open bowl	3109a/2	331	
10.	Open bowl	3094/1	331	
11.	Open bowl	3275/3	389	
12.	Open bowl	3322/1	386	
13.	Open bowl	3247/11	375	
14.	Open bowl	3224/6	375	Red paint on the upper rim and handle

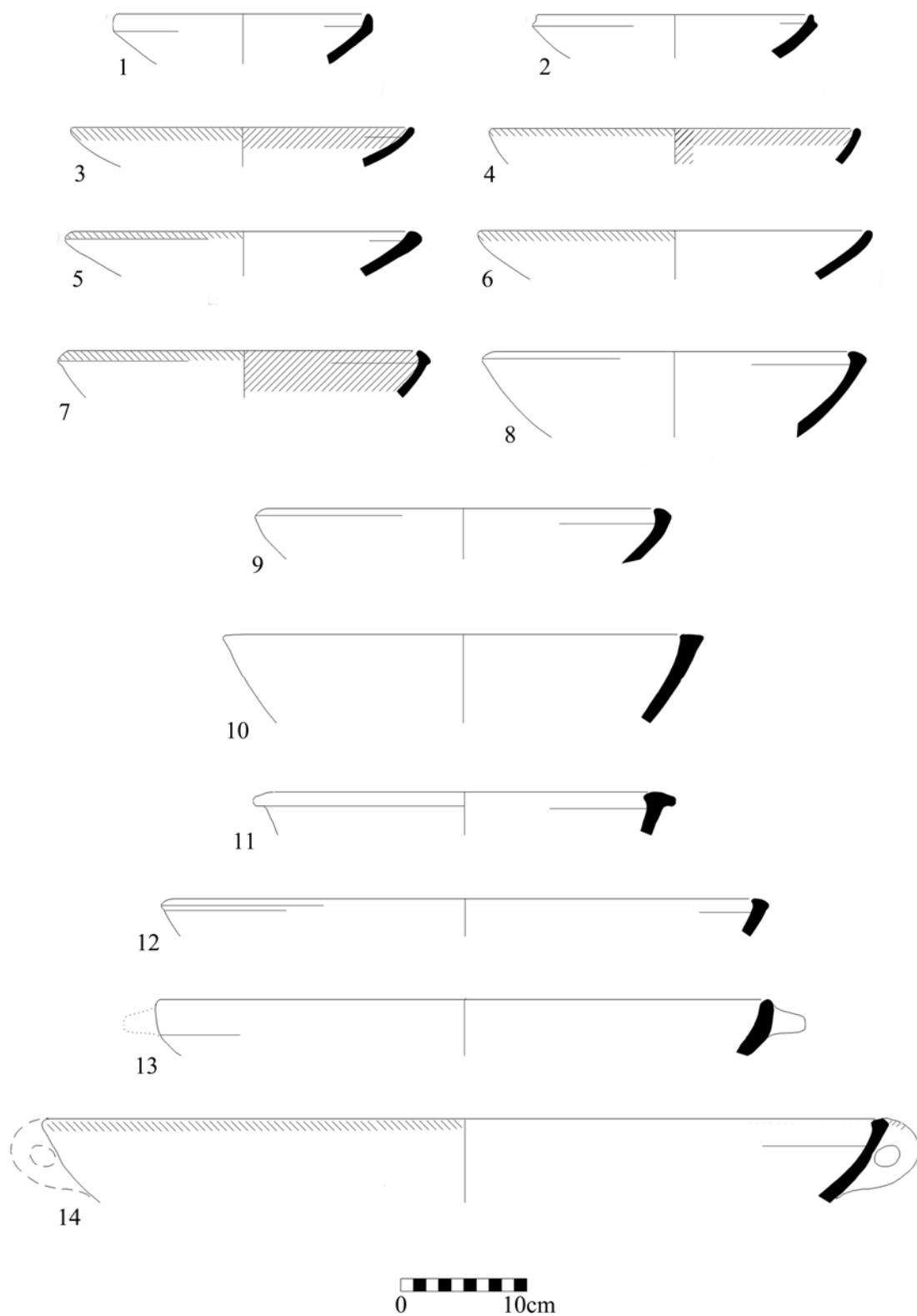


Fig. 3.1. MB open bowls.

Among the MB II bowls we also find a variety of molded rims, such as thickened (Fig. 3.1:14), inverted (Fig. 3.1:12), and ledge rims (Fig. 3.1:11). Other MB I/II bowl rim types included simple (Fig. 3.1:3, 6), tapered (Fig. 3.1:1), grooved (Fig. 3.1:2), hammer (Fig. 3.1:7), and inverted rims (Fig. 3.1:8, 9). While the bowls of the MB II–III at Yesodot rarely incorporated handles (Fig. 3.1:14), the MB I bowls showed a variety of these: strap, horizontal strap, horizontal bar, ledge and knobbed.

It seems that the surface treatment in both sub-periods was the same. Due to the weathered nature of the sherds only traces of slip or paint were visible on some of the bowls, usually on the upper rim or the upper (either internal or external) mid-body. The most common slip color was red, but at least in one case pale brown was applied. On a number of sherds radial burnish was visible (Fig. 3.1:2, 7), and in other cases traces of the cross band motif

were observed (Fig. 3.1:4). This decorative tradition dates either to late MB I or to MB II (Ilan and Marcus, forthcoming: Pl. 7.28:3).

Two particularly impressive MB I bowls are worthy of mention. Figure 3.2:1 has knob and bar handles. The internal and upper rim and handles bore traces of red paint, possibly slip. Figure 3.2:2 incorporated a horizontal folded strap handle and two rounded knobs. Bowls incorporating two handle types are quite rare. Similar bowls were found at Tel Megadim, Tel Megiddo and Tel Kabri (Scheftelowitz 2002: Fig. 5.31:16; Arie 2006; Ilan and Marcus, forthcoming: Fig. 7.2:5). Another interesting vessel (Fig. 3.1:2) has a squared-off, grooved rim. The rim interior was treated with radial burnish. A similar bowl was found in Tomb 14 at Gesher (Garfinkel and Bonfil 1990: Fig. 5:5*).

Fig. 3.2.

No.	Vessel	Field no.	Locus	Notes
1.	Open bowl	3287/1	393	Knob and bar handles; red slip on the interior and top of the rim and handles
2.	Open bowl	3224/2	375	Knob and horizontal looped handles
3.	Carinated bowl	3163/19	345	
4.	Carinated bowl	3364/5	410	
5.	Carinated bowl	3336/4	399	
6.	Carinated bowl	3107/4	330	Traces of red slip on the exterior
7.	Carinated bowl	3308/1	403	Exterior is red-slipped and burnished; red slip on the interior part of the rim
8.	Carinated bowl	3338a/7	410	Exterior is red-slipped and burnished; red slip on the rim interior
9.	Hemispherical bowl	3341+1/3	415	Interior burnish (including the upper part of the rim); fine horizontal striations on the exterior beneath the rim
10.	Hemispherical bowl	3241/4	375	
11.	Globular bowl	3319/1	405	Red paint on the upper part of the rim (interior and exterior)
12.	Globular bowl	3333/5	415	
13.	Globular bowl	3061/1	320	Knob handle

Hemispherical and globular bowls

These bowls were not common at the site. Only 14 sherds were recorded. The MB I globular bowls had incurving thin walls with inverted rims (Fig.

3.2:11-13). No inclusions were visible and in most cases the bowls were plain and without any surface treatment. Figure 3.2:12 had a small knob beneath the rim. Similar knobs on globular bowls

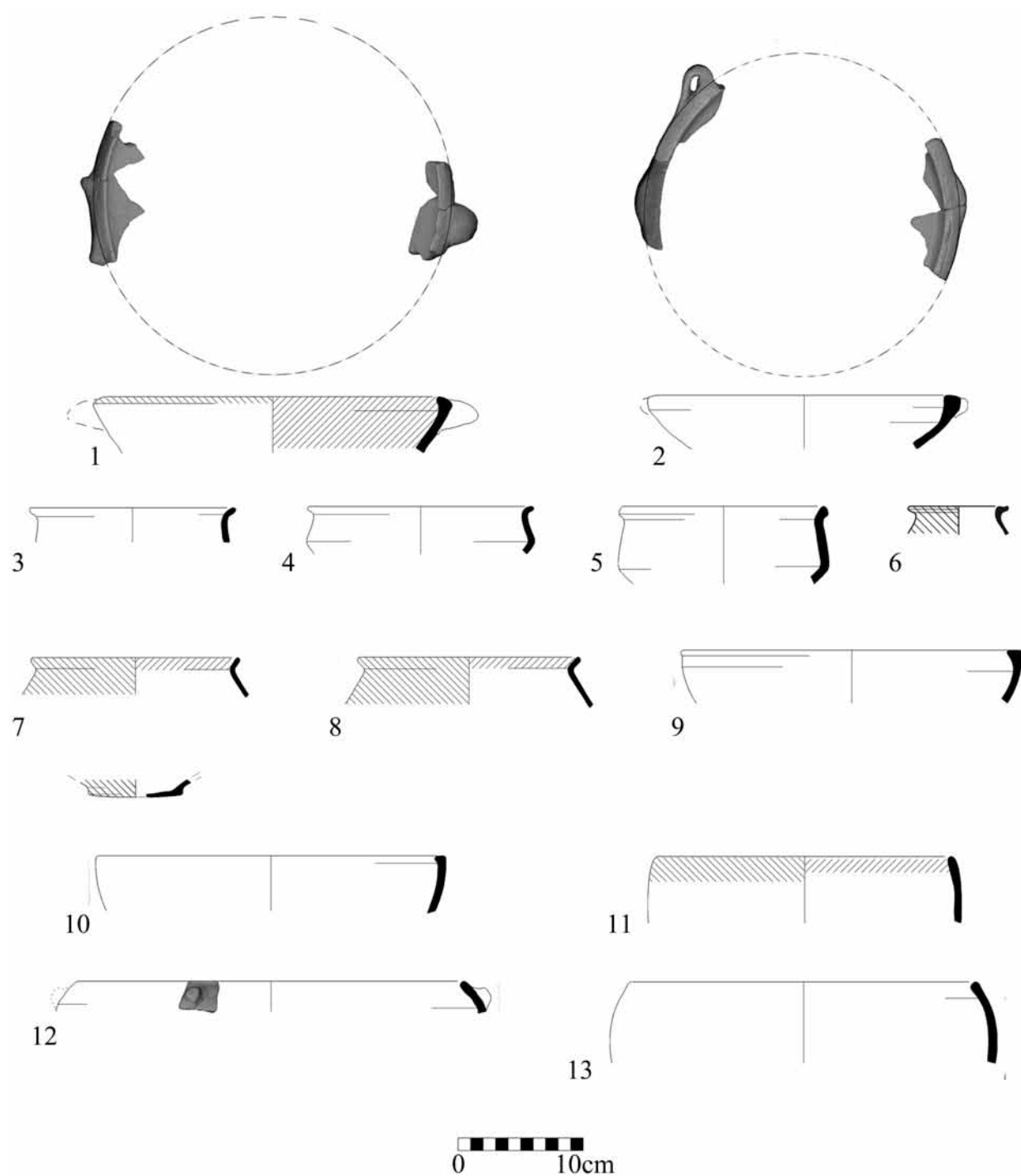


Fig. 3.2. MB open, carinated, hemispherical and globular bowls.

were found at Apehek Palace II and Post-Palace II phases (Beck 2000a: Fig. 10.14:1, 4; 10.20:14). The Apehek bowls were deep and rounded vessels. They had everted rims, slip and burnish, and some of their knob handles were decorated with incised crosses. The Yesodot globular bowl was probably a deep-rounded subtype belonging to the same class as the Apehek vessels. The Yesodot subtype is different in that it has an inverted rim and lacks surface treatment.

The MB II hemispherical bowls are slightly different again (Fig. 3.2:9-10). Their walls are either thin or thick, less curving and shallower. The rims are either inverted only, or inverted and everted (hammer profile). Hemispherical bowl Figure 3.2:8 is an example of an MB II deep bowl with a hammer-profile rim. Burnish was applied to the interior, and the upper rim was probably treated with dark slip and burnishing.

Carinated bowls

The MB carinated bowl is represented mainly by one type: a small- to medium-sized bowl with thin walls, a simple everted rim and probably less angular carination (Fig. 3.2:3-8), although it is possible that some incorporated a more acute carination. Some of the bowls bore reddish slip on the exterior and some were burnished. One small bowl had a simple everted rim with a gutter (Fig. 3.2:6). This rim type is one of the hallmarks of the MB I period (Beck 2000a: Fig. 10.31; Singer-Avitz 2004a: Figs. 16.2:5, 16.4:10, 16.9:8-9; Yadin 2009: Fig. 7.13). The bowls illustrated in Figure 4.2: 4-5 have parallels from Stratum X16 at Apehek, dating to the MB II (Yadin 2009: Fig. 7. 15:1-2). Carinated bowl Figure 3.2:5 was a bit larger than other bowls in the assemblage and had a triangular everted rim. Similar bowls have been found in the Jezreel Valley and date to the MB I-II transition and to the MB II (Ben Tor and Bonfil 2003: 200-201, 206; Figs. 80:2, 81:5, 83:3). It seems that the carinated bowls of Yesodot should be dated either to the MB I or early MB II. It should be noted that the common MB II-III carinated bowls (with acute carination and wide mouth) are absent from the Yesodot pottery assemblage.

Bowl bases

We could not definitively match bases and bowl types, but it is probable that the latter were characterized either by disk or flat bases, as implied by the large number of disk bases—apparently belonging to bowls (N=87, ca. 24% of all presumed bowl bases)—recorded during the excavation (Table 3.2, p. x). However, it is possible that some of the concave and ring bases belong to bowls of this period.

Kraters

These large vessels can be divided into several types. Only one restorable vessel was found (Fig. 3.4). The predominant form was most likely globular or slightly S-shaped with a short neck or no neck at all. The MB I kraters had a more closed shape and were characterized by straighter walls, while those of MB II-III (especially MB III) date usually had an open shape and their walls tended to be more curving (Bonfil, forthcoming). Some kraters incorporated numerous small white (probably calcite) inclusions, others only a few. In one case a number of red inclusions were noticed (probably crushed pottery).

Most of the recorded krater rims could not be securely dated to either the MB I or MB II-III. Two general classes with several subtypes were distinguished:

1. Everted (sometimes flat-topped); these were simple, rounded, tapered, squared or had a hammer profile (Fig. 3.3:2-4, 9, 11, 13-14).
2. Holemouth; horizontally inverted (Fig. 3.3:1), everted and folded out (Fig. 3.3:10), or thickened and squared (Fig. 3.3:6-8).

Although these rims could date to either the MB I or MB II, some were more common in one of the two periods. For example, certain kraters in Figure 4.3 (Nos. 1-3) are more typical of the MB II, while Figure 3.3:6-7 are more common in the MB I. Figure 3.3:3 and 7 incorporate a broken spout beneath the rims. Figure 3.3:12 is slightly different from the others in that it had a distinctive neck, a thickened, everted rim, and a strap handle reaching from rim to shoulder. This vessel probably dates to the MB II or III, or perhaps even to the early LB

I (Dever 1986 Fig. 31:3; Negbi 1989: Fig. 5.2: 28; Killebrew 1996: Fig. 2:12; Singer-Avitz 2004a: Fig. 18.1: 7; Gadot *et al.* 2006: Fig. 12.5:5-7).

Figure 3.4 is an unusual form, with a soft carination beneath the shoulder, a short neck, a somewhat elongated body and a low ring base. This vessel should be dated to the MB III, or perhaps to the LB I. The shape of the body is common in the LB I repertoire, although its roots are imbedded in the MB III, especially the rim and base (cf. Bonfil, forthcoming). Close parallels were found at Tel Yoqne'am XXI (MBIII, Ben-Ami and Livneh 2005: Fig. IV.7:8) and Tel Batash IX (LB IB Panitz-Cohen and Mazar 2006: Pl. 17:13).

Most of the MB kraters were plain and devoid of surface treatment. Only a few bore red slip. However, it is also possible that some of the sherds bearing incised relief decoration (Fig. 3.8: 11-13) belonged to MB kraters.

Although we could not confirm many krater bases, it is probable that either disk or flat bases were most common, as in the case of the bowls (above). Again, however, some of the concave and ring bases may be attributed to kraters.

Vat

Only one vat was retrieved. This was a large, massive and crude vessel with straight, thick walls and a simple squared rim (Fig. 3.3:5). Very few small inclusions were visible. On the vat interior were horizontal striations, suggesting that the vessel was probably hand-made and finished on a slow wheel (cf. Uziel *et al.* 2010: 154-158). No parallels were found in the published reports of the Aphek, Gezer, Tel Batash and Lachish excavations. However, a similar vessel was found at Tel Dan in northern Israel (Ilan, forthcoming).

Skillets

Two open vessels made of cooking pot ware were recorded. Figure 3.6:1 has an open bowl shape and its convex side is covered with soot stains. Figure 3.6:2 has an open shape with a thickened, everted rim. This vessel is crude and large and was made with numerous inclusions.

Cooking pots

Two types of MB cooking pot were found at Yesodot:

Straight-walled, hand-made cooking pots

These are open vessels with straight walls and flat bases (Fig. 3.5). Both high and low walls are evinced in the assemblage. This type often incorporates numerous inclusions (most probably calcite and quartzite). Their rims were either square (Fig. 3.5:1-2) or beveled and tapered (Fig. 3.5:3-4). This type of cooking pot was decorated with a plastic band or strip with thumb indentations (in some cases just plain bands), usually placed beneath the rim. Most of these vessels had perforations between the plastic band decoration and the rim. These perforations were either partially (Fig. 3.5:1, 4) or fully pierced through the wall (Fig. 3.5:2); some of the vessels had both pierced and un-pierced perforations (Fig. 1:3). A similar phenomenon was observed at Aphek (Beck 2000b: 176). The straight-walled, hand-made cooking pot is more common in the MB I, although it continued to be used in the MB II–III, particularly in the southern region and highlands of Israel. At northern and coastal plain sites this type disappeared after the MB I (Bonfil, forthcoming; Yadin 2009: 160).

Globular, wheel-made cooking pots

These vessels presumably incorporated rounded bases. They were made of coarse wares. The most common rim type was the rolled-out holemouth rim (Fig. 3.6:7-10); some exhibited a pronounced gutter (Fig. 3.6:5, 10). Another common rim type was the thickened, everted and guttered rim (Fig. 3.6:3, 5-6). Others were simple everted (Fig. 3.6:4), thickened, everted and tapered (Fig. 3.6:11), and short (Fig. 3.6:12). Some of the everted rims exhibited the beginnings of the triangular profile which characterizes LB cooking pots (Fig. 3.6:13).

The wheel-made globular cooking pot appears in all sub-periods of the MB and continues into the LB. Figure 3.6:3-6 are typologically dated to the MB I period, although Figure 3.6:5-6 are more

characteristic of the early MB II, while Figure 3.6:7-12 are more typical of the MB II-III. Figure 3.6:13 is typologically dated to the MB III or to an early phase of the LB I period.

Storage Jars

These are represented by a great variety of molded rims. The vast majority were thickened, profiled and everted, and usually created by folding the rim out and down to form a collar. Of these, by far the dominant rim type is the folded out and down type, which is slightly rounded, adhering to the neck and forming a ridge or concavity on the bottom of the fold (Fig. 3.7:1-2, 5). Some storage jars had a groove on the upper rim (Fig. 3.7:2) and others had tapered rims which were dominated by an internal and external gutter, giving them an arrowhead or mushroom profile shape (Fig. 3.7:5). Additional rim types included thickened, everted rims, either flattened or tapered (Fig. 3.7:3-4), and everted rims with inner thickening, which was created by folding the rim in (Fig. 3.7:6).

Due to the fragmentary nature of the storage jar assemblage, it is difficult to arrive at definite conclusions about the vessel shapes and surface treatments. It is possible that some of the sherds bearing incised relief decoration (e.g. Fig. 3.8:11-13) might belong to MB storage jars. By comparing this assemblage with those of Lachish, Tel Batash and Aphek we may assume that the dominant Yesodot storage jar shape was either ovoid or amygdaloidal and had two handles. The excavation yielded 584 storage jar handles. Of the numerous bases recorded (N=298), those identified as coming from storage jars comprise ca. 13.5% (Both MB and LB periods). Of these the flat or convex bases should probably be attributed to the MB storage jars. This is supported by comparison with similar MB storage jars from Aphek and Lachish.

Pithoi

These are represented by two types:

1. Short-necked pithoi, with an everted rim, either simple or thickened (Fig. 3.7:10-11).

Fig. 3.3.

No.	Vessel	Field no.	Locus	Notes
1.	Krater	3340/2	410	
2.	Krater	3241/9	375	
3.	Krater	3343/5	403	
4.	Krater	3332/2	410	Red-slipped exterior and upper part of the rim
5.	Vat	3364/7	410	
6.	Krater	3240/4	375	
7.	Krater	3229/12	375	
8.	Krater	3232/17	375	
9.	Krater	3088/2	331	
10.	Krater	3199/4	339	Cooking pot material
11.	Krater	3319/8	405	
12.	Krater	3364/4	410	
13.	Krater	3109a/8	331	
14.	Krater	3120/18	339	

2. Necked pithoi, characterized by a long neck and one of three main rim types:
 - a. Everted, thickened rims, often created by rolling the rim out (Fig. 3.7:12).
 - b. Inverted and everted rim – hammer profile (often with an internal concavity, Fig. 3.7:13). Both of the above subtypes belong either to Type 5 or 6 of Bonfil's typology

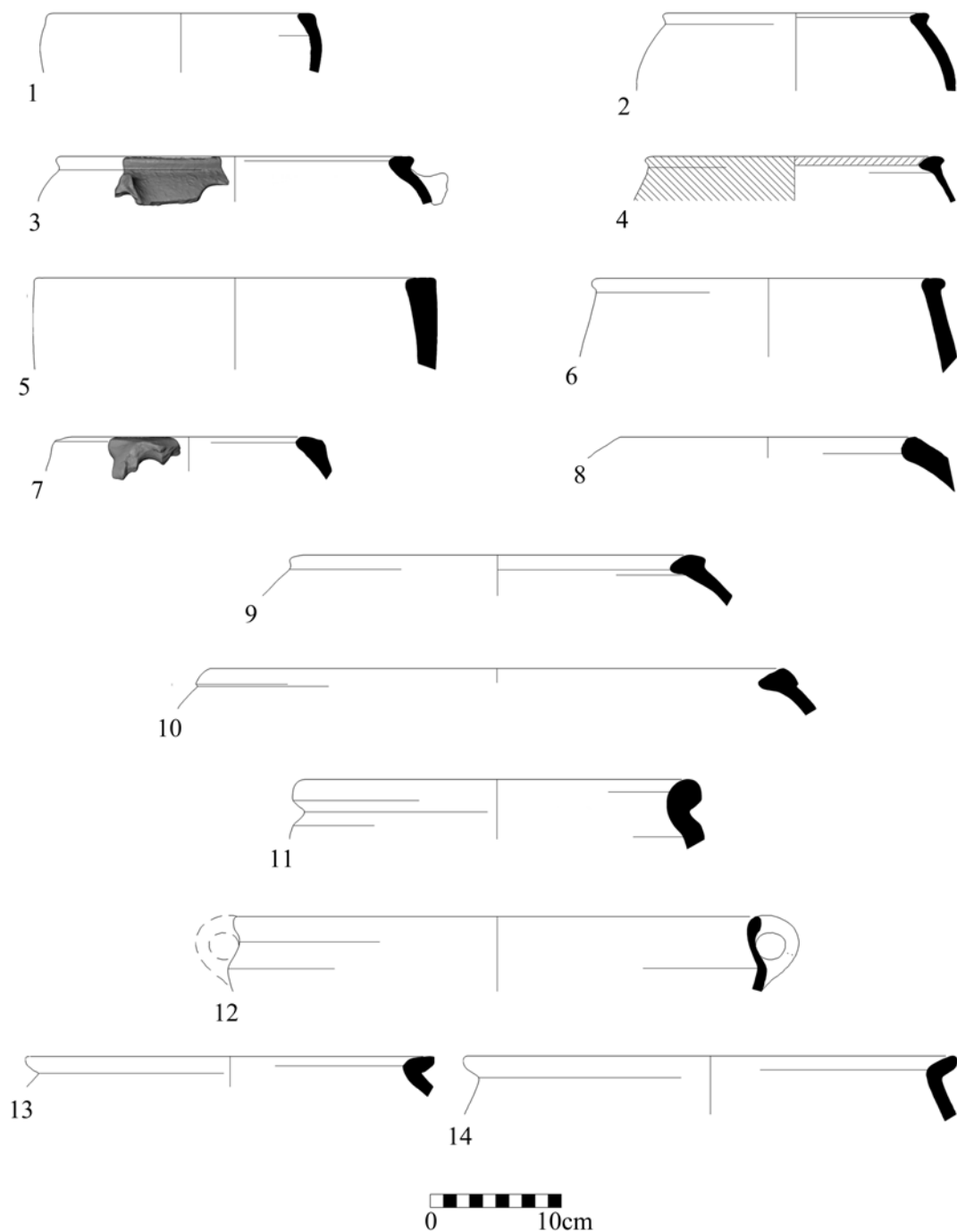


Fig. 3.3. Kraters.

and probably date to the MB II/III (Bonfil 1992: 29-31);

- c. Molded rims, usually squared and flattened, made by folding the rim out and down to form a collar adhering to the neck, which often created a ridge or concavity at the bottom of the fold (Fig. 3.7:7-9); some of these show a prominent internal gutter (Fig. 3.76:7-8).

While pithoi occur throughout the MB period, they are more a feature of the MB II–III (Bonfil, forthcoming; Ilan and Marcus, forthcoming). Judging by pithoi from different sites across southern Israel it is most likely that some had handles while others did not (Bonfil 1992; Bunimovitz and Finkelstein 1993: Figs. 6.16-6.19; Singer-Avitz 2004a: Figs. 16.14, 16.18). It is possible that some of the flat or convex bases found at Yesodot originally belonged to these vessels. It is also possible that some of the sherds bearing incised relief decoration were associated with pithoi (Figs. 3.8:11-13).

Jugs

Most of the jug sherds could not be associated with a specific period. Only a few body sherds and rims had clear MB associations. Except for one restorable squat jug body (without a rim, not illustrated), jug shapes from Yesodot are not known except by analogy with other sites. The dominant MB jug rim type was simple, thickened and everted, and could be either flattened or tapered (similar to storage jar rims in Figure 3.7:3-4).¹ Some had an internal concavity (Fig. 3.8:5-6). To these we can add one simple pinched rim (Fig. 3.8:4). Several of the jugs had disk bases (Fig. 3.8:2) and others had ring bases with incisions (Fig. 3.8:3). Additionally, some of the flat, convex or concave bases could also be associated with jugs. Some of the jugs were characterized by double or triple handles (Fig. 3.8:4, 7). Similar handles were found at Lachish, Aphek and Tel Michal (Negbi 1989: Fig. 5.3:20-21; Singer-Avitz 2004a: Fig. 16.21:2, 16.26:3; Yadin 2009: Fig. 7.13) to mention but a few. The recorded

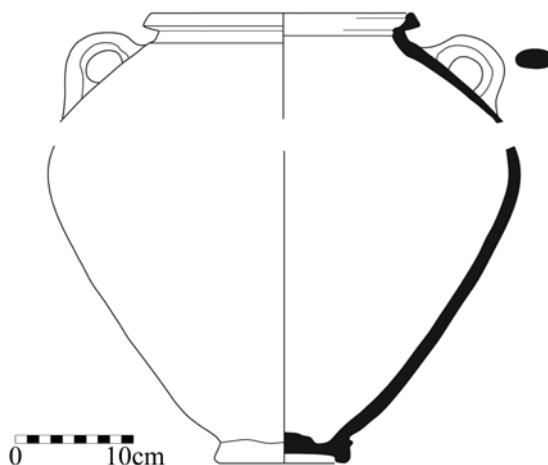


Fig. 3.4. Near-complete MB III/LB I krater (L372, field no. 3216/1).

rims did not bear any traces of surface treatment, but some of the bases were treated with a red slip and burnish, suggesting that in many vessels much of the burnish and slip may have worn off.

Juglets

These are quite rare in the Yesodot pottery assemblage. The dominant type was the dipper juglet. One juglet rim with part of a handle could be dated to the MB period. This was simple, rounded and slightly everted (not illustrated). The rest of the sherds recorded are either body sherds or broken bases—among them one pointed base (Fig. 3.8:1)—and handles. Some of the body sherds bore traces of red paint, while others were burnished and red slipped. Due to the small size and fragmentary nature of the juglet assemblage, further conclusions could not be drawn.

Jugs/Jars

This designation is used for rims that could be from either jugs or jars (N=28, ca. 1.5% of the entire MB and LB assemblage). This situation reflects the fragmentary nature of the Yesodot pottery assemblage. The rims are mostly simple, thickened and everted, and are similar to those displayed in Figures 3.7:3-4 and 3.8:5-6.

¹ In contrast, the dominant storage jar rim was the molded rim, usually created by folding it out and down (see above).

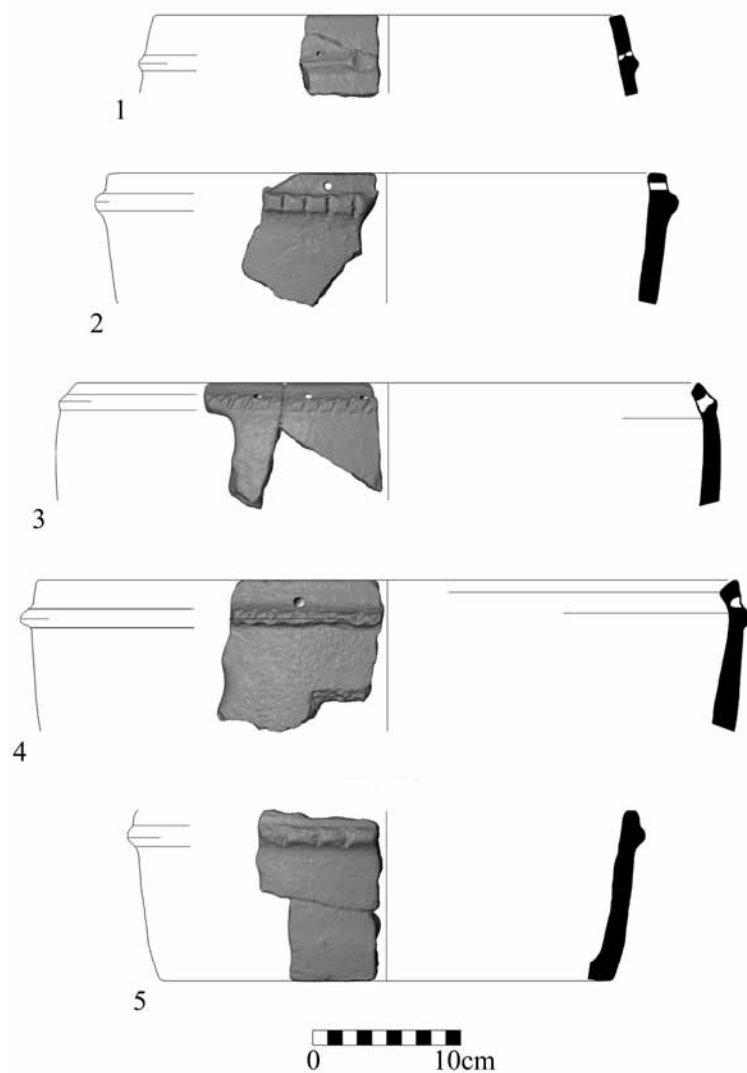


Fig. 3.5. MB holemouth cooking pots.

No.	Vessel	Field no.	Locus	Notes
1.	Straight-walled cooking pot	3165/2	331	Unpierced perforation; plastic band decoration beneath the rim
2.	Straight-walled cooking pot	3232/12	375	Pierced perforation; plastic band decoration beneath the rim
3.	Straight-walled cooking pot	3232/8	375	Pierced and Unpierced perforations; plastic band decoration below the rim
4.	Straight-walled cooking pot	3340/4	410	Unpierced perforations; plastic band decoration beneath the rim
5.	Straight-walled cooking pot	3150/4	344	plastic band decoration beneath the rim

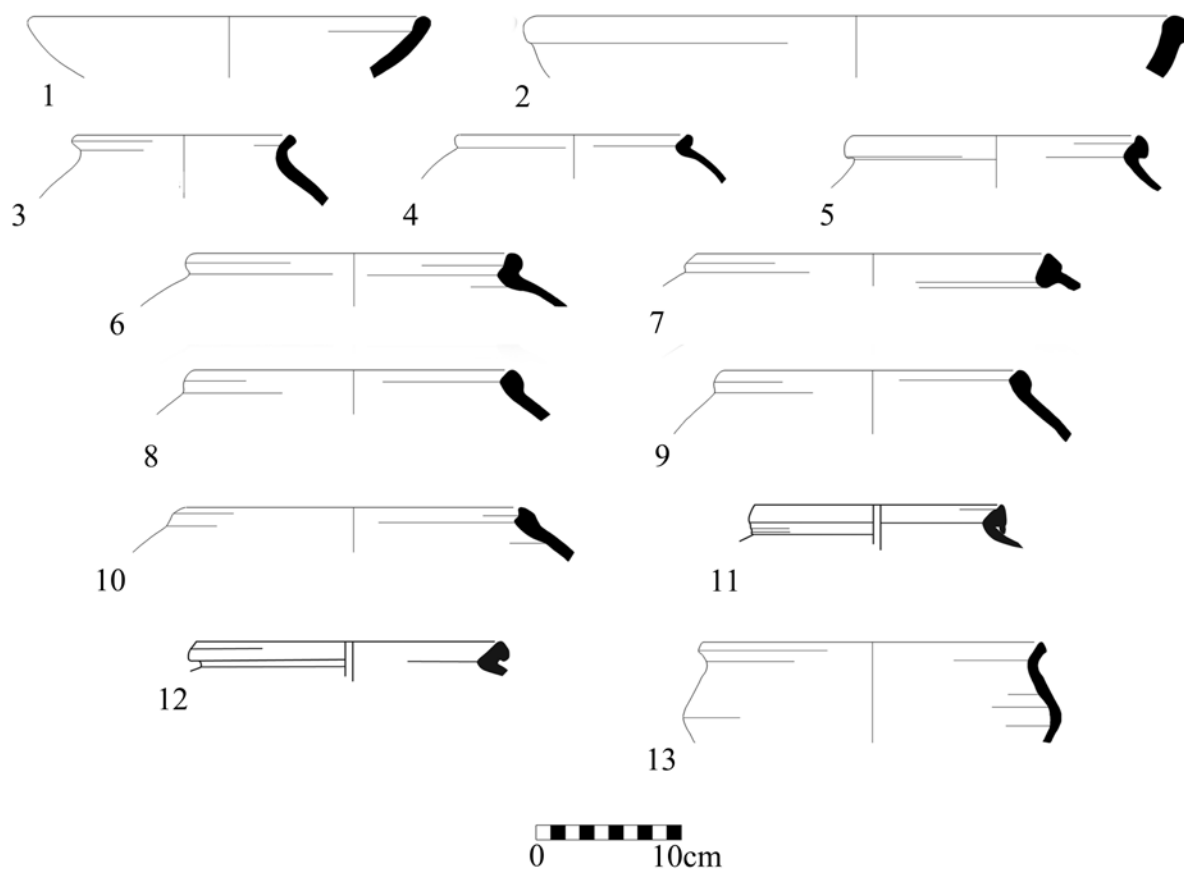


Fig. 3.6. Skillets and wheel-made globular cooking pots.

No.	Vessel	Field no.	Locus
1.	Skillet?	3224/5	375
2.	Skillet?	3183/7	350
3.	Globular cooking pot	3304/3	406
4.	Globular cooking pot	3224/8	375
5.	Globular cooking pot	3171/7	339
6.	Globular cooking pot	3333/8	415
7.	Globular cooking pot	3333/22	415
8.	Globular cooking pot	3229/13	375
9.	Globular cooking pot	3224/7	375
10.	Globular cooking pot	3224/10	375
11.	Globular cooking pot	3088/3	331
12.	Globular cooking pot	1030/4	117
13.	Globular cooking pot	3147	355

Incised relief decoration

Three body sherds were found which bore a plastic band into which decoration was incised. The motifs used were oblique lines (Fig. 3.8:11), net patterns (Fig. 3.8:12) and herringbone patterns (Fig. 3.8:13). These sherds were probably parts of kraters, storage jars, or pithoi (Amiran 1969: Photo 101; Negbi 1989: Fig. 5.3:18; Singer-Avitz 2004a: 919, Fig. 16.35:8; Yadin 2009: 113-114, Figs. 7.1:18, 21-22, 7.2:17).

Imported Ware

Cypriot White-Painted Ware IV-VI

This type is represented by three jug and juglet sherds. Of these, a simple everted rim and a typical Cypriot handle were presumably part of the same vessel (Fig. 3.8:10). A third sherd was from a funnel-shaped rim (Fig. 3.8:9). This group is characterized by a light-colored (buff) fabric and thick black horizontal bands. Since we do not have any body sherds, it is difficult to affiliate these sherds with a specific group (cf. Johnson 1982). However, the softness of the paste and the fact that the paint is not glossy implies that these sherds belong to Group V rather than Group VI vessels, though the latter cannot be ruled out. According to Åström's typology, Cypriot vessels with similar decoration could be either globular jugs or juglets, and were characterized by either simple, sloping or pinched rims; the handles of these vessels either stretched from rim to shoulder or from neck to shoulder (Åström 1972: 27-28, Group III-IV – Type IA2a, Fig. IX: 4-5; 63-64, Group IV-VI – Type IB1a, Fig. IX: 13; 69, 71, Group V – Types Vb1b, VG1a, Fig. XVI: 15, 17). Additionally, a small spout fragment (Fig. 3.8:8) could be part of a spouted Cypriot vessel (Johnson 1982: Fig. 1: H8, H15; Fig. 3: N20, N21). Similar Cypriot vessels have been found at Lachish (White-Painted V; Singer-Avitz 2004a: 16.34:11, 16.36:3-4) and Tel Michal (White-Painted V; Negbi 1989: 5.4:5-16), among other sites.

Merrilees (2002) has shown that White-Painted Ware characterized the Middle Cypriot III–Late Cypriot IA, which corresponds to the MB II–III period in the southern Levant. This group has a wide distribution beyond Cyprus, in the Aegean, Anatolia,

southern Levant and Egypt. According to Merrilees (2002: 6), outside Cyprus this style begins before 1675 BCE and does not post-date 1550 BCE.

The Late Bronze Age Pottery Assemblage

Local Ware

Bowls

These can be categorized into four distinct groups:

1. Open (platter) bowls
2. Carinated bowls
3. Egyptian-type bowls
4. Local imitations of imported ware

Open (platter) bowls: These are characterized by curving walls of differing diameters, and more open and flaring profiles than those which characterized the MB. In most cases inclusions were not visible, except for a few sherds in which large inclusions were noticeable. Compared with the open bowls of the MB, the variety of rims is more limited in its scope. There are two main types:

1. Plain rims; either rounded (Fig. 3.9:1, 10), tapered (Fig. 3.9:2), or squared (Fig. 3.9:8, 11);
2. Thickened, everted rims, which can be further subdivided into internally thickened rims (rounded or tapered: Fig. 3.9:3, 6-7, 11) and squared-off rims (Fig. 3.9:4). To this latter type we have assigned Fig. 3.9:5, with a thickened, rounded rim, a pronounced gutter beneath, and no traces of surface treatment.

The bases of all the above types were most probably either concave disk or ring bases (Fig. 3.15).

The weathered nature of the sherds makes it hard to be sure about the extent of surface treatment. A few of the bowls bore a red band on the upper rim (Fig. 3.9:3, 6). In one case traces of pale brown slip were noticed. It seems that many of the open bowls made in a careless manner.

Carinated bowls: These are represented by one type—a flaring carinated bowl, which can be subdivided into three subtypes:

1. Bowl with degenerate carination (Fig. 3.9:13).
Only two sherds of this subtype were retrieved.

The rims were simple and everted. No traces of surface treatment were evident. This subtype is similar to Yannai's B30a type (Yannai 2004).

2. Bowl with pronounced carination (Fig. 3.9:12). Seven sherds of this subtype were retrieved. At least one (Fig. 3.9:12) had a simple rim and a low ring base (not illustrated). Other carinated bowls probably had concave disk bases. No traces of surface treatment were evident.
3. Bowl with low carination (Fig. 3.9:14). This subtype is characterized by a simple everted rim and slight or low carination. It was made from a more delicate ware than the usual ware of the LB bowls from Yesodot. It was also wheel-made, as indicated by wheel marks on the walls, and did not bear any traces of surface treatment. According to our petrographic analysis this bowl originated in the central coastal plain (Golding-Meir, this volume).
4. Egyptianized bowl: These are represented by a large collar-rim bowl type (Fig. 3.14:1). The collar was created either by folding the rim out or by shaping a ridge. According to Martin (2007: 139)

these bowls usually had a ring base, although examples with flat or disc bases were found as well. According to our petrographic analysis this bowl also originated in the central coastal plain (Golding-Meir, this volume).

This type was common in Egypt in the 18th and 19th dynasties and probably had gone out of use by the 20th dynasty. In the southern Levant these bowls were most popular in mid-late 18th dynasty contexts (*ibid.*). Similar bowls were found at sites such as: Aphek X14 (Martin *et al.* 2009: Fig. 10.1:9), Tel Mor (Martin and Barako 2007: Fig. 3.7), Gezer 7/6C (Dever 1986: Pl. 18:21) and Tel Batash IX (Panitz-Cohen and Mazar 2006: Fig 17:1, 3), to mention but a few.

Local imitations of imported ware

Local imitation of a Cypriot White-Slip hemispherical bowl (Fig. 3.14:2): One near-complete hemispherical bowl was retrieved. The rim was simple and incorporated a wishbone handle. The exterior surface of the bowl was severely deteriorated. Nevertheless, this vessel seems to be somewhat

Fig. 3.7.

No.	Vessel	Field no.	Locus	Notes
1.	Storage jar	3241/11	375	
2.	Storage jar	3338/10	410	Groove on top of the rim
3.	Storage jar	3363/15	415	
4.	Jug/jar	3224/27	375	
5.	Storage jar	3341+2/5	415	
6.	Storage jar	3327/3	411	
7.	Large storage jar/pithos	3364/23	410	
8.	Large storage jar/pithos	Sur	Sur	
9.	Large storage jar/pithos	3330/4	399	
10.	Large storage jar/pithos	3011/6	306	
11.	Large storage jar/pithos	3011/8	306	
12.	Large storage jar/pithos	3199/7	339	
13.	Large storage jar/pithos	3346/5	410	

different from the other Cypriot White-Slip bowls. It appears that the quality of this bowl was poorer and surface treatment was careless, which might explain its state of preservation. A similar bowl was found at Aphek (Gadot 2009: Fig. 8.58:15; see also Amiran 1969: Pl. 56:4).

A possible local imitation of Base Ring ware: One rim fragment of a bowl and a ring base were recorded (Fig. 3.14:6-7). The rim was rounded and everted and below it there was a slight carination. Both the rim and the base were different in their fabric

from the other bowls of the pottery assemblage, and might have been imitations of Cypriot Base Ring ware.

Kraters

This group was comprised of four distinctive types:

1. Upright everted rim (Fig. 3.10:1-2); no surface treatment was evident on vessels of this type. One parallel was found at Lachish (Yannai 2004: 19.47:5).
2. Everted, thickened rim (Fig. 3.10:3-4); created by folding the rim out, leaving a concavity under

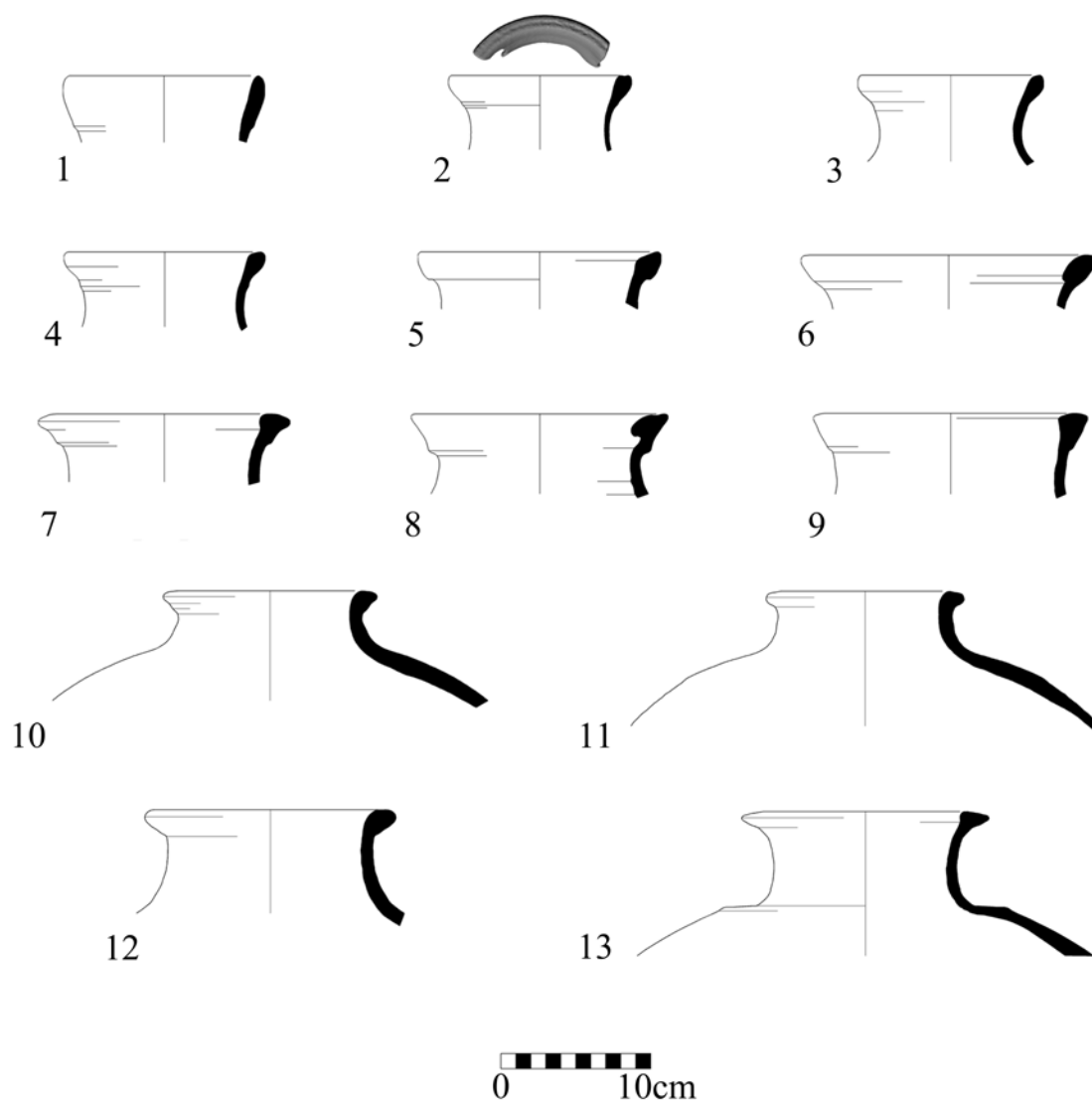


Fig. 3.7. Storage jars (1-6) and pithoi (7-13).

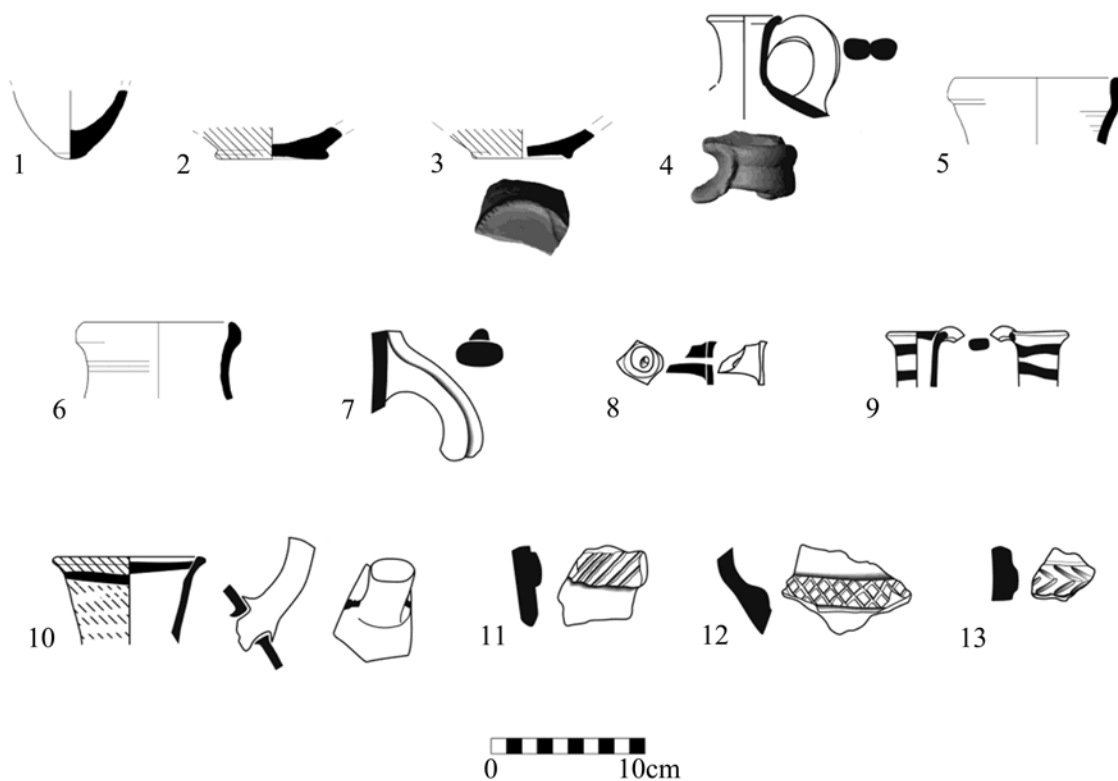


Fig. 3.8. Jugs (2-7), juglet (1), and imported pottery (8-9).

No.	Vessel	Field no.	Locus	Notes
1.	Jug/juglet	3100/5	310	
2.	Jug	3328/2	412	Red-slipped
3.	Jug	3333/17	415	Red-slipped; pierced ring base
4.	Jug	3195/2	313	Double handle
5.	Jug	1030/8	117	
6.	Jug	1030/3	117	
7.	Jug	3363/18	415	Triple handle
8.	Jug/juglet?	1040/1	141	Cypriot?
9.	Jug/juglet	3286a/3	386	Cypriot White Painted ware IV-VI
10.	Jug	3310/6	378	Cypriot White Painted ware IV-VI
11.	Incised relief decoration	3329/8	413	Oblique lines
12.	Incised relief decoration	3335/5	413	Net pattern
13.	Incised relief decoration	3293/1	403	Herringbone pattern

the fold. Some examples of this type had a triangular profile resembling the cooking pot rims (see below). Similar kraters were found in Lachish Level P-2 (Clamer 2004a: Figs. 20.4:6, 20.5:16).

3. Beveled (or hammer) rim; very occasional large inclusions were visible. No surface treatment was evident (Fig. 3.10:5). Kraters of this type are usually carinated (Gadot 2009: 209, Fig. 8.6:1).
4. Inner ledge/gutter rim (Fig. 3.10:6); this type was represented by one rim only, which was everted and beveled and beneath which (on the interior) there was a ledge-like projection which probably functioned in conjunction with a lid. Although the fabric of the rim clearly does not belong to a cooking pot, this rim type is usually associated with a certain class of LB I cooking pot (Tufnell *et al.* 1940: Pl. 55:360). Kraters with similar rims were found at Shiloh (Bunimovitz and Finkelstein 1993: 131, Fig. 6.34:3, 5). As at Yesodot, LB I cooking pots with this rim type were not found at Shiloh.

Judging by other sites (such as Aphek and Tel Batash) the above krater types most likely had either wide disk or ring bases.

Cooking pots

This group was comprised of four distinctive types:

1. Everted, thickened, guttered rim (Fig. 3.11:1). This type is represented by one small sherd. A similar cooking pot, dated to the LB II period, was found in Gezer Stratum 8/7 (Dever 1986: Pl. 13:9).
2. Triangular everted rim (Fig. 3.11:2-3). This type has a carinated body and presumably a round base. Numerous and various inclusions are visible. This type is indicative of the LB period, and has been found at numerous sites (for their general distribution, see Gadot 2009: 213), among them: Aphek (Gadot 2009: Fig. 8.7, Type CP 1b); Gezer (Dever 1986: Pls. 14:8, 16:21); Tel Batash (Panitz-Cohen and Mazar 2006: Fig. 3: Type CP1), and Lachish (Singer-Avitz 2004b: Fig. 18.2: 5; Tufnell *et al.* 1940: Pl. 55: 352; Yannai 2004: 1038, Type CP2).

3. Thickened, triangular, everted rim (Fig. 3.11: 4). The point of carination in this type is somewhat higher, giving it an S-shaped profile. A close parallel with a rounded base was found in Stratum X14 at Aphek (Gadot 2009: Fig. 8.33:9).
4. Ridged, folded rim (Fig. 3.11:5). The one example of this type was large and massive, and carinated in the mid/lower body. The rim was plain and everted and bore two ridges below, one on the interior and one on the exterior. The external ridge was probably created by folding the rim out and down. Both ridges were applied at the same height. No close parallels were found.

Jugs

This group is comprised of three main types:

1. Biconical jugs (Fig. 3.12:2-4). Biconical-shaped body and everted, thickened rim. The rim is either everted and tapered or has a triangular section. One vessel (Fig. 3.12:3) has wheel marks on the interior. Based on parallels from other sites we can assume that the biconical jug type had one shoulder handle and a ring base. While in many sites these vessels were found with decoration, the Yesodot biconical jugs do not show any kind of decoration. These vessels are quite common in the LB period (for their general distribution see Gadot 2009: 224). In the Yesodot vicinity such vessels were found at Tel Migne-Ekron (Killebrew 1996: Figs. 2:16; 3:1; 4:18), Tel Batash (Panitz-Cohen and Mazar 2006: Fig. 8) and Tel Gezer (Seger and Lance 1988: Pls. 10:9; 11:11, 14; 14:1).
2. Jugs/jars with thickened, everted, rounded rim (Fig. 3.12:5-7). As described above, this designation is used when we cannot securely attribute rims to either jugs or storage jars. The rims are mostly simple, thickened and everted. It seems that the more delicate rims could belong to jugs but no clear-cut separation can be made. Their surface appears to be crude, and no surface treatment has been observed. Jugs with similar rims were found at Tel Batash (Type JG 2) with a long narrow neck, piriform body, shoulder

handle, and flat or convex base (Panitz-Cohen 2006: 95-96, Fig. 7). We can presume that the Yesodot jug was probably of the same shape and characteristics.

3. Possible local imitation of Base-Ring ware—an unusual large jug rim with a handle below it (Fig. 3.14:8). The rim is everted and has a slight internal concavity. A small number of large white inclusions are visible to the naked eye. Similar jugs with a handle just below the rim were found in the Fosse Temple at Lachish (Tufnell *et al.* 1940: Pl. 51B:274, 278, 287). Another possible base-ring ware imitation vessel from Yesodot was a jug or juglet handle fragment which was different in its fabric from the other jugs and juglets of the pottery assemblage (not illustrated).

Juglets

One small, near-complete dipper juglet was found without its rim (Fig. 3.13). This could also date to the late MB II or MB III. In addition one more

dipper juglet rim was found (Fig. 3.12:1). This also could be dated to the late MB II or MB III.

Storage Jars

The LB storage jars of the Yesodot pottery assemblage are quite limited in variety. By this period the elaborate molded and folded rims of the MB storage jars had disappeared. In the LB the most dominant types of rim of storage jars were the everted, thickened rim and the folded-out rim (giving it a rounded or squared profile; Fig. 3.12:8-12). The degree of thickening varied from delicate to crude and wide. Some had a shallow gutter on the interior. One differed in having a ridge below the rim (Fig. 3.12:10). According to petrographic analysis this vessel originated in the central coastal plain (Golding-Meir, this volume). A near-identical storage jar type with a ridge below the rim was found at Tel Batash (e.g. Panitz-Cohen and Mazar 2006: Fig. 31:2 [Type 2c]). This jar (which was completely restored) was described

Fig. 3.9.

No.	Vessel	Field no.	Locus	Notes
1.	Open bowl	3310/2	378	Soot marks on the exterior and interior
2.	Open bowl	3277/1	393	
3.	Open bowl	3229/2	375	Traces of red paint on the upper interior of the rim
4.	Open bowl	3335/1	413	
5.	Open/carinated bowl	3048/3	322	
6.	Open bowl	3282/4	397	Traces of red paint on the upper part of the rim
7.	Open bowl	1035/1	115	
8.	Open bowl	3340/1	410	
9.	Open bowl	3319/3	405	
10.	Open bowl	3276/2	388	
11.	Open bowl	3171/3	339	
12.	Carinated bowl	3098/1	336	
13.	Carinated bowl	3288/5	388	
14.	Carinated bowl	Surface	Surface	

as a small/medium painted storage jar with two handles and a convex base. It is fair to assume that the Yesodot storage jar had similar traits and might have been painted.

Some bases that were found at the site can be attributed to LB jars, among them stump (Fig. 3.12:13), narrow and convex bases (Fig. 3.12:14-15). Looking at parallels from Aphek, Gezer, Tel Migne-Eqron and Tel Batash we can assume that most of the jars had ovoid bodies and 2-4 handles.

The Yesodot LB jars described above are typical of the period and are commonly known as 'Canaanite jars'. These were key vessels in international trade and were found across the Levant, Egypt and the Aegean, among other regions. In the Yesodot vicinity these jars were found at Gezer (Dever 1986), Tel Migne-Eqron (Killebrew 1996), Tel Batash (Panitz-Cohen and Mazar 2006) and Lachish (Clamer 2004a; Yannai 2004).

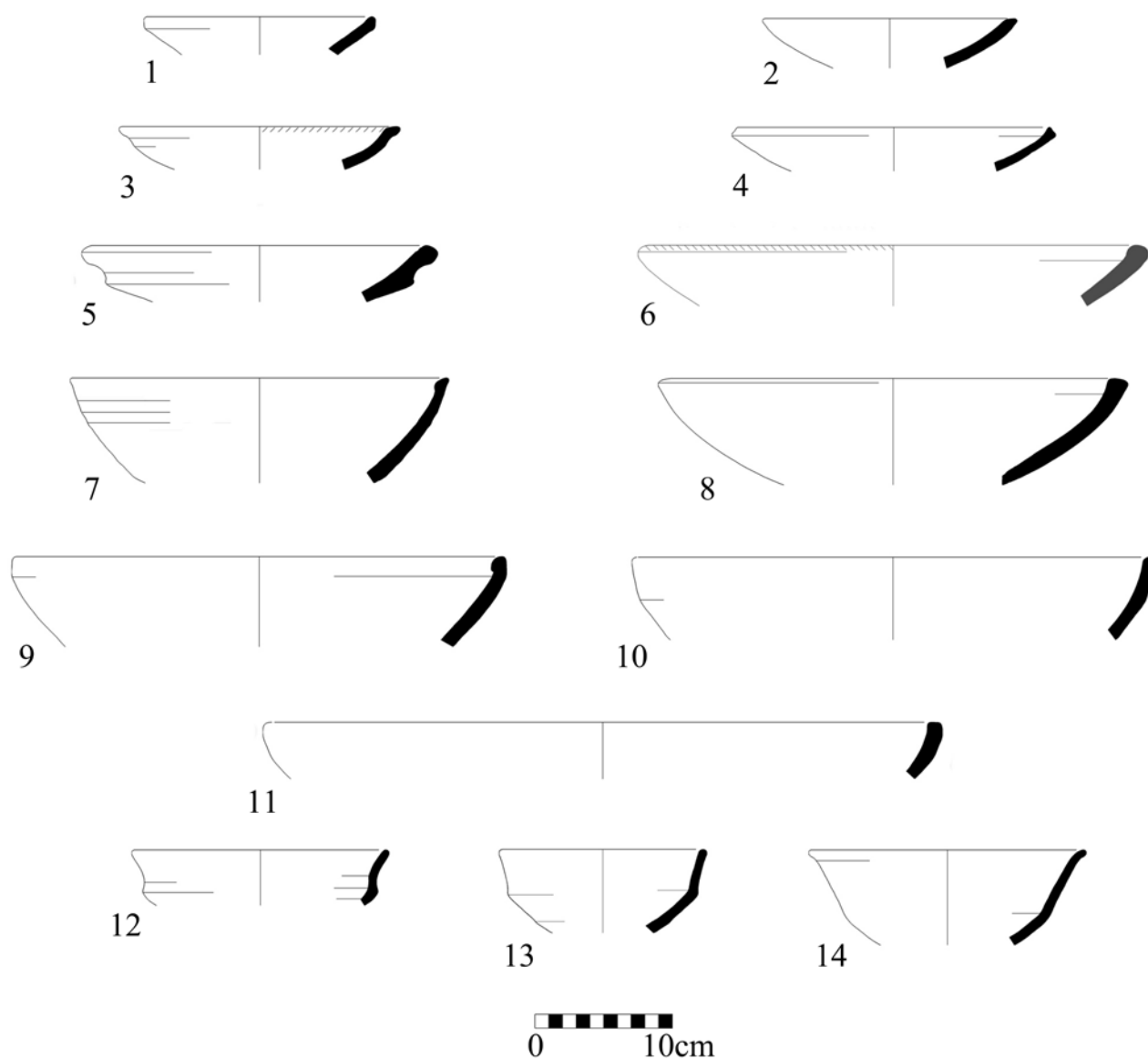


Fig. 3.9. LB open and carinated bowls.

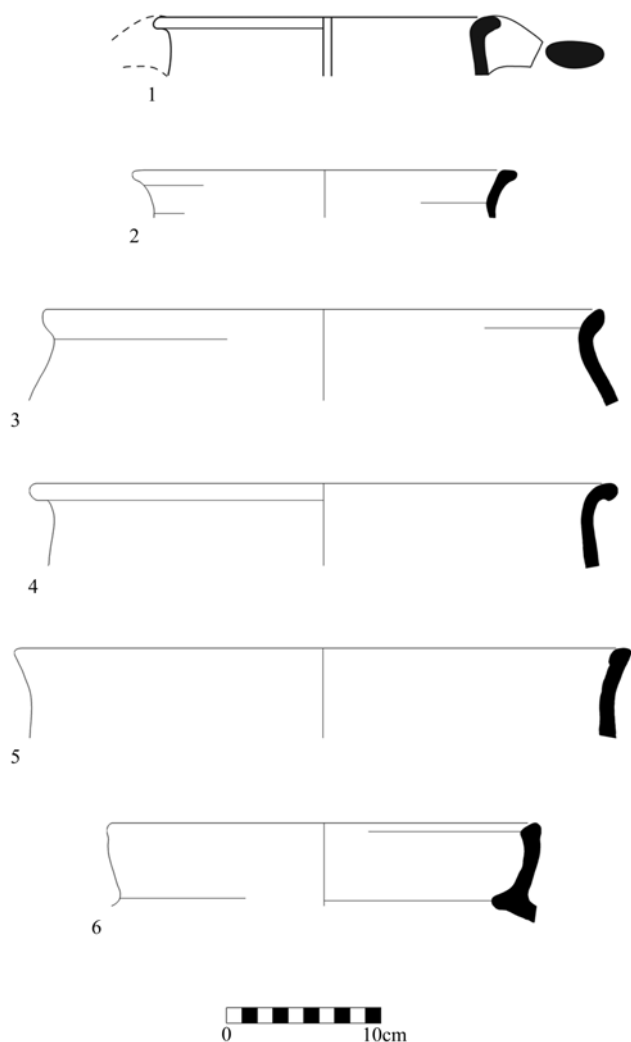


Fig. 3.10. LB kraters.

No.	Vessel	Field no.	Locus
1.	Krater	3278/1	386
2.	Krater	3314/3	399
3.	Krater	3213/3	369
4.	Krater	3251/2	383
5.	Krater	Surface	Surface
6.	Krater	3364/17	410

Imported Ware

Cypriot and Cypriot imitation pottery

White Slip I–II: The White Slip Ware examples at Yesodot include four rims, one body sherd (Fig. 3.14:3-5) and two handles (not illustrated), all of which are decorated. These were part of hemispherical bowls which are commonly known as ‘milk bowls’. The rims were simple and the handles were of a wishbone handle type. They were decorated with horizontal and vertical bands filled with ladder patterns. These vessels are common in the southern Levant and were imported from Cyprus. Due to the fragmentary nature of the sherds it is hard to determine if they belonged to White Slip I or II. In the vicinity of Yesodot they were found at Gezer (Dever 1986: Pl. 9:24), Tel Migne-Ekron (Killebrew 1996: Pl. 5:8), Tel Batash (Panitz-Cohen and Mazar 2006: Pls. 19:10-14; 21:1-4; 33:8-9; 45:5-6) and Lachish (Bunimovitz 2004: 1264-1265).

Imported Pithos? (Fig. 3.14:9-10)

One thick rim with a ridge below was found at the site. This seems to have been part of a massive storage jar, probably a pithos. By its fabric and shape it is also unique within the pottery assemblage. Pithoi were not common in this region

Fig. 3.11.

No.	Vessel	Field no.	Locus
1.	Globular cooking pot	3232/14	375
2.	Globular cooking pot	3192/9	345
3.	Globular cooking pot	3141/2	322
4.	Globular cooking pot	3237/8	382
5.	Globular cooking pot	Surface	Surface

during the LB period, and no parallels to this rim have been found in the Yesodot vicinity. The best parallel was found outside the southern Levant, at Enkomi in Cyprus (Pilides 2000: Cat. No. 204). On the mainland, generally similar types have been identified in LB contexts at sites such as Ugarit, Sarepta, Tyre, Akko, Hazor, Ashdod and Beth-Shemesh (Gilboa 2001: 164-165). According to petrographic analysis this pithos originated in the central coastal plain (Golding-Meir, this volume). We suggest that this vessel was either a local imitation or made by a Cypriot potter residing in the central coastal plain.

A small number of other pithos body sherds from Yesodot bore plastic relief band decoration.

This phenomenon should probably be associated with the pithos rim type discussed above; i.e., it would appear to have Cypriot or northern coastal inspirations. Pithoi with relief bands were found at Athienou, Enkomi, Myrtou-Pigades, Apliki and other sites. These date from the Late Cypriot II-III (13th–12th centuries BCE; Dothan and Ben-Tor 1983: 113; Pilides 2000).

According to petrographic analysis these pithoi were manufactured locally (Golding-Meir, this volume). We can assume that these sherds also come from vessels that were either local imitations of Cypriot pithoi or Cypriot pithoi manufactured locally by a Cypriot potter.

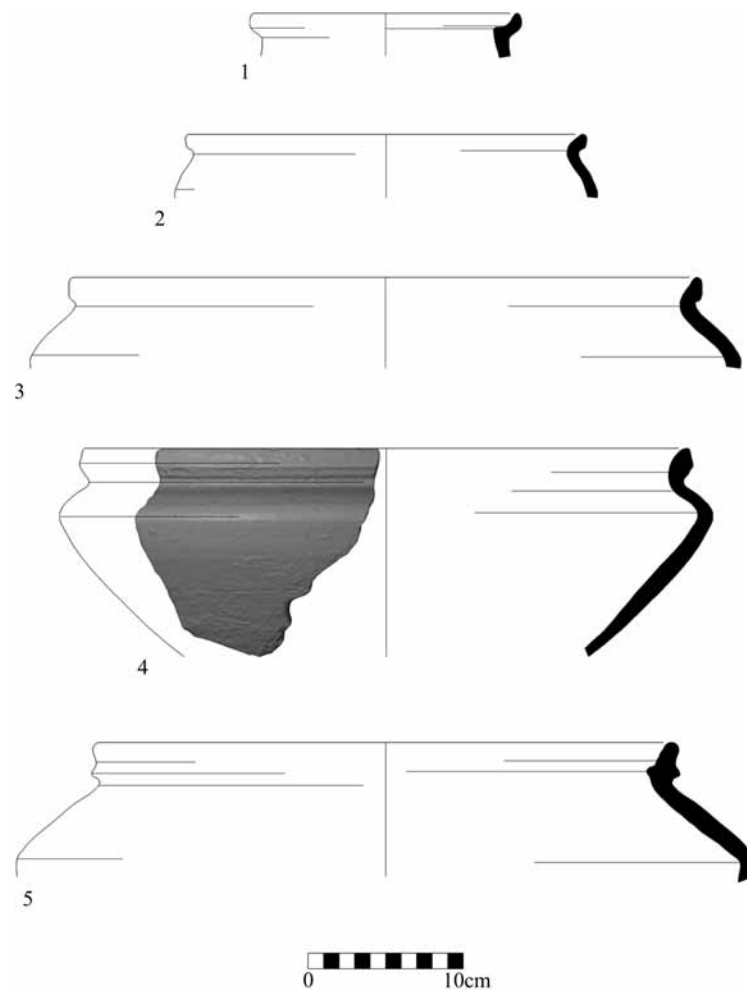


Fig. 3.11. LB cooking pots.

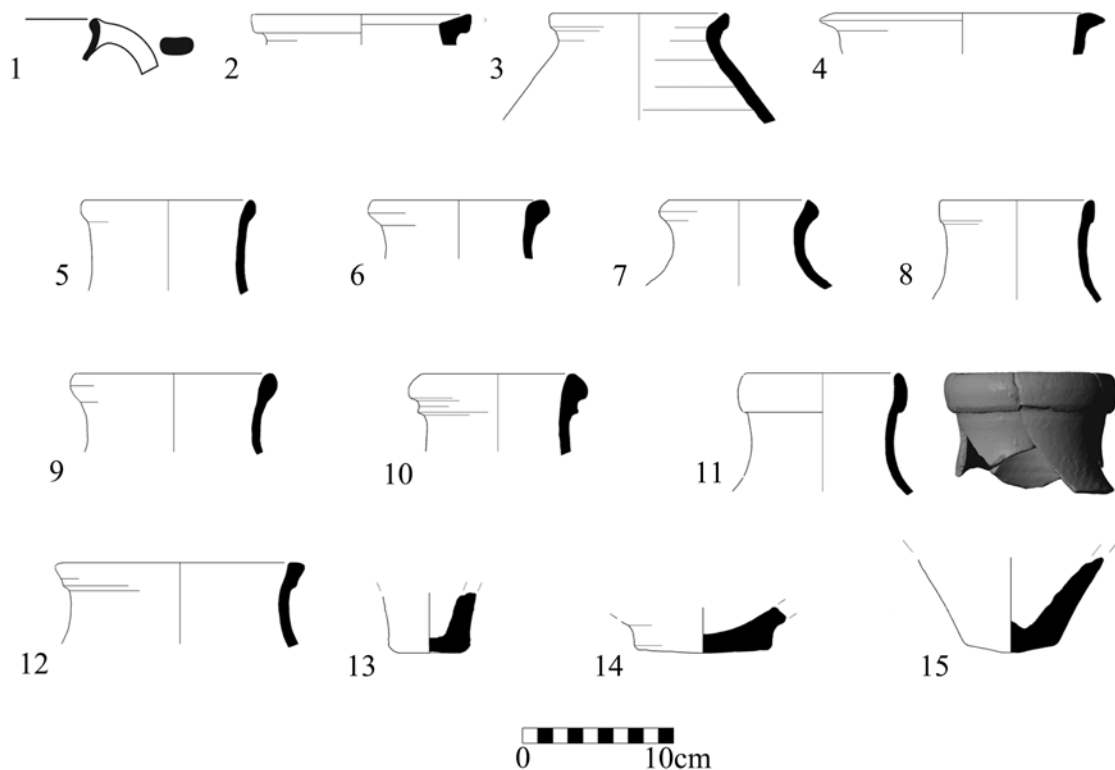


Fig. 3.12. Jugs and jars.

No.	Vessel	Field no.	Locus
1.	Juglet	3249/5	390
2.	Biconical jug	3137/2	323
3.	Biconical jug	3298/12	398
4.	Biconical jug	3198/3	350
5.	Jug/jar	3224/26	375
6.	Jug/jar	1021/2	115
7.	Jug/jar	3336/10	399
8.	Storage jar	3289/1	398
9.	Storage jar	3364/31	410
10.	Storage jar	3361/8	310
11.	Storage jar	3363/14	415
12.	Storage jar	3287/5	393
13.	Storage jar	3318/4	387
14.	Storage jar	1060/1	133
15.	Storage jar	3275/2	389

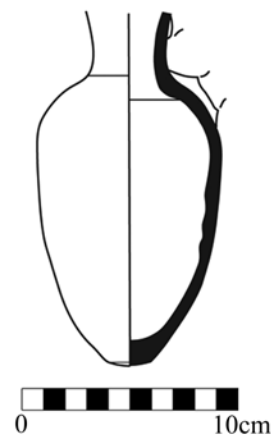


Fig. 3.13. LB dipper juglet (L391, field. no. 3295/1).

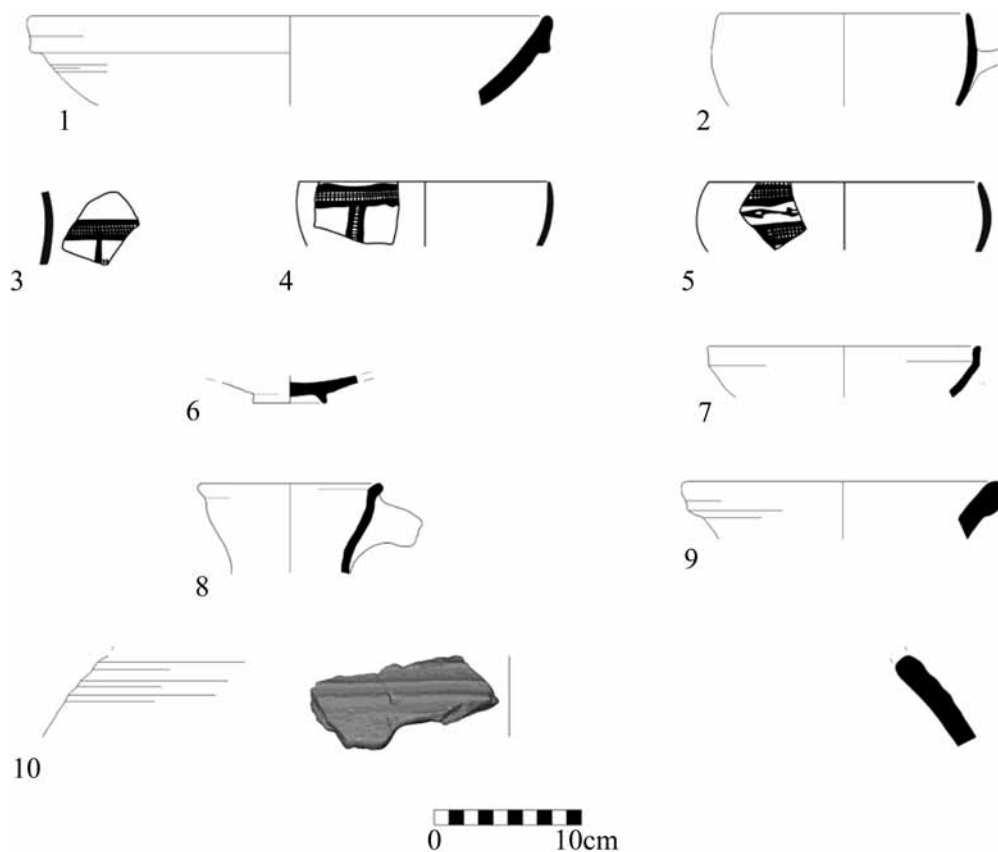


Fig. 3.14. LB imported pottery and its imitations.

No.	Vessel	Field no.	Locus	Notes
1.	Bowl	3275/4	389	Egyptian(ized)
2.	Bowl	1072/1	133	Local imitation of white slip
3.	Bowl	3235/1	379	Cypriot White Slip ware
4.	Bowl	3236/1	380	Cypriot White Slip ware
5.	Bowl	3128/4	339	Cypriot White Slip ware
6.	Bowl	3229/1	375	Local imitation of Base Ring ware
7.	Bowl	3175/1	355	Local imitation of Base Ring ware
8.	Jug	3362	Surface	Local imitation of Base Ring ware?
9.	Pithos	3251/1	383	Cypriot?
10.	Pithos	1050/1	111	Cypriot?

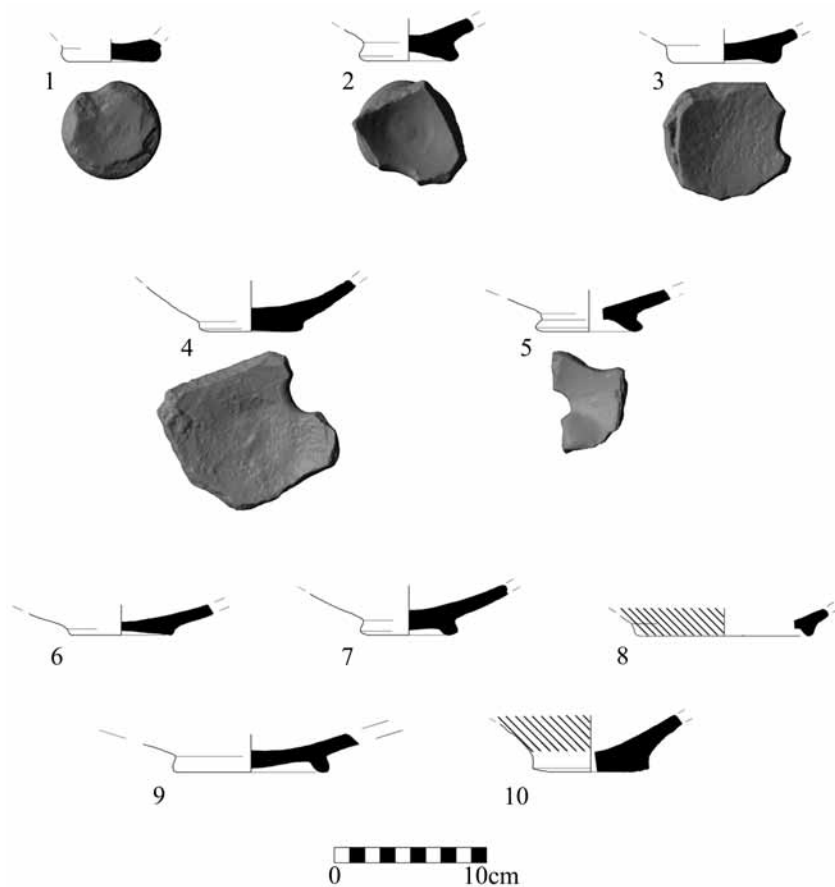


Fig. 3.15. Stoppers, lids and bases.

No.	Vessel	Field no.	Locus	Notes
1.	Stopper/lid	3061/1	317	Base of a bowl
2.	Stopper/lid	3120/15	339	Base of a bowl
3.	Stopper/lid	3237/9	382	Base of a bowl
4.	Stopper/lid	3347/15	415	Base of a bowl
5.	Stopper/lid	3318/3	387	Pierced base of a bowl
6.	Stopper/lid	3249/4	380	Base of a bowl
7.	Bowl	3235/13	379	Ring base
8.	Bowl	3227/2	345	Ring base decorated with non-diagonal incisions; traces of pale brown slip
9.	Bowl	3278/5	386	Ring base
10.	Jug	3286b/3	386	Disk base; traces of dark slip

The following section deals with pottery vessels and ceramic objects that could not be attributed to a particular period, being arguably either MB or LB in date.

Lids and Stoppers (Figs. 3.15:1-7, 3.16)

Dozens of ceramic vessel bases were recorded during the excavation (N=356). Of these, at least 35 were polished and shaped into rounded objects, which most probably were used as lids or stoppers for storage vessels. In addition, two near-complete stoppers (and a fragment of a third) made of unbaked clay were recorded (Fig. 3.16). These may have functioned as stoppers for large storage vessels, or for kiln pipes which were uncovered in the pottery workshop area (cf. Chapter 2). Similar stoppers were found at Shiloh (Brandle 1993: 229, Fig. 9.5:1) and Tel Batash (Panitz-Cohen and Mazar 2006: Pl. 20:2).

Baking Tray (Fig. 3.17:1)

A single near-complete vessel of this type was found (Fig. 14:1). In form it was rounded with a simple flat top, and was made of cooking pot ware with large inclusions. These vessels are quite rare in the MB and LB; they are more common in the Iron Age I. Two similar parallels were found at Aphek, in Strata X16 and 14, dating to the MB II and LB II respectively (Gadot 2009: Fig. 8.31:12; Yadin 2009: Fig. 7.16:12).

Lamps (Fig. 3.17:2)

Only a few lamp sherds were found (N=5). These vessels had a pinched rim and the shape of their body was probably rounded and shallow (Fig. 3.17:1; Amiran 1969: 190; Pl. 59).

Votive Bowls (Fig. 3.17:3-6)

Three small, shallow and coarse bowls were recovered during the excavation. Figure 3.17:4 was a very shallow bowl. It had a thick base, thin walls, and a simple rim. The color of the vessel was dark—almost black—with no inclusions visible. It seems that this bowl was burned during the firing process. Figure 3.17:5 was also a very shallow vessel and severely deteriorated and weathered,

and was covered with a thick layer of patina. Figure 3.17:3 was presumably another shallow bowl, but due to its sherd size and poor state of preservation no further conclusions about it could be drawn. In addition a small carinated bowl was recorded. This bowl might have been part of the upper section of a votive chalice/goblet (Fig. 3.17:6). This vessel had an everted, flat-top rim and was made of a crude ware with dark inclusions on the exterior and white and dark inclusions in the interior. The interior side was also blackened, probably as a result of poor firing. No parallels for this small bowl were found, but it seems to belong to the LB repertoire.

The small size of the bowls suggests that they functioned as votive vessels and had a ritualistic function (offering bowls?). It is hard to date them to any specific period due to the mixed nature of the contexts in which they were found. However, similar votive bowls were found at Lachish in the fills of the Level IV palace fort, dated to the MB I period. Singer-Avitz notes that typologically these bowls belonged to the assemblages of a cultic place (Singer-Avitz 2004a: 904-905, Fig. 16.6:7-8).

Small Bowl/Jar (Fig. 3.17:11)

This was a small narrow bowl with slightly curving walls, and a thickened, everted rim. No parallels were found.



Fig. 3.16. Clay stoppers.

Miniature Vessels (Fig. 3.17:7-10)

Figure 3.17:7 was quite small and had a funnel-shaped rim. Part of the preserved shoulder suggests that it had a squat body. No parallels for this small juglet were found, but it seems to belong to the LB repertoire. Figure 3.17:8 is the base of a small/miniature juglet with a string-cut base. Figure 3.17:9 has a tall and narrow, somewhat squat body. Figure

3.17:10 has a tall and narrow body and a string-cut base. Similar vessels were found at Tel Haror (Katz 2000: Fig. 24).

Chalices/Goblets (Fig. 3.17:12-15)

These can be described as shallow bowls on a pedestal, which is usually shaped as a leg ending in a trumpet base (Fig. 3.17:12-15). These vessels

Fig. 3.17.

No.	Vessel	Field no.	Locus	Notes
1.	Baking tray	3227/7	345	
2.	Lamp	3227/4	345	
3.	Votive bowl	1030/6	117	
4.	Votive bowl	3282/3	399	
5.	Votive bowl	3363/7	415	
6.	Votive bowl	3362	Surface	
7.	Votive juglet?	3224/25	375	
8.	Votive juglet?	3329/6	375	String cut marks on the base
9.	Votive vessel?	3364/45	415	
10.	Votive vessel?	3362	Surface	String cut marks on the base
11.	Bowl/small jar	3363/8	415	Egyptianized?
12.	Chalice/goblet base?	3115/7	310	
13.	Chalice/goblet base	3249/6	380	
14.	Chalice/goblet base	3282/6	397	
15.	Chalice/goblet base	3224/14	375	
16.	Stand	3337/1	378	
17.	Stand	3224/23	375	
18.	Stand	3229/24	375	
19.	Stand	3224/22	375	
20.	Stand	3047/9	323	
21.	Stand?	3361/6	310	
22.	Stand base	3107/6	330	
23.	Stand	3232/23	375	

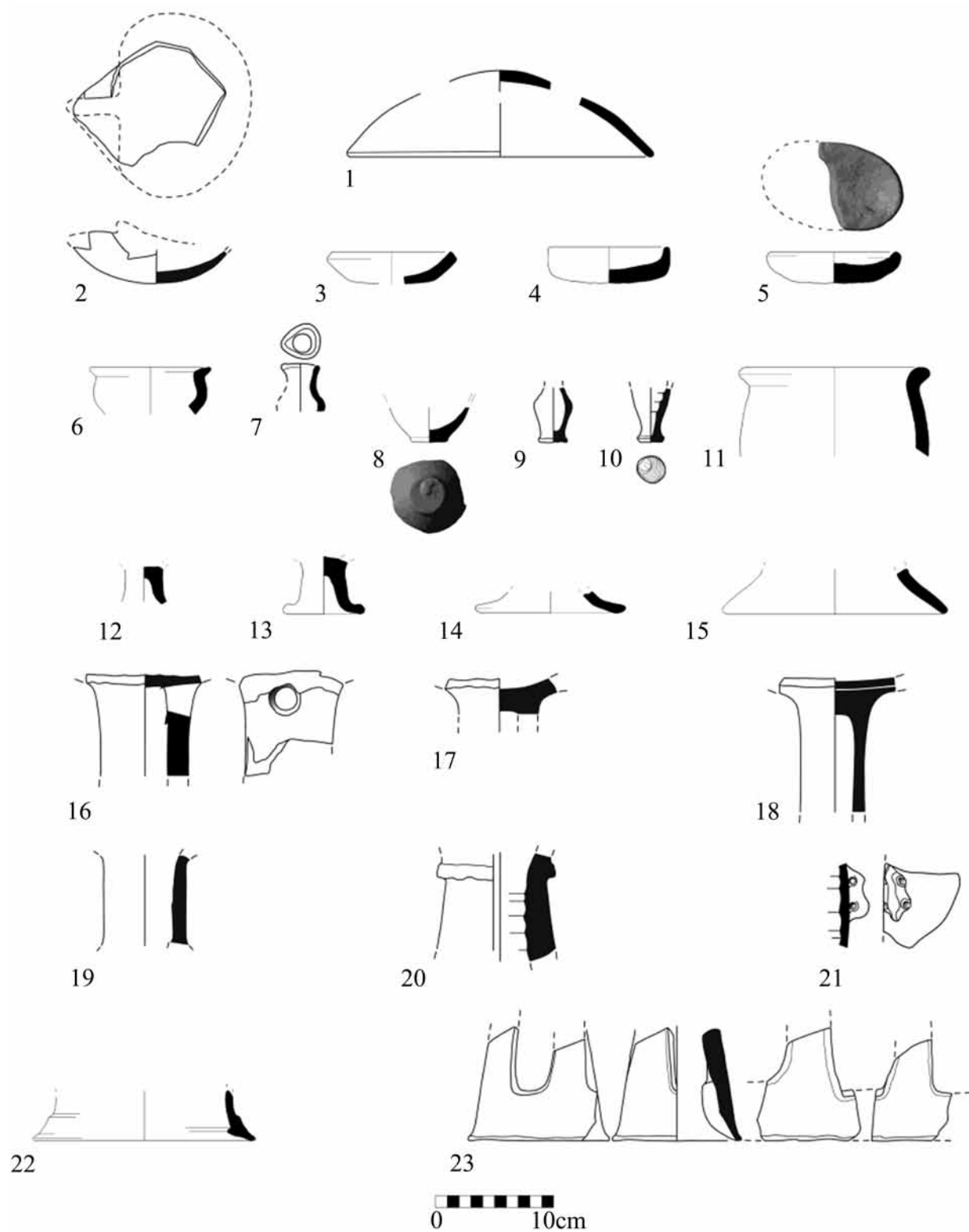


Fig. 3.17. Votive bowls, lamp, chalices, and stands.

are quite rare in the pottery assemblages of both periods at Yesodot. The total amounts to ca. 1.5% of the entire assemblage (N=14). Their remains are mostly comprised of bases, namely trumpet bases (N=12) (although some of these bases might have belonged to bowls).

These chalice/goblet trumpet bases have parallels from MB sites such as Shiloh and Lachish (Bunimovitz and Finkelstein 1993: Fig. 6.5:22-23; Singer-Avitz 2004a: Fig. 16.3:7-9), and from LB strata at Lachish Fosse Temple II (Tufnell *et al.* 1940: Pls. 46B and 47B) and Area P's Local Stratum 2-1 (Clamer 2004a: Figs. 20.5:26, 20.30:3).

Stands (Fig. 3.17:16-23)

Eighteen stand sherds were recorded (bases and body sherds). These can be divided into two main types:

1. Simple stands (presumably of the cylindrical type).
2. Fenestrated stands.

Since no complete stands were recovered or could be restored it is impossible to date or compare them with stands from other sites, although it seems that some of the stand bases have parallels from Lachish Area P's Local Stratum 1 (Clamer 2004a: Fig. 20.17:19). Stands are not commonplace. They are often associated with what are interpreted as ritual contexts where they were presumably used for libations, burning incense, and as pedestals for votive vessels or other objects (Mazar 1980:87-96; Bunimovitz and Finkelstein 1993: 92-93; Katz 2000: 66). Stands have been found at various MB ritual places, such as Shiloh (Bunimovitz and Finkelstein 1993: Figs. 6.21:4, 6; 6.22:6), and at several sites in the vicinity of Yesodot, such as Giv'at Sharet (Bahat 1975:66-67), Lachish (Singer-Avitz 2004a: Figs. 1:19; 16.5:4-5) and further to the south at Tel Haror (Oren *et al.* 1991; Katz 2000). In the LB period cultic stands were found in smaller quantities at sites such as Shiloh (Bunimovitz and Finkelstein 1993: Fig. 6.37:14), Aphek (Gadot 2009: Fig. 8.36:12-13), Tel Migne-Eqron (Killebrew 1996: Pl. 5:12), Lachish Fosse Temple II (Tufnell *et al.* 1940: Pl. LIII B) and the Level VI Temple (Clamer 2004b: Figs. 21.4:2, 6-8; 21.7:18).

Summary and Conclusions

The dearth of complete or full-profiled vessels is a methodological hindrance, limiting the resolution of typological nuance. The following summary is cognisant of this limitation. Therefore comparison with the complete vessels from neighboring, coeval assemblages is a key factor in our interpretations.

The Middle Bronze Age pottery assemblage

The MB pottery assemblage of Yesodot is comprised mainly of domestic vessels such as open bowls, cooking pots and—to a lesser extent—additional bowl types and kraters. However, the large number of storage vessels (as counted separately from both rims and handles) suggests large-scale commodity production and storage, beyond what would be required by purely domestic consumption. We should expect commercial transactions to accompany the large numbers of storage vessels, as indeed the petrographic analysis indicates; petrographic Group D, mainly associated with storage vessels, has coastal origins (Golding-Meir, this volume).

Comparing the Yesodot MB pottery assemblage with other sites in the region, we see a notable similarity to the following sites: Aphek Strata X19–X15, BVI–BIII and AXVII–AXI; Gezer Field I, Local Strata 8 and 7, and Field VI (acropolis) Local Strata 12–10; Tel Batash Strata XII–XI; and Lachish Area D (cult place) and Area P, Local Strata 6–3. This suggests that all three MB sub-phases are represented in the pottery assemblage of Yesodot, perhaps even continuing into the LB IA period. However, the main bulk of the MB material dates to the MB I and MB II periods and only a small fraction to the MB III/LB IA. This might suggest that towards the end of the MB II there was a decline in the wealth and prosperity of the site.

The Late Bronze Age pottery assemblage

The LB pottery assemblage of Yesodot is homogeneous and typical. A comparison of this assemblage with the MB pottery assemblage shows that the former was more limited in its scope. Like the MB material, it is comprised mainly of domestic vessels, as indicated by kitchen wares such

as open bowls, kraters, cooking pots and storage jars. Towards the end of the MB period the variety of storage jars and pithoi with elaborate molded rims almost completely disappeared, to be replaced by a more limited jar repertoire, consisting of the common Canaanite jars, with plain thickened rims. This transition can be observed at other sites in the region, such as Tel Gezer and Tel Batash. In addition to its probable domestic function, the widely distributed, standardized Canaanite jar is an expression of the wide-reaching international commercial network in this period (Amiran 1969: 140-142; Panitz-Cohen 2006: 79). As elsewhere, this impression of inter-regional exchange is supported by the imports and imitations of non-local vessel types.

Looking at the Yesodot LB pottery assemblage and at other sites in the region, we see comparisons with the following sites: Aphek Strata X14–X12; Gezer Field I, Local Strata 6 and 5, and Field VI (acropolis) Local Strata 9–7; Tel Migne-Eqron Strata X–VIII; Tel Batash Strata X–VI; Lachish Area S's Local Strata 3–1, Area P, Local Strata 2–1, Fosse Temple I–II and general Strata VII (Area S) and VI (in all above areas). From a chronological point of view, it is difficult to date the pottery assemblage to a distinctive sub-phase. It seems that some of the MB III pottery could also be of LB I in date. It is our interpretation that after a decline in prosperity at Yesodot towards the end of the MB period or perhaps the early LB, there was some recovery,

Table 3.2. Count of base types.

Type	No.	%
Flat	43	14.4
Rounded	3	1.0
Concave	26	8.7
Convex	12	4.0
Disk	105	35.2
Ring	92	30.9
Button	1	0.3
Pointed	4	1.3
Trumpet	12	4.0
	298	100%

probably during the LB IB or LB II period. So far there is no evidence that occupation at Yesodot continued into the Iron Age.

In conclusion, the pottery assemblages of both periods, along with the presence of the workshop and the adjacent pits, the cultic stands and the imported wares (admittedly in small quantities) suggest that this site was a fairly substantial rural settlement, with more intense activity in the MB I–II and LB II periods and less in the intervening years; only a few sherds could be safely dated to the MB III/LB I.

References

- Amiran, R. 1969. *Ancient Pottery of the Holy Land: From its Beginnings in the Neolithic Period to the End of the Iron Age*. Jerusalem.
- Arie, E. 2006. A Middle Bronze Age Tomb Assemblage from Area J. In: Finkelstein, I., Ussishkin, D. and Halpern, B. (eds.), *Megiddo IV, The 1998-2002 Seasons* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 24). Tel Aviv. Pp. 166-170.
- Åström, P. 1972. *The Swedish Cyprus Expedition: The Middle Cypriot Bronze Age* (Vol. IV, Part 1B). Lund.
- Bahat, D. 1975. Excavations at Giv'at – Sharet, Near Beth Shemesh. *Qadmoniot* 8: 64-67. (Hebrew)
- Beck, P. 2000a. Area B: Pottery. In: Kochavi, M., Beck, P. and Yadin, E. (eds.), *Aphek-Antipatris I: Excavation of Areas A and B, the 1972-1976 Seasons* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 19). Tel Aviv. Pp. 93-133.
- Beck, P. 2000b. Area A: Middle Bronze Age IIA Pottery. In: Kochavi, M., Beck, P. and Yadin, E. (eds.), *Aphek-Antipatris I: Excavation of Areas A and B, the 1972-1976 Seasons* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 19). Tel Aviv. Pp. 173-238.
- Ben-Tor, A. and Bonfil, R. 2003. The Stratigraphy and Pottery Assemblages of the Middle and Late Bronze Ages in Area A. In: Ben-Tor, A., Bonfil, R. and Zuckerman, S. (eds.), *Tel Qashish: a Village in the Jezreel Valley. Final Report of the Archaeological Excavation (1978-1987)* (Qedem Reports 5). Jerusalem. Pp. 185-276.
- Ben-Ami, D. and Livneh, A. 2005. The Typological Analysis of the Pottery of the Middle and Late Bronze Ages. In:

- Ben-Tor, A., Ben-Ami, D. and Livneh, A. (eds.), *Yoque'am III: The Middle and Late Bronze Ages. Final Report of the Archaeological Excavations (1977-1988)* (Qedem Reports 7). Jerusalem. Pp. 247-348.
- Brandl, B. 1993. Clay, Bone, Metal and Stone Objects. In: Finkelstein, I. (ed.), *Shiloh. The Archaeology of a Biblical Site* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 10). Tel Aviv. Pp. 223-265.
- Bonfil, R. 1992. MB II Pithoi in Palestine. *Eretz-Israel* 23: 26-37 (Hebrew), 146 (English summary).
- Bonfil R. Forthcoming. Pottery of the Middle Bronze Age IIB-C. In: Gitin, S. (ed.), *The Ancient Pottery of Israel and its Neighbors from the Neolithic through the Hellenistic Period*. Jerusalem.
- Bunimovitz, S. 2004. The Late Cypriot Pottery. In: Ussishkin, D. (ed.), *The Renewed Archaeological Excavations at Lachish (1973-1994)* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 22). Tel Aviv. Pp. 1262-1273.
- Bunimovitz, S. and Finkelstein, I. 1993. The Pottery. In: Finkelstein, I. (ed.), *Shiloh. The Archaeology of a Biblical Site* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 10). Tel Aviv. Pp. 81-196.
- Clamer, C. 2004a. Additional Late Bronze Age Pottery Assemblages: The pottery from Levels P-2 and P-1 in Area P. In: Ussishkin, D. (ed.), *The Renewed Archaeological Excavations at Lachish (1973-1994)* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 22). Vol. III. Tel Aviv. Pp. 1155-1242.
- Clamer, C. 2004b. The Pottery and Artefacts from the Level VI Temple in Area P. In: Ussishkin, D. (ed.), *The Renewed Archaeological Excavations at Lachish (1973-1994)* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 22). Vol. III. Tel Aviv. Pp. 1288-1368.
- Dever, W.G. 1986. *Gezer IV: the 1969-1971 Seasons in Field VI, the "Acropolis"*. Jerusalem.
- Dothan, T. and Ben-Tor, A. 1983. *Excavations at Athienou, Cyprus* (Qedem 16). Jerusalem.
- Gadot, Y. 2009. Late Bronze and Iron Age Pottery. In: Gadot, G. and Yadin, E. (eds.), *Aphek-Antipatris II: The Remains of the Acropolis. The Moshe Kochavi and Pirhiya Beck Excavation* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 27). Tel Aviv. Pp. 182-341.
- Gadot, Y., Yasur-Landau, A. and Ilan, D. 2006. The Middle Bronze III and Late Bronze I Pottery from Areas F and N. In: Finkelstein, I., Ussishkin, D. and Halpern, B. (eds.), *Megiddo IV, The 1998-2002 Seasons* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 24). Tel Aviv. Pp. 171-190.
- Garfinkel, Y. and Bonfil, R. 1990. Graves and Burial Customs of the MB IIA Period in Gesher. *Eretz-Israel* 21: 132-147 (Hebrew), 107 (English summary).
- Gilboa, A. 2001. The Significance of Iron Age "Wavy Band" Pithoi Along the Syro-Palestinian Littoral, with Reference to the Tel Dor Pithoi. In: Wolff, S. R. (ed.), *Studies in the Archaeology of Israel and Neighboring Lands in Memory of Douglas L. Esse*. Chicago. Pp. 163-173.
- Ilan, D. Forthcoming. The Middle Bronze Age Pottery Assemblage. In: *Dan V*. Jerusalem.
- Ilan, D. and Marcus E. Forthcoming. Pottery of the Middle Bronze Age IIA. In Gitin, S. (ed.), *The Ancient Pottery of Israel and its Neighbors from the Neolithic through the Hellenistic Period*. Jerusalem.
- Johnson, P. 1982. The Middle Cypriot Pottery found in Palestine. *Opuscula Atheniensia* XIV: 49-72.
- Katz, J. 2000. *The Archaeology of Cult in Middle Bronze Age Canaan: the Sacred Area at Tell Haror, Israel* (Ph.D. dissertation). Philadelphia.
- Killebrew, A.E. 1996. *Tel Mique-Egbron: Report of the 1985-1987 Excavations in Field INE. Areas 5, 6, 7, the Bronze and Iron Ages*. Jerusalem.
- Martin, M.A.S. and Barako, T. 2007. Egyptian and Egyptianized Pottery. In: Barako, T. (ed.), *Tel Mor: The Moshe Dothan Excavations, 1959-1960* (Israel Antiquities Authority Report 32). Jerusalem. Pp. 129-165.
- Martin, M.A.S., Gadot, Y., and Goren Y. 2009. Imported Egyptian and Local Egyptian-Style Pottery From Late Bronze and Iron Age Strata. In: Gadot, G. and Yadin, E. (eds.), *Aphek-Antipatris II: The Remains of the Acropolis. The Moshe Kochavi and Pirhiya Beck Excavation* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 27). Tel Aviv. Pp. 362-386.
- Mazar, A. 1980. *Excavations at Tell Qasile. The Philistine Sanctuary: Architecture and Cult Objects* (Qedem 12). Jerusalem.
- Merrilees, R. S. 2002. The Relative and Absolute Chronology of the Cypriote White Painted Pendent Line Style. *Bulletin of the American Schools of Oriental Research* 326: 1-9.
- Negbi, O. 1989. Bronze Age Pottery (Strata XVII-XV). In: Herzog, Z., Rapp, G. Jr, and Negbi, O. (eds.), *Excavation at Tel Michal, Israel* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 8). Minneapolis and Tel Aviv. Pp. 43-63.
- Oren, E., Yekutieli, Y., Nachshoni, P. and Finestine, R. 1991. Six Years of Excavations at Tel Haror. *Qadmoniot* 93-94: 2-19. (Hebrew)
- Panitz-Cohen, N. 2006. The Pottery of Strata XII-V. In: Panitz-Cohen, N. and Mazar, A. (eds.), *Timnah (Tel Batash) III: The Finds from the Second Millennium* (Qedem 45). Jerusalem. Pp. 9-150.
- Panitz-Cohen, N. and Mazar, A. (eds.) 2006. *Timnah (Tel Batash) III: The Finds from the Second Millennium* (Qedem 45). Jerusalem. Pp. 9-150.
- Pilides, D. 2000. *Pithoi of the Late Bronze Age in Cyprus: Types from the Major Sites of the Period*. Nicosia.
- Scheffelowitz, N. 2002. Pottery: Middle Bronze Age. In: Kempinski, A., *Tel Kabri: the 1986-1993 Excavation Seasons* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 20). Tel Aviv. Pp. 109-175.
- Seger, J. D. and Lance, H. D. (eds.). 1988. *Gezer V: The Field I Caves*. Jerusalem.
- Singer-Avitz, L. 2004a. The Middle Bronze Age Pottery from Areas D and P. In: Ussishkin, D. (ed.), *The Renewed Archaeological Excavations at Lachish (1973-1994)* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 22). Vol. III. Tel Aviv. Pp. 900-965.
- Singer-Avitz, L. 2004b. The Pottery of the Late Bronze Age I Phase: the Area P Assemblage. In: Ussishkin, D. (ed.), *The Renewed Archaeological Excavations at Lachish (1973-1994)* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 22). Vol. III. Tel Aviv. Pp. 1012-1022.

- Tufnell, O., Inge, C. H. and Harding, L. 1940. *Lachish II. The Fosse Temple*. London.
- Uziel, J., Ben-Shlomo, D., Ilan, D., Shai, I. and Maeir, A. M. 2009. Middle Bronze Age II Pottery Production in the Western Shephelah: Comparing Methods from Tel Nagila, Tell es-Safi/Gath, and Tel Burna. *Leiden Journal of Pottery Studies* 25: 141-162.
- Yadin, E. 2009. Middle Bronze Age Pottery. In: Gadot, G. and Yadin, E. (eds.), *Aphek-Antipatris II- The Remains of the Acropolis. The Moshe Kochavi and Pirhiya Beck Excavation* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 27). Tel Aviv. Pp. 111-181.
- Yannai, E. 2004. The Late Bronze Age Pottery from Area S. In: Ussishkin, D. (ed.), *The Renewed Archaeological Excavations at Lachish (1973-1994)* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 22). Vol. III. Tel Aviv. Pp. 1032-1145.

CHAPTER 4

PETROGRAPHIC ANALYSIS

Nissim Golding-Meir

Nineteen ceramic vessels from the Middle and Late Bronze (henceforth MB and LB) levels of the excavation at Yesodot were sampled and analysed (Table 4.1). Ten samples were of MB vessels and nine of LB vessels. The samples were selected with a view towards discerning possible patterns of exchange, or at least vessel or commodity movement. Two kinds of samples were chosen: (a) items judged to be morphologically unusual, or those whose matrix appeared out of the ordinary, and (b) storage jars, the vessel type most likely to have been transported in commodity commerce.

The method chosen for the analysis of these vessels was thin-section petrography. This method is used by geologists to identify minerals and to describe and categorize rocks, soils and sands. Here it was used to identify and describe the minerals and rock fragments found in the sampled vessels, both as part of the temper in sand size and in the clay as silt size. The mineralogical content of the thin-sections was then compared to the various possible mineral compositions using geological maps of the suggested regions of origin. Nine additional samples were taken from sherds deemed

to be of local ware, to be used as comparative data for the local groups (Table 4.2).

The sherds analysed were divided into petrographic groups, classified by the chemical and physical properties of their fabric without reference to period, typology or juxtaposition. This method results in an independent geological analysis that may indicate geographical origin (Cohen-Weinberger and Goren 2004: 3; Goren *et al.* 2004: 4-22).

The Petrographic Groups

Group A – Hamra soil (Fig. 4.1)

This group is represented in both the MB and LB assemblages and also in the samples taken for the comparative data. In the MB assemblage this was the main group—eight of the ten samples belong to this group and include jugs, bowls and jars. In the LB assemblage only two of the nine samples belong to this group—two Canaanite jars. This group's fabric is characterized by ferruginous fine clay, slightly silty (2–5%), rich in small opaque bodies of iron minerals and it originates in *hamra* soil. It is unclear how these soils were formed but their proximity to the kurkar rocks—a local term for aeolianite, namely calcite-cemented sandstone incorporating quartzitic coastal sand—probably indicates a connection between them (Singer 2007: 210). *Hamra* soil is found along the coastal plain of Israel from the Ashdod area northwards (Dan *et al.* 1975). This group's temper consists mainly of chalk and limestone fragments and also contains a few opaque and quartz grains. The area around Yesodot is characterized by *hamra* soil (Dan *et al.* 1975). Grains of chalk and limestone outcropping in the nearby vicinity include the Adulam and the Ziqlag Formations (Sneh *et al.* 1998; Sneh 2004).

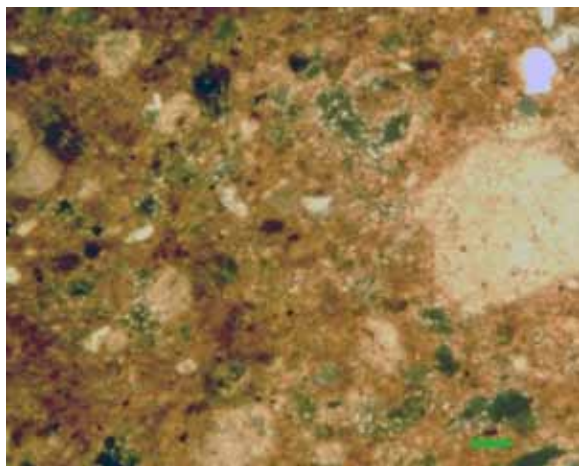


Fig. 4.1. Group A (Sample 3333/17).

Table 4.1. The sampled vessels. All figures were taken under XPL to a magnification of $\times 40$. The scale on the photographs is 0.15mm.

Field no.	Object	Locus	Period	Group	Provenance
3346/5	Pithos	410	MB	Group D	Central coast
3328/2	Jug	412	MB	Group A	Local
3333/17	Jug	415	MB	Group A	Local
3301/2	Bowl	404	MB	Group A	Local
3224/27	Jar	375	MB	Group D	Central coast
3338/10	Jar	410	MB	Group A	Local
3308/1	Carinated bowl	405	MB	Group A	Local
3284/3	Bowl with knob handle	395	MB	Group A	Local
3363/15	Jar	415	MB	Group A	Local
3229	Bowl with knob handle	375	MB	Group A	Local
3275/4	Egyptianized bowl	389	LB	Group D	Central coast
1050/1	Cypriot pithos	111	LB	Group C	Local
3251/1	Cypriote pithos	383	LB	Group D	Central coast
3361/8	Canaanite jar	310	LB	Group D	Central coast
3362	Carinated bowl/chalice	Surface	LB	Group D	Central coast
3249/6	Trumpet base	330	LB	Group C	Local
3275/5	Canaanite jar	389	LB	Group D	Central coast
3364/31	Canaanite jar	410	LB	Group A	Local
3363/14	Canaanite jar	415	LB	Group A	Local

Table 4.2. The samples taken for a database.

Field no.	Object	Locus	Period	Group	Provenance
3336/4	Carinated bowl	410	MB	Group A	Local
3094/1	Bowl	331	MB	Group A	Local
3224/6	Bowl	375	MB	Group D	Central coast
3011/8	Pithos	306	MB	Group A	Local
3275/3	Bowl	384	MB	Group A	Local
3240/3	Bowl	375	MB	Group A	Local
3232/17	Krater	375	MB	Group B	Local
3341/2	Bowl	415	MB	Group B	Local
3241/9	Krater	375	MB	Group A	Local

Most of the local sherds taken as a control data set belong to this group. Therefore this group is most likely local to the site or the near vicinity.

Group B – Hamra with basalt grains (Fig. 4.2)

This group is represented by only two samples (a krater and a bowl) from the local control data set. This group's fabric and temper is very similar to that of Group A but it contains several grains of basalt. Small outcrops (200–300m²) of Neogene basalt of the Saqiya group are exposed very close to the site (Sneh 2004). Therefore this group is most likely local to the site.

Group C – Taqiye marl (Fig. 4.3)

This group was represented only in the LB samples and included one pithos sherd and one trumpet base fragment. This group's fabric is characterized by calcareous marl containing foraminifers and iron oxides. Fine carbonate crystals are abundant in the matrix, sometimes exhibiting weak optical orientation. The temper of this group is comprised mainly of carbonatic rock fragments, such as chalk, nari and limestone. Based on a large number of publications (Goren 1991: 101; Goren 1996a: 48; Goren 1996b: 150; Cohen-Weinberger 2004: 18; Goren 2004: 51; Goren *et al.* 2004:256-258) this group is identified as originating from marl belonging to the Taqiye formation of the Paleocene age. The Taqiye formation is extremely widespread

along the entire southern and eastern shore of the Mediterranean, as far west as Morocco (Bentor 1966:73). Although the local samples—all from MB sherds—taken for comparative data did not include this group, exposures of Taqiye marl are found only 2.0km away from the site (Sneh 2004). Therefore this group is most likely local.

Group D – Hamra and coastal sand (Fig. 4.4)

This group is represented in both the MB and LB assemblages and also in the samples taken for the control data set. In the LB assemblage this was the main group; five of the nine samples belong to this group and include bowls, Canaanite jars and a pithos. In the MB assemblage only two of the ten

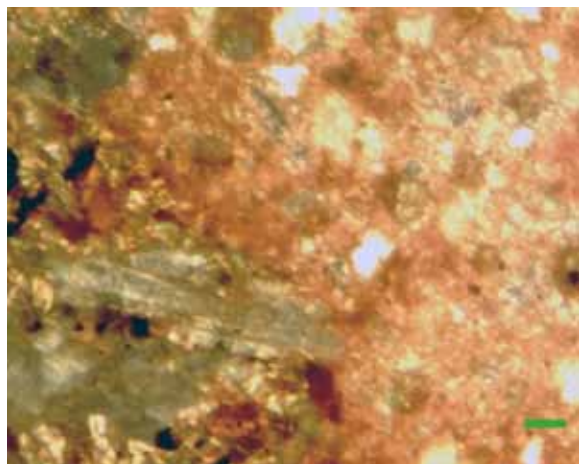


Fig. 4.2. Group B (Sample 3232/17).

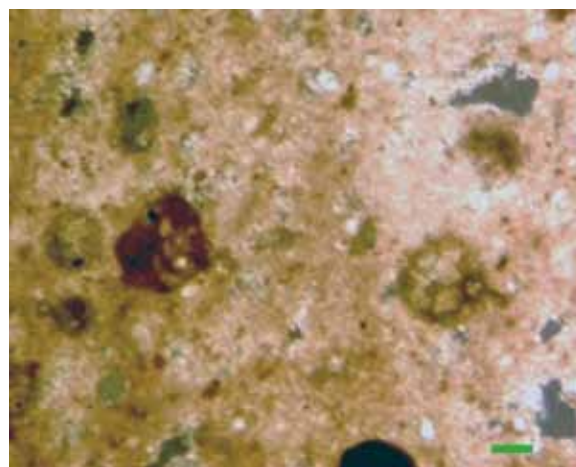


Fig. 4.3. Group C (Sample 3249/6).

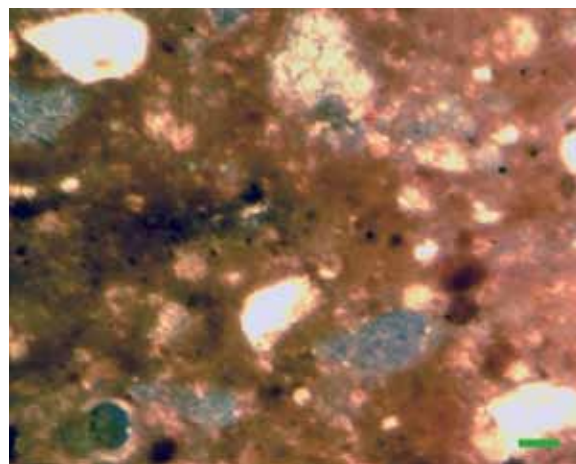


Fig. 4.4. Group D (Sample 3361/8).

samples belong to this group, comprising one pithos and one jar. This group's fabric is characterized by ferruginous fine clay, slightly silty (2–5%), rich in small opaque bodies of iron minerals and originates from *hamra* soil. This group's temper consists mainly of well-sorted, rounded-to-sub-angular quartz grains (10–20%). In a few cases accessory minerals appear, including mainly minerals of the feldspar, amphibole and pyroxene groups. Zircon is also found occasionally. *Hamra* soil is spread along the coastal plain of Israel from the Ashdod area northwards (Dan *et al.* 1975, Singer 2007: 210). The quartz grains found in the temper come from coastal sands transported by the Nile River into the Mediterranean. The proportion of quartz to other sediments diminishes as one goes north and from Akko northwards quartz virtually disappears and the sediment becomes increasingly calcareous (Nir 1989: 12). The *hamra* soil in the southern parts of Israel is rich in silty quartz of Aeolian origin and therefore the southern coast should be excluded from being a candidate for this group. In a study of modern coastal sands it is seen that from the

coast of Shefayim northward the sands are already very rich in Mediterranean bioclasts and inland erosion (Golding-Meir 2010: 31-40). There are problems with the comparison of modern and ancient coastal sands (*ibid.* 34-35) but even when compared with pottery originating from the Carmel Coast it is clear that these are already extremely rich in Mediterranean bioclasts. Therefore this group is assigned to the central coast of Israel north of Ashdod and south of Shefayim.

Summary

Most of the vessels sampled from this site were local or from relatively nearby areas such as the coastal plain. Groups A and B consisted of local *hamra* soil while Group C contained local Taqiye marl. Group D contained *hamra* soil with coastal quartz grains and is assigned to the central coast of Israel.

The implications of provenance are examined in Chapter 10.

References

- Bentor, Y. K. 1966. *The Clays of Israel*. Jerusalem.
- Cohen-Weinberger, A. 2004. Petrographic Results of Selected Fabrics of the Late Bronze Age and Iron Age I from Tel Batash. *Qedem* 45: 16-17.
- Cohen-Weinberger, A. and Goren, Y. 2004. Levantine-Egyptian interactions: preliminary results of the petrographic study of the Canaanite pottery from Tell el-Dab'a. *Ägypten und Levante* 14: 69-100.
- Dan, Y., Raz, Z., Yaalon, D.H. and Koyumdjisky, H. 1975. *Soil Map of Israel 1:500,000*. Jerusalem.
- Golding-Meir, N. 2010. *Marine and Overland Interactions in the Eastern Mediterranean Area During the Late Bronze Age* (MA dissertation). Tel Aviv.
- Goren, Y. 1991. *The beginnings of pottery production in Israel, technology and typology of Proto-Historic ceramic assemblages in Eretz-Israel (6th-4th Millennia B.C.E.)*. (Ph.D. dissertation). Jerusalem. (Hebrew)
- Goren, Y. 1996a. The Southern Levant in the Early Bronze Age IV: The petrographic perspective. *Bulletin of the American Schools of Oriental Research* 303: 33-72.
- Goren, Y. 1996b. Petrographic study of the pottery assemblage. In: Gopher, A. (ed.), *The Nahal Qanah Cave, Earliest Gold in the Southern Levant*. Tel Aviv. Pp. 147-154.
- Goren, Y. 2004. Technological study of the ceramic assemblage from Nevé Yaraq, Lod. *Atiqot* 47: 51-55.
- Goren, Y., Finkelstein, I. and Na'aman, N. 2004. *Inscribed in Clay: Provenance Study of the Amarna Tablets and Other Near Eastern Texts* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 23). Tel Aviv.
- Nir, Y. 1989. *Sedimentological Aspects of the Israel and Sinai Mediterranean Coasts*. Jerusalem.
- Singer, A. 2007. *The Soils of Israel*. Berlin.
- Sneh, A., Bartov, Y., Weissbrod, T. and Rosensaft, M. 1998. *Geological Map of Israel, 1:200,000*. Jerusalem.
- Sneh, A. 2004. *Gedera, Geological Map of Israel, sheet 10-II, 1:50,000*. Jerusalem.

CHAPTER 5

THE FEMALE PLAQUE FIGURINE

Nathan Ben-Ari

One small fragment of a female plaque figurine (Fig. 5.1) was found amongst the hundreds of sherds recovered from Yesodot. This significant find came from a surface context (L312). The poor preservation of the figurine and the nature of its context allow us to make only general observations.

Description

The figurine fragment is made of clay, using a one-piece open mould. It has an oval shape and is 4.5cm high, 4.1cm wide (max.) and 2.0cm thick (max.). Its reverse side has been smoothed. The fragment bears a high-relief representation of a female figure. Only the head (with shoulder-length hair), a thin neck, and the upper torso have survived, together with the upper parts of a papyrus/lotus stalk decoration, which project outward. The facial features have been weathered away entirely, or were never detailed, but the shoulder-length locks and the papyrus/lotus stalks are clearly depicted and even pronounced. The head is somewhat elongated and it is possible that the figure was wearing some form of head covering. The hairstyle is Egyptian and calls to mind the well-known Hathor locks. The figurine is interpreted as representing a naked female standing in a frontal posture with an Egyptian hairstyle, holding stalks of papyrus or lotus, which were possible divine attributes (see below).

Plaque figurines of naked female figures in high relief form a stylistically defined group widely known as 'Astarte Plaques'. They belong to a class of small anthropomorphic cult objects, made from mould-impressed clay, which become common in Canaan during the mid-2nd millennium BCE (mostly in the Late Bronze Age [LB]) and become common in the third quarter of that millennium (Tadmor 1982b: 140; Ziffer, Bunimovitz and Lederman 2009: 334). The term 'Astarte Plaques'

follows the identification suggested by scholars such as Negbi (1976), Tadmor (1981, 1982a, 1982b), Keel and Uehlinger (1998: 97-108), and Hadley (1989: 188-195), to mention but a few.

These plaque figurines probably have their roots in Mesopotamia and Persia at the end of the third millennium. They have also been found at Syrian sites of the second millennium. From the east they spread to the Levant, Egypt and the Aegean region (Tadmor 1982b: 164-170).

In the Shephelah, female plaque figurines have been found at various LB sites, among them Tel Gezer, Tel Harasim, Tel Batash, Tel Beth Shemesh, Tel Azekah, Tel Lachish (Fosse Temple), Tel Zafit, Tell el Hesi, and Tell Beit Mirsim (Cornelius 2004b: 134-142; Cat. Nos. 5.24-5.25, 5.32-5.40, 5.46-5.55, 5.55b-5.57, 5.59).

Typology

Tadmor (1982b: 161-164) differentiated between two types of plaque figurines. The first are standing figurines with turned-out feet (pointing sideways) and bearing attributes (presumably divine) such as Hathor locks, flower stalks, etc. The second type includes figurines depicted reclining (*ibid.* 140-160). Tadmor argues that the standing figurines represent deities, while those reclining represent mortals which may symbolize or depict concubines of the dead, as in the Egyptian concubine representations of women lying on beds (*ibid.* 145, 157, 161). Tadmor (1982a: 10) saw these figurines in the context of Canaanite-Egyptian funerary practices and related beliefs. According to her typological division the characteristics of the plaque figurine from Yesodot are consistent with the standing figurine type, thus representing a deity.

However, Keel and Uehlinger (1998: 99-100) disagree with Tadmor's typology and consider



Fig. 5.1. The female plaque figurine from Yesodot.

both types to be 'Astarte Plaques' and goddess representations. They point out three main reasons: (1) The shape of the plaques; Tadmor's second type is based on a few rectangular figurines, while most of the plaques have an elongated oval shape, which is different from the rectangular beds depicted in the stone figurines and in Egyptian small sculptures. Thus, they contend, it is improbable that the plaques represent beds. (2) The archaeological context; contrary to Tadmor's interpretation, most of the figurines were found in domestic contexts and only a few in mortuary contexts. (3) Lack of attributes; Keel and Uehlinger maintain that the lack of attributes should not necessarily negate the possibility that a

divine character is represented (which might rule out their link to the 'Astarte Plaques'). Iconographically, the nudity and emphasis on erotic attractiveness are of great importance, drawing attention to the goddess's emanating sexual power—a power bound up with the female biological circle, fertility, and motherhood.

Whatever the case, despite its fragmented condition the Yesodot figurine certainly seems to fit a particular class of high relief nude female depictions—although in a few rare cases a male is shown (Ziffer *et al.* 2009)—boasting Hathor locks. In some examples the figure holds lotus stalks, as in this case (e.g. Tadmor 1982b: Pl. 10). Others have been found standing on animals, or indeed incorporating both of these symbolic motifs (Tadmor 1982b: 140, 161). Examples of this figurine class have been found at various sites in the Shephelah, and none are identical to that from Yesodot; rather, they share similar traits. For example, the outward-pointing papyrus/lotus stalks on the Yesodot piece contrast with the general inward-pointing preference, as exhibited on plaque figurines from Tel Gezer, Tel Lachish (Fosse Temple) and Tel Beit Mirsim (Cornelius 2004b: Cat. Nos. 5.33, 5.55, 5.56).

Its Hathor hairstyle reveals another detail of the Yesodot figurine's distinctiveness. As is typical, the locks curl at the ends, but in this case they finish without internal detailing. To date, among the many such figurines recovered, no parallel for this style of depicting the Hathor hair style has been found.

Function

The use of open moulds enabled mass-production of these figurines, making them affordable to the general population. Most likely, therefore, these figurines reflect popular iconography, taste, and beliefs (Tadmor 1982a: 10; Keel and Uehlinger 1998: 105; Cornelius 2004a: 27). As mentioned above, most plaque figurines are found in domestic contexts. Some are also known to have come from burials (Keel and Uehlinger 1998: 100; as mentioned above, Tadmor defined them as burial offerings). This suggests a possible primary use as cult objects, often in family homes, and from time to time as

burial gifts—accompanying the deceased on his/her journey to the after world, just as such an object would have accompanied them through life. Being represented in the inexpensive medium of clay plaques, the figurine is probably the image of a deity who took care of everyday needs and was part of cultic and religious activity in domestic areas within settlements, as well as serving as a burial offering (Keel and Uehlinger 1998: 100, 105). Cornelius (2004a: 25) suggests that these figurines were imitations of the goddess's representations in other, more expensive/prestigious media (such as metal and on stelae), which functioned as more official cultic images and high-status votive offerings. In Cornelius' opinion the plaque figurines linked the temple with domestic religious devoutness.

Summary

The figurine found at Yesodot is an addition to the corpus of female plaque figurines from the southern Levantine LB, sometimes called 'Astarte Plaques'. These popular cultic objects were mass-produced through an inexpensive method and medium. The female figure most likely represented a deity. Although in broad terms it resembles other LB and early Iron Age figurines, this example has several unique characteristics, such as the outward-pointing lotus or papyrus stalks and the simplistically-rendered Hathor locks.

References

- Cornelius, I. 2004a. A Preliminary Typology for the Female Plaque Figurines and Their Value for the Religion of Ancient Palestine and Jordan. *Journal of Northwest Semitic Languages* 30/1: 21-39.
- Cornelius, I. 2004b. *The Many Faces of the Goddess: The Iconography of the Syro-Palestinian Goddesses Anat, Astarte, Asherah and Qadesh, c. 1500–1000 BCE* (Orbis Biblicus Orientalis 204). Fribourg.
- Hadley, J.M. 1989. *Yahweh's Asherah in the Light of Recent Discovery* (Ph.D. dissertation). Cambridge.
- Keel, O. and Uehlinger, C. 1998. *Gods, Goddesses, and Images of God in Ancient Israel*. Translated by Thomas H. Trapp. Minneapolis.
- Negbi, O. 1976. *Canaanite Gods in Metal: An Archaeological Study of Ancient Syro-Palestinian Figurines* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 5). Tel Aviv.
- Tadmor, M. 1981. Women Relief-figurines in Late Bronze Age Canaan. *Eretz-Israel* 15: 79-84. (Hebrew)
- Tadmor, M. 1982a. Female Figurines in Canaan in the Late Bronze Age. *Qadmoniot* 15/1: 2-10. (Hebrew)
- Tadmor, M. 1982b. Female Cult Figurines in Late Canaan and Early Israel: Archaeological Evidence. In: Ishida, T. (ed.). *Studies in the Period of David and Solomon and Other Essays: Papers Read at the International Symposium for Biblical Studies, Tokyo, 5–7 December 1979*. Tokyo. Pp. 139-173.
- Ziffer, I., Bunimovitz, S. and Lederman, Z. 2009. Divine or Human? An Intriguing Late Bronze Age Plaque Figurine from Tel Beth-Shemesh. *Egypt and the Levant* 19: 333-341.

CHAPTER 6

THE GROUND STONE OBJECTS

David Ilan, Nathan Ben-Ari and Dov Levitte

Introduction

A number of groundstone studies have been published lately in the archaeological literature of the southern Levant. Perhaps the two most comprehensive and useful of these are Erella Hover's account of the stone utensils from the City of David (Hovers 1996) and Ianir Milevski's study of the stone objects from Manahat (Milevski 1998). Other recent studies, such as that of Yahalom-Mack (2001) on Tel Batash and Ebeling (2007) on Tel Mor, use similar formats and terminology. The criteria used here follow what is now the normative descriptive procedure. We will adopt the format and nomenclature of Milevski's study as it deals with an assemblage that is similar to that of Yesodot. This article deals mostly with groundstone tools but also describes a few natural stone objects that appear to have been collected for some intrinsic value.

Materials

Choice of stone type appears to have been determined largely by an objects' intended utilization (see Table 6.2). At Yesodot millstones (also called grinding stones, querns or slabs) and stone bowls are made predominantly of highly vesicular basalt—the exception being one beach rock example—and bowls of denser, less vesicular basalt. Handstones, rings, mortars and pounders are most often made of carbonate stone—limestone, flint or hard chalk—but sometimes of fine-grained basalt. One rubbing stone made of pumice was recorded. This demarcation of materials *vis à vis* function is more conspicuous at Yesodot than it is at most other sites of the Bronze and Iron Ages.

Stone samples were examined visually with a magnifying glass (x14) and tested with diluted (1:6) hydrochloric acid (HCl). Hardness was determined

by comparison with other minerals according to the Mohs hardness scale. Two samples (Table 6.2:11, 33) were examined by Scanning Electron Microscope (S.E.M. Jeol. JSM-840) and by energy dispersive spectrometer (E.D.S., Oxford ISIS).

Lower millstones (N=5): All the lower millstones are fragments. They are generally convex and flat in section (the flat side facing up). They are almost always fashioned from vesicular basalt, with the exception of one piece (Table 6.2:11) which has a rounded-flat section and an off-white color. EDS testing revealed that this item is of beach rock (comprised of quartz with a strong presence of lime and a few fossils [probably gastropods]). This type of rock is native to coastal regions, and not indigenous to the Yesodot region.

Upper millstones (N=6): These too are all fragments, although in some cases (Table 6.2:3, 4) the fragment comprises more than half of the original object. They also tend to be convex and flat (with the flat side facing down to meet the flat face of the lower millstone, while the convex end was grasped by the grinder). All of the upper millstones were made of vesicular basalt.

Handstones/polishers (N=7): This category includes—but is not confined to—items which have often been called 'hammerstones'. Handstones are defined as those best utilized with one hand (fist-size stones), leaving the other hand free. While they appear best adapted to rubbing and grinding with a circular motion, their different forms suggest variant purposes and motor patterns. The smaller cuboid handstones seem best suited to rubbing and grinding over a smaller, more focused area, where great force is not required. Cuboid stones may also have been scale weights (Eran 1996),



Fig. 6.1. Selected stone tools.

No.	Tool type	Field no.	Locus
1.	Stone ring	3091/2	321
2.	Pounder	1014/1	114
3.	Bowl	3365/1	surface
4.	Bowl	3326/1	410
5.	Handstone/polisher	1032/1	118
6.	Handstone/polisher	1025/1	127
7.	Lower millstone	1063	131
8.	Upper millstone	3368/1	surface
9.	Upper millstone	3366/1	?
10.	Lower millstone	1070/1	150
11.	Upper millstone	1008/1	108
12.	Weight?	3183/8	350
13.	Handstone/polisher	3369/1	?
14.	Handstone/polisher	3073/2	?
15.	Lid	1020/1	133
16.	Handstone/polisher	1057/1	139

but this subject is controversial (e.g. Kletter 2006) and the present assemblage too small to be able to support one interpretation over another. Larger stones with a rounded-to-flat or plano-convex profile seem more suited to rubbing and grinding over a larger area where, again, great force is not required.

Handstones can be made of different minerals, with softer minerals such as chalk having a more limited utility—perhaps as a laundering tool for removing stains, for example. One handstone/polisher (Table 6.2:29) is a flat piece of pumice with rounded edges which would have been used for delicate rubbing (the smoothing of soft wood, hides or skin, for example).

Pounder (N=1): Pounders are invariably made of dense, heavy rock (flint in this case) and display the scars of pounding (as opposed to true grinding or rubbing stones). The scarring suggests the pounding of, or against another, heavy, resistant material (stone is most likely). As to the function of pounders, one possibility is the making of plaster from chalk.

Mortar (N=1): Only one mortar was found at the site (*in situ*; L345, field no. 3227/8 in Building B2; see Fig. 2.9), made of limestone. This mortar was broken in half. Its base had worn down to eventual perforation, prior to breakage. Perhaps, once perforated it was used to hold a pole in place. Mortars, being deep vessels, typically form a pair with pestles, which are elongated and have thicker working ends and more narrow grasping ends. Pounders and handstones are too small to be used effectively with mortars. Since no pestles were recovered in our excavation we might tentatively suggest that wooden pestles were more the norm.

Bowls (N= 3): All three recovered stone bowl fragments are made of dense—though still slightly vesicular—basalt. Two fragments are of rims—one simple and tapered, and one beveled obliquely inward. The third fragment is of a pronounced ring base with an inner concavity; it is likely that the rims belonged to vessels with similar bases. Their high relative density and weight suggests that stone bowls were mostly stationary. Moreover, the selection of dense but slightly vesicular basalt together with the bowls' smoothed interiors, suggests that they may have been receptacles intended for materials subjected to moderate grinding—perhaps spices and foods such as grain, chickpeas, dates or olives for example (bowls with interior smoothing have been found at various sites, such as the City of David (Jerusalem; Hovers 1996: 177) and Tel Michal (Singer-Avitz 1989: 351-352).

Disks/Lids (N=2): Both lids were fashioned from limestone and are perfectly circular. One is flat on both faces and the other has one convex side. This is a fairly uncommon occurrence; lids are more often made of re-used pottery bases (cf. Chapter 3). The stone disks may also be weights.

Pierced stones (N=2): This group is composed of artifacts of unknown function. Two such objects were recorded:

1. A suspension weight (?).
2. A large limestone ring. This object is fairly heavy (1.625kg) and weight was clearly integral to

its function. One hypothesis is that such rings were digging stick weights (Amiran and Ilan 1992: 42; Fig. 25). But they may also have held down fabric, leather awnings or something else.

Pavement slab (N=1): This slab of white limestone was found together with other stone slabs as part of a pavement. This piece has been singled out because it is particularly flat (as a result of natural processes).

Natural stones (N=3): These are unusual natural stones which are not indigenous to the site, but rather were brought from other regions. One example is of crystalline quartz (Table 6.2:34). This stone has an amorphous shape and a transparent white color. Two other unusual stones (Table 6.2:32, 33) have amorphous shapes and a light gray/green color. An EDS test conducted on one of the two (Table 6.2:33; see introduction above) revealed that these are fine-grained magmatic rocks, probably of a basaltic origin. The function of these stones is not clear, but they can be considered additional evidence for interaction with distant regions.

Summary

The limited size of the ground stone assemblage of Yesodot does not permit far-reaching conclusions. Due to their durability, ground stone tools have a long use-life and are not prone to changes in style. For this reason it is almost impossible to make chronological observations. In any event, few complete or intact stone artifacts were found. Many of the 34 objects were in secondary use—in floors, walls and installations. This also might be an indication that rather than suffering permanent abandonment without subsequent disturbance, the site periodically fell into disuse or was scavenged.

The presence of grinding artifacts such as the upper and lower millstones, bowls and polishers indicates that a range of processing activities was practiced (mainly food-related, but certainly not limited to this). Some of the raw materials (mainly the vesicular basalt) used for making the stone artifacts are not native to the vicinity of Yesodot,

and therefore reflect movement of people and goods, perhaps through trade with workshops,

such as those in the Jordan Valley, Galilee and the Golan Heights.

References

- Amiran, R. and Ilan, O. 1992. *Arad, eine 5000 Jahre alte Stadt in der Wüste Negev, Israel*. Neumünster.
- Ebeling, J. R. 2007. Groundstone Objects. In: Barako, T. J. (ed.), *Tel Mor – The Moshe Dothan Excavations, 1959-1960* (Israel Antiquities Authority Reports, No. 32). Jerusalem. Pp. 223-228.
- Eran, A. 1996. Weights and Weighing in the City of David: The Early Weights from the Bronze Age to the Persian Period. In: de Grot, A. and Ariel, D. T. (eds.), *Excavations at the City of David IV, 1978-1985, Directed by Y. Shiloh* (Qedem 35). Jerusalem. Pp. 204-256.
- Hovers, E. 1996. The Groundstone Industry. In: de Grot, A. and Ariel, D. T. (eds.), *Excavations at the City of David IV, 1978-1985, Directed by Y. Shiloh* (Qedem 35). Jerusalem. Pp. 171-192.
- Kletter, R. 2006. Weights. In: Panitz-Cohen, N. and Mazar, A. (eds.), *Timnah (Tel Batash) III: The Finds from the Second Millennium BCE* (Qedem 45). Jerusalem. Pp. 275-278.
- Milevski, I. 1998. The Groundstone Tools. In: Edelstein, G., Milevski, Y. and Aurnat, S. (eds.), *Villages, Terraces and Stone Mounds: Excavations at Manhat, Jerusalem, 1987-1989* (Israel Antiquities Authority Reports, No. 3). Jerusalem. Pp. 61-77.
- Singer-Avitz, L. 1989. Stone and Clay Objects. In: Herzog, Z., Rapp, G. and Negbi, O. (eds.), *Excavations at Tel Michal* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 8). Tel Aviv and Minneapolis. Pp. 350-360.
- Yahalom-Mack, N. 2006. The Groundstone Industry. In: Panitz-Cohen, N. and Mazar, A. (eds.), *Timnah (Tel Batash) III: The Finds from the Second Millennium BCE* (Qedem 45). Jerusalem. Pp. 267-274.

Table 6.2. Inventory of stone tools. Continuation on next page.

No.	Type	Field no.	Locus	Raw Material	Shape	Section	Length	Width	Height	Preservation	Comments
1.	Upper millstone	1070/3	150	Basalt	Convex	Convex-flat		10.5	4.1	Fragmentary	
2.	Upper millstone	1071/1	139	Basalt	Convex	Convex-flat			3.7	Fragmentary	
3.	Upper millstone	1075/1	135	Basalt	Convex	Convex-flat		9.2	4.8	Fragmentary	
4.	Upper millstone	3003/1	301	Basalt	Convex	Convex-flat		10.5	3.8	Fragmentary	
5.	Upper millstone	3366/1	Surf.	Basalt	Convex	Convex-flat		10.5	3.5	Fragmentary	
6.	Upper millstone	3368/1	Surf.	Basalt	Convex	Convex-flat	11.8	7.5	6.2	Fragmentary	
7.	Lower millstone	1008/1	108	Basalt	Straight	Convex-flat			3.4	Fragmentary	
8.	Lower millstone	1048/3	133	Basalt	Straight	Convex-flat				Fragmentary	
9.	Lower millstone	1075/2	135	Basalt	Straight	Convex-flat				Fragmentary	
10.	Lower millstone	3013/1	314	Basalt	Straight	Convex-flat			4.3	Fragmentary	
11.	Lower millstone	1025/1	127	Off-white beach rock	Rounded	Rounded-flat	21.5	17.2	2.5	Complete	Comprised of quartz grains with limestone cement and few fossil fragments; burnt.
12.	Handstone/polisher	1032/1	118	Dark gray basalt	Cuboid	Cuboid	-----	-----	3.5	Complete	Fine-grained, 0.5-3.0mm; phenocryst.
13.	Handstone/polisher	1047/2	131	Hard white chalk	Round	Plano-convex	4.5	4	3	Complete	
14.	Handstone/polisher	1057/1	139	Hard light yellow chalk	Elongated	Plano-convex	8	4	2.5	Complete	
15.	Hand stone	1070/2	150	?	Elliptical	Convex	6	4.5	3.5	Complete	
16.	Handstone/polisher	1090/1	133	Brown and white dolomite	Round	Plano-convex	7	6.5	2		
17.	Handstone/polisher	3013/2	314	Gray-white beach rock	Cuboid	Cuboid	-----	-----	3.9	Complete	
18.	Pounder	1014/1	114	Gray-white flint (?)	Globular	Globular	7	6	7	Complete	
19.	Bowl	3091/1	321	Basalt	Concave	-----	-----	-----	2.8	Fragmentary	
20.	Bowl	3326	410	Basalt	Concave	-----	-----	-----	-----	Fragmentary	
21.	Bowl	3365/1	Surf.	Basalt	Concave	-----	-----	-----	3	Fragmentary	

No.	Type	Field no.	Locus	Raw Material	Shape	Section	Length	Width	Height	Preservation	Comments
22.	Mortar	3227/9	346	Hard off-white dolomite	Concave	-----	Inner 16.1 outer 25.5	Inner 19 outer 21.3	12.4	Broken	Perforated; dense, fine-grained (fizzes in dilute HCl).
23.	Lid	1070/1	150	Gray limestone	Round	Flat	4.5	4.5	0.5	Complete	
24.	Lid	3367	Surf.	Whitish-yellow limestone	Round	Flat -rounded	7	7	0.5	Complete	Medium grains of crystalline calcite.
25.	Weight	3183/9	350	Off-white chalk	Elliptical	Rounded-flat	-----	5.5	1.3	Broken	
26.	Weight?	Surf.	?	Gray, hard, brecciated flint	Cuboid	Cuboid	4	4	4	Complete	Very few signs of use, except for one very smooth surface.
27.	Large stone ring	3091/2	321	Limestone; cream-buff	Round	Flat-rounded	11.5	11	4.5	Complete	Dense and fine-grained. Digging stick weight?
28.	Pavement slab	1080/1	150	White limestone	Trapezoidal	Flat	23	13-19	2.1	Complete	Soft limestone, fizzes; Givat Shaul Formation type.
29.	Handstone/polisher	1063/2	131	Pumice	-----	-----	-----	-----	-----	Fragmentary	
30.	Natural stone/polisher?	1034/1	114	Light gray dolomite	Elongated	Rounded-flat	-----	-----	-----	Complete	
31.	Natural stone	1084/1	131	Brown flint	Amorphous	Amorphous	-----	-----	-----	Complete	
32.	Natural stone	1069/2	141	Light gray and green basalt	Amorphous	Amorphous	12.5	9	-----	Complete	Magmatic rock; not weathered and very fine grained.
33.	Natural stone	1073/1	139	Light gray and green basalt	Amorphous	Amorphous	15	14	11	Broken	Magmatic rock; not weathered and very fine grained.
34.	Natural stone	3021/3	316	Quartz	Amorphous	Amorphous	/	/	/	Complete	Transparent white, crystalline. 3-10mm. Geode.

CHAPTER 7

THE CHIPPED STONE ASSEMBLAGE

Conn Herriott

The chipped stone assemblage from Area B at Yesodot (Khirbet Umm el-Kalkha) is biased towards tools because almost no débitage was retained during excavation. Table 7.1 is a summary of the chipped stone artifacts collected. Figure 7.1 is a site plan showing the find spots of the artifacts. Graphic recording of the chipped stone tools can be found in Figure 7.2.

Débitage (N=4, Table 7.1:1, 2, 12, 14): Three core trimming elements (Table 7.1:1, 12, 14) and one chip (Table 7.1:2) were recovered from the site. Smaller débitage fragments were not collected. The retained flakes and chip could conceivably have been used as *ad hoc* blades or scrapers, although no retouch was applied to them. Microscopic analysis of use-wear patterns would confirm or deny this potential *ad hoc* usage. These flakes were found in Middle Bronze Age and Late Bronze Age (henceforth MB and LB) contexts.

Core (N=1, Table 7.1:13; Fig. 7.2:1): The single core recovered from the site produced both flakes and bladelets. Typologically this piece fits the general mixed core tradition (Rosen 1997: 66). However, it is unclear whether the mixed nature of the scar pattern reflects a desire to produce non-bladelet flakes, or simply to prepare striking platforms for bladelets. This core was found in a disturbed context. A Chalcolithic date is likely (see below, sickles).

Blades (N=3, Table 7.1:46; Fig. 7.2:2-4): Three simple retouched blade fragments were found. The large-grained chert used for these blades—as opposed to the smoother, harder gray and Eocene flint of the sickles—is revealing of their function and low value, as is the relatively poor standard of

workmanship. Both of these factors might explain the hinge fractures on two of the three blades.

Dates for such simple blades are difficult to assign, their presence having been noted in Neolithic-through-Iron Age contexts. The locus in which these blades were found did not yield clearly datable finds, but it overlay an LB locus—which supports an LB date. It may be worth noting here that a poor quality of workmanship has been associated with an increased use of metal objects, which are understood as supplanting stone tools' practical role and causing their function or status to shift (Rosen 1997: 111, 153, 158, 162)—although Rosen would also maintain that the situation is more complex than this.

Sickle segments (N=5, Table 7.1:3, 11, 15-17; Fig. 7.2:5-9): Five sickles segments were recovered. One (Fig. 7.2:5) is a trapezoidal Large Geometric piece and therefore MB or LB in date. Three others (Fig. 7.2:6-8) are in the backed-and-truncated sickle segment tradition, which is a Chalcolithic phenomenon in the southern Levant (apart from the Negev; Rosen 1997: 60). Although two (Fig. 7.2:6, 7) were found in MB/LB contexts, these three sickle segments—along with the above-mentioned core (Fig. 7.2:1)—form something of a group in that they were all made from brown Eocene flint. It is likely, therefore, that they represent Chalcolithic or Neolithic items re-used by the Bronze Age occupants.

The use of backing in these sickle pieces suggests that they were hafted (Rosen 1997: 64) and therefore—as one expects of sickles—they served a cutting and slicing function, rather than deep sawing. Backing also supports a Chalcolithic date, although there are examples of backed blades from Intermediate Bronze Age contexts (Rosen 1997: 65).

Table 7.1. Chipped stone artifacts, according to locus.

No.	Locus	Field no.	Description	Typological Lifespan	Length (mm)	Width (mm)	Thickness (mm)	Level (t/b)	Type (after Rosen 1997)
1.	137	1049/5	flake (core trimming element); marbled light gray, cortex	X	46	29	9	81.6/81.56	n/a
2.		1049/6	chip; brown		28	12	10		
3.	139	1057/2	sickle blade fragment (Canaanean, retouched); marbled medium gray, cortex	Ch-EB	66	21	11	81.54/81.5	C1
4.	140	1056/2	blade fragment; grainy beige	N-IAII	69	31	5	81.71/81.53	C4
5.		1056/4	blade fragment; dark gray		75	25	6		
6.		1056/5	blade fragment: grainy beige/gray		87	21	5		
7.		1056/6	notch (flat): grainy gray	N-MBI	82	50	12		J1a
8.		1056/7	notch (flat: dark gray, cortex		72	46	15		
9.		1056/8	notch (flat): dark gray, cortex		94	57	14		
10.		1056/9	notch (flat): beige/light gray, cortex		74	31	8		
11.	150	1052/1	trapezoidal sickle segment (backed)	MBI-IAII	42	29	9	81.62/81.61	B4c
12.		1052/2	flake (core trimming element): marbled	X	117	62	33		n/a
13.	301	3001/3	core (mixed flake and bladelet); brown	Ch-IAII	58	45	37	82.11/81.84	n/a
14.	339	3120/26	flake (core trimming element); beige	X	50	27	15	80.88/80.83	n/a
15.	386	3294/1	sickle blade segment (backed)	Ch-IA	70	15	5	79.98/79.62	B3b
16.	414	3359/1	sickle blade segment (backed, truncated)		78	23	8	79.45/79.15	
17.	surface	3360/1	sickle blade segment (backed, truncated)		86	27	7	X	

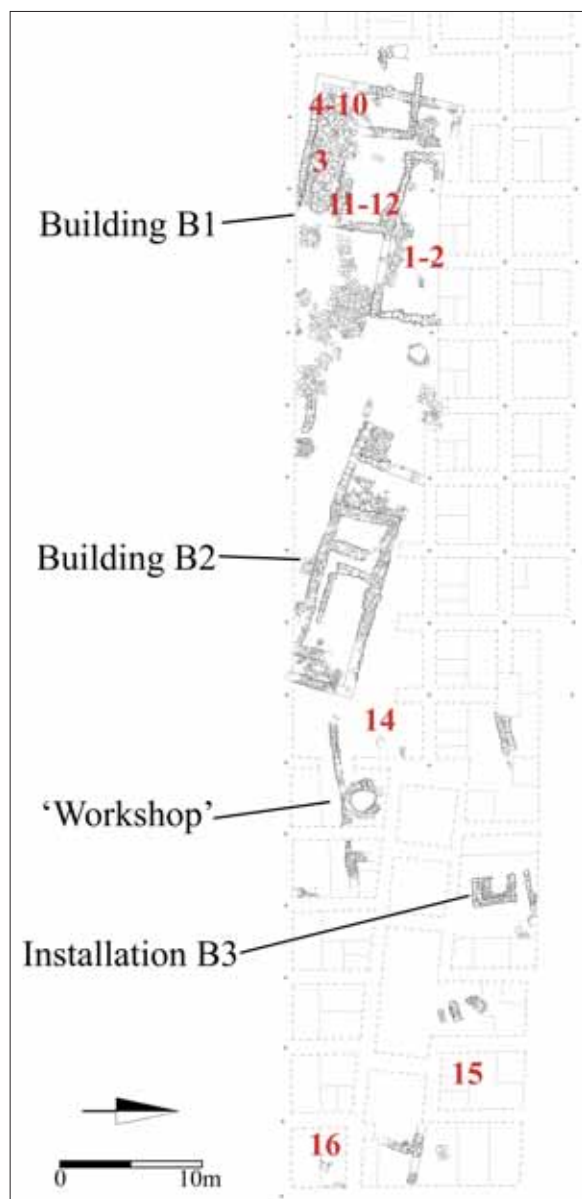


Fig. 7.1. Details and find locations of chipped stone artifacts from Area B (numbers in red correspond to those in Table 7.1).

A fifth sickle fragment (Fig. 7.2:9), of a marbled gray cortex flint, is very much of the Canaanean type—steep sides and prismatic profile—which would probably suggest a 4th–3rd millennium date, conceivably as ancient as the Early Bronze Age (see Rosen 1997: 60, Fig. 3.19). It was found in an LB context, to which it might have arrived through disturbance or re-use. The parallel longitudinal sides of this Canaanean sickle are a technical

feat that may have been achieved using a punch, which could have been made of copper (Rosen 1997: 48).

These sickle fragments and segments have been identified largely on the basis of gloss. Of course, gloss is not the exclusive preserve of sickles. Studies have shown that a similar lustrous effect can be produced on flint tools by cutting canes, reeds, woodworking, and perhaps even by hoeing and digging (Neuville 1934-5; Anderson 1980; Unger-Hamilton 1984, 1991; Rosen 1997: 55, citing Curwen 1930, 1935). Therefore microscopic analysis of these tools would be required to conclusively establish their identification as sickles. In the meantime, basing our interpretation on typology and the balance of evidence, we are confident in categorizing these pieces as sickles.

Notches (N=4, Table 7.1:7-10; Fig. 7.2:10, 11): This tool type is difficult to classify and can often be confused with larger (secondary) flakes and core trimming elements.

Four notches of the flat type were found. None show signs of retouch. One of them includes a facet of cortex. Dating notches is also very problematic. However, these four pieces were found in the same stratigraphically-late context (L140) as the above-mentioned poor-quality blades (Table 7.1:4-6, Fig. 7.2:2-4). That seven prosaic stone tools were the (only) artifactual contents of this locus is interesting in itself. Two of the blades and four of the notches (Table 7.1:5-10) may even have been struck from the same core.

Conclusions

Going on typology alone, many of the chipped stone tools in Area B could conceivably pre-date the Bronze Age settlement. They are types with very long life spans. Stratigraphically, however, most are to be associated with the settlement. On balance, such an association seems likely. The blades and notches appear to be LB in date, with the débitage and sickles either MB or LB. Noteworthy is the concentration of chipped stone artifacts around Building B1.

Table 7.2. Chipped stone tools, according to type.

No.	Type; description	Type (after Rosen 1997)	Typological lifespan	Length (mm)	Width (mm)	Thickness (mm)	Locus	Field no.	Level
1.	Core (mixed flake and bladelet); probably Chalcolithic; brown	n/a	Ch-IAII	58	45	37	301	3001/3	82.11/81.84
2.	Blade; fragment; probably LB; grainy beige	C4	N-IAII	69	31	5	140	1056/2	81.71/81.53
3.	Blade; fragment; probably LB; dark gray	C4	N-IAII	75	25	6	140	1056/4	81.71/81.53
4.	Blade; fragment; probably LB; grainy beige/gray	C4	N-IAII	87	21	5	140	1056/5	81.71/81.53
5.	Sickle segment; trapezoidal, backed; probably MB/LB	B4c	MBI-IAII	42	29	9	150	1052/1	81.62/81.61
6.	Sickle blade segment; backed; probably originally Chalcolithic/ Neolithic, and re-used in MB/LB	B3b	Ch-IA	70	15	5	386	3294/1	79.98/79.62
7.	Sickle blade segment; backed, truncated; probably originally Chalcolithic/ Neolithic, and re-used in MB/LB	B3b	Ch-IA	78	23	8	414	3359/1	79.45/79.15
8.	Sickle blade segment; backed, truncated; probably Chalcolithic/ Neolithic	B3b	Ch-IA	86	27	7	surface	3360/1	X
9.	Sickle blade; Canaanean; fragment; retouched; marbled medium gray, cortex	C1	Ch-EB	66	21	11	139	1057/2	81.54/81.5
10.	Notch (flat); dark gray, cortex	J1a	N-MBI	72	46	15	140	1056/7	81.71/81.53
11.	Notch (flat); dark gray, cortex	J1a	N-MBI	94	57	14	140	1056/8	81.71/81.53

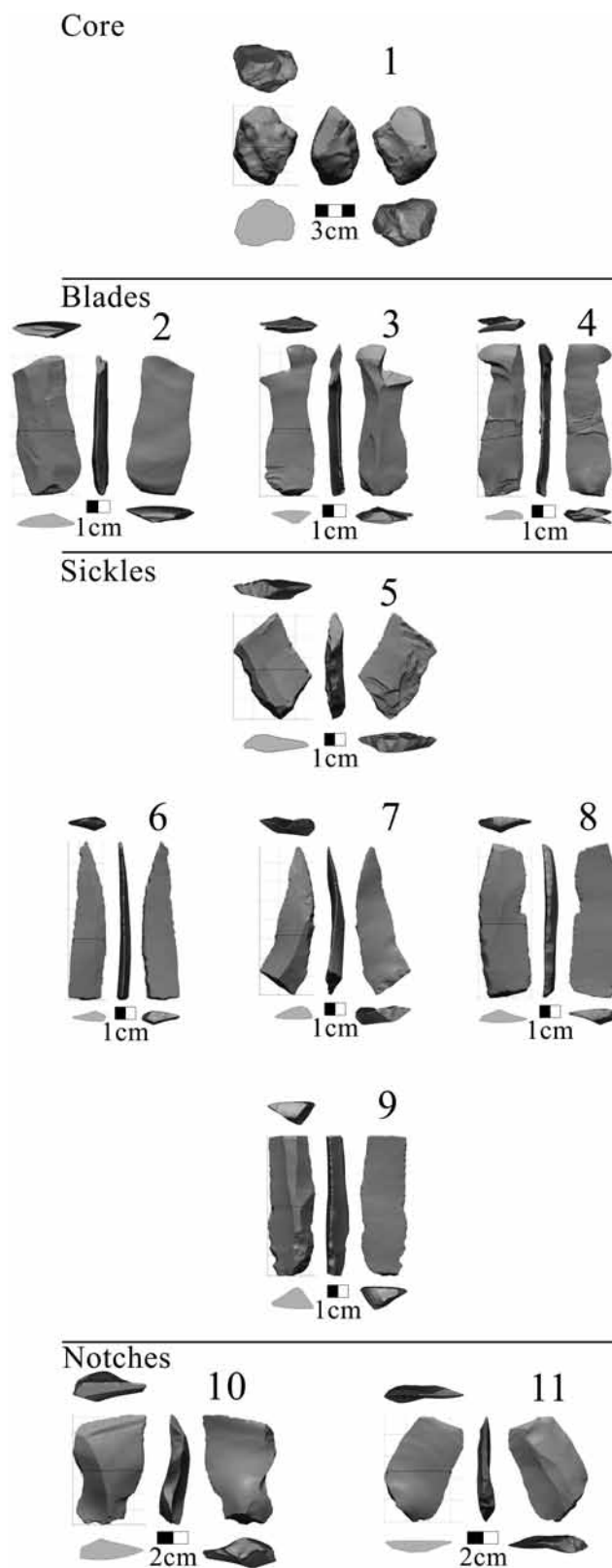


Fig. 7.2. Chipped stone tools, according to type. Details are provided in Table 7.2.

The only exceptions to this MB and LB stratigraphic association are the Canaanite sickle fragment (Fig. 7.2:9) and the Eocene flint pieces (the backed and truncated sickle segments [Fig. 7.2:6-8], and the core [Fig. 7.2:1]). On typological grounds, these pieces are unambiguously older than the settlement and any stratigraphic association with the latter can only be the result of re-use, bioturbation, or some other means of disturbance. It may be that these tools came from the early phases of Area A (Paz and Nativ, in preparation). In this context it is also worth noting the proximity of Chalcolithic Gat Guvrin, which has yielded Canaanite lithics (Khalaily and Hermon, forthcoming).

Regarding intra-site spatiality, the general dearth of chipped stone tool *débitage* sampled from Area B makes it impossible to identify stone working areas (if any such specialized areas existed). However, it is

noteworthy that the recovered assemblage indicates a concentration of chipped stone tool use around Building B1 (with a find apiece from Building B2, Installation B3 and the waste disposal area at the east end of the site also).¹ It is tentatively suggested that the three blades and four notches found in L140 at the west end of Building B1 indicate at least one episode of tool manufacture, or were part of a flint cache or butchering area.

The chipped stone tools from Area B reveal that stone tool production was also being carried out on the site and that stone blades were in use, some at least being recycled items from earlier occupations. These blades support the impression that cereals were probably an important element of the settlement's subsistence strategy and economy. Microscopic use-wear analyses might allow for a more detailed picture.

References

- Anderson, P.C. 1980. A Testimony of Prehistoric Tasks: Diagnostic Residues on Stone Tool Working Edges. *World Archaeology* 2: 181-194.
- Bar, S. and Winter, H. 2010. Canaanite Flint Blades in Chalcolithic Context and the Possible Onset of the Transition to the Early Bronze Age: A Case Study from Fazael 2. *Tel Aviv* 37: 33-47.
- Curwen, E.C. 1930. Prehistoric Flint Sickles. *Antiquity* 4: 179-86.
- Curwen, E.C. 1935. Agriculture and the Flint Sickle in Palestine. *Antiquity* 9: 61-66.
- Khalaily, H. and Hermon, S. forthcoming. Excavations at Gat Guvrin (Nahal Komem): A Late Chalcolithic Site in the Northern Negev (working title). *'Atiqot*.
- Neuville, R. 1934-5. Les débuts de l'agriculture et la faucille préhistorique en Palestine. *Bulletin of the Jewish Palestine Exploration Society* 3: 17-42.
- Paz, I. and Nativ, A. In preparation. *Khirbet Um-Kalha: A Neolithic, Chalcolithic and Middle Bronze Settlement in the Lower Shephela, Israel* (working title) (Salvage Excavation Reports). Tel Aviv.
- Rosen, S.A. 1997. *Lithics after the Stone Age: A Handbook of Stone Tools from the Levant*. Walnut Creek.
- Rowan, Y.M. 2006. The Chipped Stone Assemblage at Gilat. In: Levy, T.E. (ed.), *Archaeology, Anthropology and Cult: The Sanctuary at Gilat*. London, Oakville. Pp. 507-574.
- Schimmelmitz, R., Barkai, R. and Gopher, A. 2000. A Canaanite Blade Workshop at Har Haruvim, Israel. *Tel Aviv* 27: 3-22.
- Unger-Hamilton, R. 1984. The Formation of Use-Wear Polish on Flint: Beyond the "Deposit Versus Abrasion" Controversy. *Journal of Archaeological Science* 11: 91-98.
- Unger-Hamilton, R. 1991. Micro-Wear Analysis of Scrapers and "Sickle Blades". In: Betts, A.V.G. (ed.), *Excavation at Jawa 1972-1986: Stratigraphy, Pottery and Other Finds* (Volume I). Edinburgh. Pp. 149-53.

¹ Of course, a certain interpretive weight must be given to the fact that these sections of the site were, as a matter of course, more carefully excavated than the intervening squares and Area Ba to the west.

CHAPTER 8

THE ARCHAEOZOOLOGICAL FINDS

Moshe Sade

The Yesodot faunal remains, dated to the Middle and Late Bronze Ages, are comprised of 34 bones found in 16 separate loci. These remains represent several domesticated animal species: goat (*Capra hirsus*); sheep (*Ovis aries*); cattle (*Bos Taurus*); pig (*Sus scrofa*) and chicken (*Gallus gallus domestica*).

Summary

The small amount of faunal remains in this assemblage makes it difficult to draw specific

conclusions about the nature of the animal husbandry during the MB and LB periods in this part of the Yesodot site. No comparison between the two periods can be made with this sample. The dearth of faunal remains may suggest that animal products were not regularly processed, consumed or discarded here. Another conclusion we can draw is that a good water source was available, which was a necessity for raising cattle and pigs.

Table 8.1. Frequencies of faunal remains, according to bone type and species.

Species/Bones	Goat/sheep	Cattle	Pig	Chicken	Total
Horn core	2	1			3
Maxilla			1		1
Mandibula		1			1
Molar	2	3	2		7
Premolar	1				1
Radius	1	1			2
Humerus			1		1
Metacarpus	1	1			2
Femur				1	1
Astragalus		2			2
Metapod	2	2		1	5
Phalanx I		4			4
Phalanx 2		1			1
Vertebra (unidentified)		1			1
Vertebra (lumbar)	1	1			2
Total	10	18	4	2	34
%	29.41	52.94	11.76	5.89	100.00

Table 8.2. Right, left, proximal and distal bone metapods.

Species/Bones	Goat/sheep		Cattle		Pig		Chicken		Total	
	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left
Proximal radius			1							
Distal radius				1						
Distal humerus					1					
Proximal metacarpus	1		1							
Distal femur								1		
Astragalus			2							

Table 8.3. Minimum number of individuals.

Species	Goat/sheep	Cattle	Pigs	Chicken	Total
Minimum number of individuals	1	2	1	1	5
%	20.00%	40.00%	20.00%	20.00%	100.00%

Postscript

David Ilan

The discovery of a chicken bone from a Bronze Age context is surprising. The bone's find spot appears to be uncontaminated and of an MB/LB date. In this case it is one of the earliest pieces of evidence for domesticated chicken in the Levant (Blench and McDonald 2000: 497).¹ It is surprising that such a

rare animal should turn up in a rural settlement, when none have been found at larger urban sites. It remains to subject this bone to radiocarbon dating, if possible. All that can be said at this point is that there exists the possibility of a very early specimen of this domesticated fowl at Bronze Age Yesodot/Khirbet Umm el-Kalkha.

References

- Buitenhuis, H. 1985. The animal remains from Tell Sweyhat, Syria. *Palaeobioslora* 25: 151-4.
- Blench, R. and McDonald, K.C. 2000. Chickens. In: Kiple, K.F. and Ornelas, K.C. (eds.), *The Cambridge World History of Food* (Volume 1). Cambridge. Pp. 496-499.
- Horwitz, L.K. and Tchernov, E. 1989. Subsistence patterns in ancient Jerusalem. In: Mazar, B. and Mazar, E. (eds.), *Excavations in the South of the Temple Mount. The Ophel of Biblical Jerusalem* (Qedem 29). Jerusalem. Pp. 141-144.
- Horwitz, L.K. and Tchernov, E. 1996. Bird remains from Areas A, D, H, and K. In: Ariel, D.T. and de Groot, A. (eds.), *Excavations at The City of David 1978-1985, Vol IV* (Qedem 35). Pp. 298-301.
- West, B and Ben-Xiong, Z. 1988. Did Chickens Go North? New Evidence for Domestication. *Journal of Archaeological Science* 15: 515-533.
- ¹ *Gallus* has been reported from Iron Age II contexts in the City of David excavations in Jerusalem (Horwitz and Tchernov 1989; Horwitz and Tchernov 1996) and in a Early Bronze Age context from Tell es-Sweyhat in Syria (Buitenhuis 1985) having originated in southeast Asia (West and Ben-Xiong 1988).

CHAPTER 9

MOLLUSC SHELLS

Conn Herriott

Seven shell fragments were found at Yesodot. By comparison with the very large sample from Lachish (Bar-Yosef Mayer 2004), our assemblage has been identified as follows: six shells of a very common Mediterranean species (*Glycymeris violacescens*); and one of non-specifiable mother-of-pearl (*Pinctada margaritifera* / *Aspatharia rubens* / *Unio terminalis*), also known from contemporaneous sites in the region, e.g. Lachish (Bar-Yosef Mayer 2004: 2491). Further details on this small assemblage are given in Table 9.1.

Discussion

Glycymeris violacescens: This is the most common shell on eastern Mediterranean shores today, and their presence at Yesodot is in that respect unsurprising. However, as Bar-Yosef Mayer (*ibid.* 2500) has noted, the wear patterns on many of these shells—both at this site and across the region—suggest that the molluscs were not harvested from the sea itself but

were taken from ancient geological outcrops (*ibid.* 2500). Also, there is precious little evidence that *Glycymeris violacescens* shells were worked. But, Bar-Yosef Mayer (*ibid.*) asks, if they were not harvested for food and were not decorated, what then might the function of such shells have been, and why were they transported so far inland? She proposes that they were used principally in construction, for paving floors and covering walls. Examples of this are cited from Megiddo's Canaanite palace (*ibid.*, citing Loud 1948: 25, Figs. 50, 52) and Tell Kazel, where mudbrick walls were also covered in sea shell (*ibid.*, citing Chiodo 1999). And in fact, one of the Yesodot shells was found in a wall (WB111). Bar-Yosef Mayer (*ibid.*) notes that shell was also used as a pottery temper. Whatever their function, such shells also may represent an MB-LB trade pattern that concentrated on the coastal rivers of the southern Levant.

Mother-of-pearl (*Pinctada margaritifera* / *Aspatharia rubens* / *Unio terminalis*): The fragmentary

Table 9.1. Mollusc shells.

Shell No.	Species	(N=)	Comments	Locus	Field no.
1.	<i>Glycymeris violacescens</i>	1		140	1056
2.		1		111	1050
3.		1	Pierced by gastropod boring. Shows signs of wearing or weathering.	115	1035
4.		2	One marked with gastropod perforation.	133	1087
5.		1		133	1090
6.	Mother-of-pearl (<i>Pinctada margaritifera</i> / <i>Aspatharia rubens</i> / <i>Unio terminalis</i>)	1	In very fragmentary condition, making precise identification difficult.	336	3160

state of the single mother-of-pearl shell find (Table 9.1:6) precluded the identification of its specific family, but most likely *Pinctada margaritifera* is represented, if we follow the general pattern from LB Lachish (*ibid.* 2491). However, some interesting points about the other two possible species are worth noting. *Unio terminalis* is a freshwater mollusc, which at EB III Tell Handaquq South (in Jordan) was perhaps used for burnishing pottery (it is worth noting that no signs of such use were found on either the Yesodot or Lachish specimens [*ibid.*]). *Aspatharia rubens* is a mother-of-pearl species from the River Nile, which was exported to regions including the Levant (e.g. LB Lachish [*ibid.*]). Scholars have proposed medicinal/magical ancient functions for this mollusc (*ibid.*). Bar-Yosef Mayer affirms that the ‘cultic’ find contexts at Lachish support this contention.

The majority of the sampled shells came from the LB Building B1. This group includes all of the

Glycymeris violacescens. The mother-of-pearl find came from contemporaneous Building B2. This separation is perhaps noteworthy.

Conclusions

The Yesodot shell finds do not provide conclusive evidence of any particular activity in the settlement, but neither do they offer grounds for challenging the taxonomical patterns and functional interpretations given—with much greater authority, and using a much larger sample—for at-least partly contemporaneous Lachish. I feel comfortable in supporting the proposal that shells were being imported to the settlement mainly for construction purposes, if only here and there according to individual taste, needs or means.

References

- Bar-Yosef Mayer, D.E. The mollusc shells. In: Ussishkin, D. (ed.), *The Renewed Archaeological Excavations at Lachish (1973-1994)* (Monograph Series of the Institute of Archaeology of Tel Aviv University, No. 22). Tel Aviv. Pp. 2490-2503.
- Chiodo, D. 1999. Tell Kazel: Ancient Simyra? (Lecture by Dr. Leila Badre). *Newsletter of the Society of Friends of the American University of Beirut* (Aug. 1999). Pp. 7-10.
- Loud, G. 1948. *Megiddo II, Seasons of 1935-39* (Oriental Institute Publications 62). Chicago.

CHAPTER 10

SUMMARY AND CONCLUSIONS

Yehuda Govrin, Nathan Ben-Ari and David Ilan

The site of Yesodot (Khirbet Umm el-Kalkha) was situated on a strategic point along the northern bank of Nahal Soreq, close to important routes linking the central and southern coastal plains with the Judean Shephelah and Mountains, such as the Jerusalem–Beth-Shemesh–Yavne Yam road and the Timnah–Ekron–Ashdod road (Dorsey 1991: 186–189). The Israel Antiquities Authority’s (IAA) Route 3 survey, followed by three salvage excavations conducted at the site by Y.G. Archaeology Ltd, the Israeli Institute of Archaeology and the IAA revealed occupation layers dating to the following periods: Pre-Pottery Neolithic, Chalcolithic, the Middle and Late Bronze, and to a lesser extent the Iron II and Byzantine (Dagot 2004; Dagan, Barda and Golan 2009; Paz and Nativ, in preparation).

This report has focused on the settlement remains of the MB and LB periods, unearthed by Y.G. Archaeology Ltd under the auspices of the Hebrew Union College, on the margins of a more extensive settlement, as established initially by the IAA survey and substantiated by our excavation and by other excavations in the area.

That said, the findings of the Y.G. Archaeology Ltd excavation—the architectural remains, the pottery workshop, the ceramic assemblage, and the lithic assemblage—afford us the opportunity to make some general observations and conclusions, and to discuss some issues about the nature of the site and its regional setting during the MB and LB periods.

Summary of the Archaeological Context

At least two buildings were unearthed and a pottery workshop that included a kiln, installations and a waste pit. The two buildings were of the ‘courtyard house’ type (cf. Ben-Dov 1992). The poor preservation state of Building B1 precludes

any involved interpretation, but this structure was probably of one storey (as implied by the width of the walls). Within were at least 4–5 rooms and possibly one or two paved courtyards adjacent to the southern side. The majority of the Building B1 pottery dates to the LB, although a small quantity of MB material was also found. Building B2 was also a one-storey structure, with at least one main room, two subsidiary spaces in the eastern and western wings, and a possible paved courtyard at the west end of the building. L338 was probably associated with this courtyard. The majority of the pottery in this building is from the MB period, although LB pottery was also found.

The pottery workshop—which included at least two kilns (one dug by Dagot [2004]), subsidiary installations and waste pits—was located in the eastern part of the excavated area, close to a meander of Nahal Soreq (which was probably exploited as a clay and water source). All of the above implies that the excavated area (Area B) was, at least in part, an industrial area on the margins of the settlement. The fact that this pottery workshop was situated on the periphery of the habitation makes sense, considering the potential fire hazard, heat, smoke, and dirt that such work produced, as well as the necessity to be close to raw materials and fuel (Wood 1990: 33). The ceramics recovered from this workshop—mainly from its waste pits—date to the MB period (mainly MB I and II). The potters’ kiln had a rounded shape and was of the vertical type (*ibid.*: 26–33). As was mentioned above an additional kiln, probably of the same type, was unearthed by Dagot (dated to the MB I), ca. 4.0m to the north. This suggests that the industrial area extended to the north beyond the limit of the excavated area. Another such kiln from the Yesodot vicinity, also dated to the MB I, was excavated on Nahal Soreq’s northern bank,

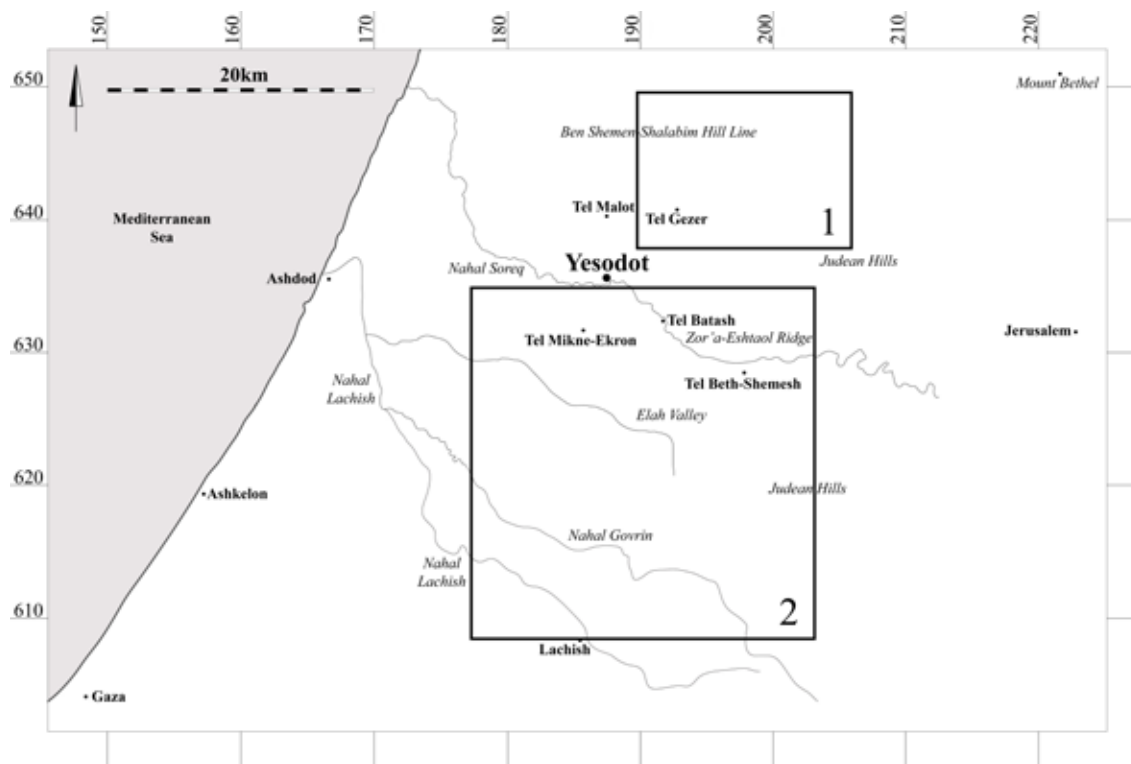


Fig. 10.1. Map of tangent survey areas: The Ayalon Valley and Environs Survey (1) and the Judean Shephelah Survey (2).

ca. 2.0km east of Yavne-Yam (Singer-Avitz and Levy 1992). No settlement was found in association with this kiln. Somewhat different MB kilns were found near Tel Qasile (Kletter and Gorzalczy 2001 [and see there for a partial list of MB kilns from the coastal plain]; Kletter 2006: 93-99). It seems that the Yesodot buildings (B1 and B2) were associated with this workshop; perhaps they were the potters' homes. Whatever the case, this possible industrial quarter was quite typical of the MB and LB periods.

The fact that no fortifications were found during the survey and in the various excavations suggests that the site of Yesodot was an open settlement during the MB and LB periods—probably a large village, though its actual size is not yet known.

Economy

The finds from Area B are probably not the best sample from which to reconstruct subsistence strategies, due to the limited area exposed and its

apparently specialized nature. Nevertheless, there is some evidence germane to the topic. Our first clue is the chipped stone assemblage. Although small in size, its sickle element presumably reflects an agrarian society. This is supported by the groundstone assemblage, which is mostly domestic in nature and includes mainly utilitarian grinding tools, probably for the processing of raw foodstuffs.

Our second clue to subsistence comes from the small faunal assemblage, which represents a minimum of two cattle, one goat or sheep, one pig and perhaps a chicken. These few surviving remains suggest that the inhabitants of Yesodot probably maintained livestock for secondary products, such as meat and milk.

Our third clue, the pottery workshop, indicates that some of the inhabitants were specializing in crafts. Through exchange, these would have been providers of such products as food.

This leads us to some circumstantial evidence relating to the settlement's location. The close proximity of Yesodot to important routes between

the coastal plain and the Judean Shephelah and Mountains may have afforded the Yesodot inhabitants the opportunity to practice commerce in one form or another—that is, to sell or exchange their local products with merchants passing along the roads. This could be one explanation for the presence of imported ware, such as that from Cyprus.

Relative Chronology (Table 10.1)

The lack of a clear-cut stratigraphy necessitates reliance on relative chronology—i.e. comparing the pottery assemblage with well-dated assemblages from neighboring sites.

The pottery assemblage of MB I Yesodot has good parallels from Aphek Phases 2–3, Lachish Level P6 (parallel to Aphek Phase 3), and Gezer Strata XXII–XXI. To that we can add also the Ashqelon moat deposit Phases 14–13 (presumably parallel to Aphek Phases 2–3 according to Stager [2000, Stager *et al.* 2008]). These parallels suggest that the Yesodot settlement was founded in the MB I (generally dated to ca. 1950–1750/30 BCE¹), although not in its earliest phases. The pottery assemblage of MB II has good parallels from Aphek Strata X XVI–XV and A XI, as well as Lachish Levels P 5–4, Gezer Strata XX–IX, and Tel Batash XII–XI (the latter to a lesser extent, due to the limited nature of the assemblage).

Despite the stratigraphic difficulties, therefore, by correlating our assemblage with those of the above-mentioned sites we propose that Yesodot was occupied from the MB I through MB II (the later generally dated to ca. 1750/30–1600/1580 BCE). It seems that at some stage during the MB II or III, or even during the transition to the LB I, the site experienced decline and was probably abandoned, as implied by the few sherds of the MBIII/LB I. A similar phenomenon of decline towards the end of the MB period has been observed at other sites, such as Aphek and Lachish, to mention but two (cf. Bunimovitz 1995: 320–324; Ilan 1995: 314–315).

The LB II pottery assemblage from Yesodot has good parallels in Aphek Strata XIII–XII, Gezer

Strata XVI–XV, Tel Batash Strata IX–VII, Tel Migne-Eqron Strata IX–VIII and Lachish Levels P 2-1, S 3-1, and Fosse Temple II. This suggests that after the late-MB/early-LB decline, Yesodot was re-established or experienced some measure of rejuvenation during the LB I or early LB II. At some time during this latter period the site was finally abandoned, an impression strengthened by the absence of cup and saucer vessels, for example (Uziel and Gadot 2010).

The Settlement and Its Regional Setting

As mentioned above, the Yesodot settlement was situated in a fertile valley, on or close to several routes. Further details on the setting of the site and the wider region have been revealed by two major surveys conducted in close proximity to Yesodot: The Ayalon Valley and Environs Survey (Shavit 1992) and the Judean Shephelah Survey (Dagan 2001). An additional survey, carried out by the IAA along Route 3, which actually led to the salvage excavations at Yesodot, has not yet been published and its results are as yet unknown.

Ayalon Valley and Environs Survey

This survey area lies north and northeast of Yesodot (Shavit 1992). The southern portion of the area directly borders the Yesodot vicinity and therefore is particularly relevant to our discussion. During the MB period the area witnessed an increase in the number of settlements (as was the case in the coastal plain) and a developed settlement hierarchy. This hierarchy was comprised of three tiers: large sites such as Gezer, together with five medium-sized settlements (at least one in each geographical sub-unit), and 17 smaller settlements (Shavit 1992: 120–121). But there is uncertainty as to how much of this settlement hierarchy dates back to the MB I (Yasur-Landau and Samet 2004: 25). One of the reasons for this is the fact that during the survey only a few sites could be securely dated to this period.

The excavations at Gezer have revealed massive public buildings of the MB I (Dever 1986:19–20),

¹ The chronology used here is based on Bietak (2002).

Table 10.1. Relative chronology in relation to Yesodot.

Period	Yesodot Area B	Aphek	Ashqelon	Gezer	Batash	Tel Migne-Eqron	Lachish
LB III	?	XI	--	--	--	--	Fosse Temple III, P1, VII-VI
LB II	+	XIII-XII	XVIII	XVI-XIV	VII-VI	IX-VIII	P2, S3-1, Fosse Temple II
LB I	?	XIV	XIX	XVII	X-VIII	X	P3, Fosse Temple I
MB III/LB I	+	--	--	XVIII	--	X	
MB III	?	--	XX	XIX	--	--	--
MB II	+	X, XVI-XV, A, XI	XXI	XXI-XX	XII-XI	Phase 13	P5-4
MB I	+	Phase 3	XXIII	XXII	--	Phase 13	P6
		Phase 2	XXIV				--

which suggest urbanizing processes, with the implication that the city was already maintained a central place function. There is no doubt that from the MB II onwards Gezer was the major urban center which controlled its hinterland.

The transition to the LB saw a decline in the number of settlements. By contrast with the previous period, the southern part of the area under survey (the area that lies directly north of Yesodot) was scarcely settled, while the northern sector was more densely settled. As in the MB period, the area's settlement hierarchy was comprised of three tiers: the largest settlement, Gezer, serving as a hub for three medium-sized and eight smaller satellite settlements (Shavit 1992: 128-129).

The Judean Shephelah Survey

This survey area lies south and southeast of Yesodot (Dagan 2001). In contrast with the coastal plain region, which witnessed an increase in settlement numbers (as perhaps did the Ayalon Valley), the Judean Shephelah was scarcely settled in the MB I period, with settlement numbers reduced to 13 (surveyed). To date, only one of these (Tell Beth-

Mirsim) was fortified. As expected, most sites were located near rivers or streams (Dagan 2001: 137).

During the MB II–III the Judean Shephelah experienced an increase in settlement numbers. This may have been due to an expanding population and immigration east from the more densely populated coastal plain. At least 24 MB II–III settlements were counted in this region, of which seven were fortified—among them Tel Batash and Tel Beth Shemesh, which were the closest major settlements to Yesodot. In contrast to the MB I drainage-focused settlement pattern, the MB II–III saw the establishment of sites and habitations along valleys edges, hills, mountain slopes, and other new environments. During this period the settlement hierarchy appears to have been comprised of at least two tiers—a large fortified center surrounded by small, unfortified, satellite agrarian settlements. There is of course a possibility of further tiers—perhaps a larger polity center which controlled a territory of which this survey area was only a part.

The MB III/LB I transition saw the demise of the MB urban culture. Settlement numbers were reduced across Canaan and, like the Ayalon Valley, the Judean Shephelah was no exception. However,

during late LB I and early LB II, this region, too, regained some prosperity. At least 25 settlement sites were counted in the survey, of which 15 were categorized as urban centers. It seems that here too the settlement hierarchy was now comprised of three tiers—a larger center, surrounded by medium-sized villages and smaller agrarian satellite sites.

The numbers, sizes, and structures of MB polities in the Shephelah region are not known for certain, and there is little scholarly agreement about those polities' nature. Models are based primarily on archeological data and to a lesser extent on historical documentation (such as the Egyptian execration texts). Burke (2004: 214-228) argues that the Yesodot area is the northeastern border of the Kingdom of Ashkelon—a polity of four tiers, with Ashkelon acting as the major political center. Under this political center were other large fortified settlements which controlled their own hinterlands, in which medium and small unfortified satellite settlements were located. According to this model, the Yesodot area was probably controlled by the fortified urban center at Tel Mique-Ekron.

Dagan (2000: 147) argues that the political organization of the LB carried on that of the MB. According to this hypothesis most of the Judean Shephelah would have been under the control of two major cities: Tell es-Safi/Gat and Lachish. However, Dagan also offers the possibility that the area was divided to smaller polities.

Uziel *et al.* (2009: 234-239) have suggested two models of socio-political organization in the region between the Yarkon and the Soreq valleys. The first is the gateway/central place model, according

to which the region was divided into two polities—northern and southern. In the north Aphek functioned as an inland center, while her gateway site presumably was situated at Jaffa. In the southern polity Tel Mique-Ekron functioned as the inland center, with Yavne-Yam presumably functioning as gateway. In this model the Yesodot settlement—ca. 2.0km northeast of Tel Mique-Ekron—was part of the southern polity.

The second model suggested by Uziel envisions a single polity encompassing the entire Yarkon-Soreq region. The settlements in this postulated polity were arranged in an interesting pattern, with urban sites located around the periphery and rural settlements in the center. Under this model, Yesodot was not situated in the center, but rather close to the southeastern border of the polity, and was not exclusively agricultural in nature but rather had other economic functions due to the settlement's proximity to Tel Mique-Ekron.

During the subsequent LB period the sociopolitical structure of the Shephelah was influenced by Egypt, which controlled most of Canaan. As in the MB, the Shephelah was probably divided into several city-states; the number and territories of the polities is also a bone of contention (Bunimovitz 1989, 1995; Finkelstein 1996; Na'aman 1997; Jasmin 2006). According to these the area of Yesodot was under the control of one of two city-states—Gezer or Tell es-Safi/Gat. Since Nahal Soreq seems to have been the natural border between the territories of these polities, we tend to accept that Yesodot was part of the kingdom of Gezer in the Late Bronze Age.

References

- Ben-Dov, M. 1992. Middle and Late Bronze Age dwellings. In: Kempinski, A. and Reich, R. (eds.), *The Architecture of Ancient Israel*. Jerusalem. Pp. 99-104.
- Bietak, M. 2002. Relative and Absolute Chronology of the Middle Bronze Age: Comments on the Present State of Research. In: Bietak, M. (ed.), *The Middle Bronze Age in the Levant: proceedings of an International Conference on MB IIA Ceramic Material, Vienna, 24th-26th of January 2001*. Wien. Pp. 29-42.
- Bunimovitz, S. 1989. *The Land of Israel in the Late Bronze Age: A Case Study of Socio-Cultural Change in a Complex Society* (Ph.D. dissertation). Tel Aviv.
- Bunimovitz, S. 1995. On the Edge of Empires: Late Bronze Age (1500–1200 B.C.E.). In: Levy, T.E. (ed.), *The Archaeology of Society in the Holy Land*. London. Pp. 320-331.
- Burke, A.A. 2004. *The Architecture of Defense: fortified Settlements of the Levant during the Middle Bronze Age* (Ph.D. dissertation). Chicago.

- Dagan, Y. 2001. *The Settlement in the Judean Shephela in the Second and First Millennium B.C.: A Test-Case of Settlement Processes in a Geographic Region* (Ph.D. dissertation). Tel Aviv. (Hebrew; English summary)
- Dagan, Y., Barda, L. and Golan, S. 2009. Hirbat Umm Kalkha: Survey of Highway 3. *Hadashot Arkheologiyot* 121. http://www.hadashot-esi.org.il/report_detail_eng.asp?id=1221&mag_id=115
- Dagot, A. 2004. Umm Kalha. *Hadashot Arkheologiyot* 116. http://www.hadashot-esi.org.il/report_detail_eng.asp?id=33&mag_id=108
- Dever, W.G. 1986. *Gezer IV: the 1969-1971 Seasons in Field VI, the "Acropolis"*. Jerusalem.
- Dorsey, D.A. 1991. *The Roads and Highways of Ancient Israel*. Baltimore.
- Finkelstein, I. 1996. The Territorial-Political System of Canaan in the Late Bronze Age. *Ugarit-Forschungen* 28: 221-255.
- Ilan, D. 1995. The Dawn of Internationalism – The Middle Bronze Age. In: Levy, T.E. (ed.), *The Archaeology of Society in the Holy Land*. London. Pp. 297-319.
- Jasmin, M. 2006. The Political Organization of the City-States in Southwestern Palestine in the Late Bronze Age. In: Maeir, A.M. and de Miroschedji, P. (eds.), *I Will Speak the Riddles of Ancient Times: Archaeological and Historical Studies in Honor of Amihai Mazar on the Occasion of his Sixtieth Birthday*. Winona Lake. Pp. 161-191.
- Kletter, R. 2006. A Middle Bronze Age II Site West of Tell Qasile. *'Atiqot* 53: 65-128.
- Kletter, R. and Gorzalczany, A. 2001. A Middle Bronze Age II Type of Pottery Kiln from the Coastal Plain of Israel. *Levant* 33: 95-104.
- Na'aman, N. 1997. The Network of Canaanite Late Bronze Age Kingdoms and the City of Ashdod. *Ugarit-Forschungen* 29: 599-626.
- Paz, I. and Nativ, A. In preparation. *Khirbet Um-Kalha: A Neolithic, Chalcolithic and Middle Bronze Settlement in the Lower Shephela, Israel* (working title) (Salvage Excavation Reports). Tel Aviv.
- Shavit, A. 1992. *The Ayalon Valley and Its Vicinity during the Bronze and Iron Ages* (MA dissertation). Tel Aviv. (Hebrew)
- Singer-Avitz, L. and Levy, Y. 1992. An MB IIA Kiln at Nahal Soreq Site. *'Atiqot* 21: 9-14 (Hebrew), 174 (English summary).
- Stager, L.E. 2002. The MB IIA Ceramic Sequence at Tel Ashqelon and Its Implications for the "Port Power" Model of Trade. In: Bietak, M. (ed.), *The Middle Bronze Age in the Levant: proceedings of an International Conference on MB IIA Ceramic Material, Vienna, 24th-26th of January 2001*. Wien. Pp. 353-362.
- Stager, L.E., Schloen, J.D., Master, D.M., Press, M.D. and Aja, A. 2008. Part Four: Stratigraphic Overview. In: Stager, L. E., Schloen, J.D. and Master, D.M. (eds.), *Ashqelon I: Introduction and Overview (1985-2006)*. Winona Lake. Pp. 213-323.
- Uziel, J. and Gadot, Y. 2010. The "Cup and Saucer" Vessel: Function, Chronology, Distribution and Symbolism. *Israel Exploration Journal* 60: 41-57.
- Uziel, J., Ben-Shlomo, D., Ilan, D., Shai, I. and Maeir, A.M. 2009. Middle Bronze Age II Pottery Production in the Western Shephelah: Comparing Methods from Tel Nagila, Tell es-Safi/Gath, and Tel Burna. *Leiden Journal of Pottery Studies* 25: 141-162.
- Wood, B.G. 1990. *The Sociology of Pottery in Ancient Palestine*. Sheffield.
- Yasur-Landau, A. and Samet, I. 2004. The Middle Bronze Age: Stratigraphy and Pottery. *Salvage Excavations* 5: 16-26.

YESODOT AREA B: LIST OF LOCI AND WALLS

AREA Ba: LIST OF LOCI

Locus	Square	Description	Opening Level	Closing Level
100	A2	Topsoil	81.99	80.89
101	B2	Topsoil	81.68	81.32
102	A3	Topsoil	81.91	81.5
103	B3	Topsoil	81.69	80.81
104	A4	Topsoil	81.5	80.8
105	B4	Topsoil	81.67	80.22
106	A5	Topsoil	81.83	80.86
107	B5	Topsoil	81.67	81.49
108	A6	Topsoil	81.95	80.82
109	B6	Topsoil	81.94	81.27
110	A7	Topsoil	81.95	81.31
111	B7	Topsoil	81.94	80.42
112	A8	Topsoil	82.1	81.55
113	B8	Topsoil	81.93	81.59
114	A9	Topsoil	82.24	81.67
115	B9	Topsoil	82.22	81.64
116	A10	Topsoil	82.24	81.74
117	B10	Topsoil	82.22	81.64
118	C8	Topsoil	81.92	80.8
119	C9	Topsoil	81.92	80.61
120	C10	Topsoil	81.96	80.54
121	B1	Topsoil	81.67	80.55
122	C1	Topsoil	81.45	81.26
123	C2	Topsoil	81.45	80.07
124	C3	Topsoil	81.5	81.27
125	C4	Topsoil	81.53	80.76
126	C5	Topsoil	81.53	81.42
127	C6	Topsoil	81.66	80.67

Locus	Square	Description	Opening Level	Closing Level
128	C7	Topsoil	81.81	81.59
129	D3	Topsoil	81.37	81.12
130	D4	Topsoil	81.46	81.18
131	B8	Sub-floor fill	81.59	81.4
132	B8	Room fill	81.59	81.4
133	B9	Topsoil	81.64	81.45
134	B9	Cancelled (=137)	81.55	81.48
135	B10	Cancelled (=150)	81.64	81.5
136	B10	Fill/overburden	81.64	81.5
137	B10	Fill	81.6	81.5
138	A8	Overburden	81.55	81.45
139	A8-9-10	Floor	81.67	81.5
140	A9	Possible surface	81.71	81.5
141	A10	Floor	81.74	81.52
142	D2	Topsoil	81.36	81.21
143	D1	Topsoil	81.36	81.05
144	D5	Topsoil	81.46	81.22
145	D6	Topsoil	81.61	81.46
146	D7	Topsoil	81.61	81.53
147	D8	Topsoil	81.6	81.49
148	D9	Topsoil	81.57	81.46
149	D10	Topsoil	81.46	81.43
150	A10	Fill/floor	81.55	81.42
151	A8-9	Topsoil	82.24	81.58
152	B8-9	Topsoil	82.22	81.67
153	B8-9	Floor	81.67	81.57
154	A9-10	Topsoil	82.18	81.49
155	B9	Sediment under occupation surface	81.54	80.74
156	A8-9, B8-9	Topsoil	82.22	81.58
157	A10-B10	Topsoil	82.22	81.69
158	B9-10	Topsoil	81.91	81.63
159	A1	Topsoil	81.99	81.57

AREA Ba: LIST OF WALLS

Wall	Square	Description	Opening Level	Closing Level
WB081	B8	Element of Building B1 western annex	81.71	81.52
WB082	B8	Western wall of Building B1	81.71	81.48
WB083	B8	Northwest wall of Building B1	81.7	81.53
WB084	B8	Wall element west of Building B1	81.65	81.43
WB091	B9-10	Wall on north side of Building B1	81.72	81.53
WB092	B9	Wall on north side of Building B1	81.74	81.61
WB093	B9	Wall on north side of Building B1	81.74	81.54
WB094	B8-9	Wall on north side of Building B1	81.74	81.54
WB101	A10-B10	Internal wall of Building B1	81.77	81.53
WA091	A8-9-10	South wall of Building B1	81.89	81.53
WA101	A10	Wall on south side of Building B1	81.83	81.67
WA102	A10	Internal wall of Building B1	81.78	81.57

AREA Bb: LIST OF LOCI

Locus	Square	Description	Opening Level	Closing Level
300	A14	Topsoil	82.29	82.09
301	A15	Topsoil	82.11	81.66
302	B14	Topsoil	81.88	81.72
303	A11	Topsoil	82.2	82.03
304	B11	Topsoil	82.3	81.22
305	A12	Topsoil	82.08	81.98
306	A13	Topsoil	81.92	81.59
307	C11	Topsoil	82.18	80.54
308	B15	Topsoil	81.89	81.59
309	B16	Topsoil	81.89	81.45
310	B17	Topsoil	81.69	81.02
311	A16	Topsoil	81.98	81.37
312	A17	Topsoil	81.82	81.11

Locus	Square	Description	Opening Level	Closing Level
313	B12	Topsoil	82.01	81.55
314	C12	Topsoil	81.88	80.6
315	C13	Topsoil	81.77	80.44
316	A11	Floor	82.03	81.63
317	A12	Floor	81.98	81.67
318	B11	Room fill	81.82	81.49
319	C14	Overburden	81.7	80.59
320	A13	Overburden	81.59	81.49
321	A14	Unknown	82.09	81.7
322	B12	Possible occupation surface	81.55	81.44
323	B14	Room fill	81.72	81.62
324	D11	Topsoil	81.49	81.38
325	D12	Topsoil	81.35	81.4
326	D13	Topsoil	81.56	81.29
327	D14	Topsoil	81.6	81.47
328	A13	Overburden	81.49	81.49
329	A13	Overburden	81.49	81.49
330	C17	Topsoil	81.53	79.74
331	D16	Overburden	81.45	81.45
332	A15	Room fill	81.66	81.66
333	B15	Overburden	81.59	81.29
334	C15	Topsoil	81.89	80.13
335	C16	Topsoil	81.89	80.16
336	A16	Pottery horizon adjacent to Building B2	81.37	81.37
337	A11-12	Floor	82.09	82.09
338	B17	Sterile sediment under occupation surface	81.44	80.7
339	B17	Ceramic accumulation outside Building B2	81.02	81.02
340	A17	Fill	81.11	79.95
341	B15	Overburden	81.29	81.29

Locus	Square	Description	Opening Level	Closing Level
342	A17	Pottery horizon	80.96	80.96
343	A18	Topsoil	81.53	81.53
344	B16	Overburden	80.84	80.81
345	A15-16	Occupation surface	81.22	81.17
346	A16-17	Overburden	80.86	80.81
347	B17	Probe	80.68	80.68
348	B17	Probe	80.42	80.42
349	B16	Probe	80.71	80.71
350	A18	Overburden	80.99	80.59
351	A17	Chalcolithic pit	80.77	80.77
352	D9	Sterile layer	81.46	80.12
353	D11	Sterile layer	81.38	80.29
354	D13	Probe	81.29	80.43
355	B13-14	Pebble floor in Building B2	81.68	81.64
356	B14	Room fill in Building B2	81.62	81.62
357	B14	Fill	81.62	81.37
358	A13	Overburden	81.64	81.4
359	B-C13	Floor	81.76	81.56
360	D15	Probe	80.82	79.8
361	D17	Topsoil/overburden	81.57	80.82
362	D15-16	Floor	81.33	81.16
363	A15	Stone collapse from WA1610	81.51	81.51
364	A18	Probe	80.53	80.38
365	A19	Topsoil	81.04	81.04
366	A20	Topsoil	80.87	80.87
367	A21	Topsoil	80.71	80.71
368	A22	Topsoil	80.54	80.54
369	A14-15	Collapse adjacent to Building B2	81.7	81.7
370	A14	Floor	81.53	81.53
371	A14	Collapse in Building B2	81.5	81.5
372	A-B15	Collapse in Building B2	81.55	81.55

Locus	Square	Description	Opening Level	Closing Level
373	A23	Topsoil	80.4	80.4
374	B18	Topsoil above Kiln L378	81.08	80.82
375	B16	Ceramic accumulation outside Building B2	81.14	80.88
376	B18	Fill of Kiln L378	80.56	80.38
377	B18	Overburden/fill	80.82	80.51
378	B18	Kiln	80.36	80.08
379	B19	Probe	80.51	79.83
380	B20	Overburden	80.48	80
381	B21	Fill/occupation surface	80.32	80
382	B21	Fill/occupation surface	80	79.5
383	B22	Overburden	79.85	79.4
384	B23	Sterile layer	82.22	79.66
385	C23	Topsoil	80.28	80.16
386	C22	Overburden/fill	80.49	79.62
387	C21	Topsoil	80.53	80.08
388	C20	Topsoil/overburden	80.65	80.38
389	C19	Topsoil	80.76	80.62
390	D18	Topsoil	80.68	80.53
391	D16	Overburden	80.24	79.24
392	B-C23	Topsoil	80.02	79.83
393	C21	Overburden	80.46	80.26
394	C-D17	Fill	80.82	80.24
395	C-D17	Fill	80.82	80.24
396	B-C23	Overburden	79.83	79.47
397	C-D18	Overburden	80.53	
398	C-D19	Deposit/occupation surface	80.62	
399	B-C23	Fill/waste deposit	79.66	79.47
400	C-D22	Sterile layer	80.49	79.62
401	C-D19	Sterile layer	80.49	80.41
402	C-D23	Waste deposit	79.93	78.46
403	C-D21	Occupation surface	79.62	79.09

Locus	Square	Description	Opening Level	Closing Level
404	C-D22	Occupation surface/debris	79.46	79.46
405	D10	Overburden	80.09	79.71
406	D19	Fill	80.41	80.19
407	C-D18	Sterile deposit	80.53	80.24
408	C-D18	Sterile deposit	80.53	80.18
409	C-D19	Debris layer	80.41	80.19
410	C-D20	Pit	80.22	79.39
411	C-D21	Pit	80.26	79.99
412	C-D22	Debris layer	79.75	79.62
413	C-D22	Debris layer	79.62	78.7
414	A-B23	Debris layer	79.45	79.15
415	C-D21	Pit	79.56	79.08
416	C-D22	Debris layer	79.24	79.24
417	C-D19	Floor	80.16	80.13
418	C19	Debris layer		

AREA Bb: LIST OF WALLS

Wall	Square	Description	Opening Level	Closing Level
B111	B11	Northeast wall of Building B1	81.82	81.56
B112	B11	Northeast wall of building B1	81.74	81.56
A133	A13	Wall southwest of Building B2	81.66	81.43
A164	A16	Internal wall of Building B2	81.36	
B155	B15	North wall of Building B2	81.54	81.26
A176	A17	Wall east of Building B2	81.13	80.72
B177	B17	Wall section northeast of Building B2	80.83	
B148	B14	Northwest wall of Building B2	81.7	81.6
A149	A14	Wall at west end of Building B2	81.63	81.48
A1610	A16	Wall at southwest corner of Building B2	81.54	81.21
A1611	A16	East end of Building B2	81.35	81.23
A1612	A16	Wall at east end of Building B2	81.35	81.23

Wall	Square	Description	Opening Level	Closing Level
B1413	B14	Wall at northwest corner of Building B2	81.7	81.53
B1414	B14	Wall at northwest corner of Building B2	81.59	81.43
D1715	D17	Wall section west of Installation B3	81.57	80.82
C1916	C19	South wall of Installation B3	80.3	80.12
D1917	D19	North wall of Installation B3	80.41	80.15
D1918	D19	Wall section north of Installation B3	80.63	80.17
WC1919	C19	Wall adjacent to Installation B3		
B1920	B19	Wall section east of potters' workshop	80.83	80.28
B1921	B19	Wall section east of potters' workshop	80.83	80.28
B2322	B23	Wall at east end of Area Bb	79.7	79.41
B2323	B23	Wall at east end of Area Bb	79.64	79.41
C1924	C19	East wall of Installation B3	80.41	80.15
C2325	C23	Wall at east end of Area Bb	79.78	79.21
C2326	C23	Wall section at east end of Area Bb		
C2127	C21	Wall section east of Installation B3		
WA151	A15	Wall in Building B2		
WA1411	A14	Wall at west end of Building B2	81.8	81.64
WB131	B13	Wall at west end of Building B2	81.72	81.64
WC211	C21	Wall east of Installation B3	80.32	80.01
WC212	C21	Wall east of Installation B3	80.35	80.04
WB1528	B15	Wall incorporating bench in Building B2	81.59	81.2

PART II

SALVAGE EXCAVATION AT NAHAL SAYIF – 2004

Yehuda Govrin

The excavations were directed by the author in early December 2004, on behalf of Y.G. Contract Archaeology Ltd under the academic sponsorship of Hebrew Union College (Excavation Permit: B-293/2004).

In order to further their business model, Rotem Emprat Negev Corporation Ltd in 2004 commissioned an archaeological survey in the Sde Sayif area of the southern Negev (Fig. 1; carried out by Yeshayahu Lender on behalf of the Israel Antiquities Authority and published in an IAA report dated May 2nd 2004). This survey extended over 5000 dunams (1250 acres), and fifteen archaeological sites and find points were identified. Following the survey, archaeological excavations were conducted at six of the surveyed sites (Sites 3, 4, 7, 8, 12 and 13). The extent of excavation required for each site was 2.0–4.0m².

Site 3: Stone Concentration

Location: 161995–029511

Description: A small mound of stones, diameter ca. 5.0m, found in an area of level ground between

two wadis (Fig. 2). The western and eastern stones in the pile were found standing upright. Fifteen and thirty meters west were two additional stone concentrations.

Excavation: A 4.0m² square was excavated to a depth of 0.15m (Fig. 3). No finds were recovered and the soil was sterile throughout the entire excavation depth.



Fig. 1. Site location map (Old Israeli Grid: 161500–029500).

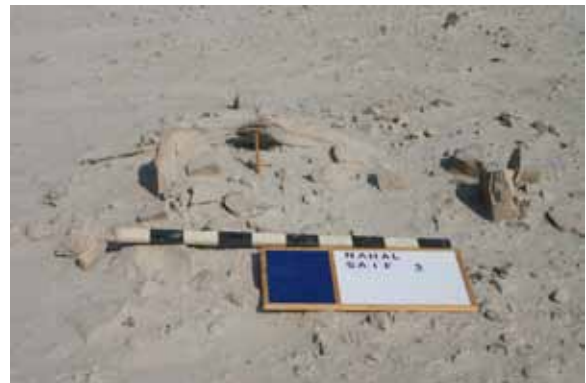


Fig. 2. Nahal Sayif 3 before excavation.



Fig. 3. Nahal Sayif 3 after excavation.

Site 4: Stone Concentration

Location: 163622–030940

Description: Twelve small piles of stones within a circular area of ca. 30.0m diameter (Fig. 4). The piles consisted of small flat limestone rocks, and as a group they formed an uneven ovoid shape in plan.

Excavation: A 4.0m² square was excavated to a depth of 0.15m at the center of the stone concentration (Fig. 5). No finds were retrieved and the soil was sterile throughout the entire excavation depth.

Site 7: Stone Circle

Location: 163668–031504

Description: Remains of a truncated circle of small stones, with an estimated original diameter of ca. 2.5m. Found on a moderate slope close to the bank of a stream (Fig. 6).

Excavation: A 4.0m² square was excavated to a depth of 0.15m (Fig. 7). No archaeological finds were recovered and the soil was sterile throughout the entire excavation depth.

Site 8: Stone Circle

Location: 164043–031158

Description: A circle of flat stones at the centre of a rock surface, as well as nearby concentrations of stones, very close to the bank of a shallow stream (Fig. 8). A small stone lying on its narrow side was seen ca. 10.0m from the site during the IAA survey and identified as a 'stela' (Fig. 9).

Excavation: A 4.0m² square was excavated down to bedrock (ca. 0.2m below surface). No archaeological finds were recovered and the soil was sterile throughout the entire excavation depth (Fig. 10).



Fig. 4. Nahal Sayif 4 before excavation.

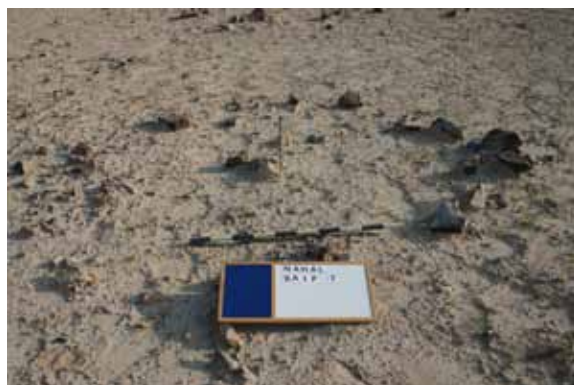


Fig. 6. Nahal Sayif 7 before excavation.



Fig. 5. Nahal Sayif 4 after excavation.



Fig. 7. Nahal Sayif 7 after excavation.

Site 12: Stone Concentrations

Location: 162342–030956

Description: Three flat stone piles spaced 15.0–20.0m apart on the east bank of a stream, each pile being comprised of one course of flat limestone rocks measuring ca. 2.5 x 1.5m (Fig. 11).



Fig. 8. Nahal Sayif 8, the 'stela'.

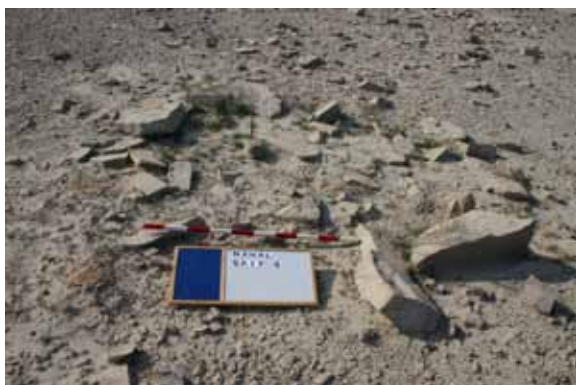


Fig. 9. Nahal Sayif 8, before excavation.



Fig. 10. Nahal Sayif 8 after excavation.

Excavation: A 4.0m² area was excavated to a depth of 0.15m beneath the limestone piles. No artifacts were retrieved and the soil was sterile throughout the entire excavation depth (Fig. 12).

Site 13: Stone Circles

Location: 161520–030285

Description: Two stone circles found on a deep stream's bank 20.0m apart. These features were arranged using unworked stones, to form ca. 2.5 x 1.5m elliptical shapes.

Excavation: A 4.0m² square was excavated to a depth of 0.2m. No artifacts were retrieved and the soil was sterile throughout the entire excavation depth.



Fig. 11. Nahal Sayif 12 before excavation.



Fig. 12. Nahal Sayif 12 after excavation.



Fig. 13. Nahal Sayif 13 before excavation.



Fig. 14. Nahal Sayif 13 after excavation.

Summary

From our excavations it appears that most of these Nahal Sayif features were natural, erosional configurations. Furthermore, no archaeological finds or signs of activity were recovered at these sites. Despite this dearth of finds, however, the

remains of the stone circle at Site 7 and the stone standing on its narrow side at Site 8 could have been man-made. In light of the paucity of archaeological activity evidenced here at Nahal Sayif, the area was released for development.

Acknowledgements

I thank the Rotem Emprat Negev Corporation Ltd for commissioning Y.G. Archaeology for this project and for their logistical help throughout the course of its execution.

SALVAGE EXCAVATION AND DOCUMENTATION OF SITES AT NAHAL GOV – 2004

Yehuda Govrin

This report concerns a series of features surveyed, plotted and excavated in the Negev. Their date is uncertain. The excavation was directed by the author in November 2005 on behalf of Y.G. Contract Archaeology Ltd under the academic sponsorship of Hebrew Union College (Excavation Permit B-292/2004).

Introduction

In an archaeological survey carried out in February 2004 by Dr. Tali Erickson-Gini (Southern Negev Supervisor, Israel Antiquities Authority [IAA]) at the request of Rotem Emprat Negev Corporation Ltd, forty-three potential archaeological sites were located in the area of Sde Gov. After further research, on October 17, 2004 the IAA reduced this number to fifteen (Table 1). These sites were excavated under the direction of Y.G. Contract Archaeology executive Yehuda Govrin in mid-November 2004 (Fig. 1).

Before excavations commenced, Yehuda Govrin and Tali Erickson-Gini surveyed the area in order to confirm the sites and their locations, and to establish what would be the satisfactory extent of excavations and recording. Altogether twelve sites were marked for excavation, and three for documenting.

Below is a table (Table 1) showing the sites, their types and the IAA excavation and recording demands of each. Site 5, initially defined as a pile of stones, was subsequently cancelled from the list, while Sites 34, 35, 43, 46 and 50 were deemed outside the client's proposed mining impact area, thus eliminating the need to investigate them.

The Sites

Site 1 (identified in the survey as a grave)

Location: 162340–033350, altitude: 43.0m ASL.

Description (Fig. 2): A cluster of stones on a slope. Fieldstones of various sizes were concentrated as a pile within a 1.3m diameter. The stone cluster

rests on *hamada* soil whose surface is covered with small stones and natural brown flint fragments.

Excavation (Fig. 3): A 2.0 x 2.0m square was excavated to a depth of 0.15m, down to the natural soil. No finds were recovered during the excavation.

Conclusion: There is no certainty that this site was man-made since no architecture or finds were recovered. It is possible that this site was a natural cluster of local limestone.

Site 2 (identified in the survey as a grave)

Location: 162345–033341, altitude: 32.0m ASL.

Description (Figs. 4, 5): A large rock broken into seven parts was found on this extended slope. The rock is brown and stands out above the ground to a

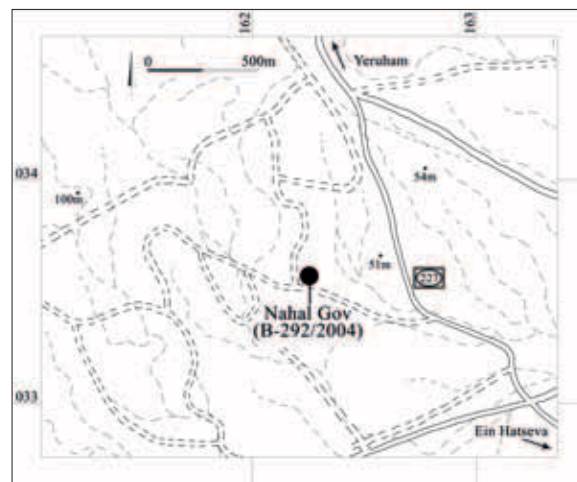


Fig. 1. Location map of the archaeological investigation area (plan no: 272/03/10 – Sde Gov).

Table 1.

Site no.	Site	Location	Requirements	Total
1.	Grave	162360–1033340	Excavation (2.0 x 2.5m)	5.0m ²
2.	Grave	162356–1033345	Excavation (2.0 x 1.0m)	2.0m ²
3.	Grave	162171–1033516	Excavation (1.0 x 2.0m)	2.0m ²
4.	Campsite	162170–1033479	Test excavation (2.0 x 2m)	4.0m ²
5.	Rogem	162788–1033536	Excavation (2.0 x 3.0m)	6.0m ²
6.	Structure	162177–1033546	Excavation (2.0 x 3.0m)	6.0m ²
8.	Stone line	162224–1033350	Recording	
9.	Stone line	162221–1033350	Recording	
10.	Grave	162251–1033371	Excavation (2.0 x 2.0m)	4.0m ²
11.	Installation	162275–1033374	Excavation (1.0 x 1.5m)	1.5m ²
12.	Grave	162308–1033381	Excavation (1.0 x 1.5m)	1.5m ²
13.	Two graves	162361–1033437	Excavation (2.0 x 2.0m)	4.0m ²
14.	Campsite	162361–1033425	Excavation (2.0 x 2.0m)	4.0m ²
34.	Grave	162411–1033419	Excavation (2.0 x 2.5m)	5.0m ²
35.	Rogem	162392–1033432	Excavation (4.0 x 4.0m)	16.0m ²
36.	Square structure	162352–1033432	Excavation (2.0 x 2.0m)	4.0m ²
43.	Structure	162493–1033909	Excavation (1.0 x 1.5m)	1.5m ²
46.	Structure	162196–1033700	Excavation (5.0 x 5.0m)	25.0m ²
50.	<i>Shiniyot</i>	162562–1033027	Recording	



Fig. 2. Nahal Gov 1, general view before excavation.



Fig. 3. Nahal Gov 1, general view after excavation.

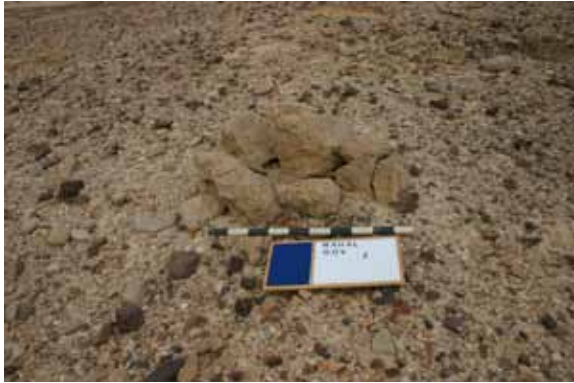


Fig. 4. Nahal Gov 2, the broken rock, general view (looking west).

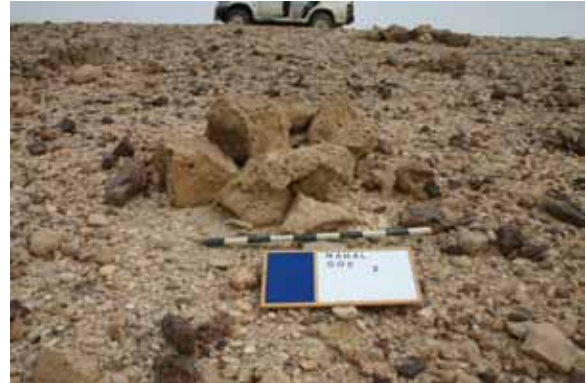


Fig. 5. Nahal Gov 2, general view of the broken rock (looking east).

height of 0.4m. The site was not excavated; it was identified as a natural rock broken into a number of fragments with no associated artifacts.

Site 3 (identified in the survey as a grave)

Location: 162186–033527, altitude: 45.0m ASL.

Description (Fig. 6): An elliptical feature oriented east-west and measuring ca. 2.9m long and ca. 1.8m wide. The feature rests on *hamada* sediment mixed with small and medium-sized stones.

Excavation (Figs. 7, 8): A 4.0 x 4.0m square was excavated to a depth of ca. 0.5m, reaching sterile gravel subsoil. We uncovered a course of large and medium-sized stones placed on a course of small and medium-sized stones.

Conclusions: No pottery or lithics were found in the excavation. Despite this the impression is that this is a man-made structure, its purpose and date unknown.



Fig. 6. Nahal Gov 3, general view before excavation.

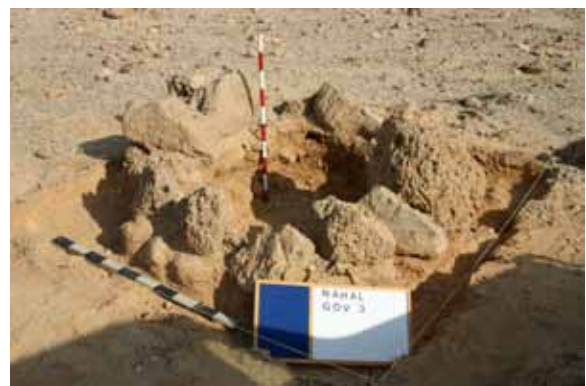


Fig. 7. Nahal Gov 3, general view after excavation.

Site 4 (defined in the survey as a campsite)

Location: 162149–033470, altitude: 46.0m ASL.

Description (Fig. 9): The remains of a stone circle preserved only in its northern section, to a height of ca. 0.25m. The circle was built from medium-sized brown flint stones set on *hamada* soil mixed with small brown-black flint stones.

Excavation (Fig. 10): An area of 2.5 x 4.0m was excavated and a section of the one-course stone circle was exposed. No finds were recovered. The soil was sterile under the layer of gravel, and its color yellowish-white.

Conclusions: This feature was probably a stone circle, the southern section of which was carried away by a shallow wadi.

Site 6 (defined in the survey as a structure)

Location: 162179–033536, altitude: 43.0m ASL.

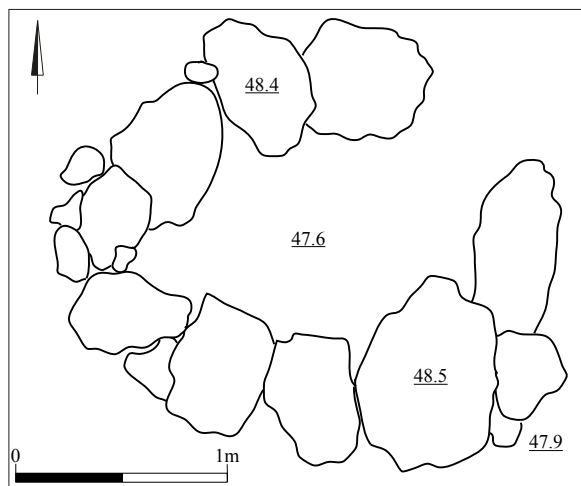


Fig. 8. Plan of Nahal Gov 3.



Fig. 9. Nahal Gov 4, general view before excavation.

Description (Fig. 11): An irregular concentration of large and medium-sized stones found resting on an area of *hamada* soil close to a wadi.

Excavation (Fig. 12): A 3.0 x 2.5m rectangle, oriented east-west was excavated. Two rows of one course of large stones were found, forming an ellipse filled with stones. The double wall's width was 0.8m, the inner diameter ca. 1.0m and the depth 0.3m. No finds were recovered.

Conclusions: This was probably a man-made feature, but without datable or indicative finds we did not venture a detailed interpretation.

Site 8 (defined in the survey as a line of stones)

Location: 162223-033344, altitude: 56.0m ASL.

Description (Figs. 13, 14): A line of stones 30.0m from and parallel to the Nahal Gov cliff, with a

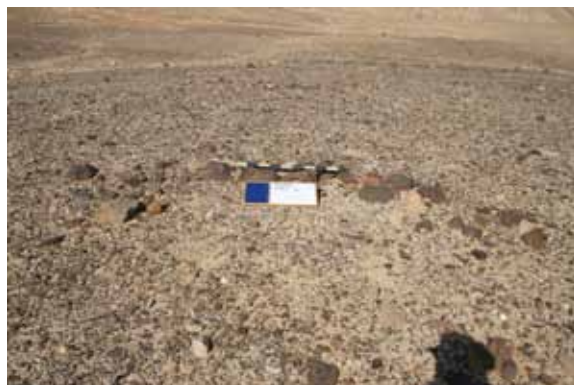


Fig. 10. Nahal Gov 4, general view after excavation (looking north).



Fig. 11. Nahal Gov 6, general view before excavation.

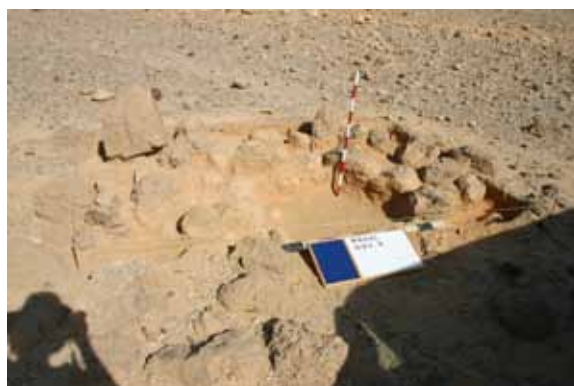


Fig. 12. Nahal Gov 6, general view after excavation (looking north).

general north-south orientation, pointing to the next line of stones (Site 9) which lie perpendicularly oriented, 25.0m southeast of Site 8.

Documentation: This line of stones was built from large and medium-sized stones, one course wide and high, and is badly preserved. The feature is



Fig. 13. Nahal Gov 8, general view (looking west).

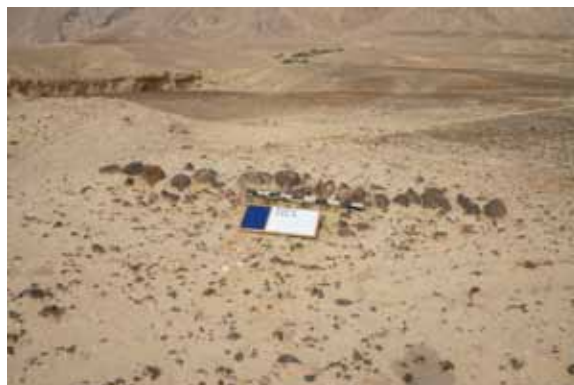


Fig. 15. Nahal Gov 9, general views (looking west).



Fig. 14. Nahal Gov 8, general view (looking south).

comprised mainly of dark-colored stones which stand out against the white surface on which the feature was built.

Conclusions: From its position and association with the topography and a nearby line of stones (Site 9) this feature was probably used as a road marking or other navigation aid. There were no associated artifacts found, so we cannot postulate a date.

Site 9 (defined as a line of stones in the survey)

Location: 162226–033365, altitude: 54.0m ASL.

Description (Figs. 15, 16): A line of stones oriented southeast-northwest. This feature is built of one course of stones, arranged in a straight line.

Documentation: The line is built from twenty brown-black, medium-sized stones, on a white lime soil surface. The wall's length is about 4.0m. The feature's orientation is approximated towards the Nahal Gov wadi, located ca. 50.0m from the line of stones.



Fig. 16. Nahal Gov 9, general views (looking south).

Conclusions: This linear feature was probably used as an ancient road marking, associable with Nahal Gov 8. The period is unknown since no artifacts were retrieved.

Site 10 (defined in the survey as a grave)

Location: 162250–033374, altitude: 52.0m ASL.

Description (Fig. 17): A number of limestone blocks projecting up from the stone-littered *hamada* topsoil.

Excavation (Fig. 18): A 1.5 x 1.5m area was excavated to a depth of 0.15m.

Conclusions: These three large stones probably split from one large rock, all being the same brown-colored hard limestone type. There were no finds from the excavation. Throughout the entire depth of the square, which reached under the *hamada* topsoil, the ground was bereft of artifacts. It appears that this was a natural site.

Site 11 (defined in the survey as a built feature)

Location: 16226–033376, altitude: 51.0m ASL.

Description (Fig. 19): A cluster of black medium-sized stones on a moderate slope close to the edge of a ridge of high ground.

Excavation (Fig. 20): A 1.5 x 2.0m rectangle running north-south was excavated. The excavation's depth

was about 0.1m. A number of large and medium-sized split brown-black flint stones were found on the *hamada* surface, creating a general outline of two parallel rows. Around the stone lumps were many flint flakes which had naturally detached from the larger pieces. Under the stones was a sterile yellowish-brown sand and a layer of white gypsum. No artifacts were retrieved.

Conclusions: This is a natural concentration of local stones with no evidence of human activity.

Site 12 (defined in the survey as a grave)

Location: 162300–033380, altitude: 46.0m ASL.

Description (Fig. 21): A natural stone circle on a moderate slope, formed from a depression in a single hard, irregular, brown limestone.

Excavation (Fig. 22): A 1.0 x 1.5m area was excavated, leaving part of the limestone rock outside the excavated rectangle. The excavation's depth



Fig. 17. Nahal Gov 10, general view before excavation.



Fig. 19. Nahal Gov 11, general view before excavation.



Fig. 18. Nahal Gov 10, general view after excavation.



Fig. 20. Nahal Gov 11, general view after excavation.

was ca. 0.1m, reaching a layer of sterile soil and stones. The internal diameter was 0.7m, and the external 1.0m. No finds were retrieved.

Conclusions: This is a large lump of limestone which fell apart naturally and stands out against the *hamada* soil background.

Site 13A (defined in the survey as a grave, along with Site 13B)

Location: 162413–033400, altitude: 28.0m ASL.

Description (Fig. 23): An ellipse-shaped structure built of small and medium-sized stones, oriented east-west on a flat surface. The north end of the feature is scattered with stones. Dimensions: 2.9m long, 1.9m wide, 0.4m deep.

Excavation (Fig. 24, 25): The interior of this the elliptical feature was excavated to a depth of ca. 0.6m. The soil was entirely sterile, with moderate stone quantities but no indicative artifact from

the feature or its surroundings was recovered. Excavation clarified the architectural remains, showing this structure to be preserved to one course high and one row wide, and constructed of local medium-sized limestone.



Fig. 23. Nahal Gov 13A, general view before excavation.

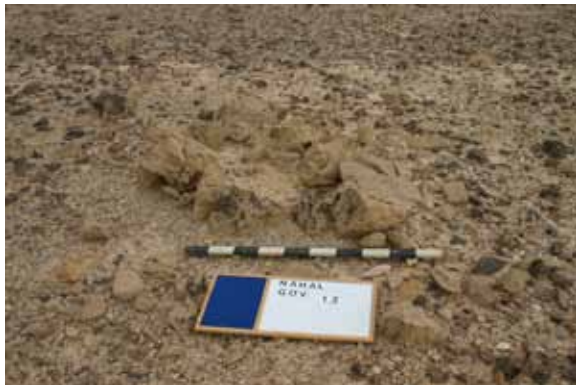


Fig. 21. Nahal Gov 12, general view before excavation.



Fig. 24. Nahal Gov 13A after excavation.

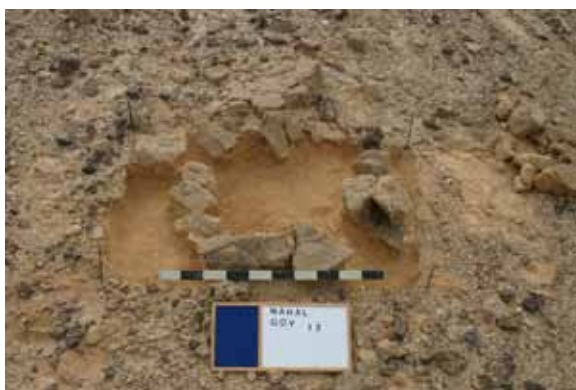


Fig. 22. Nahal Gov 12, general view after excavation.

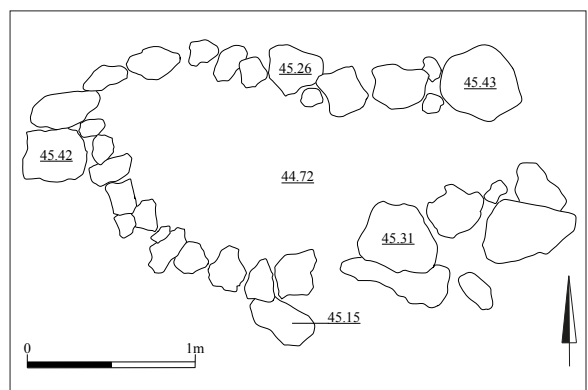


Fig. 25. Plan of Nahal Gov 13A.

Conclusions: Due to the lack of any finds beyond the simple architecture characterizing it, the identification of this feature should be altered from grave to man-made built feature, the nature and date of which are unknown.

Site 13B (defined in the survey as a grave, along with Site 13B)

Location: 12422–033400, altitude: 29.0m ASL.

Description (Fig. 26): A small stone circle measuring 1.7 x 1.2m, found approximately 5.0m east of Site 13A.

Excavation (Fig. 27): The interior of this circular feature was excavated to a depth of 0.3m; no artifacts were found, the excavated fill being comprised of well-sorted stones mixed into sterile soil. The circle's architecture is simple: one course of small and medium-sized local limestone.

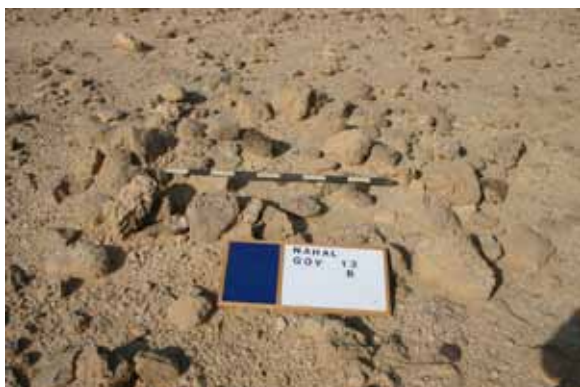


Fig. 26. Nahal Gov 13B, general view before excavation.

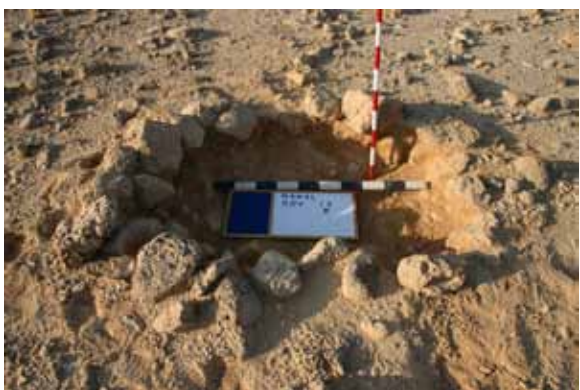


Fig. 27. Nahal Gov 13B, general view after excavation.

Conclusions: This is a small man-made stone feature, the dating and nature of which it was not possible to discern.

Site 14 (defined in the survey as a campsite)

Location: 162356–033427, altitude: 33.0m ASL.

Description (Fig. 28): An incomplete circular feature, of internal diameter 0.7m and external 1.0m. Three quarters of the feature's perimeter is extant, opening to the east. The feature is located on low ground, where the Nahal Gov wadi widens as it descends from the Gov heights to the north.

Excavation (Fig. 29): A 2.0 x 2.0m square was excavated to a depth of 0.1m. The feature was built with large and medium-sized hard limestone rocks. The fill was light brown and archaeologically-sterile down to the excavation limit of 0.15m.

Conclusions: This feature's circular form was probably breached by water flow, it being located



Fig. 28. Nahal Gov 14, general view before excavation (looking north).



Fig. 29. Nahal Gov 14, general view after excavation.

on the wadi bed. Beyond that, and the fact that it was definitely man-made, no further interpretation was justified.

Site 36 (defined in the survey as an installation)

Location: 162364–033421, altitude: 30.0m ASL.

Description (Fig. 30): A concentration of small- to medium-sized stones, ca. 10.0m east of Site 14.

Excavation (Fig. 31): A 2.0 x 2.0m square was excavated to a depth of 0.1m, down to the light brown sterile subsoil. No finds were retrieved.

Conclusions: This is probably a natural cluster of stones rather than man-made.

Site 50 Shiniyot (non-intrusive survey)

Location: 162568–033034, altitude: 33.0m ASL.

Description (Figs. 32-35): Five small stone circles in linear formation at the edge of the Nahal Gov

cliffs, near the wadi's confluence with Nahal Zin. A stone circle with a diameter of ca. 1.0m, made of black-brown rocks, is found at the western end of the line (Fig. 35) (location: 162536–033038). The stone circles are in poor states of preservation, standing two courses high at most.

Documentation: The site is outside the mining area and will remain at its location as part of the conservation of the Nahal Gov cliffs.

Conclusions: This *shiniyot* (stone heap) site was probably used as a road marker on the way to Ma'ale Akrabim (see Avner 1993; Barker and Gilbertson 2000; Everani *et al.* 1982). The location of such *shiniyot* at the edge of this prominent ridge, near the confluence of Nahal Gov and Nahal Zin, and pointing east-west all strongly support its interpretation as a signpost directing the traveler

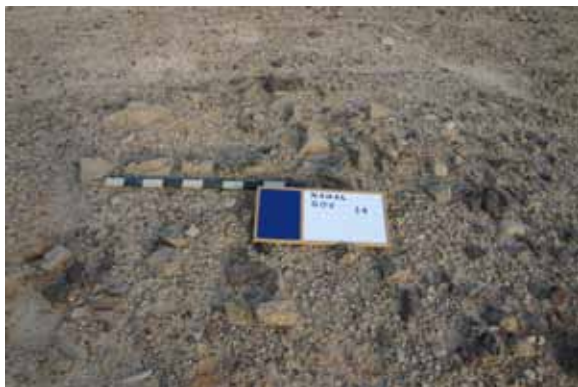


Fig. 30. Nahal Gov 36, general view before excavation.

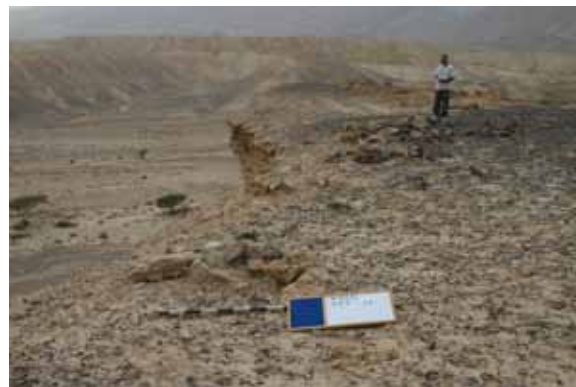


Fig. 32. Nahal Gov 50, general view of the shiniyot line (looking west).



Fig. 31. Nahal Gov 36, general view after excavation.

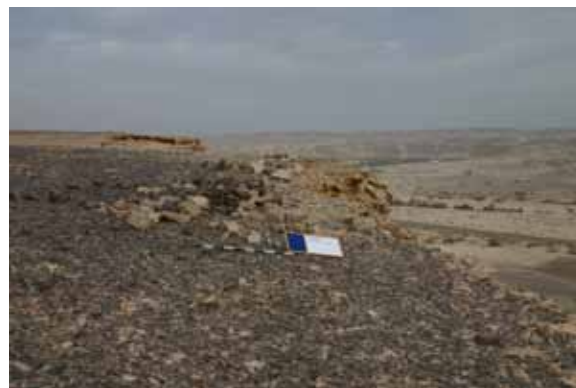


Fig. 33. Nahal Gov 50, general view of the shiniyot line (looking east).



Fig. 34. Nahal Gov 50, general view of the shiniyot line (looking south, Nahal Zin behind).



Fig. 35. Nahal Gov 50, detail of one of westernmost stone circle of the shiniyot line.

on his journey from Nahal Zin to Nahal Gov and from there to Ma'ale Akrabim. There is no way of dating these *shiniyot*, however, since no associated

indicative artifacts were recovered. It is possible that other linear stone features which we recorded (Sites 8 and 9) also made up part of this route's signage.

Summary

Of the 15 sites analyzed, six were found to be non-archaeological (1, 2, 10–12, 36). Most of these were a result of limestone outcrop fragmentation, visually conspicuous against the pale *hamada* soil of the area.

We identified nine archaeological sites over the course of this project. Six we defined as man-made built features with simple architecture (3, 4, 6, 13A-B, 14). These were mainly medium-sized stone circles (round or elliptical). No artifacts of any kind were found in these installations preventing us from dating them or interpreting their nature. From both their interiors and exteriors sterile soil was retrieved. The impression is that these structures were built directly on the surface, to a height of one course of stones.

Three sites (8, 9 and 50), recorded without excavating, were defined as features used most likely as signposts, marking the route of an ancient road passing from Nahal Zin to Nahal Gov on the way to Ma'ale Akrabim. However, the poor state of preservation of these features and the lack of associated artifacts precluded the possibility of dating them.

References

- Avner, A. 1993. 'Mazzebot sites in the Negev and Sinai and their significance.' In: Biran, A. and Aviram, J. (eds.) *Biblical Archaeology Today 1990*. Jerusalem: Israel Exploration Society. 166-181.
- Barker, G. and Gilbertson, D.D. (eds.) 2000. *The Archaeology of Drylands: living at the margin*. One World Archaeology 39. London: Routledge.
- Everani, M., Shanan, L., and Tadmor, N. 1982. *The Negev: The Challenge of a Desert*. Cambridge: Harvard University Press.

Acknowledgements

I thank the Rotem Emprat Negev Corporation Ltd for commissioning Y.G. Archaeology for this project and for all their help throughout the course of its execution.

SALVAGE EXCAVATION AT HATRURIM MINE – 2005

Yehuda Govrin

This report concerns a series of features surveyed, plotted and excavated in the Negev. Their date is uncertain. The excavation was directed by the author in November 2005 on behalf of Y.G. Contract Archaeology Ltd under the academic sponsorship of Hebrew Union College (Excavation Permit B-304/2005).

Introduction

In 2005 Rotem Emprat Negev Company Ltd wished to expand mining operations in an area 8.0km southwest of Arad (Fig. 1). An Israel Antiquities Authority (IAA) survey located three sites of archaeological value, covering 175.0m² (Area 4: 62.5m²; Area 5: 25.0m²; Area 6: 75.0m²). Subsequently these areas were excavated.

Area 4

In this area ten stone-built features were inspected. These were found on the south bank of a small

wadi. Six of the features were circular or irregular stone arrangements. Also found were two walls, an enclosure and a possible symbolic feature.

Site 4a (Irregular stone feature)

Location: 175733–062683

Here, beside a wadi, a 2.0 x 2.0m square was excavated to a depth of 0.1m (Fig. 2). At the center of the excavated square was a small pile of stones. The stones were small and medium-sized, and placed directly on the ground without a foundation cut. The concentration was irregular in form (Fig. 3).

No artifacts of any sort were found and the site therefore cannot be dated. However, two concentrations of ash were found 0.05m below the surface, adjacent to the feature's south side. This ash suggests perhaps that the stone concentration comprised the remains of a hearth.

Site 4b (Ovoid stone feature)

Location: 175730–062681

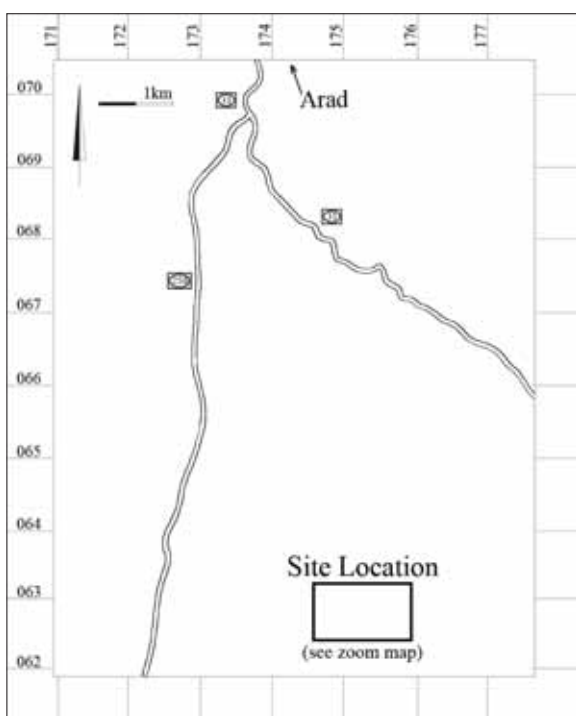


Fig. 1. (Left) Hatrurim archaeological investigation area (Old Israeli Grid: 17500–062500); (below) zoom map showing Areas 4-6.



Fig. 2. Hatrurim 4a before excavation (looking east).



Fig. 4. Hatrurim 4b (looking north).



Fig. 3. Hatrurim 4a after excavation (looking east).



Fig. 5. Sherds of a cooking pot and a lid from Hatrurim 4b.

Approximately 2.5m west of Site 4a, on the slope above the wadi's south bank an additional concentration of stones was found. In this area a 4.0 x 4.0m square was excavated to a depth of 0.2m. The feature, arranged directly on the natural soil, was circular and built of large stones interposed with small and medium-sized stones. It measured 2.0m long and 1.5m wide (Fig. 4). In our excavation square area—especially close to the feature's northwest corner—a number of ceramic sherds from a cooking pot and a lid were found (Fig. 5), probably dating to the Byzantine or Early Islamic periods (ca. 330-1099 CE). It appears that this man-made feature functioned as a cooking place.

Site 4c (Stone features)

Location: 175723–062682

Approximately 4.5m west and upstream of Site 4b a concentration of stone-built archaeological features were found (Fig. 6). An area of 8.0 x 5.0m was excavated to a depth of ca. 0.3m.

Our excavation defined a number of ovoid and circular features, with diameters of 0.7–2.0m (Figs. 7, 8). These features were built of one course of stones, again directly on the natural soil. No artifacts were recovered.

At the center of the excavation square was found the largest feature (2.0 x 1.5m). In the interior of this ovoid stone structure a concentration of ash was found. Again, this feature seems to have been a fire place and cooking installation used by a non-sedentist population.

At the south end of the excavation area were found three stones on an east-west axis, *in situ* and



Fig. 6. Hatrurim 4c before excavation (looking south).



Fig. 8. The Hatrurim 4c 'stelae' before excavation (looking south).



Fig. 7. Hatrurim 4c after excavation (looking south).



Fig. 9. The Hatrurim 4c 'stelae', wall and circular stone concentration at the south end of the excavation square.

standing erect (except for the central stone which had probably fallen over) (see Figs. 8, 9). The eastern stone stood out, being a large limestone. The western stone was split, probably by heat (ash was found adjacent). These unusual standing stones had no apparent functional value, and may therefore have served a symbolic or ritual purpose (as 'stelae').

A wall built of small stones and 1.5m in length was found northeast of the standing stones. This wall ran northeast-southwest, diagonal to the axis of the 'stelae'.

A circular concentration of stones was exposed 0.7m northwest of the row of 'stelae'. This latter feature (and the abovementioned wall) may have functioned as part of a cultic area centered on the 'stelae' (Fig. 9).

In the northwest corner of the excavation square we found a wall section, 1.2m long, built of small and medium-sized stones, and surviving to one course high.

Site 4d (Circular structure)

Location: 175697–062663

Approximately 40.0m southwest and upstream of Site 4c were found the remains of a circular structure ca. 10.0m in diameter (Figs. 12, 13), the eastern half of which had been damaged by modern activity. The structure was built of large and medium-sized stones, some set on end, placed on the natural soil without foundation trench and surviving to one course high. The site was not excavated and no artifacts were found, but we interpreted this site as an enclosure.



Fig. 10. General view of Hatrurim 4c after excavation (looking south).

Site 4e (Stone concentration)

Location: 175688–062650

Approximately 10.0m south of the Site 4d structure was found a concentration of medium-sized stones placed on the *hamada* surface above the wadi's bank (Fig. 14). Here a 1.5 x 1.5m square was excavated to a depth of 0.1m. The stone concentration was most likely man-made but its nature is unclear (Fig. 15). No other remains were found in the excavation. It is possible that this feature was used as some sort of a mark and not an actively-used installation.

Area 5

A concentration of stones (Site 5a) was found on the north bank of a small wadi running west-east (Fig. 16). When excavated, this feature was revealed as originally elliptical in shape.

Site 5a (Stone-built hearth)

Location: 175617–062865

We excavated this stone concentration, located on a slope above a wadi, with a 5.0 x 5.0m excavation square (Figs. 16, 17). We uncovered an elliptical wall measuring 2.6 x 1.8m, built from local fieldstones of various sizes (max. 0.4m diameter). Lime bulbs and stone chips were found between these stones. The wall survived to two courses in places. The south side was better preserved, it appearing that the north end at some point collapsed and its stones

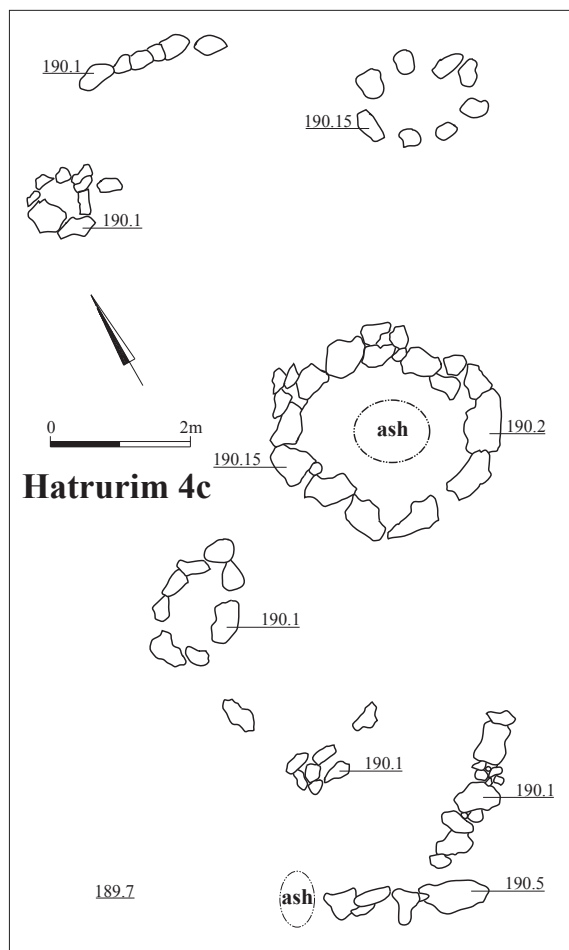


Fig. 11. Plan of Hatrurim 4c.



Fig. 12. General view of the Hatrurim 4d possible enclosure (looking north).

were scattered outside the structure. Due to large ash quantities in the interior, we interpreted this feature as a hearth.



Fig. 13. The Hatrurim 4d possible enclosure remains (looking north). Notice the stone in the left foreground placed on its narrow side.



Fig. 16. Hatrurim 5a before excavation (looking west).



Fig. 14. Hatrurim 4e before excavation (looking east).



Fig. 17. Hatrurim 5a after excavation (looking west).



Fig. 15. Hatrurim 4e after excavation (looking east).



Fig. 18. Hatrurim 5a. Notice the ash deposit in the interior.

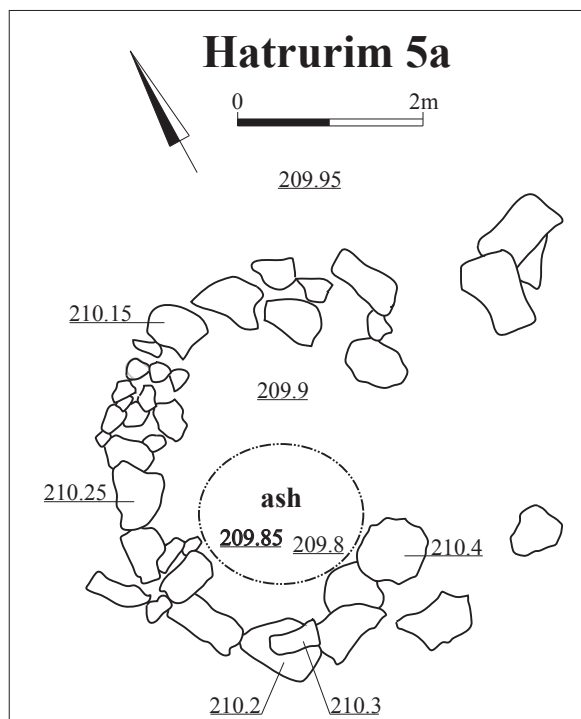


Fig. 19. Plan of Hatrurim 5a.

Area 6

Two stone concentrations were found on *hamada* surfaces in a saddle of Hatrurim Ridge. Three 5.0 x 5.0m excavation squares were opened here and an additional square was non-intrusively investigated.

Site 6a (Two stone features)

Location: 174948–062859

A 5.0 x 5.0m square was here excavated around two stone concentrations (Figs. 20-22). Two structures were revealed, built from small and medium-sized stones, some set on their narrow sides (Fig. 22).

The first structure was rectangular in plan and measured 1.5 x 1.0m along a southeast-northwest axis. The walls were laid directly on natural soil. The interior was found to be devoid of artifacts or features (Fig. 22).

An additional feature built of small stones, similar in size to the first, was found in the southwest corner of the square (part of it was outside the square). This structure was also empty and no artifacts were found around it.

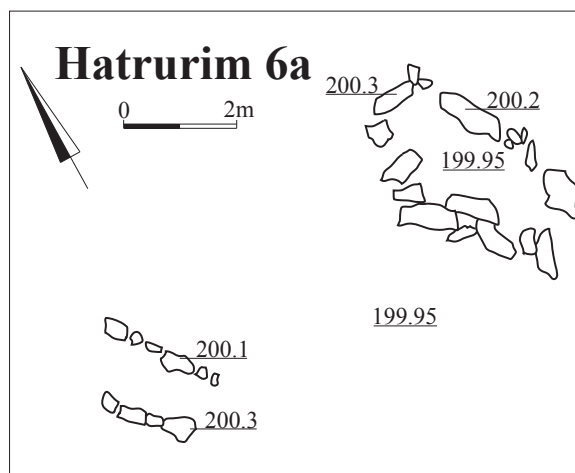


Fig. 20. Plan of Hatrurim 6a.



Fig. 21. Hatrurim 6a.1 before excavation (looking west).

These features were undoubtedly man-made but their nature remains unclear.

Site 6b (Stone feature)

Location: 174925–062867

Here a stone-built structure was uncovered (Figs. 23-25). The feature was U-shaped, its opening facing south. The walls were mostly built with large and medium-sized stone slabs set into the ground on their narrow sides. The structure measured ca. 1.2 x 1.2m. The north side consisted of three large upright stones (perhaps stelae?) noticeable by their size (up to 0.5m taller than the other wall stones). The west wall (1.3m long) was also built from a single course of upright slabs. On the west interior of the feature a section of natural rock was exposed.



Fig. 22. Hatrurim 6a.1 (looking west) after excavating its exterior but before opening its interior.



Fig. 23. Hatrurim 6b (looking north).

The purpose of this feature is unclear, but it may have served as a ritual compartment and the upright slab row on the north side as stelae.

Our excavation continued down to ca. 0.3m below surface. No artifacts were recovered and the soil was sterile. There is no doubt that the installation was man-made but there is no way to date it. It is possible that this installation was used



Fig. 24. Hatrurim 6b (looking west).



Fig. 25. Hatrurim 6b from above. Notice the bedrock outcropping inside the west wall.

in a ritual context, as a compartment wherein the upright slabs on the north side served as stelae.

Site 6c (Concentration of fieldstones)

Location: 174904–062859

Here we investigated by clearing the surface debris, but neither artifacts nor features were found and therefore the site was interpreted as non-archaeological.

Site 6d (Small stone feature)

Location: 174910–062826

A small ovoid feature was found close to the northeast corner of this square (Figs. 26, 27). This was built of brown and gray stones. The stones were leaning inward and some of them were cracked. No artifacts were found after digging both the interior



Fig. 26. Hatrurim 6d (looking north).

and exterior. Not only do the date and function of this feature remain unclear, but neither can we be sure that it was in fact man-made.

Summary

Most of the features described here were simple installations, probably built by nomads and used as temporary installations for a very brief period of time. Such installations have been noted by other



Fig. 27. Hatrurim 6d (looking east).

excavators and surveyors (e.g. Rosen 1987a, 1987b, 1988; Finkelstein and Perevolotsky 1990; Rosen and Avni 1993). The lack of artifacts—indicative or otherwise—in almost all of the sites makes it very difficult to date them. However, based on the few potsherds discovered (Site 4b), and the nature of the possible ritual activity (Sites 4c and 6b), it appears that many of the features may be attributed to a Late Byzantine- or Early Islamic-period nomad population.

References

- Finkelstein, I. and Perevolotsky, A. 1990. 'Processes of Sedentarization and Nomadization in the History of Sinai and the Negev.' *Bulletin of the American Schools of Oriental Research* 279: 67-88.
- Rosen, S.A. 1987a. 'Demographic trends in the Negev highlands: preliminary results from the emergency survey.' *Bulletin of the American School of Oriental Research* 266: 45-58.
- Rosen, S.A. 1987b. 'Byzantine nomadism in the Negev: results from the emergency survey.' *Journal of Field Archaeology* 14: 29-42.
- Rosen, S.A. 1988. 'Notes on the Origins of Pastoral Nomadism: A Case Study from the Negev and Sinai.' *Current Anthropology* 29: 498-506.
- Rosen, S. A. and Avni, G. 1993. 'The edge of the empire: the archaeology of pastoral nomads in the southern Negev highlands in Late Antiquity.' *The Biblical Archaeologist* 56: 189-199.

Acknowledgements

I thank the Rotem Emprat Negev Corporation Ltd for commissioning Y.G. Archaeology for this project and for their logistical help throughout the course of its execution.

SALVAGE EXCAVATION OF TWO WINERIES AT KHIRBET BUTZ – 2010

Conn Herriott

This salvage excavation was carried out on July 7–11, 2010 on a hill overlooking the Elah Valley, near Khirbet Butz (New Israel Grid: 201310–619160; 382.0m ASL). The dig focused on two areas—Areas A and B—each of which revealed the remains of an ancient wine press cut into the exposed nari bedrock. The two excavation areas and their associated artifacts will be described in this report, followed by an interpretive discussion of the findings' possible significance.¹

Area A

This area encompassed a wine press with a total area of 12.75m² (Figs. 3, 5). The press consisted of a rectangular treading floor (L1, 8.74m²) and a circular vat (L2, 0.32m³, Fig. 4), linked by a narrow channel. The installation was heavily damaged, especially the treading floor. The cause of the damage was unclear.

Excavation of the press yielded 100 potsherds, 85% of which we found in the vat. These sherds represent Byzantine/Umayyad bowls and jars (7th–8th centuries CE; Fig. 9:1, 2, 4, 6, 7; see also the Appendix). Also found on the treading floor was a chipped-stone blade fragment (Fig. 10:1; see also the Appendix).

Area B

The wine press in this area—ca. 50.0m west of Area A—covered 10.2m² (Figs. 6, 8). It was comprised of a rectangular treading floor (L5, 4.0m²) and a rectangular vat (L4, 0.62m³) linked to the treading floor by a channel, as well as another rectangular vat (L3, 0.27m³) which was neither connected to

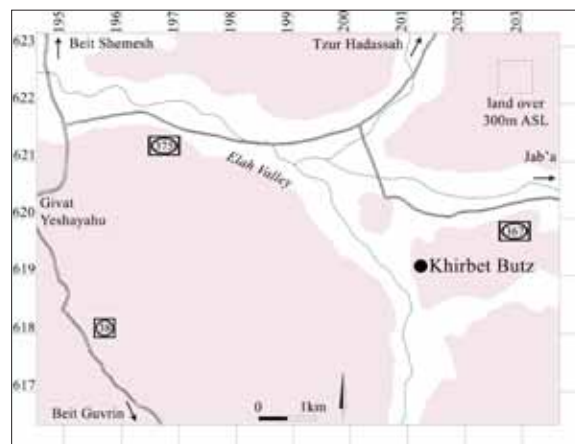


Fig. 1. Location map of the Khirbet Butz project (New Israel Grid: 201310–619160).

the first by a channel nor a bore hole, and a cup mark (L7, Fig. 7), located 1.12m west of the L4 vat.

During the excavation of this press 21 potsherds were found. These were distributed evenly between the treading floor and vats. The sherds represent bowls, jars and possibly cooking vessels which generally date to the Byzantine/Umayyad centuries (Fig. 9: 3, 5, 8; see also the Appendix). A chipped-stone blade fragment was also found in this wine press (Fig. 10:2; see also the Appendix).

¹ I thank Yehuda Govrin for giving me the opportunity to direct the excavation. He is the *de facto* manager of this ongoing salvage project. Thanks to Dov Sreter of Eden Hills Ltd for contracting Y.G. Archaeology Ltd, and for his enthusiasm and assistance at every stage of the excavation. Mr. Sreter's deep interest in archaeology and desire to include this heritage resource in the completed Eden Hills Ltd project is a breath of fresh air. Also, many thanks for their analyses, advice and help to Dr. David Ilan and Levana Tsfania of the Nelson Glueck School of Biblical Archaeology at the Hebrew Union College, Jerusalem, to Dr Rafael Frankel of the University of Haifa, to Dr. Jodi Magness of the University of North Carolina at Chapel Hill, and to Dr. Barbara Johnson of the Albright Institute of Archaeological Research. Thanks also to the staff of the Israel Exploration Society for their bibliographical assistance, and to Alona Ruban for such fine and prompt illustration of the ceramic artifacts.

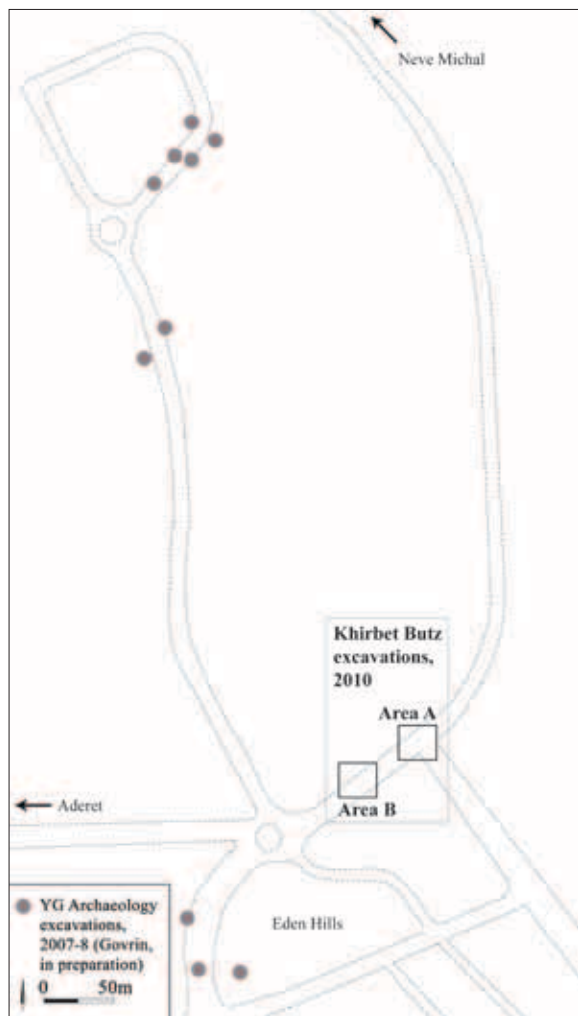


Fig. 2. The current excavation site within Khirbet Butz, with Areas A and B marked.



Fig. 3. Area A (looking southeast).



Fig. 4. Vat (L2) (looking north).

Discussion and Interpretation

These wine presses follow the simplest design for such installations: Frankel's type T1 (Frankel 1999: 51-56). The two installations differ in that the Area A treading floor is twice as large² and the Area B press was more elaborate: it incorporated a second vat (L3) and an associated cup mark (L7). Whereas the function of the second vat is a mystery (see below), the cup mark may have served as a mortar for the grinding of a substance related or unrelated to the adjacent wine production process. It seems too shallow (0.08m) and gently-sloping a depression, however, to have served as a socket supporting the apparatus sometimes erected to aid those treading grapes (Frankel 1999: 42, 55 and Fig. 1).

The differences between the two presses may suggest that they were not contemporaneous. It is difficult to say. There are overlaps in the usage periods of their respective design types, and the broader T1 category was built from the Chalcolithic period (i.e., from ca. 4300 BCE) right through to Umayyad times. On the whole the artifacts from both presses point to a Byzantine/Umayyad date (Johnson, Magness, pers. comm.), discounting what were probably stray flint blade fragments from earlier periods. This impression accords

² According to Frankel's (1999: 53) statistical analysis of T1 wineries, both A and B at Khirbet Butz are very common designs. Area A has a large treading floor, and Area B is of average size.

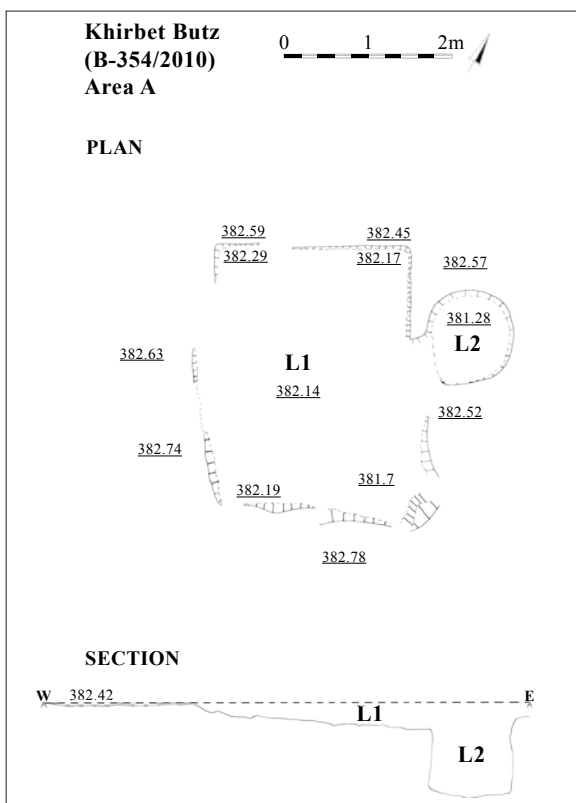


Fig. 5. Plan and section drawings of Area A.



Fig. 6. Area B (looking north).



Fig. 7. Cup mark (L7).

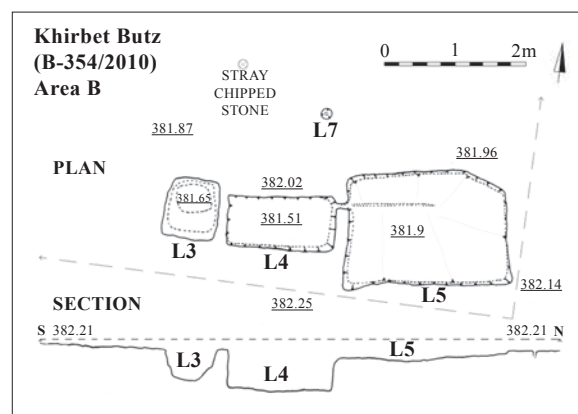


Fig. 8. Plan and section drawings of Area B.

with quantitative analyses of ancient settlement and winery data in the southern Levant, which indicate that both population density and wine production reached their peaks in the Late Roman and Byzantine periods (Frankel 1999: 51).

Whether both installations were in operation at the same time or not, we can envision them as part of something in the way of a family-run winery, a small-scale operation of the local population in the Byzantine/Umayyad period. Other features and possible settlements have been found in the immediate site vicinity during previous seasons of work here by Y.G. Archaeology Ltd (Govrin, in preparation). Ethnographic recordings of such installations in use near Masada and Hebron in more recent times (see Frankel 1999: 42 and references) reveal that one man could tread 100kg of grapes in 45 minutes on such a treading floor as

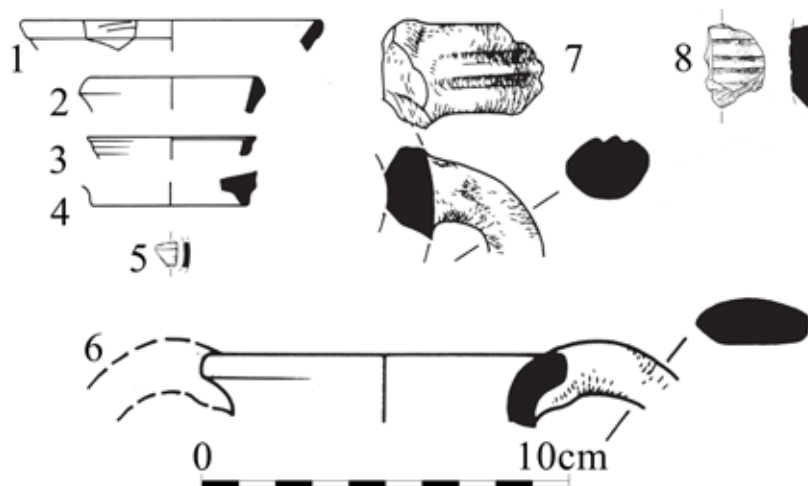


Fig. 9. Selected ceramic artifacts, by type.

No.	Vessel	Field no.	Locus
1.	Bowl	102/1	1
2.	Bowl	102/2	1
3.	Bowl	110/1	Stray
4.	Bowl/jug	104/2	1
5.	Bowl; purple glaze	106/2	3
6.	Jar/krater?	112/4	2
7.	Storage jar/krater?	113/1	Stray
8.	Jar	109/2	Stray

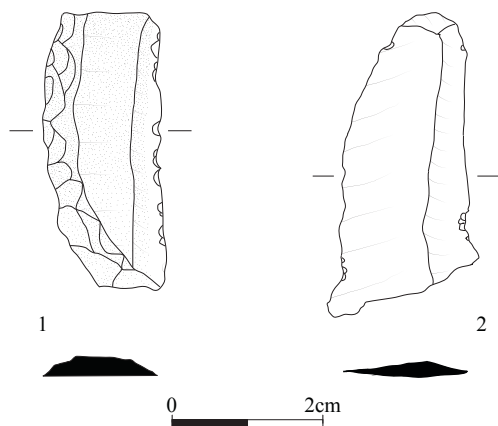


Fig. 10. Flint artifacts.

Fig. 10.

No.	Vessel	Field no.	Locus
1.	Flint blade	104/1	1
2.	Flint blade	106/1	Stray

found at Khirbet Butz. The channel connecting the floor to the vat might initially be blocked by small branches of poterum (great burnet) or another plant or object which would act as a sieve keeping grape skins and stalks out of the vat, but this sieve would fast become blocked up. During the treading process all skins and solids would be gathered to the centre of the floor by feet, broom or wooden shovel. When enough must was pooled in the floor, the channel block would be removed and all other skin and wastage removed by hand. These would later be pressed to capture any remaining liquid, before starting the fermentation stage of the wine production process.

Frankel (pers. comm.) has suggested that L3—the vat in Area B which was not connected to any treading floor—may have served for producing red wine, which involves leaving the skin in the must during fermentation.

Two final points of interest will be mentioned. Firstly, given that Khirbet Butz wineries may have been in use during the Umayyad period, we note that it is not impossible that Muslims were the operators. The Druze and Muslim workers who were the subjects of the above-mentioned ethnographic recordings were not treading grapes to make wine, but rather a sweetmeat called ‘Dibes’.

Secondly, it is possible that olives were also crushed in the treading floors, this action being shared by both wine and olive oil production. For this reason, there is considerable debate about whether or not the same installations would be used for both grapes and olives (see Frankel 1999: 57) and such is certainly possible for this simple treading floor type.

References

- Ayalon, E., Frankel, R. and Kloner, A. (eds.) 2009. *Oil and Wine Presses in Israel from the Hellenistic, Roman and Byzantine Periods* (Biblical Archaeological Reports International Series 1972). Oxford.
- Frankel, R. 1999. *Wine and Oil Production in Antiquity in Israel and Other Mediterranean Countries* (Journal for the Study of the Old Testament/American School of Oriental Research Monograph Series 10). Sheffield.
- Govrin, Y., in preparation. Salvage Excavations at Khirbet Butz - 2007. *Nelson Glueck School of Biblical Archaeology Reports 2*.
- Mayerson, P. 2000. The Meaning and Function of ληνός and Related Features in the Production of Wine. *Zeitschrift für Papyrologie und Epigraphik* 131: 161-165.
- McGovern, P.E., Fleming, S.T. and Katz, S.H. (eds.) 1995. *Origins and Ancient History of Wine* (Food & Nutrition in History & Anthropology Series II). Philadelphia, Amsterdam.

Appendix: Artifact Photographs (by locus)



L1

No.	Field no.	Type	Description
1.	102/1	Bowl	Light orange ware; collared rim.
2.	102/2	Bowl	Red/orange coarse ware; thickened, bevelled and pointed rim.
3.	104/2	Bowl/Jug	Red/orange coarse ware; ring base.
4.	104/1	Flint blade	Marbled grey stone; backed.



L2

No.	Field no.	Type	Description
1.	103/1	Bowl	Red coarse ware; thickened rim.
2.	112/1	Bowl/Jug	Light orange ware; ring base.
3.	112/2	Bowl/Jug	Light orange ware; ring base.
4.	112/3	Jar/Jug	Light orange ware; handle.
5.	112/4	Jar/Krater?	Light orange ware; rim handle; simple rim (?).



L3

L3

No.	Field no.	Type	Description
1.	106/1	Bowl/Jar	Orange ware; ridged.
2.	106/2	Bowl	Red ware; purple slip; glazed.

*L4**L4*

No.	Field no.	Type	Description
1.	107/1	Bowl	Orange ware; thickened, bevelled, pointed.

*L5**L5*

No.	Field no.	Type	Description
1.	108/1	Bowl?	Red coarse ware; body sherd.
2.	108/2	Oil lamp?	Orange/red ware; simple rim.
3.	108/3	Bowl	Grey/orange ware; external striations.

*Area A Stray.**Area A Stray.*

No.	Field no.	Type	Description
1.	113/1	Storage Jar/ Krater?	Light orange coarse ware; ridged handle.



Area B Stray.

No.	Field no.	Type	Description
1.	109/1	Bowl/Jar?	Grey/orange ware; body sherd.
2.	109/2	Jar	Red/orange ware; external striations; burnt?
3.	106/1	Flint blade	Marbled grey stone; no retouch.
4.	110/1	Bowl	Light orange ware; thickened, flattened rim.
5.	110/2	Bowl?	Red ware; ledge rim.

SALVAGE EXCAVATION AT BET DAGAN – 2005

Yehuda Govrin

The excavation was directed by the author in June 5–July 12, 2007 on behalf of Y.G. Contract Archaeology Ltd under the academic sponsorship of Hebrew Union College (Excavation Permit: B-296/2005).

Introduction

In 2005 Y.G. Contract Archaeology Ltd won a Lendko Corporation tender for the salvage excavation of a site on HaDagan Street in Bet Dagan (Fig. 1). Prior to this project an Israel Antiquities Authority (IAA) salvage excavation was conducted by Eli Yannai (Yannai 2008). This excavation exposed over 120 graves which were cautiously dated to the Mamluk and Early Ottoman periods. As a result, the Y.G. Archaeology excavation (focusing on Area B1 of Yannai's site) included the opening of twenty 5.0 x 5.0m squares and locating the anticipated graves (Fig. 2). With human burials expecting to be found (see below), anthropological work was assigned to specialist

Esther Deutsch. The excavations were halted twice following legal court orders by the El-Aqsa Corporation. For this reason also no physical anthropology investigation was conducted of the graves (which were never excavated). At an



Fig. 1. Location of the excavation site (183600–656150).

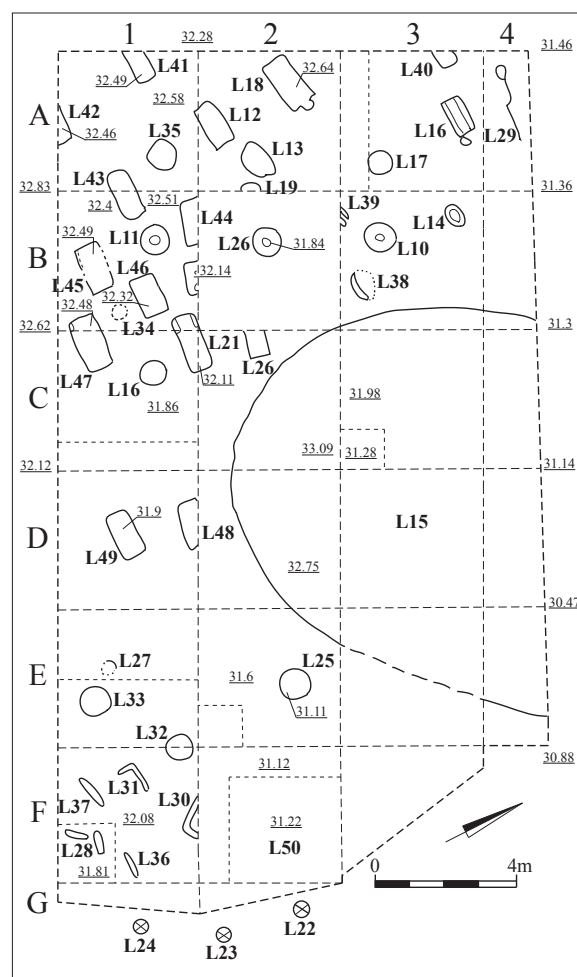


Fig. 2. The excavation area (Area B1).

unknown date the site was damaged by a tractor and excavation was again halted. At the request of the director of the IAA, Yehuda Govrin passed his excavation license to that organization. In 2009 the IAA gave the license to Tel Aviv University, who excavated the remainder of the site until it was released for construction purposes.

The Excavations

The Area B1 site is situated on a hill southeast of the remains both of a modern Arab village and of ancient Tel Bet Dagan. The site's red *hamra* topsoil is approximately 1.0–2.0m thick, beneath which is sterile yellow sand. The hill has been severely damaged due to development activity and erosion. Its surface was leveled and orchards planted, probably at the beginning of the 20th century. In close proximity to the excavation area is a destroyed Mandate period well that most likely served the orchards. Area B1 is on what remains of the hill, on an east-west slope. The site measures approximately 18.0 x 30.0m.

Square A1

This square was dug to a depth of approximately 0.3m. The *hamra* was removed until at 0.2m depth a layer of yellow sand was reached. In this square were found the remains of a gray mud brick grave (L51) that was not preserved, a tree-planting pit (L35) and the remains of three other graves (L41–L43) which were not excavated. Possible remnants of a fifth grave (L52) were found close to the tree-planting pit.

Square A2

This square was dug to a depth of approximately 0.6m. In it the remains of three gray mud brick graves (L12, L13 and L18) were found. The preservation of the westernmost grave (L18) was the best (Fig. 3). Its entire upper brick cover was intact. The grave measures 2.2 x 1.0m and is oriented approximately east-west. Halfway along its eastern side a bulge of mud bricks was found. The grave was not excavated. The two other graves were damaged and probably collapsed; from them

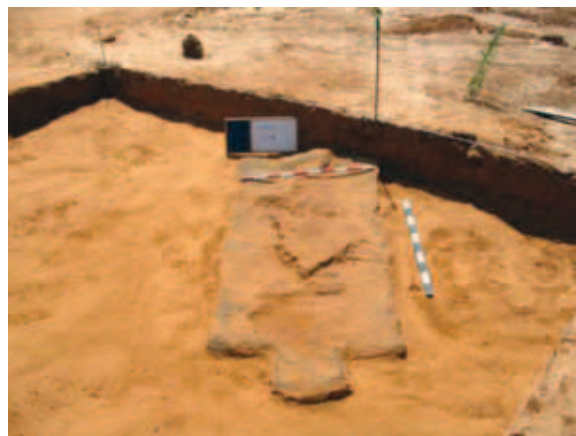


Fig. 3. A general view of brick-lined grave L18.

only portions of walls were discovered. In the section between Square A2 and B2 a crumbling skull was found.

Square A3

This square was dug to a depth of approximately 0.2m. Most of the *hamra* from the surface had previously been removed by mechanical tools. In the square were discovered a tree-planting pit (L17), a mud brick grave (L16) and the possible remains of an additional grave (L40). Approximately 0.15m above the bone remains—i.e., very close to ground level—a fragment of a blue glass bottle was found. The L16 grave had a general east-west orientation and its size was 0.5 x 2.0m. The grave was not excavated.

Half-Square A4

In the western half of this square, at a depth of 0.1m, a poorly preserved but articulated skeleton was uncovered (L29). Its general orientation was east-west (head to the west) and the face was turned toward the south. The skeleton was probably that of an adult female but was not excavated.

Square B1

This square was dug to a depth of approximately 0.4m. Close to its center a tree-planting pit (L11) was discovered. A total of eight burials were identified. The remains of a grave and a spread of unarticulated bones (L44) were discovered close to the section between Squares B1 and B2. This

mud brick grave was discovered at a depth of about 0.3m below ground level. About 0.5m to the east the remains of another grave (L20) were found. It too was in the section between the squares. This grave was probably much smaller than L44. Two additional mud brick graves (L45, L46) were found at a depth of 0.2–0.3m. The remains of a burial (L34) containing a mass of crumbled bones without clear articulation were discovered at a depth of 0.3m on the eastern edge of the square. Two additional graves (L21, L47) were discovered in the eastern section, bordering with Square C1.

Square B2

This square was only partly excavated. The surface was removed and the southern half of the square was then dug. At the center of the square a tree-planting pit (L26) was discovered. Into this square a number of graves from adjacent squares extend, including L20 and L44 from the south, L26 from the east, L19 from the west and L39 from the north. It is most probable that additional graves would have been discovered in the square had its excavation continued.

Square B3

This square was dug to a depth of 0.25m below ground level. Close to its center a tree-planting pit (L10) was discovered. In the northwestern corner of the square a small mud brick grave was found (L14), probably belonging to a child. Close to the southeastern corner a concentration of broken mud bricks was found (L38), probably the remnants of a damaged grave. An additional mud brick grave (L39) was found close to the southwestern corner of the square. This grave continues into the southern portion of the square, an area that was not excavated. The eastern quarter of the square was damaged by the digging of a recent rubbish pit.

Half-Square B4

The entire half-square was excavated. A tree-planting pit (L56) was discovered. No additional finds were made. The eastern portion of the square was damaged by a recent rubbish pit.

Square C1

This square was dug to a depth of 0.4m. Close to the center a tree-planting pit was discovered. A grave (L21) was found near the square's northwestern corner, but it was not exposed. Two probable additional graves were also found. The first (L47) extends into Square B1. The second (L53) is located close to the southern baulk of the square. In the northern portion of the square a 1.0m-wide baulk was left unexcavated, running south-north.

Square C2

Most of this square—especially its center—was badly damaged by a recent rubbish pit (L15). Close to the southwestern corner two graves were discovered. These graves continue into the neighboring squares. The first (L21) was found at the southern edge of the square. The second (L26) was found at the western edge of the square.

Square C3

Over the entire area of this square the L15 rubbish pit extended. This pit was excavated to a depth of 1.5m, down to the archaeologically sterile soil. In this square also an IAA test pit was located.

Half-Square C4

The entire square is within the L15 rubbish pit.

Square D1

The remains of two graves were found. The first (L49) is located at the center of the square, the second (L48) is located at the northern side of the square.

Square D2

In most of this square's northern area the L15 rubbish pit is located. The remains of one grave (L48) were found at the southern edge of the square (and continue into Square D1).

Square D3

The entire square is located within the L15 rubbish pit.

Half-Square D4

The entire half-square is located within the L15 rubbish pit.

Square E1

This square was halved along its north-south axis. In the center of the western half a disturbed spread of bones was discovered (L27). As the project continued, the eastern half of the square was also excavated. In it two tree-planting pits were discovered. One (L33) was close to the center of the square. The second (L32) was found close to the northeastern corner of the square (adjacent to Square F1).

Square E2

Near the center of the square a tree-planting pit was discovered (L25). The remains of crumbled bones (L55) were found in the south side of the square, following an approximate east-west orientation but without signs of an associable grave. Evidence for two additional graves (no locus numbers given) was found in the east side of the square. In order to investigate these, a further 1.0m² test section was excavated in the southeastern corner of the square.

Square E3

Except for the southeastern corner of the square, in which no finds were recovered, most of the square's area was badly damaged by the L15 rubbish pit.

Half-Square E4

This entire half square was located within the L15 rubbish pit.

Square F1

In this square was found a concentration of various remnants of thin walls (0.15m wide) made from gray mud bricks. These walls (L28, L30, L31, L36 and L37) were found at a depth of about 0.2m below ground level, except L28 whose remnants in the southwestern corner of the square were found at a depth of 0.1m. It is possible that these wall sections, whose lengths do not exceed 1.0m, are part of the architecture of graves that were moved as a result of agricultural work in the area. With

the exception of L30, they follow an east-west orientation.

Square F2

1.0m² test pits were dug along the southern and western sides of the square. In the center of the square (L50) no finds were discovered down to 0.2m, at which depth lay the virgin sand. Between the eastern side and southeastern corner, within the L50 layer at a depth of 0.1m below ground level, a broken blue glass bottle was found *in situ*.

Half-Square F3

The northern half of this half-square is part of the L15 rubbish pit. In the rest of the half-square no finds were made.

Partial Squares G1 and G2

These partial squares were opened at the eastern end of the hill. Here at three test section points were discovered gray mud-brick-lined graves (L22–L24), clearly discernable against the red *hamra* soil. The section view suggested that at some point a burial ditch had been dug into the *hamra*. This ditch was then covered by a thin layer of gray clay slabs. This layer collapsed at various points, falling into the grave space. Other portions of the gray clayey layer were disturbed by agricultural work.

Summary

During pre-excavation ground clearance works, much of Area B1's topsoil was removed by earth-moving machines. In several cases this disturbance caused severe damage to graves buried close to the surface. Previous agricultural and other activities also damaged the burials. Skeletal remains were generally found in a poor state of preservation. Bones were badly deteriorated and unarticulated, having been mixed with the *hamra* soil to the point that it was difficult to identify osteological details.

Most of the graves were oriented east-west. Some were cut into the surrounding soil and lacked stone lining or any extant architectural remains or datable artifacts of any kind. The built graves were all lined and capped by gray mud bricks which

stood out clearly against the *hamra* soil and yellow sand. In these built graves too (and the surrounding area), very few artifacts were discovered, making it difficult to date them. However, two fragments of blue glass bottles were found (Fig. 4), and a very limited number of probable Mamluk ceramic body sherds which were incorporated with the mud bricks (Fig. 5). It is possible that the area was settled as part of the hinterland of Late Roman



Fig. 4. Blue glass vessel fragments.



Fig. 5. L11, B.2, Mamluk pottery sherd.

References

Rauchberger, L. 2008. 'Bet Dagan'. *Hadashot Arkheologiyot* 120: http://www.hadashot-esi.org.il/report_detail_eng.asp?id=763&mag_id=114

Yannai, E. 2008. 'Bet Dagan'. *Hadashot Arkheologiyot* 120: http://www.hadashot-esi.org.il/report_detail_eng.asp?id=867&mag_id=114

Acknowledgements

I thank the Lendko Corporation Ltd for commissioning Y.G. Archaeology for this project and for their logistical help in its execution. I am also grateful to Esther Deutsch for her anthropological expertise, despite the fact that we did not ultimately excavate the human remains.