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HEBREW UNION COLLEGE JEWISH INSTITUTE OF RELIGION | NELSON GLUECK SCHOOL OF BIBLICAL ARCHAEOLOGY

Y.G. Contract Archaeology Ltd.

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Cover Illustrations:
Front: General view of excavation site at Ramla (White Mosque Street),
Areas A-H (looking northeast) (see p. 13).
Back: Early Islamic zoomorphic vessel from Ramla (White Mosque Street) (see p. 47, 48, 126).

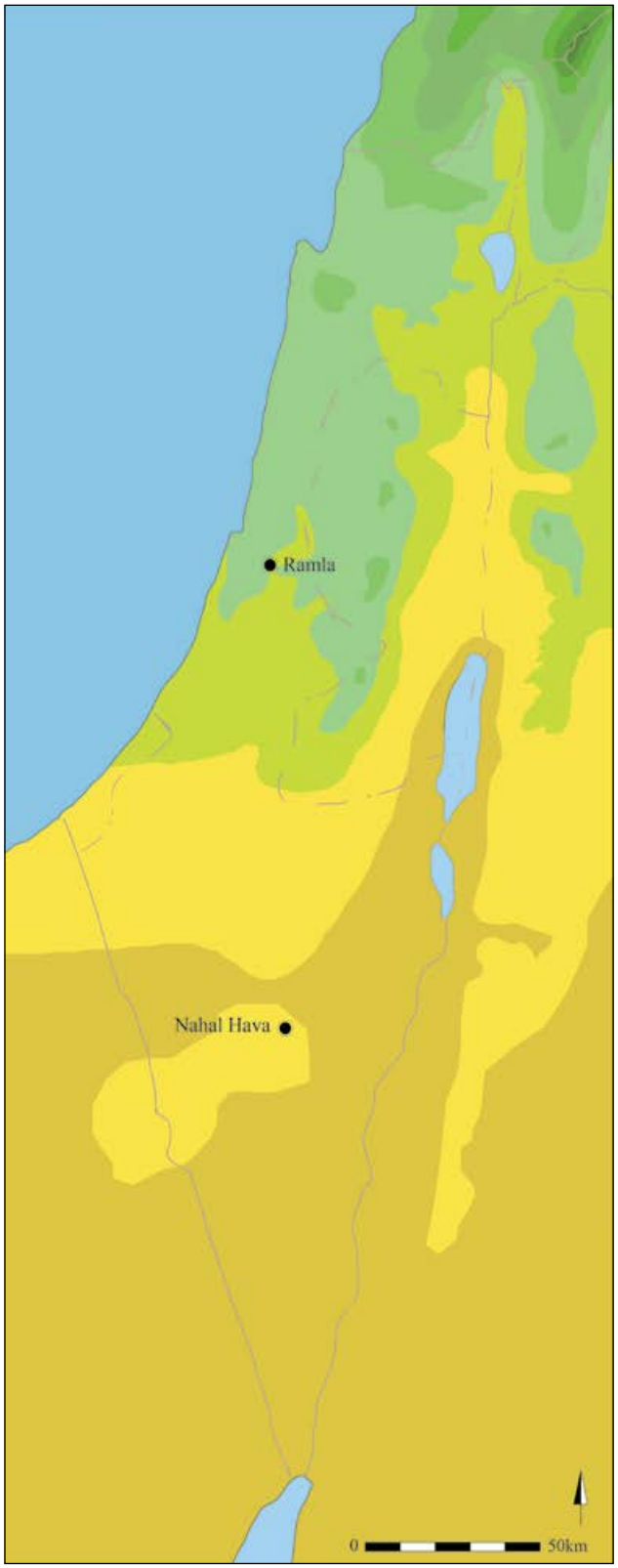
This volume is dedicated to the memory of Miriam Avissar,
co-director of excavations at Ramla (White Mosque Street).

Letter from the Editor

In this, the fourth volume of *NGSBA Archaeology*, we highlight the salvage excavations carried out along the White Mosque Street in Ramla. Ramla was established in 715 CE as the new capital of *Jund Filastin*, one of the five districts of the *Bilad al-Sham* district of the Umayyad, Abbasid and Fatimid Empires. Ramla is a fascinating place, where late antiquity and earlier medieval remains are encountered on a regular basis as the modern town expands and develops. Sadly, much of these evocative remains have been irretrievably lost to development, sometimes due to negligence. Yet many archaeological excavations have been expedited over the years, particularly by the Israel Antiquities Authority. Some of this is published, as the reader will discern in the references at the end of this report's chapters, but much is not. A treasure trove of data is still waiting to be mined with an eye toward enriching our knowledge of the early Islamic period. We are therefore gratified that excavation director Conn Herriott—with the help of Achia Kohn-Tavor, Ofer Gat, Nitzan Amitai-Preiss, and Ron Kehati—has put together this detailed, comprehensive report of the White Mosque Street excavations. Ramla's glorious past continues to emerge from obscurity.

Another, smaller salvage project is also reported in this volume: 'Nahal Hava – 2009'. As in past issues we aim to provide a maximal archaeological description of what some might regard as small, marginal sites. In the future such "thick" descriptions may reveal unanticipated new aspects which may contribute to new interpretations. Only time will tell.

CONTENTS



Map of reported sites.

Excavations at Ramla
(White Mosque Street)

INTRODUCTION

Conn Herriott

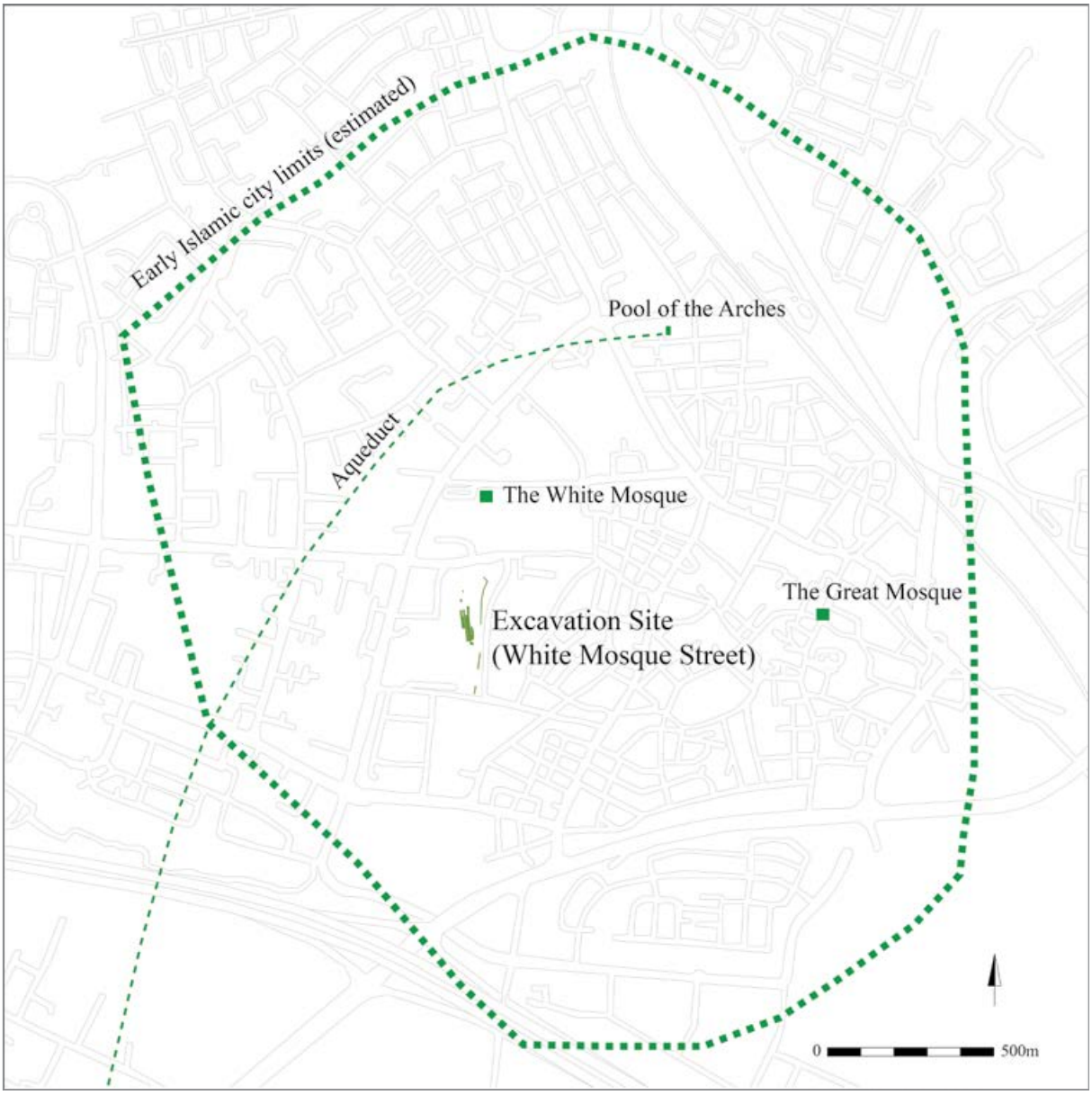


Figure 1. Site location in Ramla (within estimated extent of Early Islamic city, following Avni 2011:10, Fig. 4).

This archaeological project (permit nos. B-367/2011, B-382/2012; NIG 187547/648005; Fig. 1) was carried out in the historic center of Ramla, immediately west of White Mosque Street and some 300m south of the mosque itself. Conducted between May 2011 and February 2012, the excavations were managed by Y. Govrin and directed by M. Avissar, S. Golan and the author, on behalf of YG Contract Archaeology Ltd. under the academic auspices of the Hebrew Union College. The excavation team was made up of workers from Bir al-Maksur, Galilee (Fig. 3), with Y. Govrin, S. Golan and the author supervising in Areas A-H, the author and archaeologists S. Alon and I. Branzburg supervising in Area I, and the author supervising in Area J. Site drafting was carried out by the author, S. Alon (Area I), and surveyors D. Porotsky and S. Pirsky (schematic plan of Areas A-H). Site photography was carried out by the author, as well as S. Golan and Y. Govrin. M. Avissar conducted the on-site and initial post-excavation pottery analysis, which was continued by A. Kohn-Tavor. O. Gat studied the glass assemblage, N. Amitai-Preiss the metal and bone artifacts as well as inscriptions, and R. Kehati the archaeozoological remains. In an optimistic attempt to be as modestly useful and relevant as a prehistorian can be to an Early Islamic-period publication, the author wrote the reports on stone objects and mollusk shells. Many thanks to Hagit Torgë for reviewing the manuscript, and for her valuable comments and insights.

Founded in c. 715 CE, for 300 years the city of Ramla was the capital of *Jund Filastin*, one of five districts in the *Bilad Al-Sham* province (Syria) of the Umayyad and later the Abbasid and Fatimid empires. The town was situated in the central coastal plain of the southern Levant, in sandy soils—*raml* meaning sand in Arabic—at an elevation of 85m ASL. The settlement (*misr*, pl. *amsar*) followed a common Early Islamic pattern of building near an existing hub (Whitcomb 1994; Walmsley 2007:105)—in this case Lydda (Lod), the previous regional capital. Ramla owed its importance to its location at the crossroads of two major routes, one linking Egypt and Syria and the other leading from the Mediterranean coast to Jerusalem.

Figure 2. Part of the excavation team.

An array of written sources and ever-increasing archaeological evidence have shed light on Ramla's layout and development, as well as areas of various industries. Findings reveal the wealth and economic activity of *Jund Filastin*'s chief town. As with all such important settlements, Ramla would have had at least one mosque for religious congregation and the conducting of law and education, as well as a palace for administration and justice, residential areas of varying socio-economic status, places of manufacture, and of course markets. Much of this activity would have concentrated in the town center, just a few hundred meters north and no doubt influencing the character of the current site. Judging by previous findings in Ramla and beyond (see syntheses in Avni 2011; Shmueli and Goldfus 2015), we can also expect little Umayyad but rich Abbasid and Fatimid residential occupation, with courtyard houses located between open areas and courtyards.

In the current state of research, how can this dig contribute to our understanding of Umayyad-Fatimid Ramla? First of all, the excavation took place near the center of the Early Islamic city. Our findings may provide insights into the city's character, early development and cultural-economic composition. Secondly, unlike most digs in Ramla which open 25-100m^2 'keyhole views' of the Early Islamic city,

the current excavation area covered 2250m^2 within a north/south-oriented strip of land measuring 270m long and 20m wide—one of the largest contiguous areas to be dug in Ramla to date. Our site's central location and scale mean that it offers a valuable architectural, stratigraphic and artifactual contribution to current knowledge about the city and region in the Early Islamic period. Unfortunately, much of the Early Islamic architectural remains at the site had been severely damaged prior to our arrival. This was probably due to the 1033 and 1068 CE earthquakes which levelled the city, as well as subsequent re-use of stones for building, and finally modern construction and site preparation activity. Also, our investigations were restricted to a long narrow strip of land which provided much useful information on a north/south axis, but in terms of the east-west dimension we were severely limited in several areas. However, as will be seen, the pottery and glass assemblages are among the richest of the period found to date in this region. Other categories of artifacts recovered here also contribute to the corpus of current knowledge. Furthermore, the architectural remains are sufficient for us to reconstruct a useful picture of the site during the Early Islamic period, including the underrepresented Umayyad caliphate (Avni 2011:11).

Chapter 1 deals with site features and architectural remains, followed by analyses of the various artifact types (Chapters 2-13). In Chapter 14 some modest conclusions are drawn about our findings.

REFERENCES

Avni, G. 2011. Continuity and Change in Urban Centers of Palestine during the Early Islamic Period—Jerusalem and Ramla as Case Studies. In: Holum, K. and Lappin, H. (eds.) *Shaping the Middle East*. Maryland. Pp. 1-19.

Shmueli, O. and Goldfus, H. 2015. The Early Islamic City of Ramla in Light of New Archaeological Discoveries, G.I.S. Applications, and a Re-examination of the Literary Sources. In: Talmon-Heller, D. and Cytryn-Silverman, K. (eds.) *Material Evidence and Narrative Sources. Interdisciplinary Studies of the History of the Muslim Middle East.* Leiden; Boston. Pp. 267-300.

Walmsley, A. 2007. *Early Islamic Syria. An Archaeological Assessment*. London.

Whitcomb, D. 1994. Amsar in Syria? Syrian Cities after the Conquest. *Aram* 6:13-33.

CHAPTER 1

SITE FEATURES

Conn Herriott

This site was in use during the Umayyad-Fatimid periods, and seems to have been mostly abandoned after the earthquakes of 1033 and 1068 CE. There may have been some continued occupation in Area I, during the Mamluk period. As far as can be deduced, Areas A-I appear to have been part of a well-to-do residential quarter, while Area J further south was less densely occupied, less affluent and of unclear function (Fig. 1.1).

Focusing on stratigraphic and architectural remains, this chapter will offer a brief overview of the site and its interpretation. A more in-depth description of feature types can be found in Appendix 3, which supplements the accompanying site plans and locus list (Appendices 1 and 2 respectively). A comprehensive interpretation of the site is laid out in Chapter 14, incorporating the results of artifact analyses presented in Chapters 2-13.

ARCHITECTURAL REMAINS AND INSTALLATIONS

As mentioned in this report's introduction, the site was heavily damaged prior to our excavation. Many Early Islamic features survive only in fragments or as wall shadows, due to subsequent re-use of masonry—a common phenomenon in Ramla. At the current site this poor state of preservation was exacerbated by mechanical diggers truncating the upper layers of much of the area prior to our excavation, destroying the upper layers of many Umayyad-Fatimid remains.

Thus the majority of this site's extant features were vertically truncated pits, walls, pipes, cisterns and other stone features which served various quotidian purposes (Fig. 1.2; also see site plans, Appendix 1). In the main these were constructed directly on the natural

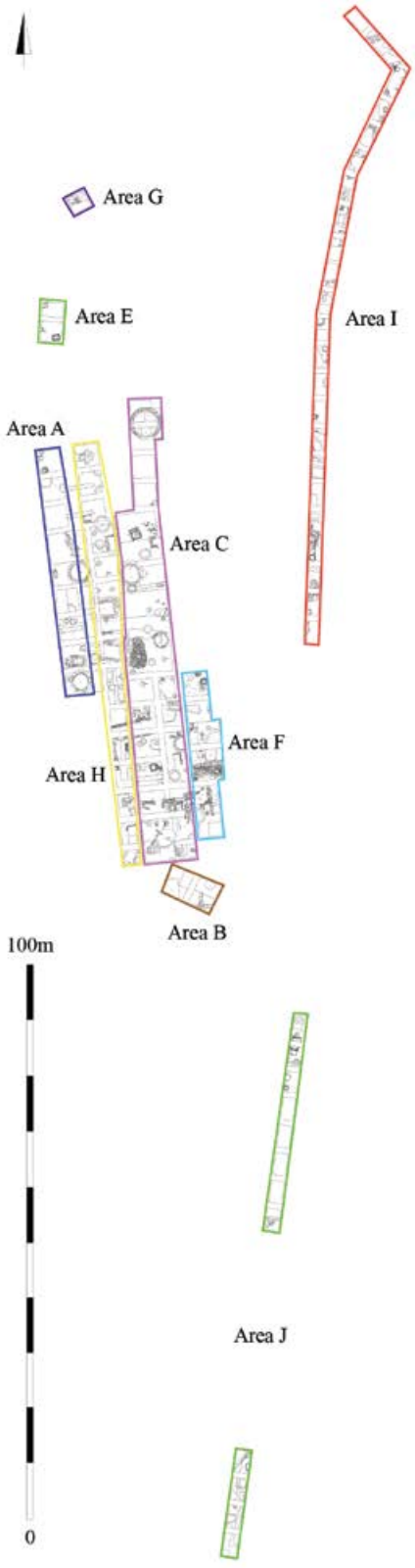


Figure 1.1. Site plan showing excavation areas.

Figure. 1.2. General view of Areas A-H (looking northeast), showing the array of fragmented cisterns, water conduits, walls, pits and other features across the site. Area B is in the right foreground. Also note the White Mosque in the left background and former sports stadium of Ramla in the right background.

Figure 1.3. L9028 (Area I), one of the few extant ashlar walls at the site (looking southeast).

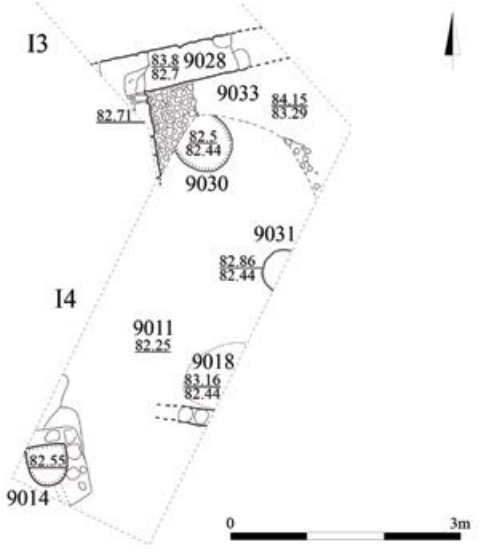


Figure 1.4. Plan excerpt showing Wall 9028, cobbled Surface 9033 and associated features (Area I).

Figure 1.5a. The L7001 mosaic (Area B, plan p.220). General view (looking northeast).

Figure 1.5b. The L7001 mosaic. Close-up.

Figure 1.6. The L8014 hexagonal fountain in Area H (looking east), fed by a ceramic pipe (L8042) in which can be seen a storage jar inserted as holding tank.

sand after which Ramla is named. Almost no buildings are discernible, despite clearly intense activity. Other than the fact that most walls are oriented roughly north-south or east-west (in keeping with findings throughout Ramla [e.g. Avni 2011; Shmueli and Goldfus 2015; see also Walmsley 2007]),[1] the site seems to comprise a quite randomly distributed array of features which mostly do not exhibit any overt relationship to each other, and do not indicate any clear area function. There were no strong concentrations of artifacts which might result from manufacturing, storage or commercial activity. Also, given the long use period of many object types, it is difficult to identify site phases based solely on artifacts.

However, looking at various strands of evidence together allows us to partially reconstruct the site. Before going into specifics, it must be stated that the general impression is of at least one phase of well-to-do residential activity. This is based first and foremost on the site location: near the district capital's center, the White Mosque, administrative buildings and palaces, and most likely close to the city's main north-south thoroughfare (Shmueli and Goldfus 2015). This suggests that the area was of some value during the city's Abbasid-Fatimid florescence. Secondly, the occasionally preserved ashlar walls (e.g. L6017, 9028), the L7001 mosaic, L8014 fountain and other water systems hint at high-quality structures (Figs. 1.3-1.11). The massive and enigmatic subterranean ashlar-lined and paved feature, L8028, is particularly worthy of note here (Figs. 1.7-1.9). And finally, many pottery, glass, metal, steatite and bone artifacts reflect a well-to-do population. Thus, the site's location and architectural and artifactual repertoire are most in keeping with an affluent residential area. There are also many small pits scattered throughout the site (Fig. 1.12), which underlie the substantial structural features of the site and seem to belong to an initial phase. Some of these pits were surprisingly rich in ceramic, metal and bone finds; these may have been valuable caches of some sort (e.g. L4092, 8104).

1 H. Torgë (pers. comm.) has observed that most walls in Ramla deviate from true north by 6º to northeast-southwest, and that this deviation appears to have been nullified during the Fatimid period (post-1033 CE earthquake). In the current site the deviation is rather slightly northwest-southeast in Areas A-H, but in Areas I and J agrees with the observed general pre-1033 tendency of slight northeast-southwest alignment.

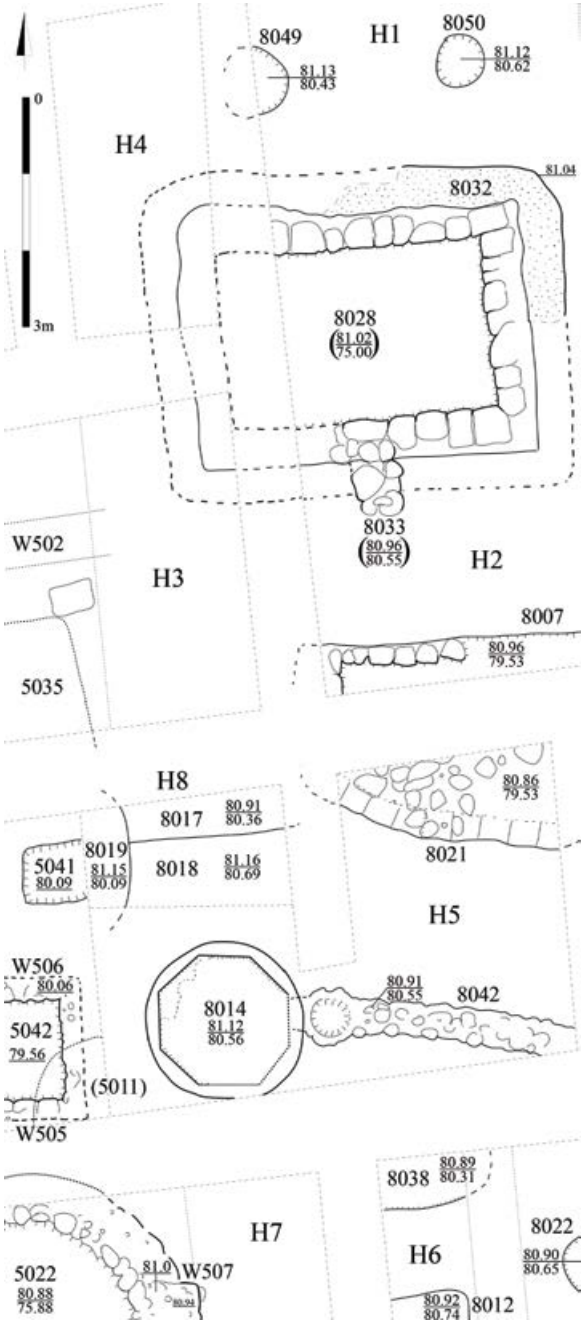


Figure 1.7. Plan excerpt showing hexagonal Fountain 8014, Feature 8028 and other associated remains (Area H).

Focusing on the main phase of activity, let us attempt to answer the question of how the area might have looked during the period of occupation. As is known from this and other Early Islamic cities in *Jund Filastin* and beyond (e.g. Walmsley 2007;

Figure 1.8. The L8028 subterranean structure (looking west), with mudbrick upper wall (right foreground) and ashlar-lined subterranean cut (behind).

Figure 1.9. A marble tile recovered from the floor of the L8028 feature.

Figure 1.10. Part of a courtyard house's water collection system: the cistern (L4138; left background), holding basins (L4115, 4116; centre foreground and background), and ceramic pipes (L4125, 4126; left foreground).

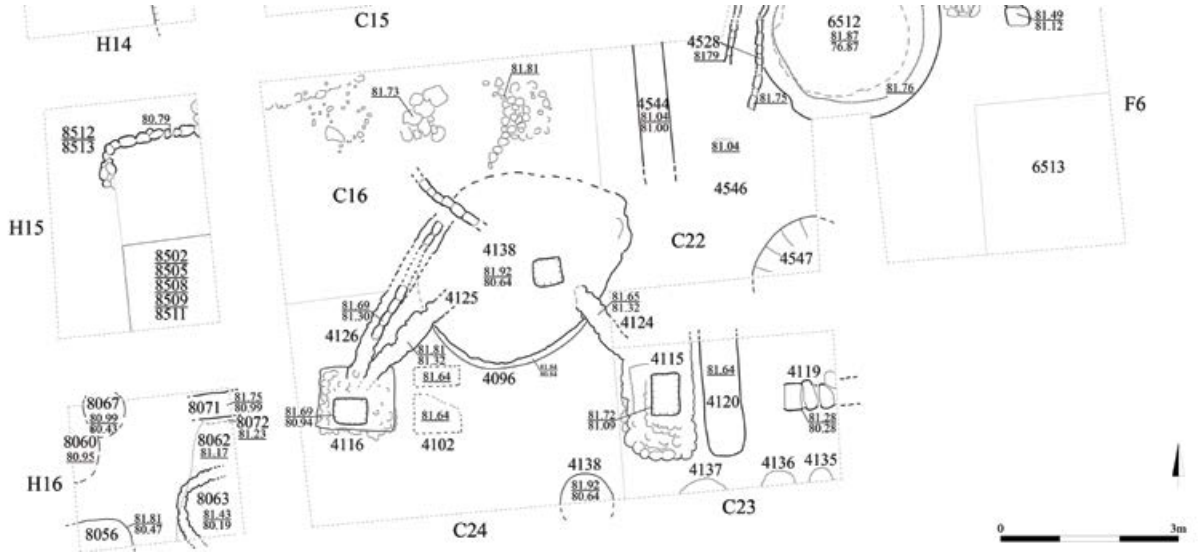


Figure 1.11. Excerpt of plan (Areas C and H), showing water collection system comprising Cistern 4138, Holding Basins 4115 and 4116, and Drainage Pipes 4124-4126.

Figure 1.12. Pits 5039 and 5036 (looking west; Area A; plan: p. 216), with shadow walls W503 and W502—discernible by their gray mortar-rich fills—in the right-hand (i.e. north) and background (i.e. west) sections.

Figure 1.13. Stone- and mortar-encased ceramic pipe 8036 (looking west; Area H; plan: p. 218).

Avni *et al.* 2008; Shmueli and Goldfus 2015), bell-shaped cisterns of the type found here were generally located in the courtyards of houses, and occasionally in areas just outside buildings. Also, ceramic pipes often were laid under walls, as may have been the case with L8036 (Fig. 1.13). In an adjacent excavation conducted by Avni *et alia* (permit A-3772; Avni *et al.* 2008), an octagonal pool similar to L8014 (Figs. 1.6, 1.7) was found—unsurprisingly—in a courtyard (Avni *et al.* 2008: Fig. 5). Mosaics of the type in L7001 (Fig. 1.5) were found in Avni *et alia*'s nearby Area F1, in small interior rooms of an Abbasid-Fatimid

Figure 1.14. Installation 3005, a two-level stone-lined installation filled by green-stained sediment (L3004) (looking east; Area E; plan: p. 221).

Figure 1.15. Stone-lined installation 8105 (looking east; Area H; plan: p. 216), the basal fill of which was a green-stained sediment.

Figure 1.16. Stone-lined installation L4039 with a bowl-shaped depression in its base, and a sediment fill (L4038) that was rich in carbon (looking north; Area C; plan: p. 215).

Figure 1.17. Red plaster on the L9530 surface: general view (looking east; Area I; plan: 209).

Figure 1.18. Red plaster on the L9530 surface: general view (top) and close-up (bottom). See also p. 162.

Figure 1.19. L9704 mosaic fragment.

Figure 1.20. Plaster-lined pit 4057 (looking south; Area C; plan: p. 217).

Figure 1.21. A group of two/three plaster-lined basins (L9562, 9569, 9582) and other features, of unclear function (looking south).

building. Unfortunately, it is not possible to identify which cisterns and features were actually contemporaneous with each other across the site, but based on these parallels it is most likely that Areas A-I of the current site included well-built courtyard houses and open spaces, near an important city street leading to the nearby center. This affluence is best seen where a broad contiguous excavation area was opened (Areas A-H). This is also the case in Area I in the northeast of the site, which—despite its very limited east-west exposure—yielded well-built walls, a cistern, holding basins, plastered surfaces and a rich Early Islamic artifact assemblage.

The remains were not rigidly north-oriented in a single grid, as has been suggested in publications which emphasise considerable centralized planning in the city layout (Walmsley 2007:105; Avni 2011; Shmueli and Goldfus 2015). Rather, we see an approximate adherence to an orthogonal plan, with some variation deemed acceptable.

Treating Areas A-I as a fragmentary glimpse of a single neighborhood, a fine example of these houses' drainage systems can be seen in Squares C16, 23 and 24 (Figs. 1.10, 1.11). Here an intact cistern (L4138)—its square-shaped roof aperture preserved—is fed by run-off from several mortar-encased ceramic pipes (L4124-4126), leading from holding tanks (L4115, 4116) which received rainwater from roofs, and prevented any heavier particles from entering the cistern. These associated features represent all that survived of the area's rainwater capture system—an effort supporting evidence from other excavations and historical sources that the aqueduct which supplied early Islamic Ramla was insufficient to meet the city's water demands (see Gorzalczany and Amit 2014:73).

The aforementioned L8014 octagonal pool may have been surfaced with small glass *tesserae*. The fountain was also kept clean by an improvised holding tank: a storage jar set into the ceramic pipe which fed the fountain (Figs. 1.6, 1.7). Several stone-lined installations of varying shapes and interior levels were sometimes filled by a green-stained sediment, suggesting that they were cess pits (e.g. L3005, 8105; Figs. 1.14, 1.15); others contained carbon-rich sediment (e.g. L4039; Fig. 1.16). Red plaster was found on the L9530 surface in Square I8 (Figs. 1.16, 1.17). Pool floors coated with red plaster and walls covered with blue-painted plaster were found in nearby excavations (Avni *et al.* 2008: Areas C5 and D). Elsewhere,

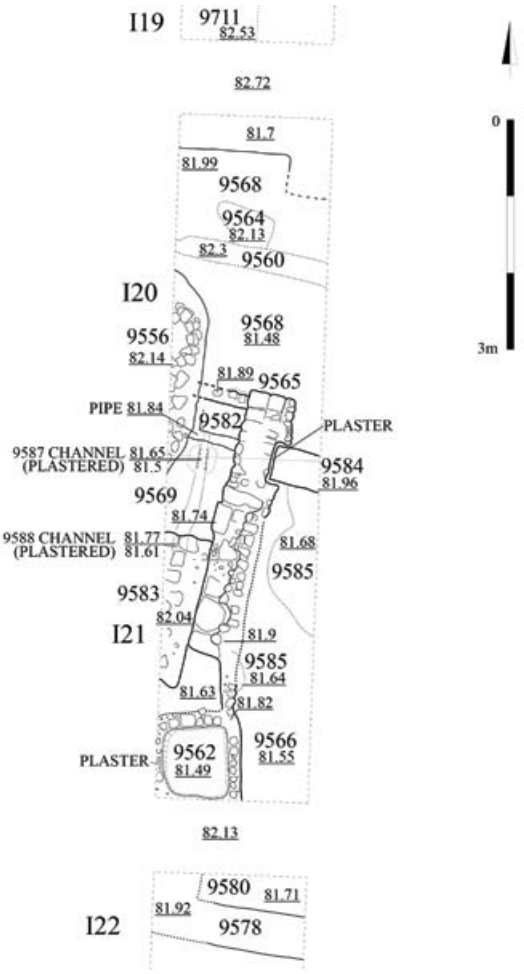


Figure 1.22. Plan excerpt from Area I, showing a feature complex which incorporated several plaster-lined basins, a drainage pipe, surfaces and walls.

Avni (2011) has suggested that red plaster floors of pools in early Ramla may be evidence of dyeing activity.

The aforementioned L7001 mosaic (Fig. 1.5) also stands out among our findings, and is described in detail elsewhere (Chapter 4, p. 163; see also Appendix 3, p. 242) in the context of surviving architectural elements which attest to the wealth of this area's occupants. Another small monochrome mosaic fragment was found in Area I (L9704; Fig. 1.19), which was insufficiently preserved to allow for classification. Perhaps the most striking feature of the entire site is the aforementioned L8028 (Figs. 1.7, 1.8). Measuring 4.5 x 3.2m and extant to 6m in depth, this feature was lined with ashlar blocks and a brick superstructure, and was paved with what appeared to be marble slabs (Fig. 1.9; see also Appendix 3, p. 236). No other examples were found of such a construction. The feature may also have incorporated mudbrick walls, of which two other examples were found at the site (see Appendix 3, p. 241).

Figure 1.23. Large quadrilateral cess pit L10084. Left: mid-excavation view (looking east). Right: close-up of stone lining and basal fill within lower south side of cess pit, overlying the natural sand of the area (looking east).

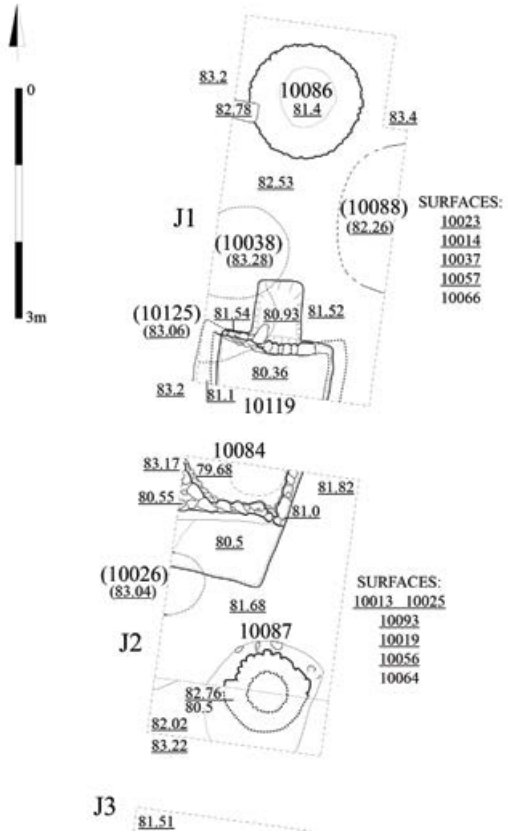


Figure 1.24. Plan excerpt from Area J, showing Cess Pit 10084 and 10086, and other features.

Other unexplained features include the L4057 plaster-lined pit (Fig. 1.20) which may have been associated with the L4017 fieldstone surface (a courtyard?), and a group of two/three other basins (L9562, 9569 and 9582; Figs. 1.21, 1.22) which appear to have been part of another complex without parallel at the site, involving channels and pipes but in an arrangement unlike those found associated with cisterns (Appendix 3, p. 233-234). Therefore, questions remain as to the function of these basins.

Area J appears to have been somewhat different in character than the rest of the site, from which it was removed to the south. As in Area I, we excavated only a narrow linear stretch of this area, with a 39.7m-long gap between Squares J8 and J9. Within these constraints, our dig uncovered a concentration of cess pits in the north part of the area: one large, deep and quadrilateral in plan (L10084; Figs. 1.23, 1.24),

Figure 1.25. Plan-circular cess pit 10086 (looking north)—one of a concentration of such features in the north extent of Area J.

Figure 1.26. The southwest corner of Structure 10151 (looking north), discernible as a wall shadow on the base of the excavation square after its stones were removed.

and several round examples (L10070, 10086, 10087; Figs. 1.24, 1.25). The central part of the area was apparently an open space, resurfaced several times with plaster. The southern extent of the area showed up the

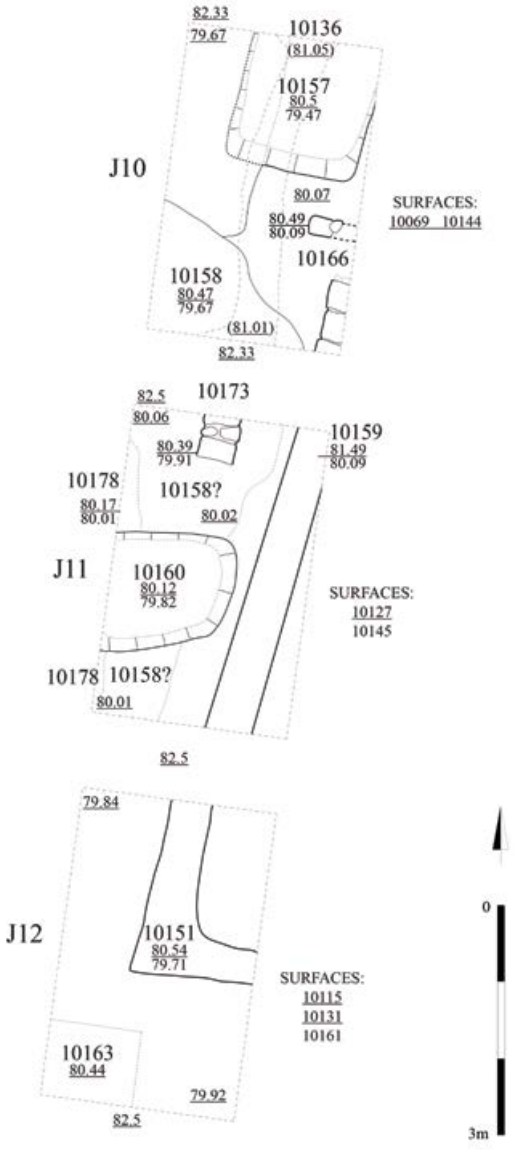


Figure 1.27. Plan excerpt from Area J, showing Structure 10151 and other features.

shadow of a large structure (L10151-10159-10166; Figs. 1.26, 1.27) which may have at least partly been built of dressed limestone blocks. Several large pits were found throughout the area (L10130, 10156-10157, 10160), one of which contained a dump of dressed blocks (L10130; Fig. 1.28). An integrated discussion of the area features and artifacts is provided in Chapter 14 (p. 203), but here it can be stated that the finds were general and fairly common in nature, pointing to an Abbasid occupation. Given

Figure 1.28. Pit 10130 (looking northwest; Area J; plan: p. 212), with ashlar blocks at base and carbon-rich lower fill.

this and the modest features of Area J the overriding impression is of an open area for waste disposal and less well-to-do occupants, and a possible large structure at the southern limit of the site, near the present-day Zekharya Street and perhaps facing onto an Early Islamic thoroughfare (see Shmueli and Goldfus 2015:279, Fig. 11.6).

Walmsley (2007:129-130) notes that during the Early Islamic period many houses changed from a terrace form to self-contained separate structures built around an internal courtyard. We have based our site reconstruction on this general pattern, backed up by parallels from other sites. The water systems (and cesspits) are the surviving features of such courtyard houses. Perhaps this reflects what some have seen as the 'ruralisation' of urban environments (e.g. Knauf 1984, de Vries 1998, Hirschfeld 2003 and Guérin 1997 [cited in Walmsley 2007:132]), whereby city architecture seems to have followed that of rural settings. Alternatively, this trend may be considered a change toward designing houses that could support an extended family, its various economic activities and other changing social expectations (Walmsley 2007:132). Perhaps the line between urban and rural was blurring—architecturally, but also in a broader cultural sense. The low density of construction in Area J may reflect an area in which these self-contained courtyard houses were set beside a relatively open area, creating a semi-urban environment. This reconstructed open cityscape has also been suggested

by other researchers (e.g. Avni *et al.* 2008, Shmueli and Goldfus 2015). Certainly, we can expect some light industry and commerce to have taken place in this central neighbourhood, judging from evidence at coeval Baisan (Bet Shean), Tabariya (Tiberias), Caesarea and Jarash (Jerasa) (Avnni 2011).

STRATIGRAPHIC PHASES

This general view of the site is based on our direct findings, relying also on comparison with Avni *et alia*'s far better preserved and extensively investigated remains immediately to the west, and our own artefactual evidence. During the initial Umayyad period the site appears to have been used largely for storage and disposal pits cut into the natural sand, which in some places we found physically overlaid by drainage features, surfaces and other installations (e.g. L4056, 4521, 8089, 9030). We attribute the latter to the main phase of the site when the courtyard houses were built and the Area J structure and waste disposal area were also in use. It is possible that this phase began in the Umayyad period, continuing through Abbasid and Fatimid times also. However, neither the site features nor artifacts provide a clear answer on this. Finally, a third phase is hinted at in the northern excavation squares of Area I, which was the only part of the site not truncated by mechanical stripping. Here a number of Mamluk-period artifacts were recovered suggesting some presence in that period. We did not detect any associated features. These may extend north and east from our site, but judging from other digs in this part of the city there was only modest occupation here after the 11th-century earthquakes.

REFERENCES

Avni, G. 2011. Continuity and Change in Urban Centers of Palestine during the Early Islamic Period—Jerusalem and Ramla as Case Studies. In: Holum, K. and Lappin, H. (eds.) *Shaping the Middle East*. Maryland. Pp. 1-19.

Avni, G., Avissar, M., Baruch, Y. and Torgë, H. 2008. Ramla Excavations South of the White Mosque. *Hadashot Arkheologiyot* 120: http://hadashot-esi.org.il/report_detail_eng.asp?id=788&mag_id=114

de Vries, B. 1998. *Umm el-Jimal. A Frontier Town and its Landscape in Northern Jordan, Volume 1. Fieldwork 1972-1981*. Portsmouth (Rhode Island).

Gorzalczany, A. and Amit, D. 2014. The Early Islamic Aqueducts to Ramla and Hebron. In: Ohlig, C. and Tsuk, T. (eds.) *Cura Aquarum in Israel II. Water in Antiquity*. Siegburg. Pp. 71-80.

Guérin, A. 1997. Organisation de l'espace habité en milieu rural à la période islamique. In: Castel, C., Maqdissi, M. and Villeneuve, F. (eds.) *Les maisons dans la Syrie antique du IIIe millénaire aux débuts d'Islam: pratique et répresentations de l'espace domestique: ates du Colloque International, Damas, 27-30 juin 1992*. Beirut. Pp. 195-202.

Hirschfeld, Y. 2003. Social Aspects of the Late-Antique Village of Shivta. *Journal of Roman Archaeology* 16:392-408.

Knauf, E.A. 1984. 'Umm al-Jimal: an Arab Town in Late Antiquity. *Revue biblique* 91:578-586.

Shmueli, O. and Goldfus, H. 2015. The Early Islamic City of Ramla in Light of New Archaeological Discoveries, G.I.S. Applications, and a Re-examination of the Literary Sources. In: Talmon-Heller, D. and Cytryn-Silverman, K. (eds.) *Material Evidence and Narrative Sources. Interdisciplinary Studies of the History of the Muslim Middle East.* Leiden; Boston. Pp. 267-300.

Walmsley, A. 2007. *Early Islamic Syria. An Archaeological Assessment*. London.

CHAPTER 2
CERAMIC FINDS

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INTRODUCTION

The pottery assemblage presented here is one of the largest published to date from the Early Islamic period in Israel. The White Mosque Street ceramic findings comprise an important contribution to our understanding of the typological repertoire of *Jund Filastin*'s capital, which was the epicenter of material culture in the region. Generally speaking Early Islamic pottery has two defining characteristics: it is rather uniform throughout the 9-11th centuries CE, and includes vessels—mostly bowls and jugs—made of buff ware material which was usually well fired and yellowish in color. Glazed bowls—also a significant element of the regional corpus—are prominent in the White Mosque Street site assemblage. They are presented at the beginning of this study. The current excavation also revealed a significant number of vessels from the Umayyad period (from the end of the 7th century CE through the middle of the 8th century, prior to the earthquake), which is under-represented in undisturbed contexts in Ramla.

The aim of this report is to provide a tool for researchers, comprising up-to-date, succinct, and accessible data on the ceramic assemblage of Ramla. As well as focusing on typology, emphasis is placed on understanding the potter's art. This report is constructed accordingly.

The **typology** is based on primary publications which provide a detailed classification framework. Among these, most important is the publication of material from Yokne'am, by Avissar (1996)—who was also a co-director of the current excavation, oversaw on-site finds documentation and conducted the preliminary analysis of the assemblage. That work and the Yokne'am research was supplemented by Magness' (1993) publication of pottery from Jerusalem, as well as Avissar's (2013a) report on material from Beth-Shean. I am also grateful to Hagit Torgë and Itamar Taxel for their useful critiques.

Vessel types follow those of Avissar (1996), although not all types were found at the current site. Typological parallels were drawn from stratified assemblages as geographically close to Ramla as possible, and from up-to-date publications which are not necessarily stratified. Until now, all of this published material is from salvage excavations. In 2005 R. Kletter was the first to publish a ceramic assemblage from Ramla, which mainly relied on parallels from different regions (Kletter 2005:63). At the time of writing two large assemblages have been published from Ramla itself: one from Marcus Street (Arnon 2007), which relies on the work of the author at Caesarea; and another from north of the White Mosque (Cytryn-Silverman 2010), the limited typological separation of which impedes its usefulness as an aid in establishing parallels and vessel descriptions. From excavations at the Early Islamic industrial zone of nearby Mazliah (Ramla [South]) a significant assemblage was published by O. Tal and I. Taxel (2008). In this report an effort was made to gather information on many small assemblages from Ramla, published in *Hadashot Arkheologiyot*. However, those findings' research significance is limited due to the small scale of data published in each case. Therefore, in the current report the smaller excavation assemblages are turned to primarily for filling in gaps in larger publications.

The goal of the type descriptions in this report is to summarize in a concise and accessible way each

vessel's most salient and useful features. Due to a lack of standardization in the way assemblages are presented among the various publications—and sometimes even within a single publication—it can be difficult for the reader to understand which type is under discussion. Therefore in this report the multiplicity of other authors' type names, numbers and reference pages are clearly cited. In turn those publications refer to older reports and to studies from neighboring regions, such as Egypt and Mesopotamia. My hope is that through these cross-references the reader can understand each type and benefit from the widest available range of parallels. An attempt has been made to represent the forms and features of all vessel types recovered at the current site, including bases and handles. The different sorts of decoration are also represented, most in the context of vessel type and some separately. The ware and decoration of each item is given a written description, and its profile and features are drawn or photographed in order to enable accurate comparisons. When considered germane, the technological context is also briefly presented. The parallels for vessels decorated with paint or glaze may refer to either form or decoration.

This **report's structure** goes from small to large vessels and from open to closed, following Avissar (1996). Within each group, types are presented according to their relative quantities[1]—starting with the most frequent—and their chronological appearance. However, certain adjustments to this structure were made due to the nature of Ramla's ceramic repertoire. Certain relationships and associations between different types of vessels and manufacturing techniques are observable, reflecting individual workshop traditions. These connections are mentioned in vessel descriptions. For example, several vessels were made with the use of a firing method known as 'half-reducing'. Two 'families' of vessels were identified within the typological sequence, underscoring such close manufacturing ties between certain vessel types: a) Fine Byzantine Ware (FBW), including vessels which are not usually associated with that tradition; and b) toys. These groups—perhaps more accurately described as manufacturing traditions—are presented together here, in order to emphasize their commonalities. This organizational format is followed despite the drawback of deviating from the strictly typological order which is common in ceramic reports. Types are classified as follows: glazed and unglazed bowls; goblets, cups, and kraters; basins; glazed and unglazed cooking vessels; jars; jugs and juglets of buff ware and common ware; Fine Byzantine Ware (FBW); toys; lids; miscellaneous; and oil lamps.

With regard to the question of **dating**, regretfully the current site's stratigraphy was disturbed—a methodological hindrance which confounds many excavations in Ramla. The main cause of this disturbance is the ancient re-use of building stones, which muddles stratigraphic separation. Also common in Ramla is modern damage to archaeological features and contexts.

The pottery types of the Umayyad period (late 7th—mid-8th centuries) are quite familiar. However, there are a number of lacunae in our understanding of ceramic repertoire changes over time within the subsequent caliphates of the Early Islamic period (Abbasid, Tulunid, and Fatimid [mid-8th—11th centuries]). Vessels from this period comprise the bulk of the current assemblage, and from Ramla in general.

Over the past 20 years the chronology of Early Islamic pottery types has become more clear. The two most important publications in this regard are those from Caesarea (Arnon 2008a) and Tiberias (Stacey 2004). The latter has reviewed the advantages and disadvantages of preceding publications (Stacey 2004:11-22). It is necessary to qualify this assessment by adding that there are differences between the components of the assemblages of *Jund al-Urdun* (northeastern Palestine) and *Jund Filastin* (the coastal plain and the central hill country), of which Ramla was the capital. There are also differences between Ramla and Caesarea. However, one must rely upon the most accurate dating available according to the

1 Although no count of sherds was conducted during the excavation and therefore a quantitative analysis is not possible, the finds in each basket were recorded and this provides an approximate frequency for each vessel type.

most up-to-date research, in the expectation that this dating will be refined with the future publication of stratified assemblages. In cases where there are well-grounded conflicting opinions concerning a date, all possibilities are cited.

THE ASSEMBLAGE

Bowls—Glazed Bowls

Painted-Glazed Bowls—'Coptic Glazed Ware' (Fig. 2.1)
A substantial number of imported Egyptian bowls—referred to as 'Coptic'[2]—are presented here. These are among the earliest types of glazed bowls, appearing in *Jund Filastin* from the beginning of the 8th century CE. They are considered a primary influence on local glazed bowls. Most of the bowls have a flat base and carinated walls. The clay is fine and pinkish with small golden flakes. These bowls are mostly slipped. The glaze is opaque, sometimes shiny (Fig. 2.1:4, 8) and is applied by brush. Some bowls are glazed only on the inside, with drip-marks on the outside (Fig. 2.1:4). Found on many glazed vessel types, such dripping is not the result of negligence when applying the glaze, but rather occur during firing. Potters regarded such drip-marks as part of the decoration. The paint is usually purple-brown and green on a straw-yellow background. Sections are sometimes left unglazed, revealing the slip. Some bowls are decorated with botanical designs in green and white outlined with black paintbrush (Fig. 2.1:6). One example is beautifully decorated with a pigeon/dove carrying a branch (Fig 2.1:3). In Caesarea these bowls are the most common glazed bowls in the mid-8th through mid-9th century CE, and do not appear after this date (Type 1; Arnon 2008a:35, Type 221, Coptic Glazed Bowls; Avissar 1996:75, Glaze-painted ware, 'Coptic glazed ware'). In Tiberias they date to the end of the 8th century, and Stacey suggests that most are local imitations (Stacey 2004:104-105, Coptic Glazed). Avissar dates their appearance to the end of the 8th or beginning of the 9th century (Avissar 2013a:82, GLB2). These bowls are common throughout the country, including Ramla (e.g. Tal & Taxel 2008:128, Coptic Glazed; Kletter 2005:65, Coptic Glazed Bowl, Fig. 11:16; Arnon 2007: Type 1.2f, Coptic Glazed Style and Imitation Bowls, Fig. 4:7; Cytryn-Silverman 2010:109-110, Early Lead Glazed Ware).

Common Glazed Bowls

Avissar (1996:75-76) defined two main groups of local glazed bowls, distinguished by quality of production: simple (Types 2-5 here) and fine (Types 6-9). It is possible that the beginning of simple bowl production predated fine bowls, and that the common types are influenced by Egyptian imports (above, Type 1) and Chinese introductions. Because of their resemblance in material and decoration, sometimes it is hard to distinguish local from imported vessels. The simple bowls are characterized by relatively thick walls, and most are not glazed on the outside; rather, in these cases the glaze merely drips on the outside. The clay is buff to pinkish, sometimes worked with a sharp tool. The wall is concave, with a simple or flaring rim. Most bowls are not slipped, and the glaze has a straw yellow background covered by brown, green, and ochre stripes and dots. Locally produced glazed bowls begin to appear in the second half of the 8th century and remain in production into the 11th century (Avissar 2013a:82-83 GLB3). Many have been found at Ramla (e.g. Tal & Taxel 2008:128-129, Polychrome Splash-glazed; Cytryn-Silverman 2010:110, Common Lead-Glazed Ware). In Jerusalem (Giv'ati Parking Lot) both fine and simple bowls are called Local Lead-Glazed Ware (Cytryn-Silverman 2013:176). They are more commonly found in the south than the north of Israel (e.g. Tiberias [Stacey 2004:113, Early Lead-Glazed Ware]). In Caesarea flat bowls with a wide ledge rim similar to Egyptian and Mesopotamian forms (see below) begin to appear in the mid-9th century (Avissar 1996:75-76; Kletter 2005:65, Bowls with Wide Ledge Rim; Arnon 2008a:35). Unglazed bowls of these types are common, and are roughly contemporary to their glazed counterparts. The types below are defined according to their decoration.

2 This name is unrelated to the ethno-religious group.

Common Glazed Bowls—stripes-and-dots decoration (Fig. 2.2:1-3, 7-9)
This type is rather common, decorated with green stripes and brown dots (Avissar 1996:77, Common Glazed Bowls Type 2; Arnon 2007:46, Type 1.2e Under-Glazed Painted Bowls; Arnon 2008a:40, Type 232 Polychrome Under-Glazed Slip Painted Bowls).

Common Glazed Bowls—geometrically decorated (Fig. 2.2:4-6)
The decoration here comprises dark geometric lines combined with green brush strikes (Avissar 1996:77-78). Most are freely applied, and some are more elaborate with a garland motif (Fig. 2.2:5). One small bowl bears a fine floral design (Fig. 2.2:6). A few have an upright or slightly everted rim (Fig. 2.2:4, 5), resembling the multi-cup bowls (see below). Stacey links these to Type 1 above, and dates them to 9-10th centuries (Stacey 2004:108-110, Later Matte-Glazed Wares).

Common Glazed Bowls—design decorated (Fig. 2.3:1)
The example of this type resembles Type 2 in decoration (green stripes and black dots), but its patterns are more dense and floral. This bowl is unusual in having a ring base rather than the typical disc base (Fig. 2.3:1; Avissar 1996:78).

Common Glazed Bowls—Monochrome Ware (Fig. 2.3:2-6)
These bowls are glazed in yellow, brown-yellow or green. One example is made of very coarse friable clay, and is apparently an attempt to imitate imports (Fig. 2.3:2). Another has a short upright wall, like some geometrically decorated bowls (Fig. 2.3:3). One bowl is made of red coarse clay, typical of vessels dating from the 10th century onwards. Its rim is painted with a floral design, imitating Chinese porcelain (Fig. 2.3:4; Avissar 1996:78). Brown-yellow glaze also begins to appear at this date (Arnon 2008a:41, Type 241 Monochrome Glazed Bowls and Pots). At Jerusalem (Giv'ati Parking Lot) a bowl with incurving rim was found (Cytryn-Silverman 2013: Fig. 7.5:17). It seems that the monochrome bowls from Ramla (Marcus Street) should be assigned to this type (Arnon 2007:40, Type 1.2a Monochrome Glazed Bowls and Pots). These were also recovered at Ramla (Ofer Park) (Kletter 2005:63, Fig. 11:3). At the excavations north of the White Mosque the monochrome glaze predates the polychrome, appearing at the end of the 8th or beginning of 9th century (Cytryn-Silverman 2010:110, Common Lead-Glazed Ware).

Common Glazed Bowls—multi-cup bowl (Fig. 2.3:7)
This vessel type is rare, and appears to have been produced in Ramla. In terms of ware and glaze this type should be associated with common glazed bowls. One cup of such a composite vessel was found at the current site, coarsely formed and bearing drip decoration. At least two identical cups were attached to the surviving vessel, forming a clover-shaped composite multi-cup bowl. Part of the surviving cup's side still bears glaze. Elsewhere in Ramla three multi-cup vessels were found attached together to form a tray comprising seven cups (Rosen-Ayalon and Eitan 1969; Arnon 2007:50, Type 1.3b Multi-Cup Glazed Vessel). Similar vessels were found at Caesarea, and were made of red clay and were glazed. Produced until the 11th century (Arnon 2008a:45, Type 245 Multi-Cup Dish), these vessels were used to serve various kinds of dried foods together, and possibly dips.

Fine Glazed Bowls

This is the most common group of glazed bowls in the Early Islamic period. In form they resemble simple bowls, but the ware is finer and walls thinner. Most bowls are concave with simple or flaring rim, on a ring base. They are covered inside and out with clear glaze of various colors over a pale slip. The outer glaze is thinner and sometimes gritty due to insufficient firing. Sub-types are distinguished from each other by decoration (Avissar 1996:78).

Fine Glazed Bowls—Polychrome Splash and Mottled Glaze (Fig. 2.4)
This is the most common type among this group. It has polychrome glaze applied by brush from the inside, and monochrome on the outside on pale slip. Colors are applied loosely, mainly as wide radial strips, and tend to smear while glazing. Often the glaze on the outer wall is thinner and less meticulous than on the interior, as it is hidden from the person

using the bowl. The opposite characterizes glazed jugs (below). Most have a flaring rim, but one example with shiny glaze has a thickened ledge-like rim, presaging the later shelfed rims (Fig. 2.4:6). In rare cases the rim has a petal shape, imitating Chinese porcelain. Avissar (2013a:83-84, GLB5) assesses that these were produced at Ramla. The clay of this type is buff-pale or pinkish. They appear from the 9th until the 11th centuries (Avissar 1996:78-81; Arnon 2007:41, Type 1.2c Color Splashed, Mottled Glaze Bowls; Arnon 2008a:35, 40, Types 223, 233, 243, 642 Color Splash-Glazed Bowls). This type was also produced at Tiberias (Stacey 2004:117-120, Local Polychrome Splash-Ware Bowls).

Fine Glazed Bowls—Polychrome Splash and Mottled Sgraffito Ware (Fig. 2.5:1-3)

These vessels resemble the previous fine glazed bowl sub-type, with added sgraffito. This technique imitates Chinese imports and bronze vessels, and comprises fine etching of the clay through the pale slip. When fired, this results in a brown pattern below the glaze. The patterns used are simple, geometric and freely applied. Most resemble narrow 'pizza slices' filled with snake-like spirals. This decoration originated in Egypt in the 5-7th centuries, spreading throughout the Near East to a peak in the 10-11th centuries (Avissar 1996:81-82). This type has been found at Ramla and elsewhere (e.g. Tal and Taxel 2008:129, Polychrome Splash-Glazed with Sgraffito; Kletter 2005:65, Fig. 11:15). In Caesarea local bowls with flaring rim date to the end of 9th through the mid-10th centuries (Arnon 2008a:40, Type 233 Colour Splash Glazed Bowls). Sgraffito-decorated bowls were also produced at Tiberias (Stacey 2004:117, Local Polychrome Splash-Ware Bowls). The example found in the current excavation at Ramla combines the glaze found on bowls decorated with stripes and dots (Fig. Fig. 2.2:1-3, 7-9) with sgraffito (Fig. 2.5:3). The two bowls with arched rim are less common, and made of fine clay. Similar vessels have previously been found at Ramla and Tiberias (Arnon 2007:44-45, Type 1.2d Color Splashed Bowls Decorated with Sgraffito; Stacey 2004: Fig. 5.26:15), and should be dated to the 10th century.

Fine Glazed Bowls—Monochrome Ware (Fig. 2.5:4-13)

A rather large group of fine monochrome glazed bowls is presented here. Most are glazed in bright shades of green and yellow, and a few in dark browns and purples. Monochrome bowls of buff and reddish clay dating to the Abbasid and Fatimid periods were found at Caesarea, where such glaze is more common than in Ramla. Shallow bowls with a ledge rim (Fig. 2.5:6) are also more common at Caesarea, and begin to appear in the mid-9th century (Arnon 2008a: Type 231a). At the end of the 10th century some rims were modeled after a petal shape, imitating Chinese Yüeh teacups of porcelain (Fig. 2.5:8, 11). The low-quality clay of some vessels hints at local imitations of imports (Fig. 2.5:10). Monochrome bowls were also found in the Tyropoeon Valley (Giv'ati Parking Lot) in Jerusalem, some made of red clay (Cytryn-Silverman 2013:175, Monochrome Lead-Glazed Ware). One of the current assemblage's bowls has an upright thickened wall (Fig. 2.5:11). Another later feature is the red clay of one bowl (not drawn). Late 9th-century monochrome bowls with sgraffito were not found at the current site, but have been recovered elsewhere in Ramla (Ofer Park) and Caesarea (Kletter 2005:65, Monochrome Sgrafitto Bowls; Arnon 2007:41, Type 1.2b Monochrome Glazed Bowls with Sgraffito Decoration; Arnon 2008a:35, 39, 42, Types 222, 231, 241 Monochrome Glazed Bowls and Pots).

Alkaline-Glazed Bowls (Fig. 2.6)

Alkaline glazed bowls are characterized by turquoise, greenish or purple peeling glaze, without slip below. The exterior is partly glazed or with dripping. Forms vary, but most are small bowls with concave wall, simple rim and disc base. This is a rare type, produced in the region from the late 8th to the 12th century when clay was replaced by 'soft paste' (Avissar 1996:82-85). Here are presented a variety of glazing, from greenish (Fig. 2.6:1, 5), brown (Fig. 2.6:3), and thick dark brown (Fig. 2.6:2). One has a ledge rim (Fig. 2.6:1). All are characterized by coarse clay. They have previously been found at Ramla (Kletter 2005:68; Cytryn-Silverman 2010:109; Toueg 2012: Fig. 12:6). At

Ramla (South) a bowl with incurving wall and ring base was retrieved (Tal and Taxel 2008:129, Alkali-Glazed Ware). A single sherd was found in Jerusalem (Tyropoeon Valley), dated by Cytryn-Silverman to the early 9th century (Cytryn-Silverman 2013: 174-175, Fig. 7.3:11 Turquoise Alkaline-Glazed Ware). At Tiberias alkaline-glazed bowls and jugs have been found in 9-11th century contexts (Stacey 2004:110-113, Alkali-Glazed Wares).

Tin-Glazed Bowls (Fig. 2.7:1-9)
Tin glaze is a fine thick opaque glaze, which is also the base for luster glaze (see below, 'tin-glazed bowls decorated with luster'). It is monochrome (white, cream, or greenish). Vessel shapes resemble monochrome ware and fine-glazed bowls (see above). These bowls imitate Chinese imports, appearing in the 9-10th centuries (Avissar 1996:85; Avissar 2006: 43*; Taxel 2014: 126). One of the bowls in the current assemblage clearly aims at imitating porcelain (Fig. 2.7:2). According to their clay, some are imported from either Egypt (Cytryn-Silverman 2013:177) or Mesopotamia (Taxel 2014: 126), as the typical shelf rim also suggests (Fig. 2.7:7, 9). Others may be local imitations of Egyptian or Mesopotamian imports (Fig. 2.7:9). These bowls were also found at Ramla (South) (Tal and Taxel 2008:129, Monochrome Glazed).

Celadon Ware and Imitations (Fig. 2.7:10)
One bowl of the rare Celadon Ware was found (not drawn), as well as another imitating this Chinese type (Fig. 2.7:10). These vessels do not predate the end of the 10th century. They have been found elsewhere in Ramla (Avissar 1996:86; Avissar 2009: Fig.6:7-8; Avissar 2013b: Fig. 10:6).

Tin-Glazed Bowls Decorated with Luster (Fig. 2.8:1-3)
These beautiful vessels are rather rare. The fine yellowish clay is covered throughout with thick shiny tin glaze, decorated with geometric-floral designs in gold, mustard, and olive-green. The rim is usually flared or ledged (Avissar 1996:86-87). Also found was a carinated cup with wide ring base, imitating Chinese imports (Fig. 2.8:1). A few fragments of a juglet matching this type were also recovered (not drawn). Type 15 closed vessels are very rare (Cytryn-Silverman 2010: Fig. 9.5:20; Stacey 2004: Fig. 5.24:4). Few luster bowls have been retrieved in Ramla (Kletter 2005:66-67, Luster Ware; Avissar 2013b: Fig 10:8-9; Toueg 2013: Fig. 29:14). A ruby luster (Fig. 2.8:3) is also rare. A similar vessel was found at Tiberias, where due to its Basra manufacture it was dated to the first half of the 9th century (Stacey 2004:113-116, Luster Ware). At Caesarea Egyptian imports of this type were dated to the 10-11th centuries (Arnon 2007:48-49, Type 1.2g Luster Ware and Luster Imitations; Arnon 2008a:40, Type 234, 253 Luster Ware).

Double-Slipped Bowls

These bowls continue the tradition of the former glazed bowls with a few modifications, and evolve from the 11th century into the Crusader period (Avissar & Stern 2005: 6). 'Double Slip' refers to the fact that the whole bowl—including the base—is covered in a pale slip intended to conceal the red clay. The inside is double-slipped in order to form a base for glaze. The quality of manufacturing is not high. The shape is deeply concave—sometimes with a ridge outside—and a flat wide discuss base. Avissar and Stern (2005:6, Type I.1.1) date this type to the first quarter of the 11th century through the mid-12th. An important assemblage of these bowls was retrieved from the Serçe Limanı shipwreck (Bass and van Doorninck 1978), dated to 1025 CE (Avissar 1996:87-89, common glazed bowls of the Crusader period, first cperiodmic phase). They appear at Caesarea from the mid-10th century, and continue into the Crusader period. It seems that at Caesarea flared rims are more common, whilst in Ramla more upright rims appear (see also Tal and Taxel 2008:129-132, Coarse Sgraffito Ware). Arnon discerns that the flat base does not appear before the 11th century (Arnon 2008a:42, Types 241, 251 Monochrome Glazed Bowls and Pots, 252 Colour Splash Glazed). They were also found elsewhere in Ramla (Ofer Park) (Kletter 2005:68, Serçe Limanı Bowls, Fig. 12:11, 12, 14-16). Given that in the current assemblage no other vessel dates to the 12th century, it is likely that these bowls reached the site during the 11th century.

Double-Slipped Bowls—Polychrome Splashed and Mottled Ware (Fig. 2.8:4)
These bowls bear multicolor glaze on a yellow background, which is applied by brushing and splashing. At Yoqne'am this is the most common form of decoration (Avissar 1996:88).

Double-Slipped Bowls with Everted Rim (Fig. 2.8:5-7)
These are glazed similarly to the previous sub-type, but the rim is flattened or thickened, sometimes to a ledge. No parallels were found at Ramla.

Double-Slipped Bowls with Sgraffito (Fig. 2.9)
This is a rather common bowl type. Forms are simple with upright and thickened or flattened rim. The decoration is a monochrome yellow or multichrome. Here all the examples bear shades of yellow glaze. Below the glaze is a thin sgraffito line or wider *champlevé* engraving, which produces brown lines freely circling the inside of the vessel.

Mold-Made Glazed Bowls (Fig. 2.10:1)
These bowls are rare in Israel. Made and decorated using molds, they come in various forms—deep and shallow—and are lead-glazed in green, yellow, brown and purple (Lane 1965:12, Type 5). Their decorative patterns are mostly botanical. The current assemblage's sole example of this bowl type is decorated with rosettes on its ledge rim. The potter's fingerprints are visible on the bowl exterior. The clay is pale pinkish and coarse. The lead glaze is dark green on the interior, with yellow and brown on the rosettes. On the outside a thin yellow glaze was applied. According to Stacey (2004:113, Fig. 5.23:2) this vessel type was produced in Egypt, beginning in the 9th century. On the other hand, Arnon (2008a:35 Type 224 Molded Glazed Ware; Lane 1939) dates their beginning to the late 8th century and locates their manufacture in both Egypt and Mesopotamia. These vessels have also been found elsewhere in Ramla (Kletter 2005:67 Early Molded Glazed Ware), and a similar piece was found at Sarafend (Tsrifin; Kohn-Tavor and Avissar, forthcoming).

Porcelain bowls (Fig. 2.10:2-5)
Porcelain vessels appear in China—where they are called Yüeh Tea Cups—during the Tang dynasty, in the end of the 8th or beginning of the 9th century (Medley 1986:97-102). They are found in small numbers in Israel, and are easily recognizable by their thin walls of fine clay, high-quality firing and lustrous surface. The walls are open and carinated, on a thin ring base. The rim has a petal shape, which one finds imitations of among monochrome bowls (see above). One piece was apparently found elsewhere in Ramla (Ofer Park) (Kletter 2005:68, Chinese White Ware). Those recovered at Marcus Street in Ramla were dated to the 10th century by the excavators; some were decorated in green and blue (Arnon 2007:49, Type 1.2i Chinese Porcelain). At Caesarea and other sites they appear to date from the 11th century, and possibly its middle (Arnon 2008a:47, 57, Type 263 Chinese Porcelain). At the current Ramla site few pottery or other finds from the second half of the 11th century were found, and therefore the porcelain bowls here should be earlier in date.

Unglazed Bowls

Buff Hemispherical Bowls (Fig. 2.11)
These are plain bowls of coarse clay, very common at the beginning of the Early Islamic period. They vary in size and profile. The wall is concave. The rim is in-curving, mostly thickened and sometimes flattened. The base is a simple disc. One of the current assemblage's bowls has soot traces; this served as an oil lamp (Fig. 2.11:6). Another vessel was heavily burned (Fig. 2.11:1). This type has been found elsewhere in Ramla (Kletter 2005:69, Incurved-Rim Bowls; Tal and Taxel 2008: Fig 9.79:4-5, Plain Bowls). Arnon (2007:38-39, Type 1.1a Hemispherical Bowl) dates these to the 9th century. At Caesarea some vessels of this type are made of brown clay (Arnon 2008a:33, Types 122 Hemispherical Shaped Bowls, 151 Carinated Bowls).

Buff Deep Bowls (Fig. 2.12:1-10)
These simple bowls are mostly coarsely made and produced from buff clay, and are characterized by an upright carinated wall. The rim is thickened or folded, sometimes with a groove below. In several cases multiple ridges are incorporated on the wall. One of the bowls of this type in the current assemblage was incised with a sharp tool, similarly to glazed

bowls (Fig. 2.12:6). Bowls with closed (Fig. 2.12:9) and S-profiles (Fig. 2.12:10) resemble a type made at Beth-Shean at the beginning of the 8th century (Avissar 2013a:98, CR3). In fact, some of the more closed vessels might be called kraters (Fig. 2.12:7-10). Buff deep bowls were made in the north of Palestine—perhaps at Beth-Shean—and appear in Ramla in small numbers (Kletter 2005:69, Deep Bowl; Tal and Taxel 2007: Fig 9.79:6-7; Avissar 2013a:87, PLB12). At Caesarea and Yoqneam they were made of brown clay, like the hemispherical bowls (above). At Caesarea they date from the end of 9th to the early 11th century (Avissar 1996:117, Type 1 Plain Bowls I; Arnon 2008a:39, Types 131, 141 Unglazed Bowls).

White-Painted Bowls (Fig. 2.12:11)

Certain characteristics of these bowls—the heavily fired orange clay with gray exterior on which were painted white lines—are indicative of links between these bowls and the northern bag-shaped jars (see below). These bowls are usually made from brown-red clay fired to a metal quality, and a gray facade as a result of poor firing. They were produced in the north of Palestine and Transjordan. The current assemblage's example has sharp carination and an extended inward rim. No parallels for this were found, although it is similar to bowls from later phases of ancient Caesarea (Stratum VII there). These vessels were common during the Umayyad period, continuing into the early Abbasid (Avissar 1996:120, Type 7 Bowls with Painted Decoration I). This type has also been retrieved at Ramla (South) (Tal and Taxel 2008:126, 'Decorated with wight bands') and Caesarea (Arnon 2008a:29, 33, Types 112, 123 Grey or Semi-Grey 'Metallic-Sound' Bowls).

Chisel-Decorated Bowls (Kerbschnitt)
(Fig.12:12-14)

These bowls have an upright wall (sometimes carinated), and a flat base. The rim is simple or flattened. The clay is orange, sometimes with a grey core. The exterior surface is densely chiselled with geometric patterns, as employed in woodwork. This chiseling was carried out when the clay was leather-hard. Sometimes red, blue, or white paint and an orange slip was applied. Glaze is very rare (Arnon 2008a:36, Type 226 Glazed Kerbschnitte Style Ware). These bowls are found commonly throughout Israel in small numbers, and date from the 8th to the 10th centuries (Avissar 1996:122, Type 11 Bowls with 'Kerbschnitt' Decoration; Avissar 2013a:97-98, DCB4; Kletter 2005:73; Tal and Taxel 2008: Fig. 6.82:1, Cut-Decorated). Arnon suggests dating handmade bowls to the Umayyad period, and assigns wheelmade versions like those presented here and circulating up to the mid-9th century (Arnon 2008a:34, 56, Type 127 Kerbschnitte Decorated Bowls).

Black bowls (Fig. 2.12:15-18)

These handmade bowls are made from coarse gray clay, carefully burnished in black and on the exterior bearing incised decoration filled with chalk. Uneven firing resulted in pale patches. The wall is straight and upright, and the base is flat. Occasionally these vessels incorporate a ledge handle (Arnon 2007:40, type 1.1f, Steatite or Serpentine Imitation Bowls) or a vertical handle (Fig. 2.12:16). Decoration is incised in geometric patterns on the exterior: triangles, rhombi, concentric circles and bands of zigzags. In rare cases palm fronds are depicted (Fig. 2.12:17), as well as fish (Arnon 2008a: Type 128c), flowers (Avissar 2011: Fig. 12:10) and schematic birds (Fig. 2.12:15). One unique vessel was modelled in an architectural manner. This was a rectangular bowl standing on four legs, with a cross vault. The upper part is decorated with a net pattern (Fig. 2.12:18). This form recalls steatite incense burners, which these black bowls are generally considered to imitate; they may also have functioned as incense burners, as well as serving vessels (see this volume, Chapter 5). At Caesarea these black bowls were dated to the mid-8th through mid-9th centuries. Flat bowls were also found at that site (Arnon 2008a:34, Type 128 Black Slipped and Burnished Bowls). At Tiberias they date to a short time in the first half of the 9th century. Stacey found parallels only with bowls from elsewhere in northeast Palestine, and therefore suggested that they were the work of a single potter (Stacey 2004:94-95, Black Lustrous Ware). Their existence at Ramla would seem to undermine this view, although they may have been imported.

Egyptian Red Slip A Bowls (Fig. 2.13)

These vessels are under-published in Israel, possibly due to lack of identification. They comprise the Nilotic fabric version of African Red Slip Ware. The clay is characterized by an orange-pinkish color and includes golden flakes. A thin reddish slip is applied, sometimes only on inside the vessel. The interior is also sometimes burnished. Some stamping is also seen, although it is applied carelessly. The pale-cream slip comes from the upper Nile (Hayes 1972:387-401, Types J, K; Hayes 1980:530-532). Hayes dates them to the 6-7th centuries, but those in Tiberias appear to first be used in the early 8th century (Stacey 1989). Previous findings of this type in Ramla (Arnon 2007:6, Type 1.1d Egyptian red-slipped bowls, Fig. 25.3) and in Caesarea (Level 7, mid-8th to the end of the 9th century) have pushed the lifespan of Egyptian Red Slip A at least into the 8th century. The later bowls at Caesarea are characterized by an orange slip on the inside only and red slip on the rim. In Egypt this type continues in use into the 9-10th century (Arnon 2008a:29, 34, Type 111 Egyptian Red Slipped Bowls, Type 125 Islamic Red Slipped Bowls). In the Tyropoeon Valley in Jerusalem a bowl from a 9th century context might also belong to this group (Cytryn-Silverman 2013: Fig. 7.1:1). They were also found elsewhere in Ramla (Ofer Park) (Kletter 2005:72, 'Aswan' Ware or 'Egyptian Red Slip Ware A', Fig. 15:5). The description below follows Hayes, although not all bowls fit it neatly. Nevertheless, the fabric and manufacture are definable, showing that these are not Cypriot or North African types. Interestingly enough, most bowls in the current Ramla assemblage are flat, while in Caesarea and elsewhere they are deep.

Type J: This is a deep carinated bowl, with a thickened rim that is rounded or hatchet-shaped. A non-decorated variant is later in date, and is more common among Egyptian Red Slip Ware A bowls (Fig. 2.13:7, 11).

Type K: Shallow bowl with curved or flaring thickened rim, with a groove below the rim on the outside (Fig. 2.13:1-6, 8-9).

It may be worth noting that an Egyptian Red Slip Ware C bowl was found on Herzl Street in Ramla (Avissar 2011: Fig. 15:13).

Goblets and Cups

Buff Cups (Fig. 2.14:1-4)

These cups have an uncommon shape in the region's ceramic history. The body is spherical and mostly ridged, with a short neck and an upright or flaring rim. The disc base is narrower than the vessel mouth. Made of buff yellow and sometimes orange clay, these cups are coarsely made, to the point that some have cracks in the base. They are common in the south, and were probably made in Ramla during the Early Islamic period (Kletter 2005:77 Buff-Ware Cups or Deep Bowls; Avissar 2013b: Fig. 11:5-8). Due to their size, Avissar (2011: Fig. 15:11) suggests that they should be related as toy vessels, but they are much more common than toys and are made of different material (below).

Handled Cups (Fig. 2.14:5-7)

These resemble the buff cups. The handled type were also made of buff ware and produced in Ramla (see below), but they exhibit finer workmanship and are less widespread. The wall is upright and carinated, above a disc base. The rim is simple or everted. A small (single?) vertical handle is attached to the middle of the wall. It is too small to enable a proper grip on the vessel. One of the current assemblage's examples was mended in ancient times, attesting to its relative importance. These cups have only been found only in Ramla, and a petrographic examination has proved their local production (Tal and Taxel 2008:135, Loop-Handled Cups). Wasters were also found in Ramla (Kletter 2005:77, Fig. 17:11). In Ramla (South) similar vessels made from orange sandy material were retrieved, but with no carination and a larger handle (Tal and Taxel 2008:135, Loop-Handled Cups). They may belong to the toy group (see below).

Red-Painted Goblets (Fig. 2.14:8)

These goblets appear in small numbers in Israel; they are mainly concentrated in Transjordan. They were probably made at Jarash from the end of the 8th through the mid-9th centuries. The wall is concave,

with a simple or inclined rim. The clay is reddish or pink. Decoration includes a pale slip with geometric paintings or botanical motifs in red or brown (Barmaki 1944: Fig. 6:1; Avissar 1996:121, Type 9 Bowls with Painted Decoration III; Avissar 2013a:94, Type DCB2.1). At Ramla (South) red-painted jugs were found (Tal and Taxel 2008:140, Jugs Type 12).

Chamber Pots (Fig. 2.15:1-5)

These vessels are open and medium-sized vessels, with a high upright rim and flat base. Two vertical handles are attached to a wide ledge rim. In many vessels the potter's fingerprints are visible on the inside. Most are made of buff ware, but some of brown clay (Fig. 2.15:1). Some vessels are glazed with a polychrome splash and mottled style (see above) on the inside and clear glaze dripping on the outside (Fig. 2.15:2, 3, 5). These have been found elsewhere in Ramla (Kletter 2005:67, Glazed Jug; Avissar 2013b: Fig. 10:10-11). In the current assemblage a single vessel is monochrome-glazed at a low quality (Fig. 2.15:1), a style common at Caesarea (Arnon 2008a:39, 42, Types 231k, 241j) and also retrieved at Marcus Street, Ramla (Arnon 2007:40, Fig. 2: 5, Type 1.2a Monochrome Glazed Bowls and Pots). At Caesarea they appear first at the end of the 9th century, continuing through multiple iterations into the late middle ages and later (Arnon 2008a:39, 42, Types 231k, 241j).

Kraters

Handmade Kraters (Fig. 2.15:6)

These vessels are rare. They are handmade from very coarse and porous clay. The wall is upright, with a simple rim. The base is almost flat. Vessels include a rounded ledge handle located on the lower part of the wall, maybe to hold it above an open fire as was the case for Late Islamic pans. Stacey (2004:104, Handmade Crater) suggests that these are imitations of steatite vessels, perhaps serving to contain embers.

Basins

Small Basins: Arched-Rim Basins (Fig. 2.16)

These vessels are made of fine orange clay. The wall can be straight or rounded, with a wide arched rim. Some cases have a ridge or combing on the rim interior. The rare examples from Ramla influenced Magness' (1993:204-206, Arched Rim Basins) decision to date this type well into the 8th century. In the Tyropoeon Valley, Jerusalem, they also appear as late as the 8th century (Magness 1993:204-206; Cytryn-Silverman 2013:169, Rilled-Rim Basins). Cytryn-Silverman (2010:100, Ware III) observes differences between the Jerusalem and Ramla arched-rim basins in terms of their matrix.

Small Basins With Folded Rim (Fig. 2.17)

These small basins are almost bowls in size, but their folded rim links them to the basin family, as does the combed decoration on some (Fig. 2.17:4). The basins are made of coarse brown, orange, or buff clay. Forms vary, including concave or convex sides, and flat, ring, or disc base. Commonly shared among all vessels is the inward-inclined and folded rim, in some cases with one ridge or more (Fig. 2.17:6). These vessels were found elsewhere in Ramla (Ofer Park) (Kletter 2005:69, Fig. 15:3, Large Bowls with Incurved, Rounded Rims), as well as north of the White Mosque (Cytryn-Silverman 2010:99-100, EI-CO-OV II), where they date to the 8-9th centuries.

One basin has an unusual hollow and *kernos*-like rim, perhaps indicating that one or more strainers or decorations were attached (Fig. 2.17:8). A similar rim was found in Jerusalem (Tashingham 1985: Fig. 14:29). Another vessel of buff clay and bearing glazed decoration was found in Tiberias (Amir 2004: Fig. 3.12:1).

Small Basins of Buff Clay (Fig. 2.18)

A variety of deep small basins (or large bowls) made of buff clay were found at White Mosque Street. They are similar to hemispherical bowls of buff clay, from which their main difference is in size. The wall is concave or upright, sometimes carinated, with thickened, flat, or wide rim. A few are decorated with combing as is the case with large basins, as are vertical handles attached to the rim (Fig. 2.18:1-3). These simple basins are common in the south of Palestine, and were in circulation in Ramla from the Umayyad period through the 11th century, but are apparently absent at Ramla (South) (Kletter 2005:70, Fig. 14; Avissar 2013a:87-90). At Caesarea small basins are usually made of coarse reddish clay with

different decoration (Arnon 2008a:34, 36, Types 124 Light Red Coarse Bowls, 421 Red Ware Basins, 131 Unglazed Bowls).

Large basins (Fig. 2.19)

These vessels are very common throughout the entire Early Islamic period, and were probably used for a variety of food preparation tasks. They are made of coarse brown-red clay, most with pale self-slip (Fig. 2.19:4). The thickness of these vessels' walls means that they are sturdy and is therefore one of the reasons why they are prominent in cperiodmic assemblages. These basins come in a range of sizes. Some were made by the rope technique. The wall is concave, and the top is almost upright (Fig. 2.19:1) or entirely so (Fig. 2.19:3-4). The rim is thickened, and tends to be inverted, triangular (Fig. 2.19:5) or rounded (Fig 2.19:4). Most or all have two vertical handles on or beneath the rim. Many are decorated by combing (5-10 comb teeth) on the upper part of the wall, in bands or wavy lines (Fig. 2.19:4-5). Few are decorated with thumb impressions (Tal and Taxel 2008:132, Basins; Arnon 2007: Fig. 11:6). One has a flattened rim with wavy combing (Fig. 2.19:3), a feature which continues to evolve into the Crusader period (Avissar 1996:127-128, Type 31 Large Plain Bowls). A variety of basins were found at Park Ofer (Kletter 2005:69, Fig. 13), and north of the White Mosque they comprise a large portion of the assemblage (Cytryn-Silverman 2010:99, EI-CO-OV I). At Caesarea basins of brown clay are dated to the Umayyad through Fatimid periods (Arnon 2008a:30, 36, 40, Types 412, 422, 425, 432, 441, 451 Red Ware Basins). At the Tyropoeon Valley, Jerusalem, comb-decorated basins are distinct from those which are incised. The latter are rare in Ramla. Cytryn-Silverman suggests a Nabi Samuel production, according to the clay and firing (Cytryn-Silverman 2013: 169-170, Comb-Decorated Basins, gouge-decorated Basins, Footnote No. 9; see also Tal and Taxel 2008: Fig. 6.85:6). At Caesarea gray clay basins exist—a northern variant—which are absent in Ramla (Arnon 2007:58, Type 2 Basins; Arnon 2008a:30, 36, Types 411, 423, 424 Grey Ware Basins). Handmade basins have been retrieved in small quantities in various excavations, but were not found in Ramla, as was also the case with light-colored basins (Arnon 2007:58-61, Basins Types 2.1 Light ware, 2.3 Coarse Hand-made Ware). One of the basins in the current assemblage (Fig. 2.19:2) was made from coarse gray clay with self-slip, and has no parallels. Judging by its fabric, this vessel may be Fatimid in date.

Cooking Vessels

Cooking pots with neck (Fig. 2.20)

This handled cooking pot type dates from the Byzantine period and continued in production into Early Islamic times. The body is spherical or biconical, with a short upright or steeply inclining neck. The rim profile shape varies: cut (Fig. 2.20:1), axe-shaped (Fig. 2.20:4), and rounded (Fig. 2.20:2). Handles can extend from the rim or neck to the shoulder. The body and neck are sometimes ridged. The base is occasionally omphalic. One pot has a thumb-rest, as seen in buff ware jugs (not drawn). They date to the Umayyad and beginning of the Abbasid period (Kletter 2005:78, Closed Cooking Pots with Triangular Rims; Arnon 2007:70-71, Type 4.1 Unglazed Globular Cooking Pot; Cytryn-Silverman 2010:112-113, Unglazed Cooking Ware).

Casseroles (Fig. 2.21)

This is a very common vessel, part of a long tradition which extended from the Late Roman through Fatimid periods. Casserole shapes changed little in all of this time. The fabric is brown-red and well fired. The walls are thin, straight, concave and sometimes carinated, with a round base. The rim is cut in such a way that a lid will fit the dish (below, casserole lids). Below the rim are attached two horizontal twisted handles. Avissar dates handles set immediately below the rim to the Byzantine-Umayyad Periods, while handles located 2 cm lower indicate a later date. However, Cytryn-Silverman disagrees with this sub-division (Avissar 1996:139, Type 12 Unglazed Cooking Bowls; Kletter 2005:79, Cooking Bowls; Cytryn-Silverman 2010:112-113, Unglazed Cooking Ware). At Ramla (South) some casseroles have been found in associated with a pottery workshop of the Late Byzantine-Umayyad period, but it is not certain

that the vessels were manufactured there (Tal and Taxel 2008:63). At Caesarea, Arnon assigned casseroles to the end of the 8th century through the 9th. These are taller and less rounded in profile than earlier types. In the middle of the Early Islamic period this was the only cooking vessel. Production ceased in the 10th century (Arnon 2008a:38, Type 721 Open Cooking Pots (Casseroles), 731 Unglazed Casseroles; and see also: Arnon 2007:71, Open Cooking Ware (Casseroles); Cytryn-Silverman 2013:178). Most of the vessels bear soot. A variety of forms are displayed in the current assemblage. Unusual are those with wide rim (Fig. 2.21:1) and deep gutter (Fig. 2.21:8).

Casseroles lids (Fig. 2.22)
These lids were made together with the vessel which each fit. In spite of this, fewer lids are found than casseroles. The profile is convex, standing at various heights, and the rim is cut horizontally. At the top of the lid was shaped a knob handle with a ride, to help lift the lid. A ventilation hole was pierced through the wall, or shaped in the knob handle (Avissar 1996:146-147, Type 23 Lid for Cooking Vessels). Some are ridged, a few with wavy combing (Fig. 2.22:3). Two examples here are unusual: the first bears a handle sunk into the wall (Fig. 2.22:5), and another has a handle shaped as a tower with a double ridge (Fig. 2.22:6). Another lid was found reworked for secondary use, probably for small diameter vessel such as a jug (Fig. 2.22:6).

Casserole with wishbone handle (Fig. 2.23:1)
This Late Byzantine form is characterized by a wide wishbone handle (Magness 1993: Casserole Form 2). Based on parallels from elsewhere in Ramla, the example in the current assemblage—found in an Early Islamic context—is probably a survival from the previous period.

Glazed cooking pots with no neck (Fig. 2.23:2)
This neckless cooking pot type (holemouth) has a carination below the triangle-profile rim. As with casseroles, the walls are thin and the clay brown-red with many grits. The interior base is glazed yellow-brown, with dripping around. These pots date to the 9-11th centuries (Arnon 2008a:41, 43, Type 732; Stacey 2004:125, Cooking Pot Type 3). This is a northern form, common at Yoqne'am but quite unusual in Ramla (Avissar 1996:132, Type 3; Kletter 2005:77, Closed Cooking Pot with a 'Ledge' Rim; Cytryn-Silverman 2010:113, Glazed Cooking Ware). The lids of this cooking pot type are shaped like a small bowl with a knob handle in the center (Avissar 1996:147, Cooking Vessel Lid Type 22).

Glazed globular cooking pots (Fig. 2.23:3-7)
These globular-shaped vessels have a short neck and short, upright and rounded rim. At the base of the neck there is a ridge dividing it from the body. The quality of clay and firing is better than in other cooking vessels. The bottom is glazed purple-brown, with splashes around (Avissar 1996:132-133, Type 5). In one of the pots here the splashes can be seen to actually be drippings which form a depression in the rim, probably while firing (Fig. 2.23:3). These pots are the predecessors of the Crusader period cooking pots. They are quite common, although less so than simple-rim casseroles. According to Arnon, they first appear at Caesarea at the beginning of the 9th century. In the second half of the 10th century they lose their neck, before this reappears in the 11th century (Arnon 2007:71, Type 4.3 Glazed Globular Cooking Pot; Arnon 2008a:41, 43, 46, Type 732, 741 Glazed Closed Cooking Ware, 752 Closed Cooking Ware). Avissar claims that in the 10th and 11th centuries the rim is upright—as in the current assemblage—and that later the rim becomes thicker and less inclined, taking a form that continues into the mid-12th century (Avissar 2011: Fig. 12:4-5). At the current site no globular cooking pots with strap handles were found. This is a type which appears in the first half of the 11th century (Arnon 2008a: Type 752 h, o; Stacey 2004:125, Cooking Pot Type 4).

One of the cooking pots here is coarsely made, and has no neck (Fig. 2.23:5). No parallels were found for it.

Glazed pans (Fig. 2.24:1-4)
These are flat cooking vessels, rather common it the later part of the early Islamic period. The bottom is glazed in dark purple or brown-yellow, with dripping on the inner wall and rim. As in other glazed cooking vessels, the glaze helps to seal and clean the vessel. The rim is folded out to form a triangular (Fig. 2.24:2) or

axe-shaped (Fig. 2.24:1, 4) profile. Two horizontal handles are attached below the rim, as well as two thumbed ledge handles which allow for placement of the vessel on a stand. The clay is red-brown, darker than in casseroles (Avissar 1996:139, Type 13 Glazed Cooking Bowls). Pans are relatively uncommon in Ramla (Kletter 2005:79, Cooking Bowls; Tal and Taxel 2008:137, Frying Pans; Cytryn-Silverman 2010:113, Glazed Cooking Ware). At Yoqne'am and Tiberias they appear at the end of the 9th century (Stacey 2004:125, Cooking Pot Type 4), but Arnon dates them to the 10th century (Arnon 2007:73, Type 4.4 Glazed Frying Pan; Arnon 2008a:43, 46, Type 742, 753 Glazed Frying Pan). One of the examples here has an unfolded triangular rim and is glazed up to the rim (Fig. 2.24:3)—features which characterize the Crusader period but appear at Ramla (South) and here in the Fatimid period, with a rather thick wall (Tal and Taxel 2008: Fig. 6.89:1).

Handmade cooking pot (Fig. 2.24:5)
This vessel has no parallels. It is handmade from coarse clay, and has upright walls and a rounded rim. A triangular ledge handle is attached to the wall.

Storage Jars

Southern Bag-Shaped Storage Jars (Fig. 2.25:1-5)
These storage jars have a short, slightly swollen neck, sloping shoulder, and wide bag-shaped body. The body is ribbed, with two handles attached at the shoulder. The clay is coarse red-brown and sandy, sometimes with pale self-slip. Several examples bear lumps of clay around the neck. This jar type is common in southern sites in the 6-7th through 9th centuries. It is possible that at some sites they continue in use into the 11th century (Cytryn-Silverman 2010:100-101, EI-CO-CV I). One of the jars here is probably a late version, unribbed and combed (Fig. 2.25:1). They have been found at Marcus Street, Ramla (Arnon 2007:62, Type 3.1a, Southern Palestinian Bag-Shaped Jar). At Ramla (South) a workshop of these jars was found, dated to the Late Byzantine and early Umayyad periods (Tal and Taxel 2008:63). At Caesarea they were found mainly up to level VIIIa of the Umayyad period, and a few into level VII, from the mid-8th to the end of the 9th century (Arnon 2008a:32, 39, Types 811 Southern Palestinian Storage Jar, 823 Red Ware Coarsely Potted; Cytryn-Silverman 2013:170, Bag-Shaped Storage Jars; Magness 1993:230-231, Storage Jar Form 7 [Early]). One of the jars in the current assemblage was reused as part of some installation, according to soot marks on the inside (Fig. 2.25:4). This is a familiar phenomenon, also seen elsewhere in Ramla (Ofer Park) (Kletter 2005:57, 59).

Northern Bag-Shaped storage jars (Fig. 2.25:6-8)
These are the most common jar types in the north of Israel and Transjordan, reaching as far south as the Dead Sea. They are characterized by a red-brown clay burnt by reduced firing to grey-black on the exterior, and producing a metallic quality. The body is decorated with wavy white stripes. The neck is straight, vertical or almost so. The rim is square, and sometimes has a gutter. This type began in the Byzantine period, while later the clay is more gray and the neck longer, and the ribbing becomes more pronounced (Fig. 2.25:6, 7). The later jars lose the gray shade (Fig. 2.25:8). Throughout the phases of this jar type, two thirds up the body there is a sharp ridge forming the shoulder, with two handles attached above. At Caesarea northern storage jars appear in small numbers up to the 11th century (Avissar 1996:147-148, Storage Jar Type 4; Bag-Shaped Jars with Square or Thickened Rims; Arnon 2007:62-63, Type 3.1b Northern Palestinian Bag-Shaped Jar; Arnon 2008a:32, 38, 41, Type 812 Northern Palestinian Storage Jar, 821, 831, Storage Jar, Bag-Shaped Grey or Weak Red Ware, 841, 851, Reduced-Firing Storage Jars). At Caesarea they comprise a large proportion of the jars assemblage, and are quite common at Ramla (South) (Tal and Taxel 2008:146, Storage Jar Type 4), while in more central Ramla southern storage jars (above) are dominant (Cytryn-Silverman 2010:101-102, EI-Co-CV IV).

Central Hill Country Storage Jars (Figs. 2.26, 2.27)
This group comprises several variants of storage jars known to have been manufactured in the central hill country (e.g. Nabi Samuel) north of Jerusalem. Theses jars are characterized by fine, well-fired orange clay, in some cases with a gray core. The form is large

and bag-shaped, with a wide neck that often bears a ridge at its base. Combing is also common, similar to that on large basins. The neck form varies—tall, short, narrow, wide, swollen, ridged, or combed. These are the most common jars in Ramla between the 8th and 10th centuries (Magness 1993:226-231, Forms 5-7; Arnon 2007: Fig. 12:14, Type 3.1e Zir-Shaped Jar; Tal and Taxel 2008:146, Storage Jars Type2; Cytryn-Silverman 2010:102, Ei-Co-CV II, V).

A few typological sub-divisions within this group have been suggested, some including the southern storage jars (e.g. Magness 1993:230-231, Storage Jars Form 7; Arnon 2007:65, Types 3.1e Zir-Shaped Jar; 3.3 Zirs / Pithoi). Similar jars but with no neck have been found in the Ramla locale (Tal and Taxel 2008:147, Storage Jars Type 6). Many of these jars' handles were stamped with a geometric design or Arabic inscription (Amitai-Preies, below). Due to their size, they are often called *zir* (Arabic for *pithoi*). Some were used for sub-floor storage, and thus have been found in a relatively good state of preservation (e.g. Arnon 2008a: Pl. XVI:1). According to their fabric, the neckless *pithoi* (below, Fig. 2.28: 4,5) are related to the Central mountain storage jars.

Buff ware jars (Fig. 2.28:1-6)
Few vessels of this type were found. These are buff ware variations on other jars types, and appear to be locally made. Some could be categorized as jugs (Fig. 2.28:2, 5, 6). One example—its form incorporating elements of buff jugs and central hill country jars—has a high wide neck with combing on the shoulder (Fig. 2.28:2). Another resembles northern storage jars (Fig. 2.28:3). These jars have been found in Caesarea and other northern sites (Arnon 2008a:38, Type 822 Buff or Buff Slipped Bag Shaped Storage Jar), as well as elsewhere in Ramla (Arnon 2007: Fig. 23:8).

'Gaza' jars (Fig. 2.28:7-8)
These jars have a long body, no neck, thickened rim, and pointed base. Thick ribbing covers the body. Fragments of clay are prominent around the rim. This type was first produced in the 3rd century, continuing through the 8th. Therefore in Ramla they were in use during the earlier period of the city, and are quite rare. At Caesarea some were found in use into the Abbasid period. The later jars are characterized by a rounded rim, like the current examples (Arnon 2007:63, Type3.1d Cylindrical Gaza Jars; Arnon 2008a:32, Type 813; Cytryn-Silverman 2010:102-103, EI-CO-CV-Ware VII).

Egyptian jars (Fig. 2.28:9-11)
These small jars were imported from Egypt. At Kellia they are known as Red-Brown Ovoid Amphorae (Egloff 1977:118, Types 187-190). The clay is fine, well fired, sandy-brown and with mica inclusions. The body is rounded and ribbed, covered in a peeling pale slip, sometimes combed. The neck is slightly swollen. A ridge is located below the base of the neck. Two handles are attached to the shoulder. These jars are commonly considered to be *fossiles directeur* for the Umayyad period (Arnon 2007:64, Type 3.1c Micaceous Bag-Shaped Jar; Arnon 2008a:33, Type 814 Micaceous Bag-Shaped Jar), but lately Taxel and Fantalkin (2011:80-90) have argued that they were used for imports until the end of the 8th century CE, and in small quantities even into the 10th century. At White Mosque Street quite large quantities of these Egyptian jars were found. At Ramla (South) only body fragments were recovered (Tal and Taxel 2008:151).[3]

Amphorae (Fig. 2.29:1-2)
This vessel type—long-necked jars with handles, used for transporting liquids (mainly wine)—is rarely found at Early Islamic sites. At the current site was recovered a buff clay amphora base (or toe) in the form of a thick stump (Fig. 2.29:1)—unusual among the coarse wares commonly used for this vessel type. Another example recovered at the site has a high ridged neck (Fig. 2.29:2).

Due to their fragmentary state of preservation, the identification of these vessels is not certain. Some could be jars or jugs. Arnon (2008a:57) views

3 The apparently late examples of Egyptian jars from Ramla (Marcus Street) (Toueg 2007:17) are unrelaiable due to stratigraphical issues (Toueg, pers. comm.).

amphorae as evidence for a Christian community. At Caesarea they are first found in the 11th century, becoming common in the Crusader period. This took place in the broader context of Fatimid renewal of large-scale marine trade. The amphorae at White Mosque Street differ from the types found in Caesarea, and also those from the Black Sea found elsewhere in Ramla, at Marcus Street and at Ramla (South) (Arnon 2007:65, Type 3.2 Amphorae; Arnon 2008a:47, 54, Types 853 Bi-conical Amphora, 854 Buff Ware Amphora; Tal and Taxel 2008:147-151, Storage Jars Type 8). Amphora fragments were also found elsewhere in Ramla (Ofer Park) (Kletter 2005: Fig. 19:15). Amphorae resembling those at the current site were recovered at Yoqneam (Avissar 1996:155, Storage Jars Type 18).

Red-Painted jars (Fig. 2.29:3)
These jars have no standard form; their common feature is red striped decoration, in a net or irregular pattern. They were produced in Transjordan in the 8-11th centuries, mainly during the Abbasid period (Avissar 2013a:103-105, Storage Jar 9). This type is rare in the south of Israel. The current assemblage includes a large ribbed and pale-slipped body fragment, decorated with a rather fine net pattern. On the shoulder is a triangle pattern. No parallels were found for this pattern.

Pithoi (zir/dolia) (Fig. 2.29:4-5)
The typical pithoi of the Early Islamic period are massive hand-made vessels, with a wide body and no neck. They are made from well-fired pink, pink-brown, or brown clay, sometimes with grey core. A few have pale brown slip. The form of the rim varies: doubled, tripled, or flaring. Some examples bear thumb or combed decoration. Pithoi were often placed within floors, and thus tend to be relatively well preserved among pottery vessels. A complete pithos was found elsewhere in Ramla (Ofer Park) (Kletter 2005:79, Fig. 19:1, 13-14). The similar ware matrices of pithoi and central hill country jars indicates a manufacturing association between these types. Central hill country jars are also often called *zir* (e.g. Arnon 2008a). The type of pithoi found in the current assemblage begin to appear in the Umayyad period, continuing to be produced throughout the Early Islamic period (Avissar 1996:149, Storage Jars Type 6). At Tiberias they are in use from the first half of the 8th century through the middle of the 11th, with only minor changes over time (Stacey 2004:127, Storage Jars Type 5). At Caesarea they date to the middle of the 10th century, replacing central hill country jars (Arnon 2008a:44, Type 941 Dolia).

Small Containers

Buff ware jugs and juglets
Buff (or Cream) Ware—used mainly for jugs and juglets—is one of the main features of Abbasid and Fatimid assemblages.[4] This type is commonly influenced by Sassanid vessels. First arriving in the southern Levant in the 7th century and found occasionally in Umayyad contexts, buff ware became more widespread with the Abbasid expansion in the second half of the 8th century. It disappears at the end of the Fatimid period (Avissar 1996:155-156, Jars and Jugs of Fine Buff Ware; Arnon 2008a:36-37, Type 521 Fine Buff Ware; Stacey 2004:130, Jars and Jugs in Pale Cream ware; Cytryn-Silverman 2010:104-108). The decoration of these vessels indicates their table use. The large assemblage presented here enables the teasing out of a finer-grained typology. Rather than focusing on size, sub-types are organised here according to form—which attests to a vessel's function—and by order of their relative amounts in the assemblage (from large to small).

1. *Jugs and juglets with carinated body* (Fig. 2.30)
These vessels have a cylindrical body and carinated shoulder. The body narrows toward the base. The shoulder inclines slightly. The straight neck widens toward the rim. The diameter of the rim is similar to that of the base. One pouring handle extends from the shoulder, the top of its curve higher than the rim. Sometimes the handle incorporates a plastic decoration as thumb rest. Often the upper neck is comb-decorated (4-5 teeth). The base of the neck is accented with a single or double ridge. These vessels are small to

4 Not to be confused with Late Islamic buff ware, which is a different family.

medium in size. These were the most common vessel type found at Ramla (Ofer Park) and Ramla (South) (Tal & Taxel 2008:139, Jugs Type 1; Kletter 2005:73, High-Necked Jugs; however, these differ from the illustrated examples in the current assemblage). As to the dating of the sub-types, the evidence from various sites is somewhat contradictory. At Caesarea these jugs appear in Level VI only—i.e. confined to the mid-9th through mid-10th centuries (Arnon 2008a:41, Type 531f Buff and Buff Self Slipped Ware). According to Cytryn-Silverman, in the center of modern-day Israel during the 8th century this type appeared together with Type 2 (below)(Cytryn-Silverman 2010:107; Cytryn-Silverman 2013:172-173, Plain Buff Ware Jugs). In Tiberias Type 1 appears earlier, while Type 2 appears only in the Fatimid period at the end of the 10th century (Stacey 2004:132, Jars and Jugs in Pale Cream Ware).

2. *Jugs and juglets with spherical body and wide neck* (Fig. 2.31)

Although no complete vessels of this sub-type were recovered in the current excavation, reconstructions are possible through comparison of sherds with nearby findings (Tal and Taxel 2008:139, Jugs Type 2, Fig. 6.91:7, 27). This sub-type has a spherical body and a neck two-thirds the width of the body. These jugs are medium to large in size, and made of avperiodge-quality fabric. Their walls are thin or very thin. The neck is straight, inclined outwards and with a simple rim. The base is disc-shaped, and is flat or grooved (Arnon 2008a: Type 521g-f); in rare cases an omphalos is found (Fig. 2.31:26). A high handle ascends from the shoulder, rising above the rim. The handle is sometimes doubled or tripled, with a knob-like decoration. The origin of this decoration is an elaborate thumb rest. Its shape may have been influenced by architectural motifs.

As to the dating of sub-types, there are differing opinions according to shape and matrix: Avissar (2009: Fig. 6:19; here, Fig. 2.31:12, 20-23) views the plastic decoration on the handle as a late element. Some jugs have a simple strainer at the base of the neck, which appears at Caesarea from as early as the mid-8th century (Arnon 2008a: Type 521i; here, Fig. 2.31:20). In the same city, an elaborate strainer appears in the late 9th century and becomes widespread in the 11th. At the same time in Caesarea there is a noticeable shift in clay color, from buff-yellow to buff-green (Arnon 2008a: Types 531g, 551e-f Unglazed Buff or Fired to Buff Tone Vessels; here, Fig. 2.31:18). According to Cytryn-Silverman the jugs with an elaborate strainer below the rim (sub-type 2A below) are Abbasid, while the elaborate strainers at the base of the neck date to the Fatimid period (Cytryn-Silverman 2013:173, Strainers). Contrary to this view, Avissar dates both to the 9-10th centuries (Avissar 2013b: Fig. 12:6). A schematic calligraphic decoration is often incised on the neck, specifically on finer vessels, between horizontal lines or simple metopes. In the Middle East such decoration is common mainly in the 8-9th centuries. At Caesarea incised and stamped decoration is found mostly in Level VI (late 9th century; Arnon 2008a:41, Type 531). Few of these vessels are roulette-decorated (Arnon 2007:53, Type 1.4a4 Buff and Buff Self-Slipped Ware Imprint with a roller). Cytryn-Silverman (2013:172-173, Buff Ware Jugs and Jars) says that sub-types A and B were manufactured in Ramla from the 8th century onwards, subsequently spreading all over the country. Stacey (2004:130-132) distinguishes between a 9-10th century form—spherical jugs with handle connected at the rim—and a 10-11th century development with handle reaching below the rim. Similar vessels made of fine red clay have been found elsewhere in Ramla (Marcus Street) (Arnon 2007:53, Type 1.4b Fine Red Ware) and in Caesarea, where the use of red clay is common to types which in Ramla are generally found to be made of buff ware (Arnon 2008a: Type 524a).

In the following description the spherical jugs are presented according to shape:

2A. Jugs with a very thin wall and a fine strainer below the rim of the wide neck (Fig. 2.31). Most bear calligraphic decoration. The body is short and wide (Arnon 2008a: Type 521p). This sub-type is not found in large numbers (Tal and Taxel 2008:139, Jug Type 3).

2B (Fig. 2.32:1-2). Jugs with decoration incised, stamped, or cut below the rim, and with no strainer. The neck could be very wide. This sub-type is rare

and varied (Tal and Taxel 2008:139, Jug Type 6). At Caesarea and Tiberias they are found from the mid-10th through 11th centuries (Arnon 2008a: Type 541b; Stacey 2004:132, Fig. 5.43:5-8).

2C. Juglets with narrow neck (Fig. 2.32:3-4). These vessels have a gentle body and long narrow neck. The rim is simple, carinated or tapering. The handle ascends from the shoulder to below the rim, with a decorated thumb rest. The neck is calligraphically decorated (Tal and Taxel 2008:139, Jug Type 4; Avissar 2013b: Fig. 12:11-14). Small vessels with long narrow neck were used to pour carefully measured precious liquids. Most such vessels have been found in the Ramla vicinity.[5]

2D (Fig. 2.32:5). Medallion-decorated juglets. These are very rare and differ slightly from other buff ware vessels. The body is spherical, and a projecting ridge at the base of the trumpet neck. The handle ascends from the shoulder to the rim or below the rim. Presumably the base was rounded or disc-shaped. Two leaf-shaped mold-made medallions were attached to the body. These vessels were probably used for precious liquids.

2E (Fig. 2.32:6-7). These jugs have a very thin wall and wide flaring neck, which is decorated with grooves. A round-section handle ascends from the shoulder to the rim or neck. The base is disc-shaped. In some cases the body is incised with a sharp tool, like local glazed bowls. Several vessels in this assemblage are decorated with four depressions on the body, imitating glasswork (Fig. 2.32:7). One here has a spout, which was shaved to a square profile (Fig. 2.32:6). It stands out at a perpendicular angle, which makes pouring difficult. This sub-type was also found at Yoqne'am and Beth-Shean, where like other buff ware jugs it was dated to the 8-11th centuries (Avissar 2013a:111-112, JGB1).

3. *Mold-made jugs* (Fig. 2.33)

This is the largest assemblage of mold-made jugs published to date. These medium-sized vessels have a squat body and are made in three separate parts: lower body, upper body and neck. The seam between the parts is visible on the interior. The long straight neck is fairly wide for the size of the body, and is slightly swollen with a simple somewhat flared rim. The neck was placed on an elaborate strainer cut into the upper part of the body. A high strap handle—also mold-decorated—ascends from the shoulder to the rim, and is adorned with an elaborate thumb rest. The decoration of the neck is arranged in metopes and registers of rosettes and cordons, rarely with animals (Kletter 2005: Fig.16:7). The whole body—including the base but not the seams—is decorated with geometric cordons and floral patterns. Some jugs are also decorated with Arabic inscription, as part of the mold (see Amitai-Preiss, Chapter 10). These vessels have been found mainly in Ramla, where a few matching molds were also found (body and neck), attesting to the local manufacture—possibly also in Lod (Rosen-Ayalon & Eitan 1969; Kletter 2005:73, Molded Jugs; Arnon 2007:52-53, Type 1.4a1 Molded Buff and Buff Self-Slipped Ware; Cytryn-Silverman 2010: Ph. 9.12; Haddad 2013: Fig. 10:17; Elisha and Torgë 2014: Fig. 10). They were not found at Ramla (South), as this was an industrial area. Two complete jugs and fragments were recovered at Khirbat al-Mafjar (Barmaki 1944: Fig. 9:40; 14:2-3, 5). A variety of these jugs were found in Caesarea Level VII (mid-8th to mid-9th centuries), but not in the later Level VI (Arnon 2008a:37, 41, Types 521k Fine Buff Ware [Molded], 531 Buff and Buff Self-Slipped Ware). Cytryn-Silverman dates this type to the mid-9th through 10th centuries (Cytryn-Silverman 2010:107, Cytryn-Silverman 2013:173-174, Molded Buff Ware). Similar assignations have been put forward at Tiberias (Stacey 2004:137, Molded or Stamped Cream Ware).

4. *Thick-walled jugs* (Fig. 2.34)

This group includes a variety of buff ware jugs, which have thick walls. These are rather rare. Most are apparently a version of a single type—carinated-body jugs. The straight neck is upright or widens toward the rim, is rather wide, and is sometimes ridged (Fig. 2.34:1, 3, 4). Handles reach above the height of the rim

5 Stacey (2004:135, Fig. 5.46:2, Flask Type 2) relates these juglets with flasks, although they are not carrying vessels.

(Fig. 2.34:4). Loop handles decorated some of these jugs: they are wide, sometimes with combing which gives the impression of a double or triple handle. A tower-like decoration is attached at a 60º degree angel, with a cone or cone-like rings on top (Fig. 2.34:4, 7, 8). The loop handles were also incorporated in sub-type 2 of these thick-walled jugs. Other unusual features include a vertical spout, an element which develops into later periods (Fig. 2.34:6), a pinched spout and a basket handle (not illustrated). Basket handles were found on toys (below) and at Khirbat al-Mafjar (Barmaki 1944: Fig. 15:31-32), but not on buff ware jugs.

Barbotine-decorated table amphorae

Although these are actually large vessels, they are part of the buff ware group by material and style. In spite of their elaborate handmade decoration which reached baroque heights, they are quite uniform and widespread. Barbotine-decorated jars may be divided into two sub-types:

1. *Architecturally decorated jars* (Fig. 2.35:1)

This sub-type is also named Khirbat Mafjar Ware, following the discovery of two near-complete vessels at the eponymous site (Barmaki 1944: Pl. XIX:3-4; Fig. 5:15-16). In the current assemblage there are a few large fragments of the same sub-type (Fig. 2.34:1). The body is egg-shaped, its center and upper part bearing a dense plastic and engraved decoration. The motif is architectural, describing arches on columns. Inside this pattern are engravings that might be curtains, and concentric circles which show flowers and trellises. The wide neck is separated from the body by a double ridge or rope decoration. The neck is combed similarly to buff ware jug Sub-Type 2, and with plastic rings and buttons. Three strap handles are decorated from shoulder to neck with fine rope designs.[6] A clover-shaped decoration imitates a thumb rest. Below each handle there is a prominent tappet. At Caesarea barbotine decoration appears in Levels VI-VII (mid-8th to mid-10th centuries) (Arnon 2008a:39, 42, Type 922 Impressed and Barbotine Decorated Buff Ware, 932 Large Containers with Stamped and Barbotine Decoration). Avissar (2013a:112-114, JGB4) dates barbotine decoration to the mid-8th century through the end of the 9th, and sees in this design a Sassanid influence (Avissar 1996:159-160, Jars of Fine Buff Ware Type 7&8). Stacey (2004: 136-137 Barbotine Ware, Note No. 14) assigns it to the mid-9th century, and rejects a 10th century dating. At Ramla this ware has also been found in 8th century contexts (Kletter 2005:73, Barbotine Decorated Jugs; Cytryn- Silverman 2010:104-108; Avissar 2009: Fig. 9:21). At Beth-Shean a diminutive imitation was identified (Avissar 2013a: Fig. 33:4).

2. *Multi-handled jars* (Fig. 2.35:2-4)

No complete examples of this sub-type have been published to date, and these may be smaller than Sub-type 1. It has a wide neck which is decorated with calligraphy, like buff ware jug Type 2. Two groups of two double-handles ascend from the shoulder to the center of the neck. Each handle is decorated by buttons or a thumb rest in the form of a tower (as in Fig. 2.35:2, 3). Similar vessels were found at Khirbat al-Mafjar (Barmaki 1944: Fig. 16:2). At Caesarea similar handles were found on glazed jugs in Level V, from the mid-10th century through early 11th. However, this might be a later type (Arnon 2008a:43, Type 641a Monochrome Glazed).

Beyond these findings, at the current excavation a jar or jug neck was recovered which is decorated with buttons, forming a chain-like decoration and floral circles (Fig. 2.35:5). A similar combed- and circle-decorated jug was found at Tell Masoss, dated to the Umayyad period (Fritz & Kampinski 1983: Pls. 168:8, 101: A-B).

Other Jugs

Jugs which are not made from buff ware are less common. These are presented here, along with glazed vessles. At Yoqne'am, Caesarea, and even Ramla (South) a significant number of such types were

6 Stacey (2004:136) erroneously describes four strap handles.

found, but in Ramla itself they are rare, and buff ware jugs are dominant.

Glazed jugs and juglets (Fig. 2.36:1-5)
These are jugs, juglets, and kraters which are mostly made of buff ware, but decorated with glazing. The glaze is clear monochrome, mostly alkaline, in shades of green and turquoise. The body is spherical, with a flat base, usually a short neck and a flaring rim. These types should be associated in date with monochrome glazed bowls (Avissar 1996:164, Type 18 Small Glazed Jars). At Caesarea closed glazed vessels are found from the 9th through 11th century levels. There—as with one vessel here (Fig. 2.36:3)—some clays contain mica which may indicate an Egyptian origin (Arnon 2008a:41, 43, 46, Types 631, 641, 651 Monochrome Glazed Ware). One green juglet was found in Jerusalem (Giva'ati Parking Lot) (Cytryn-Silverman 2013:175, Monochrome Lead-Glazed Ware). Several have also been found in Tiberias, dated to the 10th-11th centuries (Stacey 2004:122, Lead-Glazed Jars). A few fragments were found at Ramla (South), made of buff ware (Tal and Taxel 2008:143-144, Jug Type 15). At Ramla (Marcus Street) a few glazed jugs were retrieved (Arnon 2007:58, Type 1.4e Glazed Ware). Here a variety of forms were found, probably representing the tastes and markets of local craftsmen.

In the current assemblage a variety of vessels fall under the rubric of glazed jugs and juglets. The first is large vessel made of sandy clay with a flaring rim. This is the most common type of these vessels. The glaze is thick mustard yellow on the outside and yellowish green on the inside, with many grits (Fig. 2.36:4). Another jug with a trumpet neck—an uncharacteristic shape of the period—is made of pinkish clay with a thick green-yellow glaze on the outside and thin inside (Fig. 2.36:5). One juglet—found intact—was made of buff clay and had a typical profile, glazed yellowish-green inside and outside with many granules. The gaps in the glazing were due to the adhesion of nearby vessels in the pottery kiln (Fig. 2.36:1). Another juglet made of coarse orange clay has a narrow flat base with signs of having been cut from the potter's wheel with a rope. The glaze is thick dark green on the outside, with dripping on the interior (Fig. 2.36:2). A similar juglet was found complete, made of coarse brown clay. This vessel has a spherical body, a low neck with a ridge, and a simple everted rim. Turquoise-green glaze covers the body, the base and the rim exterior (Fig. 2.36:3).

Coarse jugs of brown clay (Fig. 2.36:6-9)
Apart from the local buff ware, a few brown-orange coarse clay vessels were found. These are large jugs with high neck. The form resembles the buff ware jugs, mainly the thick-walled ones, but the coarse ware jugs have a more prominent rim, sometimes folded (Avissar 1996:161, Type 13 Plain Jugs). At Caesarea ring bases of coarse ware jugs were found only in Umayyad levels (Arnon 2008a:30, Type 511a Coarse Ware Jugs). At Ramla (South) there are jugs made of brown, red, and orange clay—probably locally produced—which have parallels in Caesarea but not in Ramla itself (Tal and Taxel 2008:139-140, Type 8).

White-painted jugs (Fig. 2.36:10-13)
The tradition of white paint decoration was first used in the north of Israel and Transjordan in the Byzantine period, spreading during Umayyad times and continuing throughout the Early Islamic period. In terms of production these jugs are related to the northern storage jars. They are characterized by red-brown clay burnt by reduced firing to grey-black on the exterior, resulting in a metallic quality. The neck is wide, straight, upright or slightly inclined. The rim is square in section, and most have a gutter. The body is decorated with wavy white stripes, and incorporate an omphalos base (Avissar 1996:163-164, Types 15, 16 Jugs with Painted Decoration I & II). At Caesarea they were found dating from the 7th to mid-10th centuries, the later examples being made with thinner walls (Arnon 2008a:30-31, 37, 41, Types 513 White-Painted Jugs and Juglets, 522 Grey or Weak Red Jugs and Juglets, 533 Metallic Ware, White-Painted; Stacey 2004:129, Jars and Jugs with White Decoration). Avissar (2013a:111, JG3) claims that white-painted jugs reached peak circulation in the 8th century, and by the early 9th century they had disappeared. At Ramla (South) they are so common that it was suggested that they are locally made (Tal and Taxel 2008:140,

Jug Type 9). At nearby Tzrifin (Sarfend) they were found in a layer related to the 749 CE earthquake (Kohn-Tavor and Avissar, forthcoming), but here and in other excavations at Ramla they are rare (Arnon 2007:57, Type 1.4d Metallic Ware with White Decorations; Avissar 2011: Fig. 14:1). In the current assemblage one white-painted jug has chiseled decoration (Fig. 2.36:13). At Yoqne'am a similar jar was found with a spout (Avissar 1996: Fig. XIII.141:1); another was recovered at Ramla (South) (Tal and Taxel 2008:147, storage jar Type 5, Fig. 6.94:27**).** The third has a wide, straight neck and a flattened rim protruding outward; a thin ridge inside the rim forms a gutter (Fig. 2.36:11). The fourth is made of orange clay with a gray core—a ware which associates it with this group although the neck is relatively narrow and the rim is rounded (Fig. 2.36:10).

'Coptic' jugs (Fig. 2.36:14-17)

These vessels are an Egyptian import, characterized by dark red-brown clay with golden flakes, and a pale or pinkish slip. The body is spherical or carinated, with flat or omphalos base. In the current assemblage there is one example with a string cut (Fig. 2.36:14). This vessel types appears in small quantities in Israel. In Caesarea they date to the Umayyad and early Abbasid periods (Arnon 2007:53, Type 1.4c Coarse Decorated Red Ware; Arnon 2008a:31, 38 Types 515 Micaceous, Pink Slipped Juglets, 525 Micaceous Red Ware Jugs and Juglets). In their discussion of Egyptian imported vessels, Taxel and Fantalkin (2011:78) interpret these jugs as merchandise in themselves, rather than merely containers for goods.

Flasks (Fig. 2.37:1-3)

Flasks are a common vessel in assemblages of the 8-10th centuries, and are mostly made of buff ware (Arnon 2008a:38, Type 528 Pilgrim Flasks). The body is made of two conjoined bowls, to which a neck was attached above a perforation in the upper part. The handles are designed to hold a string for hanging the vessel, and are attached to the vessel at the shoulder and on the seam between the conjoined bowls of the body. The larger vessels have a long ridged neck and folded rim (Fig. 2.37:3, 10; Toueg and Arnon 2011: Fig. 16). An unusual vessel in the current assemblage has a low neck and an extra spout, and may not have handles (Fig. 2.37:11). This might be related to an early type described by Avissar (2013a:114, FK1). Also included here is a trumpet neck with a sharp ridge at its base, which may belong to a flask (Fig. 2.37:1).[7]

Sphero-Conical Vessels (Fig. 2.37:4-7)

There has been much speculation on the purpose of these vessels, with suggestions about their possible contents ranging from 'Greek fire', beer, perfume, mercury, to hashish (see Amitai-Preiss, this volume, p. 194). Accordingly, these vessels have been given many names: grenades, spheroid vessels, Greek fire vessels, Turanji, canteens and more (see Arnon 2007:68, Type 3.4 Sphero-Conical Container; Tal and Taxel 2008:144, Juglet Type 6).

These vessels are made of coarse brown-grey to orange clay, they are well fired and their walls are thick. The body is rounded, sometimes oblong. The base is narrow, with a button-like or ring base. The neck is short, narrow and sometimes has a ridge at its base. The rim is thickened. Some vessels contain mica, which might suggest an Egyptian origin (see also Tal and Taxel 2008:144). On the other hand, at Ramla (Marcus Street) deformed vessels were found, hinting at local manufacture (Arnon 2007:68). A range of dates has been suggested for these vessels, but in Israel they are found in Umayyad, Abbasid and even Fatimid contexts (Arnon 2008a:31, 39, Types 616, 824 Sphero-Conical Containers; Stacey 2004:138, 'Grenades'; Avissar 2013a:116, 'Grenade' Bottle). One of the vessels here bears an incised inscription (see Amitai-Preiss, this volume, p. 194). Another vessel—without parallels—bears a pierced hole, perhaps for a lid string (Fig. 2.36:4).

A grenade vessel (reg. no. 80028) containing what appeared to be a heated and melted substance was recovered from L8008, a nondescript sediment. Given the widespread researcher speculation about the function of these vessels (see above; also, Amitai-Preiss,

7 Sometimes the spout of a zoomorphic vessel (below) may be mistaken for the neck of a small flask.

this volume, p. 194), it is worth noting that the black porous material inside the grenade vessel in the current assemblage was chemically analyzed, and some mineral components were identified which form under high heat and high pressure. This may indicate an explosion.

Water-Wheel (Antiliya) *Vessels* (Fig. 2.37:8-9)
The water-wheel vessels of the Early Islamic period are made of buff ware clay that is coarsely made. They have a spherical or oblong body with a long wide neck. On the neck there is a ridge for tying a rope. These vessels are often found in secondary use in domestic contexts, including in Ramla (Ayalon 2000:223-224; Kletter 2005: Fig. 16:13; Tal and Taxel 2008:151, Water-Wheel Jars; Avissar 2009: Fig. 5:8; Avissar 2011: Fig. 14:9). One of the vessels here is unusual for its orange clay and a small handle instead of the typical neck ridge, and may have served for different proposes (Fig. 2.37:9).

Miscellaneous Jugs

The following section addresses several rare or unique vessels, most of which do not have parallels.

Red-burnished juglet (Fig. 2.13:1)
This vessel type is represented by a single disc-base fragment, made of fine and well-fired red clay. The outside was thoroughly scraped by a sharp tool, producing a red burnish. This may be counted among the 'Fine Red Ware Jugs and Juglets' found at Caesarea and Khirbat el-Mafjar, which are a red clay version of buff ware jugs. If such an assignation is correct, that type genperiodlly date to the mid- 8th through mid-10th centuries (Arnon 2008a:38, 41, Types 524, 532 Fine Red Ware).

Knife-pared Jug (Fig. 2.37:12)
These are vertically shaved with a sharp tool, resulting in a white burnish. The clay is pinkish and self-slipped. Shaving was applied also on glazed bowls. In the current assemblage a single fragment of this type was recovered, comprising a straight neck with simple rim.

Spherical juglet (Fig. 2.37:10)
This vessel is unusual in its form and ware. The clay is orange and has a metallic quality. The body is spherical, with a very narrow disc base. The neck is high and narrow. A handle seems to have extended from the shoulder to the rim. At Ramla (Ofer Park) a similar juglet was found, made from a buff clay (Kletter 2005:76).

Incised jug/jar (Fig. 2.37:13)
This vessel fragment comprises a long, vertical ribbed neck with a prominent ridged rim. Below the rim is a row of triangular dents which were impressed into the wet clay at an angle. A handle (or two?) rise above the rim. The clay is orange, with pale self-slip. This vessel may also be an amphora.

Engraved jug (Fig. 2.37:11)
This vessels has a wide neck, and is made of orange clay with a pale slip. Its decoration includes an engraved double-diamond shape, arranged between horizontal lines. A buff ware jug with similar decoration was found north of the White Mosque (Cytryn-Silverman 2010: Pl. 9.20:8).

Lids

Bowl-shaped jar lids (Fig. 2.38:1-5)
The most common lid type in this assemblage is bowl-shaped and designed to fit jars. Most are made from buff pale clay, some brown or orange. The shape is conical, with the wide mouth becoming a shelf on the upper side, and a cut-off flat base. In some cases there is a groove on the upper side. Most are about 11 cm in diameter, which in Arnon's (2007:80) opinion makes a comfortable fit with central hill country jars, although these lids have been found in various contexts. In fact, these lids' conical shape enables use with many jar types. Their coarse manufacture and inconsistency in height bespeaks the emphasis on functionality in these lids' production. They are common in Ramla and many other Early Islamic settlements, but less so at Ramla (South) and at nearby Tzrifin (Kohn-Tavor and Avissar, forthcoming; Tal and Taxel 2008:152, Storage Jar Stoppers), where a thick-walled conical type is more common. Magness dates these lids to the 6-8th centuries, but Cytryn-Silverman (2013:171, Stoppers) extends their use into the Abbasid period (9th century).

S-shaped lids (Fig. 2.38:6-7)
These small lids are quite rare, and were made for small vessels. They are coarsely made of buff pale clay,

but are fine in appearance. The body is spherical, with a wide upright or flaring neck and simple rim. The base is very high, narrow and string-cut. The unique shape seems well suited to containing liquids while sealing the vessel. These were not cups, as they cannot stand unsupported (*contra* Tal and Taxel 2008:135, S-Shaped Cups /Lids).

Stoppers

Ad hoc lids have been used throughout the ages. Most stoppers found here are reworked jar body sherds (mainly southern storage jars). One is made from the base of a glazed bowl. One example above (Fig.2.22:6) was made from a retouched casserole lid handle. Judging by their diameter, these stoppers served mostly for closing jars and smaller containers.

Miscellaneous

Kiln Bars (Fig. 2.38:8)

These clay bars made of pale buff clay are in form reminiscent of thick carrots. They were used to separate vessels inside a kiln. Some bear splashes of glaze. They are common in industrial kilns, but are also found in domestic contexts; therefore they must have had some secondary use. Although no kilns have been found to date in Ramla proper, kiln bars and wasters found there—mainly of buff ware—indicate local pottery production. These items have been found in many excavation at Ramla (e.g. Billig 2005; Torgë 2005; Elisha and Torgë 2014; Haddad 2011; Kletter 2005:77, 88, Kiln Bars Fig. 23; Vitto 2005). However, none have been found in the industrial zone of Ramla (South).

Pipes (Fig. 2.38:9-10)

Two examples of typical pipes found at the current site are presented here. One example of a narrow type of pipe is complete, measuring 5 cm in diameter and made of coarse brown clay. As common in ancient and medieval pipes, there is a female and male fitting on either end of the pipe; liquid enters the pipe section through the former and exits from the latter. The pipes were made on an industrial scale, so any section could fit any other. Joints were sealed with white lime, and sections were laid on a grey mortar support. Pipes were used for drainage and clean water supply throughout the region.

The wide pipe types are less known because they tend to preserve less well, and their rims are not always recognized. This type of pipe is 15-20 cm in diameter. An nearly complete example has been found elsewhere in Ramla (Cytryn-Silverman 2010: Pl. 9.16:1). Medium-sized pipes were also found elsewhere in Ramla (Ofer Park) (Kletter 2005:77, Fig. 17:10 [possibly a waster]), and Ramla (South) (Tal and Taxel 2008: Fig. 6.10:1-3).

Jugs or Jugletss with Incised decorations (Fig. 2.39:1-2)

Two body fragments of jars or jugs were found bearing pre-firing incision. The designs are totally different than the free-hand incisions applied to buff ware jugs. Here the tools are handled carefully, indicating that there were vessels of relative value. The first (Fig. 2.39:1) bears an incision depicting a large lotus flower (at least 10 cm in size). The second (Fig. 2.39:2) is a composite design, comprising background incisions with pale slip and black paintings. The central motif is a peacock feather. This is obviously part of a larger decoration. No parallels for these designs were found. One example of an incised body sherd was found elsewhere in Ramla, but its limited size precludes any reconstruction of decorative pattern (Avissar 2009: Fig. 9:22).

Fine Byzantine Ware

Fine Byzantine Ware (FBW) comprised a long-lived and strong tradition, including a variety of vessels which shared a high level of clay and firing quality, as well as decoration and style. These finely decorated vessels were mostly serving dishes, and must have been considered luxury products. This ware was described by Gichon (1974), with further details provided by Magness (1993:166-171, 193-201, 236-241). The main distribution of FBW is in the south of Israel, with an apparent origin in Jerusalem. There are a wide variety of FBW vessels, on the basis of Magness' typology. A substantial proportion of toys and zoomorphic vessels (see below) belong to this family, according to clay, firing and decoration. FBW vessels are thin-walled and are made of very well fired light brown clay, sometimes with a grey core. Some have been worked on the outside with a

sharp tool, probably on the wheel. Up to the mid-8th century much FBW was decorated by incision. This was subsequently replaced by paint, comprising mainly geometric and floral patterns with a fine black brush on a white background, along with undecorated vessels. Stacey (2004:90) sees an Egyptian influence in this painted decoration. At Caesarea simple vessels appear in the Umayyad period. The painted types begin to appear in small numbers at the beginning of the Abbasid period, and continue later. In the mid-8th to mid-9th centuries there were also red-slipped vessels alongside the painted ones (Arnon 2008a:30, 33, 36, Fine Ware, "Marble Ware"). Magness claims that there was a shift at this time from closed to open vessels, although painted jugs continued throughout (see below). Cytryn-Silverman separates high-quality vessels of the Byzantine period from the lower-quality vessels of the 9th-10th centuries (Cytryn-Silverman 2013:168-169, Fine Byzantine Ware, Fine Burnished Ware). As Ramla was founded in the 8th century, incised vessels are rare in the city, while painted decoration is quite common (Cytryn-Silverman 2010:108).

Jug Form 1B (Fig. 2.40:1)

Fine Byzantine Ware jugs are rather rare. They are made of fine well-fired clay, sometimes burnished. The body is spherical or oval, with a flat string-cut base. The funnel-shaped neck has a triangular folded rim. A loop handle is attached at the shoulder. As outlined above, in the Byzantine-Umayyad periods the most common decoration is incision. This was replaced by painted decoration, as presented here (Fig. 2.40:1). This in turn ceases during the 10th century (Magness 1993:236-239; Arnon 2008a: Types 514, 523 Marble Ware; Cytryn-Silverman 2013:172, Fine Burnished Ware Jugs). Such painted types have been found at Ramla (South) (Tal and Taxel 2008:140, Jug Type 13). Body sherds and possibly painted bases were found at Kh. al-Mafjer (Baramki 1944: Fig. 7: 25-26; 9:34, 39). A complete example was recovered at Caesarea (Arnon 2008a: Type 514b, Pl. 14:1). Also found in the current excavation is a unique vessel with a simple rim, worked on the outside with a sharp tool (not illustrated).

Juglet (Fig. 2.40:2)

The current assemblage includes a single fine juglet, made of high-quality orange metallic clay. This vessel has a spherical body and long neck, with a handle from the shoulder to the rim. It was probably used for pouring precious liquids. Similar vessels were found at Kh. al-Mafjer (Barmaki 1944: Fig. 15:34-40).

Lids (Fig. 2.40:3-4)

These are rather thick lids, made of orange clay and with a gray core. The quality of clay, firing, and decoration relates them to the FBW family. The lids are convex, with a button handle at the top, surrounded by incised circles. Another circle is cut at the top of the handle. One lid is also decorated with incised circles and black paint on a white background (Fig. 2.40:3). Similar lids have been found elsewhere in Ramla, as well as in Kh. al-Mafjer (Barmaki 1944: Fig. 15:41-42). Presuming that these lids were intended to cover FBW vessels, the likeliest candidates are globular kraters, which were used for cooking (see below).

FBW Bowl Form 2B (Fig. 2.41)

As mentioned, FBW bowls appear in Caesarea in the mid-8th century. Magness (1993:198-200) dates these from the mid-7th through 9-10th centuries. The flat bowls of this family include a variety of rims: flared, concave, thin, and thickened. The wall is concave or carinated, with a flat base that is sometimes decorated with concentric incisions (Fig. 2.41:10, 15). Some are worked on the outside, using sharp tools. These bowls are common across Israel—mainly in the south—but most are not decorated. Similar types have been found in Ramla (Arnon 2007:39-40, 1.1e 'Marble' ware bowls; Avissar 2009: Fig. 4:10-11; Avissar 2011). Undecorated deep bowls have been found at Ramla (South) (Tal and Taxel 2008:125, Fig. 6.78:3, Fine Byzantine). In the current assemblage there are a variety of FBW bowls shapes and many decorated examples; most are carinated. Decoration comprises black paint on a white brush-applied background, which is typical of the FBW family. Decoration was applied in many ways: small white dots with wide black stripes (Fig. 2.41:1), white net pattern with black stripes (Fig. 2.41:4), *vice versa* (Fig. 2.41:10,

14), black stripes on a white background (Fig. 2.41:2, 6), and black floral motifs on a white background (Fig. 2.40:7, 8). Similar decoration was found at Kh. al-Mafjer (Barmaki 1944: Fig. 6:8-14). At Caesarea these decorative motifs are confined to the mid-8th through mid-9th centuries. Arnon suggests local manufacture in Caesarea, as hinted by *kurkar* grits in the clay (Arnon 2008a:33, Type 121 Fine Ware, "Marble Ware"). As a rule, painted serving bowls are not common; glazed types were more eye-caching and easier to clean. Still, the FBW bowls in the current assemblage were probably in demand due to their high quality. Another vessel here (not illustrated) resembles the FBW bowls, but is thicker walled and bears red slip intended to imitate the firing quality of the FBW. This is a later or a local version of this type.

FBW Bowl Form 1E (Fig. 2.42)

This FBW type include wide goblets, and are common at many sites. These vessels are the most widely found representative of the FBW family. The orange clay sometimes has a gray core. The wall is thin, upright or concave, with a simple rim. The base is flat, mostly with concentric circles on the outside. The outside is worked with a sharp tool, sometimes incised with wavy lines. Several bear red-painted geometric patterns (Fig. 2.42:9), black on a white background (Barmaki 1944: Fig. 6:19), or *vice versa* (Fig. 2.42:5). One vessel her has a rather thick carinated wall (Fig. 2.42:2; Arnon 2007:49, Type 1.3a, Unglazed "Marble Ware" Cups; Avissar 2009: Fig. 4:15-16). Magness dates this form to the 8th and 9th centuries. Thicker and lower quality examples may be later iterations (Arnon 2007:49, Type 1.3a, Unglazed "Marble Ware" Cups; Avissar 2009: Fig. 4:15-16; Cytryn-Silverman 2013:168, Fine Burnished Ware, Fig. 7.5:1, 7.10:1). At Caesarea undecorated vessels appear in the Umayyad period (Arnon 2008a:30, Type 311a Fine Ware), and are joined by decorated versions in the Abbasid era. Arnon defines types according to their painted decoration, but it seems that patterns are varied and non-standardized (Arnon 2008a:36, Type 322a-f, Marble Ware). A thick ring base with a central knob was also found, made of red metallic clay. This may be related to a bowl found at Caesarea (Arnon 2008a: Type 311b). Undecorated vessels were found also at Ramla (South) (Tal and Taxel 2008:125, Fig. 6.78:1, Fine Byzantine Ware Bowls).

FBW Bowl Form 2A (Fig. 2.43:1-3)

These are rather small, deep, thin-walled bowls. They are characterized by a double rim: a main concave rim and a secondary one which turns in a sharp angle outward. The outside is worked around with sharp tool. A few vessels are painted in black on white background with a fine brush—floral or geometric patterns, much like the FBW Form 2B bowls (Barmaki 1944: Fig. 7:6, 9-10). Magness (1993:198-199) dates all Form 2 bowls to the 7th through 9/10th centuries. At Caesarea they are classified together with the flat bowls, which date to the 8th century (Arnon 2008a:33, Type 121e-g, k Fine Ware, "Marble Ware"). Form 2A bowls are also common at Ramla (Tal and Taxel 2008:125, Fig. 6.78:2, Fine Byzantine Ware; Avissar 2009: Fig. 4:12).

Globular kraters (Fig. 2.43:4-8)

These are not classified by Magness as FBW. They are made of fine metallic orange clay. Some are worked by sharp tools (Fig. 2.43:7). The base was most probably rounded, and the rim flared to a ledge or triangular profile (Fig. 2.43:4). They probably had two handles (Fig. 2.43:6; Cytryn-Silverman 2013: Fig. 7.2:3). These vessels were common in the south of Israel in the 9th and 10th centuries, along with other FBW types. Cytryn-Silverman agrees with this late dating, drawing attention to a wavy line incision much like that in the FBW 1E Bowls (Cytryn-Silverman 2013:168-169, Globular Mugs). The FBW lids (above) were probably made for these kraters. Although none of the kraters exhibit soot stains, one of the aforementioned lids does. Due to this, the globular shape, and the matching lid, it is reasonable to assume that these kraters were indeed used for cooking—maybe for special cuisine.

Miniature Vessels (Toys)

A rather large group of miniature vessels is presented here. Their very small size is suggestive of the possibility that they were toys. The vessels resemble regular coeval vessels, but have no useful capacity. Moreover,

the clay is different than that of the normal-sized vessels. Already in 1944 Baramki suggested that these vessels are toys (Baramki 1944: Fig. 5:2, 6-7, vessel description table), but despite finding such items at the current site there was no evidence as to their use. To the clay toys may be added bone-made schematic human figurines, which have also been found at Ramla. The relative prevalence of these vessels at wealthy sites (Ramla, Tiberias [Stacey 2004:138, Miniature Vessels], Kh. al-Mafjer) testifies to the luxury value of such toys. The current assemblage enables us to present a variety of toys. They are shown according to quantities, from common to rare.

Casseroles and casserole lids (Fig. 2.44:1-6)
These casseroles are identical to the cooking casseroles in shape, down to the fume hole which perforates the matching lid. However, the walls are much thicker, the production somewhat crude, and the coarse orange clay is not suitable for cooking. Furthermore, the vessels bear no soot signs. Most toy casseroles have been found in the Ramla vicinity. Indeed, in a petrographic examination of vessels from Ramla (South) local manufacturing was confirmed (Kletter 2005:78, Small Open Pot with Handles; Tal and Taxel 2008:132; Handled Bowls; Arnon 2007: Fig. 15:5). At both Tzrifin and Ramla (South) a casserole and its matching lid were found (Kohn-Tavor 2013: Fig. 17: 7; Tal and Taxel 2008: Fig. 6.84:10).

Jars, jugs and juglets (Fig. 2.44:7-14)
This category of toys includes a variety of containers. Some imitate common vessels, such as one based on Egyptian Storage Jars (?) made of pale buff ware (Fig. 2.44:14), or vessels resembling *pithoi* (Fig. 2.44:10, 13). Most vessels here are made of fine metallic orange or reddish clay, and some are decorated with black paint brushed on a white background, relating them to the FBW family. Most have a biconical body with flat base, short neck and simple rim. The basket handle is a rare feature during this period. One noteworthy vessel resembles a shopping basket: pinched body with a basket handle (Fig. 2.44:12). At Ramla (Ofer Park) was recovered a red-slipped miniature juglet (Kletter 2005:77, Miniature Juglet, Fig. 17:3). A few such containers were also found at Khirbet al-Mafjar (Barmaki 1944: Fig. 15:32-33).

Lids (possible) (Fig. 2.44:15-16)
The two vessels of this type in the current assemblage have no parallels, and relate to this toy class due to their size. They are conical in shape, with an irregular base on which they cannot stand. The clay is unusually coarse brown. These items may have functioned as lids, even for ordinary-sized vessels.

Cups (Fig. 2.44:17-18)
These are miniature buff ware cups. As such cups are commonly found in Ramla, these miniatures are also probably locally made.

Oil lamps (Fig. 2.44:19)
Miniature vessels imitating Type 2 oil lamps have been found at several sites. The current lamp bears soot, and its fabric resembles the northern storage jars. The decoration on the miniature oil lamps is simple, evidence that the potter was not attempting to produce an accurate replica of actual lamps. Rosenthal and Sivan (1978:136-137) published a large series of miniature lamps, most associable with Umayyad Oil Lamp Type 1, with a conical handle.

Zoomorphic Vessels (Fig. 2.45)
Zoomorphic vessels are found in small quantities in many Early Islamic period excavations, but as a class of objects they are yet to be comprehensively described. In classical times zoomorphic vessels first appeared in the Late Byzantine period (Vilozny 2010:325), and were common in the Umayyad period. For a long time it was assumed that they were not produced after that time, but now it is clear that manufacturing continued throughout the Abbasid and Fatimid periods (Stacey 2004:141, Zoomorphic Figures; Avissar 2013a:116).[88] Torgë (2014) may have uncovered a manufacturing site for these vessels. A complete vessel was found at Khirbet el Mafjar (Barmaki 1944: Pl. 3:4), and others

8 Zoomorphic vessels of similar form were in use much earlier, e.g. Megiddo, Iron Age I (Novacek 2011:78). A ram-shaped glazed vessel—made with a similar technique to later types but from a different clay—was found at Caesarea Level IV (Arnon 2008a:46, Type 653 Zoomorphic Vessel).

have been recovered elsewhere, mainly in the Ramla vicinity and further south (e.g. Avissar 2009: Fig. 7; Avissar 2011: Fig. 18:17; Kanias & Toueg 2012; Haddad 2004: Fig. 10: 22-23, 12:1; Haddad 2010: Fig. 4; Haddad 2011: Fig. 4:8).

Zoomorphic vessels take the form of a particular domestic animal—probably a donkey, judging by the long ears (Kletter 2005:86-88), although Torgë (2014:16) suggests a gazelle or deer fawn according to the white dots on some of these vessels. They were used for pouring liquids. The body is wheel made, as it tapers toward the rear. The base was then extended to form a short tail. Four short legs are attached. A hole was made in the upper back, in which a ridged funnel was attached. Liquid was poured into the vessel here. In another hole at the upper front a long hollow neck was attached, and liquid was poured out from this and through the mouth of the animal. At either side of the head there are a flat extensions (sometimes interpreted as ears, e.g. Vilozny 2010:325), and on top two long ears. Long ribbon handles extend from the back of the head to the funnel on the animal's back. The clay is invariably a fine or coarse orange, sometimes with a gray core. The finish is poor, but often the body is red-slipped throughout. Additional paint decoration is found in the current assemblage. This is rare, apart from at a few excavations in Ramla (e.g. Arnon 2007:79-80, Fig. 18: 3; Toueg 2013: Fig. 34: 2-4). The current assemblage is rich, with good state of preservation and decoration. Vessels are red-slipped throughout, and are painted with somewhat crude white stripes. Animal eyes and eyelids are brush-painted in black on a white background. The clay and painting relates zoomorphic vessels to the FBW family (above).

Exceptional in this assemblage is a simple and undecorated vessel made of coarse clay (Fig. 2.45:7). This is an imitation of the usual zoomorphic vessels. Another rare type is not hollow, and judging by the long neck it takes the form of a horse. A body of this type was found at Bialik Street (Parnos and Nagar 2008: Fig. 15:15), and the neck of another was observed by the auther at Ramla (Ofer Park) (not published). Vilozny interrupted these vessels as cultic, as they are genperiodlly found in domestic contexts. But in light of the fact that domestic cult was uncommon during this period, and the given large variety of contemporary toys (some made of similar ware), zoomorphic vessels are most probably toys.

Oil Lamps

The common oil lamp type at Ramla is Type 2, of the Abbasid-Fatimid periods. Late 'Samaritan' lamps are absent in the current assemblage, although they are common in the Umayyad period (Hadad 2002 74-78) and continue into the 9th century at Ramla (South) (Tal and Taxel 2008:154, Type 1). By contrast, only a small number of Type 2 oil lamps were recovered at that site. It is interesting to note such differences in lamp type distributions, whether they are best explained in terms of region or function. The less common Fatimid wheel-made oil lamps are completely absent in the current assemblage (Tal and Taxel 2008:154, Type 3; Arnon 2007:77, Oil Lamp Type E).

Type 1: lamps with conical handle (Fig. 2.46:1, 2)
This type comprises low, rounded mold-made lamps with pointed nozzle. Those in the current assemblage are decorated around the pouring hole with concentric circles filled with dots and stripes. An anchor design decorates the lamp between the pouring hole and nozzle. A small conical handle at the back end of the lamp is obviously decorative. These lamps genperiodlly have a thin ring base, sometimes with a potter's mark (Avissar 1996:191, Lamp with Conical Handle [Type 1]). This type dates to the Umayyad period (Hadad 2002:82-93, Type 36, geometric decoration, Nos. 374-378; Arnon 2007:74, Oil Lamp Type A), and up to the 8th century at Tiberias (Stacey 2004:149-150, Oil Lamp Form 1A). At Lod this type has been found in a Late Byzantine context (Haddad 2004:28*).

Type 2: lamps with tongue handle (Fig. 2.46:3-12)
This is the most common lamp type of the Early Islamic period. They are mold-made and almond-shaped, and are quite tall. The top is richly decorated, mainly with geometric and floral designs: stylized garlands, grape bunches, leaves, circles, fish scales, fishbone, and *guilloché* patterns. The pouring hole is bordered by a drainage channel, leading to the wick

hole. Sometimes the triangle between the channel and the shoulder of the vessel is decorated with schematic birds. The tongue handle bends forward, its front decorated with gentle ridges. A few lamps have a potter's mark or an inscription on the almond-shaped base. Molds for Lamp Types 2 (and 3; see below) have been found in Ramla, attesting to their local manufacture (Rosen-Ayalon & Eitan 1969; Kletter 2005:86, Tongue-Handled Lamps, Fig. 21:3-10). Recently many complete lamps were found in a kiln dump at Zahal Street in Ramla (Alisha and Torgë 2014). Miniature tongue-handled lamps were also produced (see above). Arnon dates this type to between the 749 CE earthquake and the mid-10th century (Arnon 2007:75, Oil Lamp Type C; Arnon 2008b:220-222, Type MC). At Beth Shean they are dated to the late 8th or early 9th century through the 11th (Hadad 2002:95, Type 37). At Tiberias garland-decorated lamps are dated to the 9th century through the mid-10th and beyond (Stacey 2004:155-156, Oil Lamp Form 2A), and the geometric-decorated lamps to the 9th century (Stacey 2004:156-157, Oil Lamp Form 2B). One of the oil lamps here (Fig. 2.45:6) is identical to—i.e. made in the same mold—as another found in Ramla (Rosen-Ayalon & Eitan 1969).

The parallels below (Fig. 2.46) relate to decorative motifs.

Type 3: hanging oil lamps (Fig. 2.46:13)
Oil lamps designed for hanging are very rarely found. This type is known to have been in use during the Byzantine and Umayyad periods. They may have been found at Gretz Street, Ramla and at Ramla (South) (Arbel 2005: Fig. 2:7-8; Tal and Taxel 2008: Fig. 6.86:8, 10-12 [termed 'cylindrical mugs' or 'juglets']). At Tel Massos taller such lamps were found at an Umayyad-period monastery (Fritz & Kampnski 1983: Taf. 169:3-4).

SUMMARY AND CONCLUSIONS: THE IMPORTANCE OF THE CURRENT EXCAVATION

Generally, Early Islamic pottery has two defining characteristics: it is rather uniform throughout the 9-11th centuries, and includes vessels—mostly bowls and jugs—made of buff ware which was usually well fired and yellowish in color. Glazed bowls are also a significant element of the regional corpus, and are prominent in the current White Mosque Street site assemblage.

The site stratigraphy points to one main phase, and most of the pottery runs throughout the Early Islamic period, with some types known to begin already in the Umayyad period. Like other excavations at Ramla, this is an Early Islamic site which probably had Umayyad beginnings that are untraceable now, and probably extended into the Fatimid period in a single rolling phase of continuous urban activity rather than clearly defined stages.

The ceramic assemblage's main value is typological; a moderately affluent residential area with domestic production is indicated, and perhaps a small commercial element.

A common context issue in Ramla excavations should be noted here. About 10% of the vessels selected for publication exhibit green marks from some form of mold or slime. These stains indicate that the vessels were deposited in cess pits after their use. This phenomenon is also known from nearby sites such as Ramla (South) (Tal and Taxel 2008:125) and Tsrifin (Kohn-Tavor and Avissar, forthcoming). It is interesting that some vessels were discarded intact! Cess pits should be treated as good contexts, given that they were sealed loci.

This chapter has employed some new approaches and understandings, including the sub-division of buff ware jugs and toy vessels, and a relatively broad discussion of zoomorphic vessels.

The pottery assemblage presented here is one of the largest published to date from the Early Islamic period in Ramla, and it comprises an important contribution to our knowledge of the ceramic repertoire in *Jund Filastin*'s capital. The variety of vessels here reflects the daily life, culinary practices, economy and commerce of ancient Ramla.

REFERENCES

Amir, R. 2004. Pottery and Other Finds. In: Hirschfeld, Y. (ed.) *Excavations at Tiberias, 1989-1994*. Jerusalem.

Arbel, Y. 2005. Ramla. *Hadashot Arkheologiyot* 117: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=124&mag_id=110

Arnon, Y.D. 2007. Excavation in Marcus Street, Ramla: Pottery, Oil Lamps and Carved Stone Vessels. *Contract Archaeology Reports* II: 38-99.

Arnon, Y.D. 2008a. *Caesarea Maritima, the Late Periods (700-1291 CE)* (British Archaeological Reports, International Series 1771). Oxford.

Arnon, Y.D. 2008b. The Ceramic Oil Lamps of the Transitional and Medieval Periods (640-1300): A Chronological and Typological Study. In: Holum, K.G., Stabler, J.A. and Reihnardt, E.G. (eds.) *Caesarea Reports and Studies: Excavations 1995-2007 within the Old City and the Ancient Harbor* (British Archaeological Reports, International Series 1784). Oxford. Pp. 213-264.

Avissar, M. 1996. The Medieval Pottery. In: Ben-Tor, A., Avissar, M. and Portugali, Y. (eds.) *Yoqne'am I: The Late Periods* (Qedem Reports 3). Jerusalem. Pp. 75-172.

Avissar M. 2005. *Tel Yoqne'am: Excavations on the Acropolis* (Israel Antiquitiy Reports 25). Jerusalem.

Avissar, M. 2006. The Ceramic Finds. In: Barbé, H. (ed.) Building Fragments of the Early Islamic Period on Ha-Gedud Ha-'Ivri Street in Ramla. *'Atiqot* 51: 39*–47*. (Hebrew; English summary pp. 237-238)

Avissar, M. 2009. The Pottery. In: Elisha Y. Ramla. *Hadashot Arkheologiyot 121:* http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=1023&mag_id=115

Avissar, M. 2011. Ceramic Finds. In: 'Azab A. Ramla. *Hadashot Arkheologiyot* 123: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=1810&mag_id=118

Avissar, M. 2013a. The Ceramic Finds from the Late Roman to the Ottoman Periods at Bet She'an (Youth Hostel). *'Atiqot* 77: 65-146. (Hebrew; English summary pp. 129*–130*)

Avissar, M. 2013b. Pottery. In: Torgë, H. (ed.) Ramla, David Razi'el Boulevard. *Hadashot Arkheologiyot* 125: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=5386&mag_id=120

Avissar, M. and Stern, E.J. 2005. *Pottery of the Crusader, Ayyubid, and Mamluk Periods in Israel* (Israel Antiquities Reports 26). Jerusalem.

Ayalon, E. 2000. Typology and Chronology of Water-Wheel (S'eqiya) Pottery Pots from Israel. *Israel Exploration Journal* 50: 216-226.

Barmaki, D.C. 1944. The Pottery from Kh. el Mafjar. *Quarterly of the Department of Antiquities in Palestine* 10 (2-3): 65-105.

Bass, G.F. and van Doorninck Jr., F.H. 1978. An 11th Century Shipwreck at Serçe Limanı, Turkey. *International Journal of Nautical Archaeology and Underwater Exploration* 7(2): 119-32.

Billig, Y. 2005. Ramla. *Hadashot Arkheologiyot* 117: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=118&mag_id=110

Bouchenino, A. 2007. Building Remains and Industrial Installations from the Early Islamic Period at Khirbat Deiran, Rehovot. *'Atiqot* 56: 119-144. (Hebrew, English summary)

Cytryn-Silverman, K. 2010. The Pottery Results. In: Gutfeld, O. (ed.), *Ramla—Final Report on the Excavations North of the White Mosque* (Qedem 51). Pp. 97-213.

Cytryn-Silverman, K. 2013. Pottery from the Islamic Period. In: Ben-Ami, D. (ed.) *Excavations in the Tyropoeon Valley I: Area M1 (2007)* (Israel Antiquities Authority Reports 52). Jerusalem. Pp. 167-204.

Egloff, M. 1977. *Kellia III: La poterie Copte*. Geneva.

Elisha, Y. and Torgë, H. 2014. Ramla, Zahal Street. *Hadashot Arkheologiyot* 126: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=10608&mag_id=121

Fritz, V. and Kempinski, A. 1983. *Ergebnisse der Ausgrabungen aufder Hir- bet el-Msas (Tel Massoss) 1972-1975*. Wiesbaden.

Gichon, M. 1974. Fine Byzantine Wares from the South of Israel. *Palestine Exploration Quarterly* 106: 119-139.

Hadad, S. 2002. *The Oil Lamps from the Hebrew University Excavations at Bet Shean*. (Qedem Reports 4). Jerusalem.

Haddad, E. 2010. Ramla, Railroad. *Hadashot Arkheologiyot* 122: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=1496&mag_id=117

Haddad, E. 2011. Ramla, Ha-Nevi'im Nursery School. *Hadashot Arkheologiyot* 123: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=1898&mag_id=118

Haddad, E. 2013. Ramla (South). *Hadashot Arkheologiyot* 125: http://hadashot-esi.org.il/Report_Detail_Eng.aspx?id=5462&mag_id=120

Hayes, J.W. 1972. *Late Roman Pottery*. London.

Hayes, J.W. 1980. *A Supplement to Late Roman Pottery*. London.

Kanias, T. and Toueg, R. 2012. Ramla. *Hadashot Arkheologiyot* 124: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=2104&mag_id=119

Kletter, R. 2005. Early Islamic remains at 'Opher Park, Ramla. *'Atiqot* 49: 57-99.

Kogan-Zehavi, E. 2004. Ramla. *Hadashot Arkheologiyot* 116: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=27&mag_id=108

Kohn-Tavor, A. 2013. The Finds. In: Govrin, Y. Excavation at Tsrifin—2008. Early Islamic Domestic and Industrial Features. *Nelson Glueck School of Biblical Archaeology* 2: 147-154.

Kohn-Tavor, A. and Avissar, M. forthcoming. The Pottery. In: Kohn-Tavor, A. (ed.) Excavations at Tzrifin. *'Atiqot*.

Lane, A. 1965. *Early Islamic pottery: Mesopotamia, Egypt and Persia*. London.

Lane, A. 1968. Glazed Relief Ware of the Ninth Century AD. *Ars Islamica* 6:56-65.

Le Maguer, S. 2011. Typology of Incense-Burners of the Islamic Period. *Proceedings of the Seminar for Arabian Studies* 41: 173-186.

Novacek, G.V. 2011. *Ancient Israel*. Chicago.

Magness, J. 1993. *Jerusalem Ceramic Chronology (c. 200-800 Ce)*. Sheffield.

Medley, M. 1986. *The Chinese Potter—A Practical History of Chinese Ceramics*. Oxford.

Parnos, G. and Nagar, Y. 2008. Ramla, Bialik Street. *Hadashot Arkheologiyot* 120: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=857&mag_id=114

Rauchberger, L. and Bouchenino, B. 2013. A Fountain and Other Remains from the Middle Ages in Ramla. *'Atiqot* 75: 51*–70*. (Hebrew; English summary, pp. 173-174)

Rosen-Ayalon, M. and Eitan, A. 1969. *Ramla Excavations: Finds from the VIII centurt* (Israel Museum Catalogue 66). Jerusalem.

Rosenthal-Heginbottom, R. and Sivan, R. 1978. *Ancient lamps in the Schloessinger Collection* (Qedem 8). Jerusalem.

Shlomi, V. 2007. Ramla, Qiryat Menachem Begin. *Hadashot Arkheologiyot* 119: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=614&mag_id=112

Shmueli O. amd Artzi, B. 2006. Ramla. *Hadashot Arkheologiyot* 118: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=389&mag_id=111

Stacey, D. 1989. Umayyad and Egyptian Red-Slip 'A' Ware From Tiberias. *Bulletin of the Anglo-Israel Archaeological Society* 8: 21-33

Stacey, D. 2004. *Excavations at Tiberias, 1973-1974: The Early Islamic Periods* (Israel Antiquities Authority Reports 21). Jerusalem.

Tal, O. and Taxel, I. 2008. *Ramla (South)- An Early Islamic Industrial Site and Remains of Previous Periods* (Salvage Excavation Reports 5). Tel Aviv.

Taxel, I. 2014. Luxury and Common Wares: Socio-Economic Aspects of the Distribution of Glazed Pottery in Early Islamic Palestine. *Levant* 46: 118-149.

Taxel, I. and Fantalkin, A. 2011. Egyptian Coarse Ware in Early Islamic Palestine: Between Commerce and Migration. *Al-Masaq* 23: 77-97.

Toueg, R. 2007. Excavation in Marcus Street, Ramla: Stratigraphy. *Contract Archaeology Reports* II: 12-37.

Toueg, R. 2011a. Ramla, Suleiman 'Abd al-Malak Street. *Hadashot Arkheologiyot* 123: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=1900&mag_id=118

Toueg, R. 2011b. Ramla, Bar Ilan Street. *Hadashot Arkheologiyot* 123: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=1770&mag_id=118

Toueg, R. 2012. Ramla, Ibn Sina School. *Hadashot Arkheologiyot* 124: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=2066&mag_id=119

Toueg, R. 2013. Ramla. *Hadashot Arkheologiyot* 125: http://www.hadashot-esi.org.il/report_detail.aspx?id=5439&mag_id=120

Toueg, R. and Arnon, Y.D. 2011. Ramla. *Hadashot Arkheologiyot* 123: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=1918&mag_id=118

Torgë, H. 2005. Ramla. *Hadashot Arkheologiyot* 117: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=279&mag_id=110

Torgë, H. 2008. Ramla. *Hadashot Arkheologiyot* 120: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=855&mag_id=114

Torgë, H. 2014. Ramla, Kokhav Ha-Zafon Neighborhood. *Hadashot Arkheologiyot* 126: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=8538&mag_id=121

Tushingham, A.D. 1985. *Excavations in Jerusalem, 1961-1967*. Toronto.

Vitto, F. 2005. Ramla. *Hadashot Arkheologiyot* 117: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=113&mag_id=110

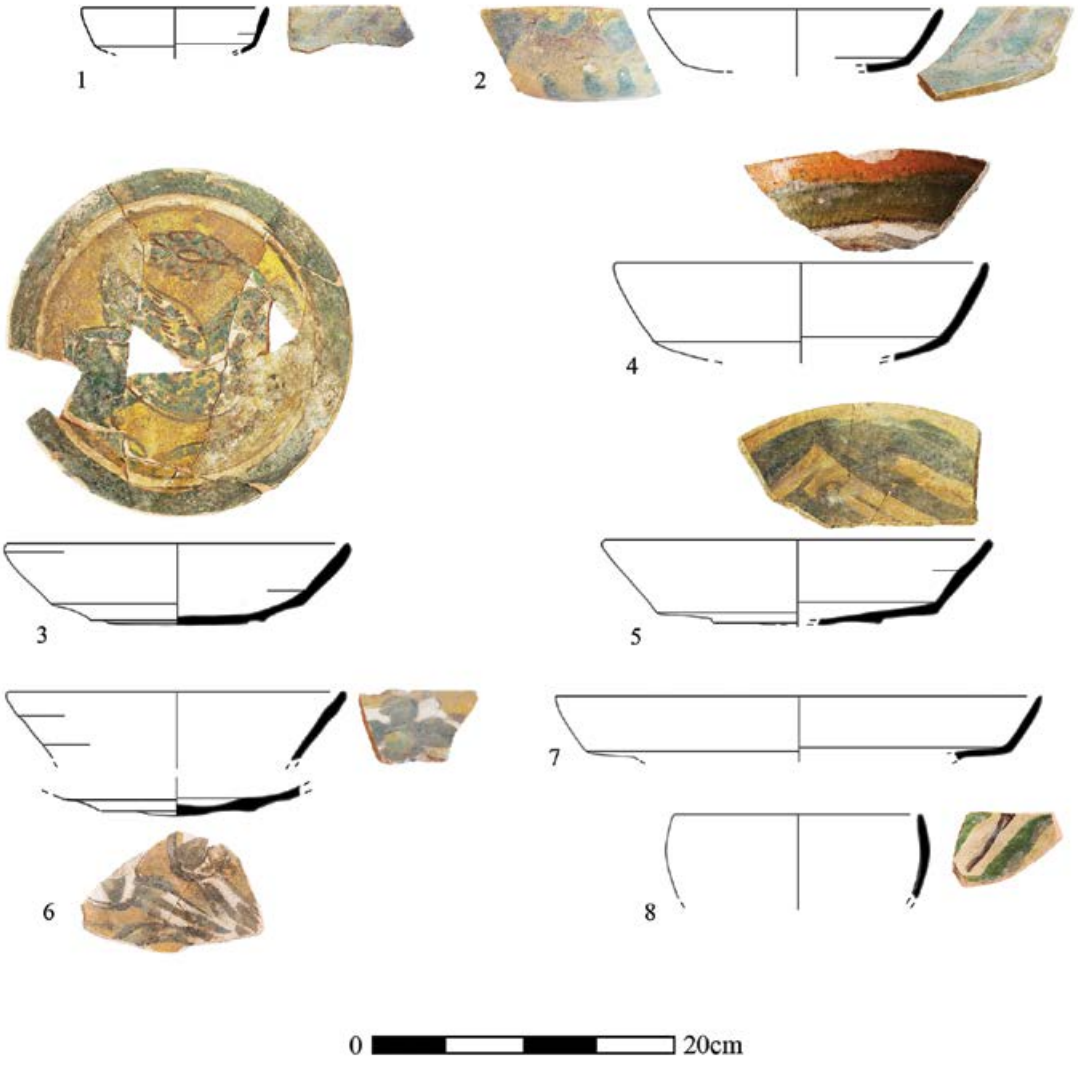


Figure 2.1. Painted-Glazed bowls.

←Figure 2.1. Painted-Glazed bowls.

No.	Reg. no.	Locus	Description	Parallels
1	50144	5042	Buff, thin wall. Yellow-green glaze with black stripes on interior; pale slip on exterior. Slime residue.	
2	50135	5033	Buff, yellow clay. Yellow-green glaze with black stripes inside and out. Slime residue.	
3	90057	9026	Pink clay, small black and white grits. Yellow glazed bottom with a decoration of a bird in green and black. An unglazed stripe around. Green glaze on the rim. Pale slip outside.	
4	50110/10	5030	Buff, pinkish clay, black-white glaze on interior bottom, green above yellow on interior wall. Drippings of glaze on the outside, on white slip.	Avissar 2009: Fig. 3:3
5	-	-	Buff, small black grits. Yellowish glaze, black and green pattern inside. Pale slip. Slime residue.	Kletter 2005: Fig. 11:16; Avissar 2011: Fig. 15:1
6	50122/2	5033	Pinkish clay. Partial yellowish glaze, black and green botanical motif. Drippings on outside.	Arnon 2008a: Type 221c
7	60047	6010	Pinkish clay, brown grits. Yellowish glaze, black stripes on interior and exterior.	Arnon 2007: Fig. 4:7
8	90016	9020	Pinkish clay. Yellowish glaze, black and green stripes.	Tal & Taxel 2008 Fig. 6.83:1-2; Kletter 2005: Fig. 11:16; Arnon 2007 Fig. 4:5; Arnon 200 8a: Type 221c; Avissar 2006: Fig. 4:3

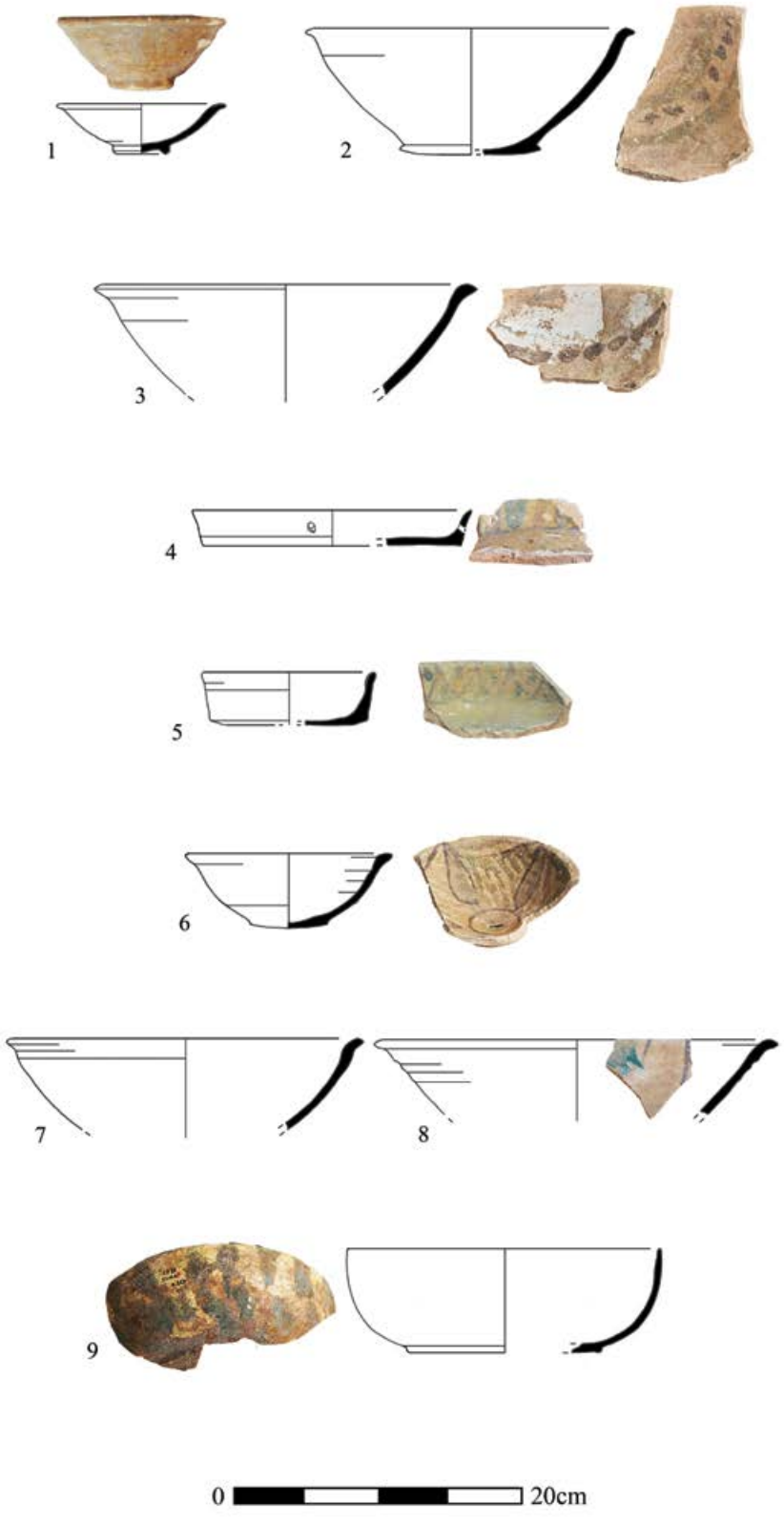


Figure 2.2. Common Glazed Bowls: stripes-and-dots decoration (1-3, 7-9); geometrically decorated (4-6).

←Figure 2.2.

No.	Reg. no.	Locus	Description	Parallels
1	40679	4544	White-buff, small black grits. Cream-brown glaze inside and outside on pale slip.	Arnon 2008a: Type 231c
2	90059	9029	Buff-yellow coarse clay. Yellow glaze with greenish stripes and black spots.	Avissar 1996: Fig.XIII.2:4; Cytryn-Silverman 2010: Pl. 9.9: 12; Arnon 2007: Fig. 4:2
3	90009	9010	Buff, small black grits. Yellow glaze with greenish stripes and black spots. Dripping on exterior, over pale slip.	Cytryn-Silverman 2010: Pl. 9.9: 12; Rauchberger and Bouchenino 2013: Fig. 7:1; Arnon 2008a: Type 232b; Kletter 2005: Fig. 11:8
4	60560	6521	Buff-pinkish clay. Yellow glaze with black spots. Thin brown glaze on the outside.	Shmueli and Artzi 2006: Fig. 2:3
5	-	Surface, Area E	Buff, small black grits. Covered in pale slip. Thick yellow glaze with green spots, black triangles on the wall. Yellow-brown glaze on the outside.	Avissar 1996: Fig. XIII.3:2
6	50110/1(1-17)	5030	Buff, small black grits. Yellow glaze, floral design in black and green. Dripping on the outside, over pale slip.	Avissar 2013b: Fig. 10:3
7	90055	9023	Buff yellow coarse clay. Yellow-greenish glaze with black stripes inside and outside. Slime residue.	
8	50129/2	5035	Buff yellow clay. Greenish-cream glaze with black and green stripes.	Arnon 2007: Fig. 3:2; Arnon 2008a: Type 233d; Avissar 2011: Figs. 12:1, 15:2
9	50122	5033	Pinkish clay, brown grits. Yellow-greenish glaze with black stripes inside and outside. Slime residue.	Avissar 1996: Fig. XIII.3:2; Kletter 2005: Fig. 11:9

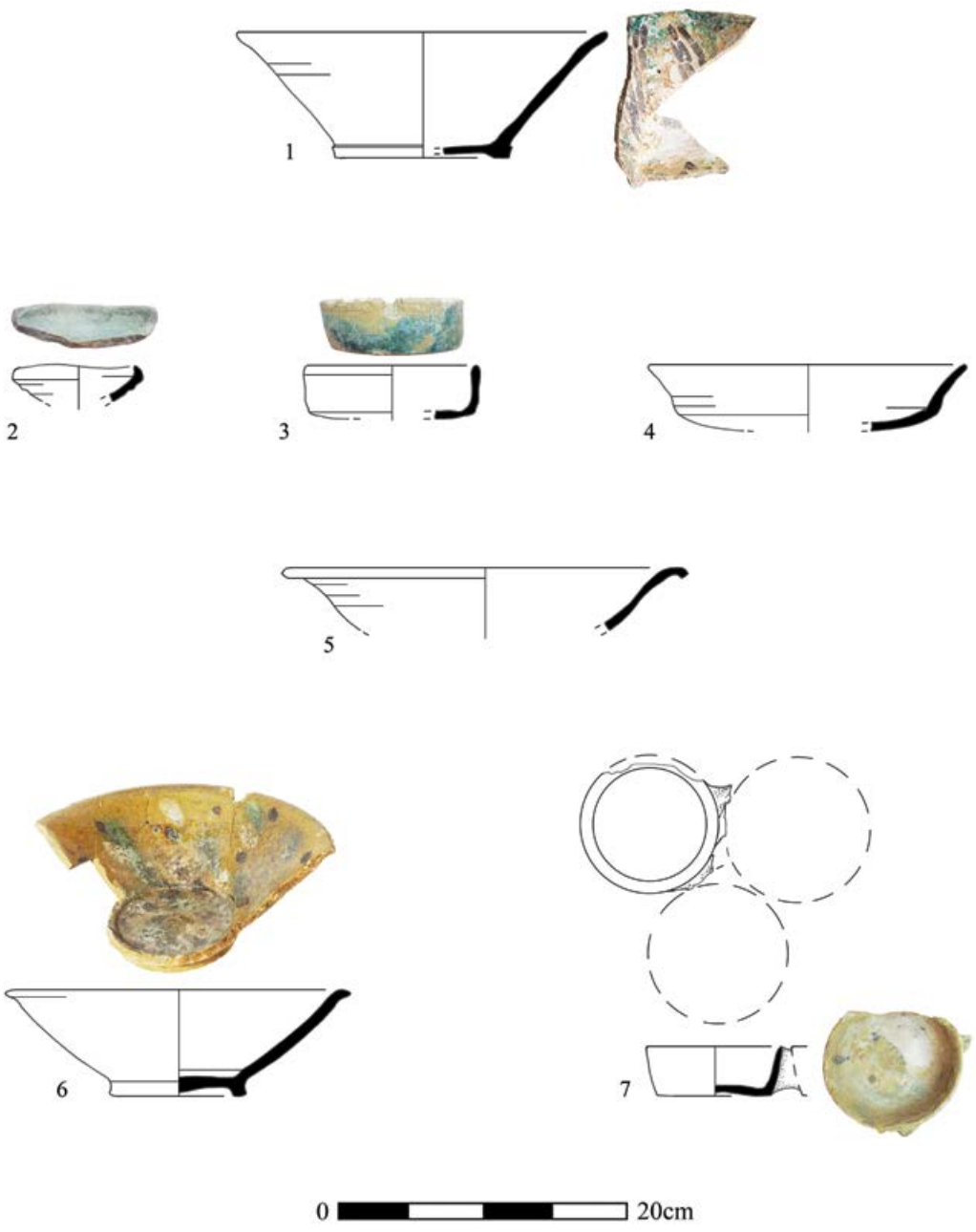


Figure 2.3. Common glazed bowls: design decorated (1); monochrome ware (2-6); multi-cup bowl (7).

←Figure 2.3.

No.	Reg. no.	Locus	Description	Parallels
1	60014/1-2	6003	Buff, small black grits. Yellowish glaze, black and green design on pale slip.	Avissar 1996: Fig. XIII.4:1; Kletter 2005: Fig. 11:1
2	40105/2	4036	Coarse pinkish clay, black grits. Pale turquoise glaze inside and outside.	
3	80284	8088	Buff, coarse yellow. Black grits. Green and greenish glaze on pale slip inside and outside.	Rosen-Ayalon 1969
4	80521	8505	Coarse brown clay, small black grits. Green glaze inside, yellowish outside.	Arnon 2008a: Type 241e
5	50162	5033	Buff, reddish clay, black grits. Yellowish-cream glaze with green spots inside and outside.	Arnon 2008a: Type 222a, 231c
6	40679	4544	Buff-white clay, small black grits. Brown-cream to yellow glaze on pale slip inside and outside.	Arnon 2008a: Type 231c
7	90567	9549	Buff. Yellowish glaze with green and black spots on pale slip.	Arnon 2007: Fig. 6:3; Rosen-Ayalon 1969; Arnon 2008a: Type 254a; Toueg 2012: Fig. 6:8

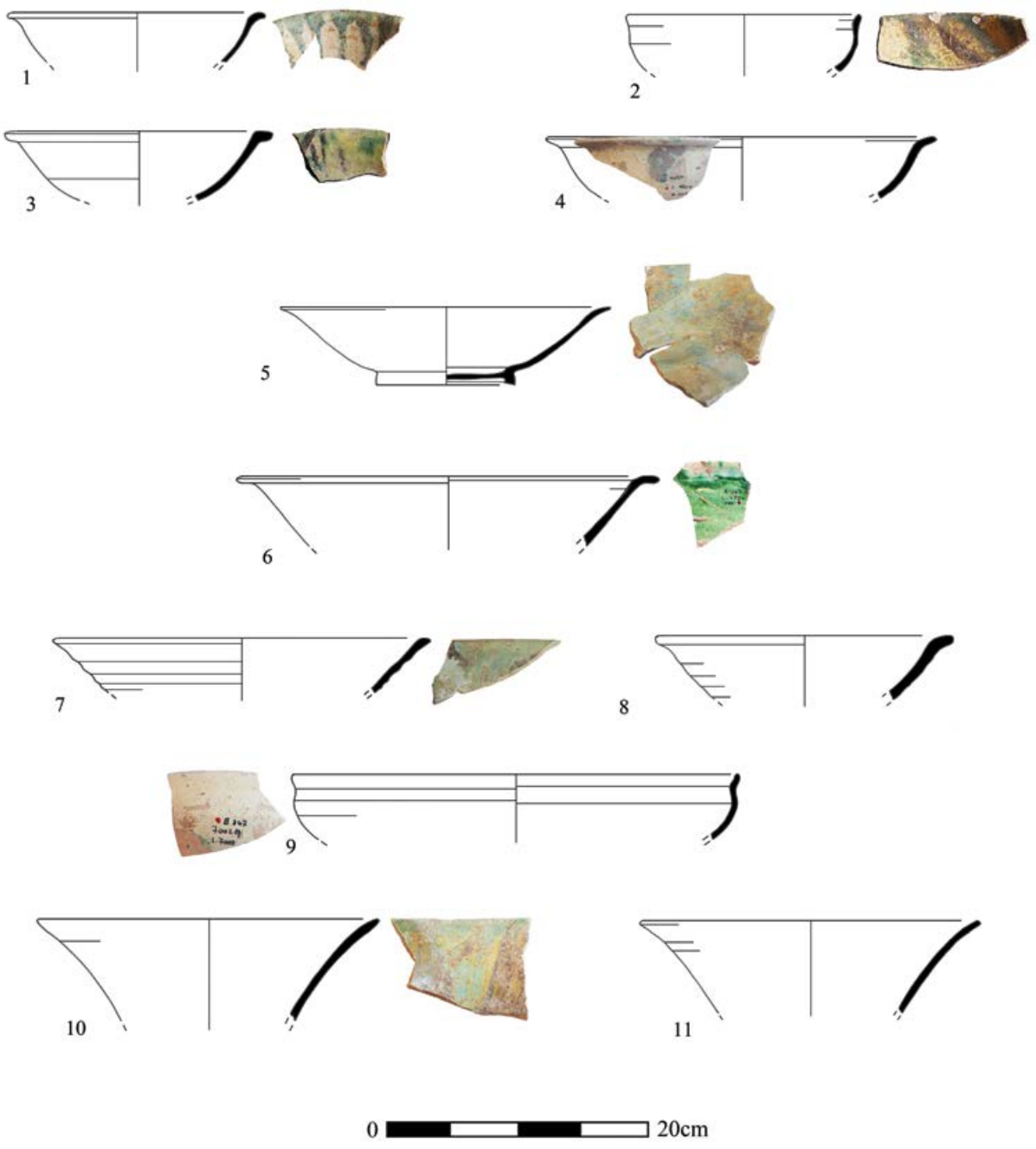


Figure 2.4. Fine Glazed Bowls—polychrome splash and mottled glaze ware.

←Figure 2.4.

No.	Reg. no.	Locus	Description	Parallels
1	40635	4529	Red clay, big white grits. Thick yellowish glaze with green stripes on the inside, thin yellowish on pale slip on the outside.	Arnon 2007: Fig. 3:1
2	10021	1013	Pinkish clay, black and white grits. Yellowish-greenish glaze with black stripes inside and out on pale slip.	Arnon 2007: Fig. 3:4; Arnon 2008a: Type 243h; Avisaar 2011: Fig. 12:3
3	50122	5033	Buff pinkish clay. Yellowish-greenish glaze with black stripes inside and out.	Arnon 2008a: Type 233j
4	90727	9718	Buff pinkish clay. Yellowish-greenish glaze with black stripes inside and outside on pale slip. Slime residue.	Arnon 2007: Fig. 3:2; Arnon 2008a: Type 233d, 243h
5	40625	4529	Buff yellowish clay, big black and white grits. Yellowish-greenish glaze inside and outside on pale slip.	Arnon 2008a: Type 233k; Avissar 1996: Fig XIII.6.4
6	40601	4524	Fine pink clay, small black grits. Fine yellowish-greenish glaze inside and outside.	
7	40291	4100	Buff yellowish clay, small black grits. Yellow-green glaze with black stains inside and outside on pale slip.	Tal & Taxel 2008:128-129; Arnon 2007: Fig. 3:1; Arnon 2008a: Type 233b
8	50099	5025	Buff yellowish clay, black grits. Yellowish glaze inside and outside. Green stripes.	Avissar 1996: Fig XIII.6.2
9	70029	7007	Buff pinkish clay. Yellowish glaze with green stains inside. Cream with green stains outside on pale slip.	Arnon 2007: Fig. 3:4; Arnon 2008a: Type 243f
10	90019	9023	Buff yellowish clay. Yellow-green glaze with black stripes inside and outside, over pale slip.	Arnon 2007: Fig. 3:3; Arnon 2008a: Type 243e; Avissar 1996: Fig XIII.6:3
11	70021	7005	Buff clay, few white grits. Yellowish glaze with green strips inside and outside.	

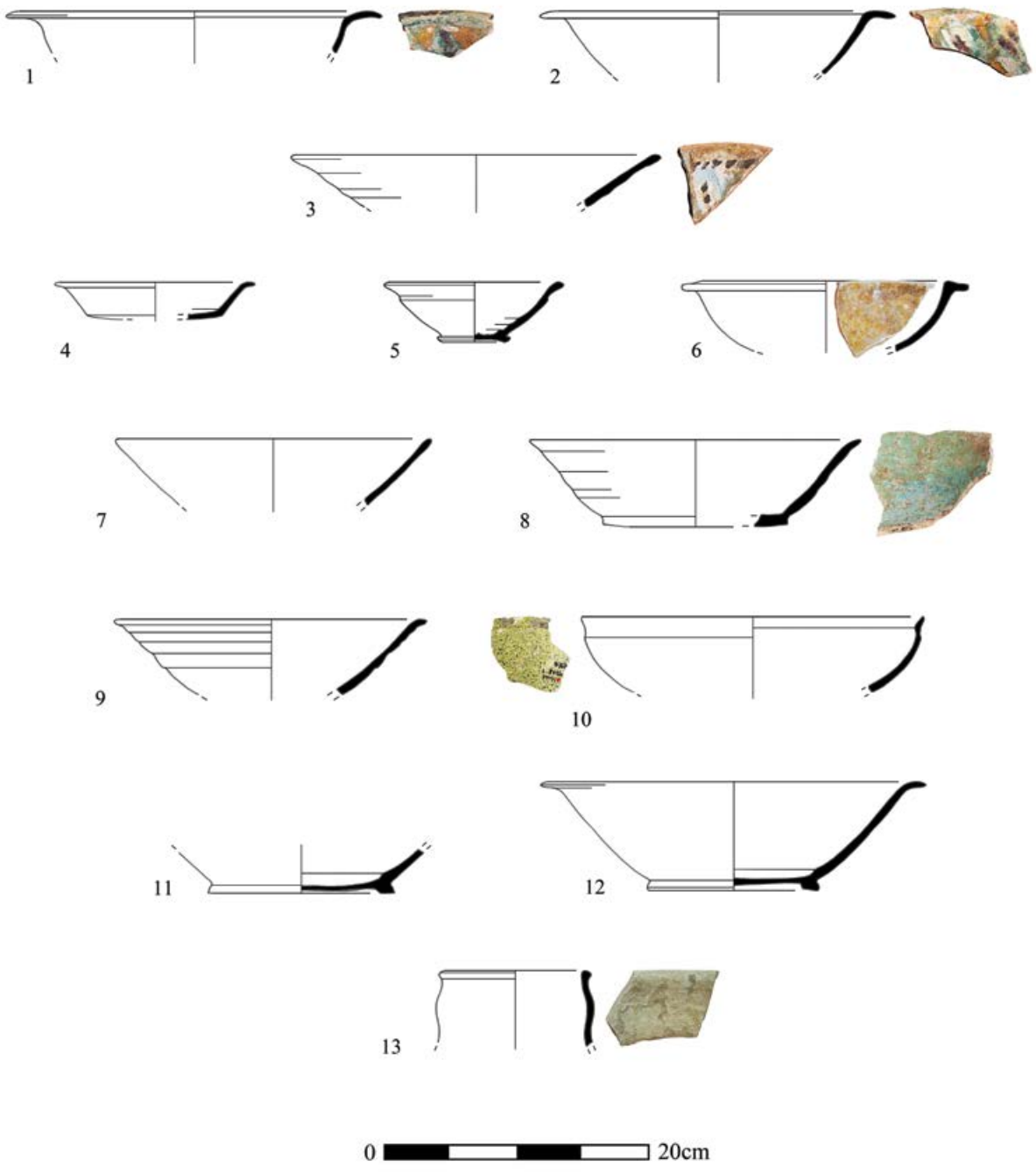


Figure 2.5. Fine glazed bowls: polychrome splash and mottled sgraffito ware (1-3); monochrome ware (4-13).

←Figure 2.5.

No.	Reg. no.	Locus	Description	Parallels
1	80056	8022	Pinkish clay. Green-yelow glaze with black spots on pale slip. Sgraffito.	
2	80075	8009	Fine pinkish clay, white grits. Green-yellow-cream glaze inside and outside on pale slip. Sgraffito.	Tal and Taxel 2008: Fig. 6.83:5-6; Arnon 2007: Fig. 3:9; Toueg 2011: Fig. 10:1
3	40168	4064	Coarse pinkish clay, black and white grits. Yellow-cream glaze with black spots inside and outside on pale slip. Sgraffito.	Arnon 2008a: Type 233n
4	40109/1	4008	Buff yellow clay. Black, orange and white grits. Brown-green homogenous glaze inside and outside, with black spots.	
5	40683	4548	Buff coarse yellow clay; large black and white grits.	
6	70023	7005	Buff coarse clay. Brown and green glaze inside and outside.	Arnon 2008a: Type 241b, g
7	40102	4039	Buff coarse clay, black grits. Pale slip.Non-homogenous greenish glaze inside and outside.	
8	40100/1	4039	Pinkish clay, big black and white grits. Thick green glaze inside, and dripping outside on yellow glaze.	Arnon 2008a: Type 241e
9	40679	4545	Coarse buff clay. Thick green glaze inside and greenish outside. Slime residue.	Arnon 2008a: Type 231c, 241a; Tal and Taxel 2008: Fig. 6.83:7-9
10	80071	8026	Buff coarse clay, black grits. Greenish glaze inside and yellowish glaze with green grits outside.	Arnon 2008a: Type 231c
11	40684/2	4550	Buff clay, small white and black grits. Thick brown glaze inside and thin cream glaze outside.	Arnon 2008a: Type 241b
12	40684/1	4550	Buff yellowish clay, small black grits. Thick brown-greenish glaze inside and outside. Corroded.	Arnon 2008a: Type 231c
13	80052	8013	Buff clay, black grits. Peeling greenish glaze inside and peeling yellowish-brown glaze outside.	

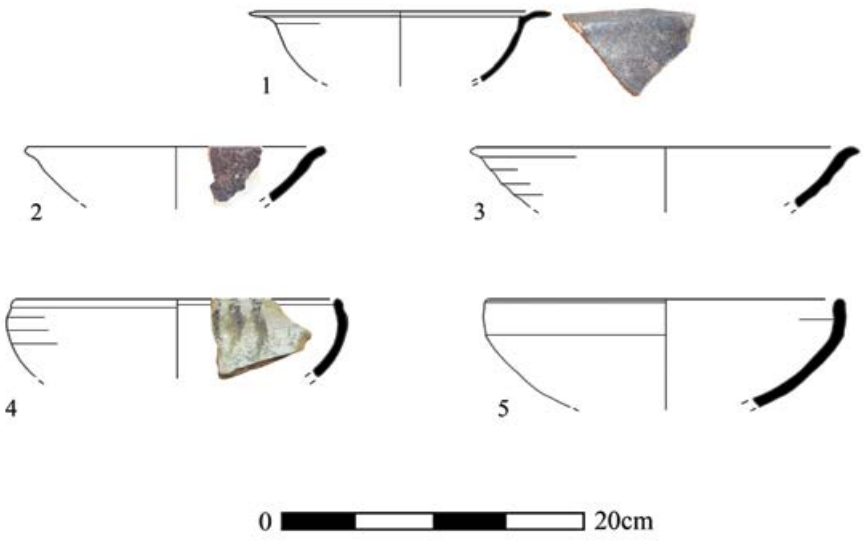


Figure 2.6. Alkaline-glazed bowls.

No.	Reg. no.	Locus	Description	Parallels
1	40102	4039	Buff coarse clay, black grits. Green glaze inside, dripping outside.	Kletter 2005: Fig. 12:7
2	40614	4530	Coarse yellow clay. Thick dark brown glaze inside, and thin outside.	
3	40102	4039	Coarse pinkish clay, black grits. Brown-gray glaze inside and outside.	
4	10004	1001	Coarse pinkish clay, very large black and white grits. Peeling cream glaze with brown stripes inside.	
5	40100/4	4039	Buff coarse clay, small black grits. Green glaze inside, dripping outside.	

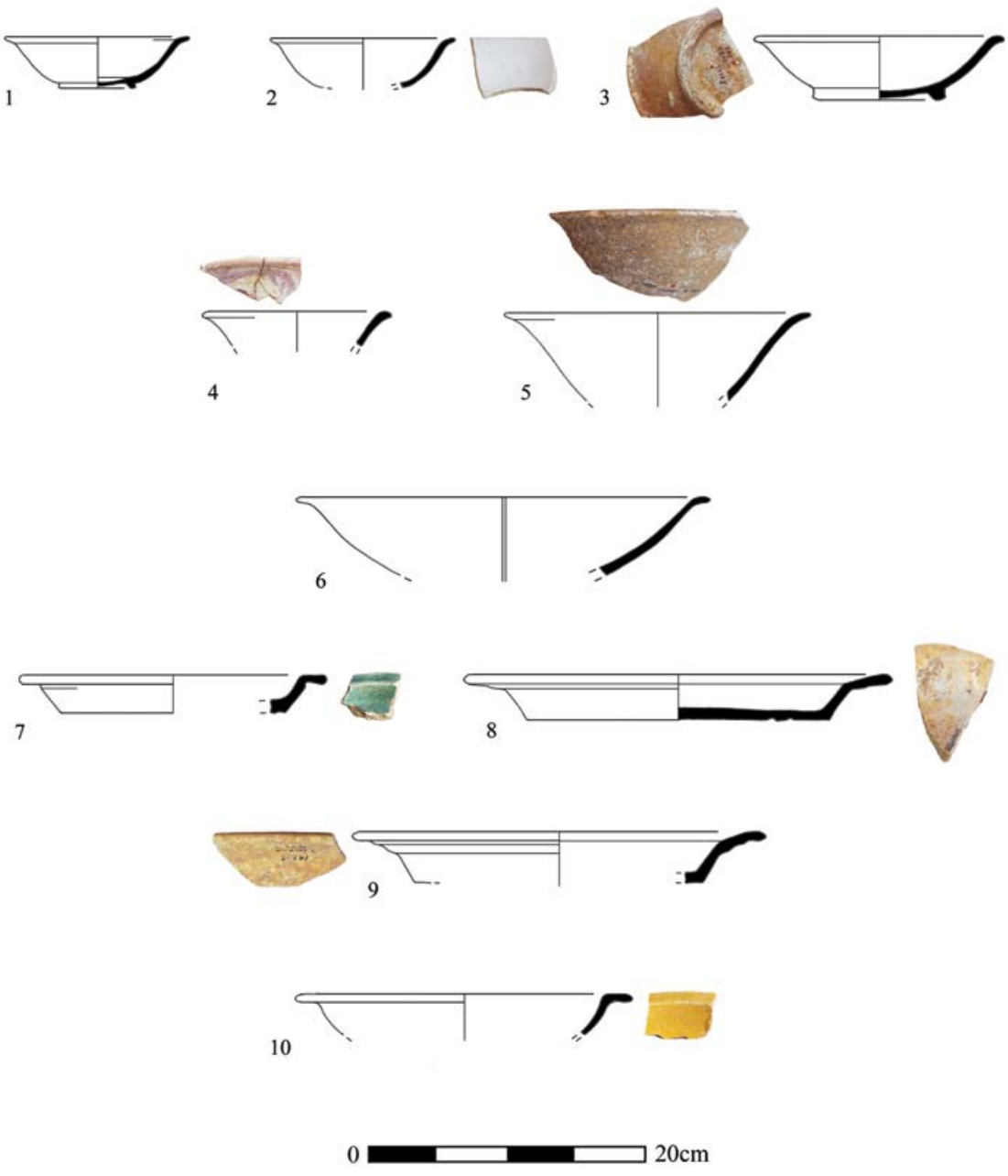


Figure 2.7. Tin-glazed bowls (1-9); imitation Celadon ware (10).

Figure 2.7.

No.	Reg. no.	Locus	Description	Parallels
1	60030	6006	Brown clay, white grits. Fine opaque cream glaze which is thick inside, and thinner outside.	
2	60539	6514	Thin buff ware, fine tin-glaze which is peeling on interior and exterior.	Avissar 2006: Fig. 5:2, 3; Taxel 2014 Fig. 5:2
3	50122	5033	Buff clay, black grits. Thick brown glaze on inside and outside, over pale slip. Green spots.	
4	40154/2	4059	Coarse brown clay; white grits and mica; pale-slipped inside and outside; red brush paint	
5	40108/1	4039	Buff clay, black grits. Thick cream glaze inside and out.	Taxel 2014: Fig. 4:1
6	40154/1	4059	Buff ware, orange clay, white grits. Cream glaze—thick inside, thinner outside—over pale slip.	Taxel 2014: Fig. 4:1
7	50122/1	5039	Thin white ware, black grits. Thick green-turquoise glaze, thick inside and thinner outside.	Taxel 2014: Fig. 4:2-3
8	80275	8088	Buff clay, small black grits. Thick white glaze with spots on the interior. Brown glaze over a pale slip on the outside.	Kletter 2005: Fig. 11:11-12; Taxel 2014: Fig. 4:2-3
9	40105/1	4036	Light-colored clay, many black grits. Thick cream glaze inside and outside.	Taxel 2014: Fig. 4:2-3
10	90524	9519	Pinkish clay, black grits. Pale slip throughout the vessel. Thick buff-colored glaze inside and on the rim. Yellowish glaze on the outside.	Avissar 1996: Fig. XIII.14:1

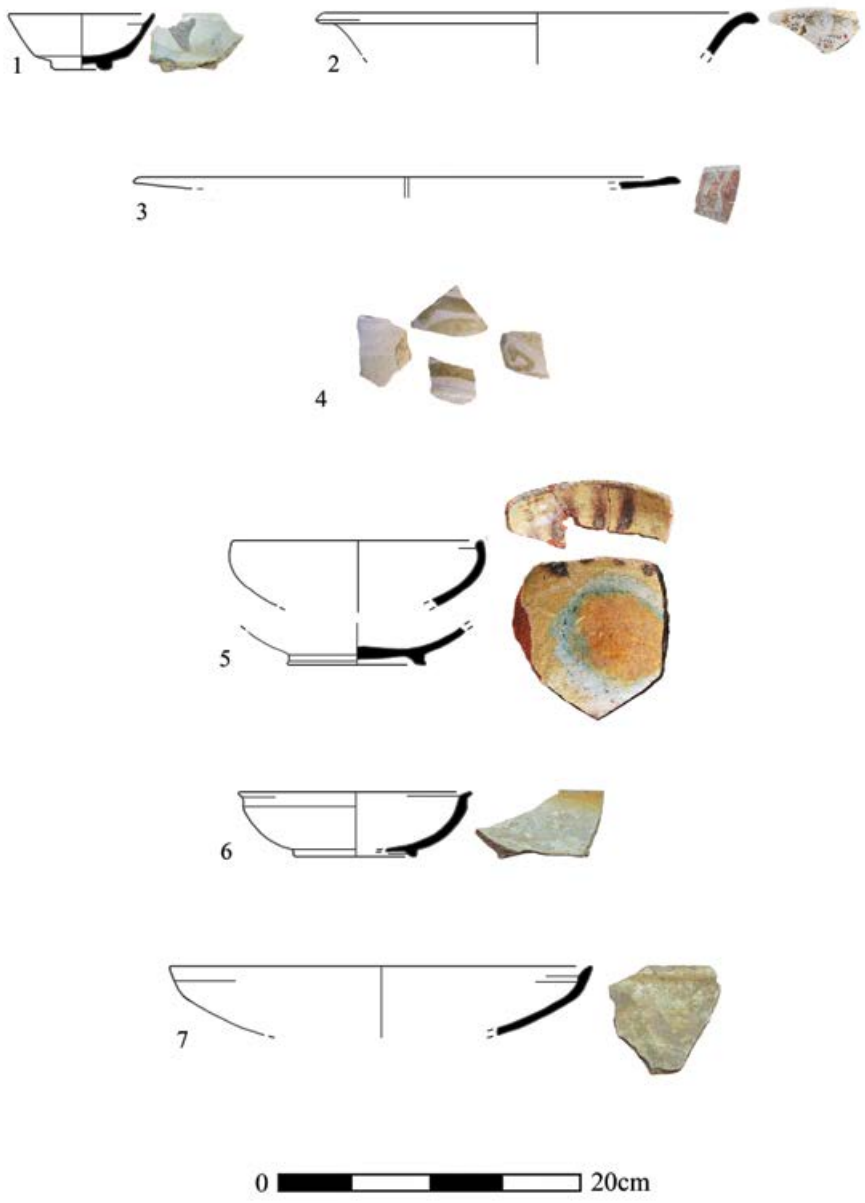


Figure 2.8. Tin-glazed bowls decorated with luster (1-3); double-slipped bowls—polychrome splashed and mottled ware (4); double-slipped Bowls with everted rim (5-7).

Figure 2.8.

No.	Reg. no.	Locus	Description	Parallels
1	60035	6007	Thin buff clay. Cream-silver glaze inside and out. Black and turquoise spots.	
2	60568	6521	Fine buff clay, small black grits. High-quality cream glaze, thin brown stripes inside, faint yellow lines along the rim.	Stacey 2004: Fig. 5.24:2; Rauchberger and Boucheniino 2013: Fig. 7:5
3	50065/3	5023	Fine buff clay, small black grits. Thick greenish glaze over a cream-colored base inside, and red-brown glaze outside over a cream base.	Stacey 2004: Fig. 5.24:1
4	40184	4056	Fine buff clay they grayish luster glaze throughout vessel, with green decoration outside.	Avissar 2006: Fig. 5:4
4	70024	7006	Coarse red clay, white grits. Pale slip throughout the vessel. The interior bears cream glaze with brown spots, and a green line on the rim and half-way up the side.	Kletter 2005: Fig. 12: 14; Avissar 1996: Fig. XIII.16:2
5	70526	7501	Coarse red clay, white grits, brown core. Yellow glaze inside, dripping on the outside, over a pale slip.	
6	40568	4512	Coarse buff ware, brown glaze throughout.	

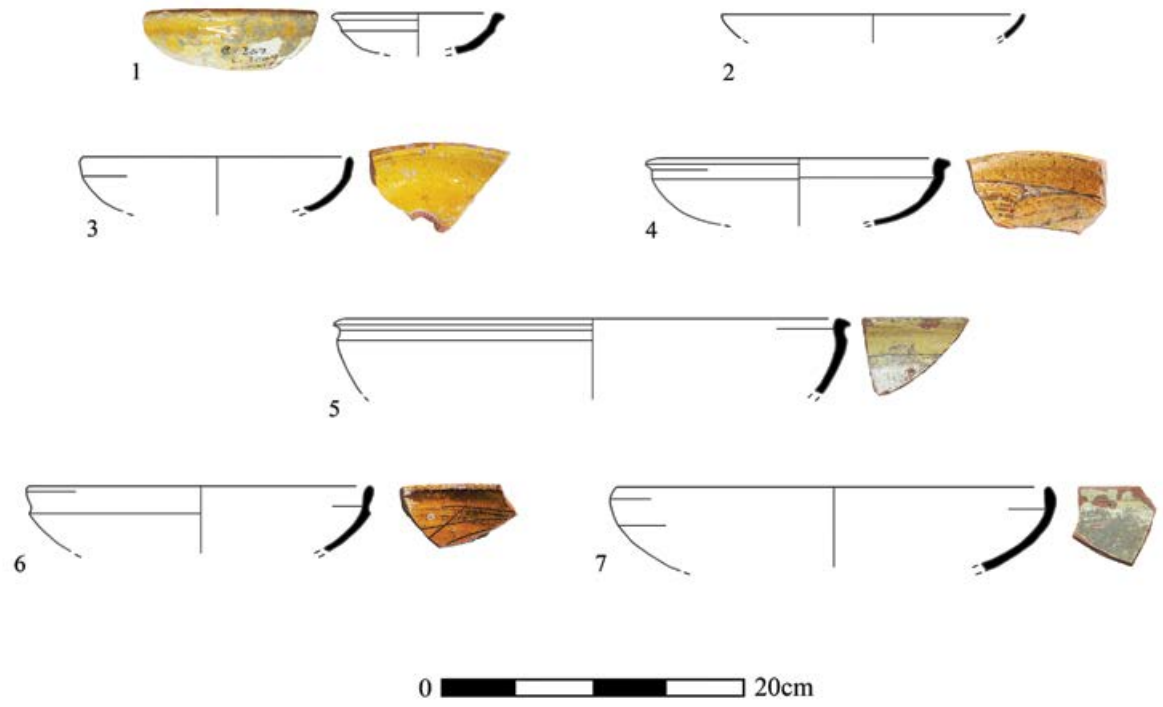


Figure 2.9. Double-Slipped Bowls with sgraffito.

No.	Reg. no.	Locus	Description	Parallels
1	10007	1004	Pinkish clay, black grits. Pale slip throughout. Thick yellow glaze inside, dripping outside.	Avissar 2009: Fig. 6:9
2	60514	6509		
3	90514	9510	Brown clay, large white grits. Pale slip throughout. Thick yellow glaze inside, dripping outside.	Avissar 1996: Fig. XIII.19:1
4	70501	7501	Pinkish clay, black grits. Pale slip on the inside. Thick yellow glaze inside, dripping outside. Thick brown 'Shaplave' sgraffito.	Arnon 2008a: Type 251i; Kletter 2005: Fig. 12:1,16
5	50109	5031	Brown clay, large white grits. Cream-yellow glaze, brown sgraffito inside. Dripping over pale slip outside.	Kletter 2005: Fig. 12:11; Avisaar 2011: Fig. 12:5
6	80155	8028	Coarse brown clay, large white grits. Pale slip throughout. Yellow-brown glaze inside, brown dripping outside. Brown sgraffito.	Arnon 2007; Fig. 2:6; Avissar 2011: Fig. 12:4
7	10019	1009	Brown clay, white grits. Cream-yellow glaze and brown sgraffito inside, dripping outside over pale slip.	Arnon 2008a: Type 251i

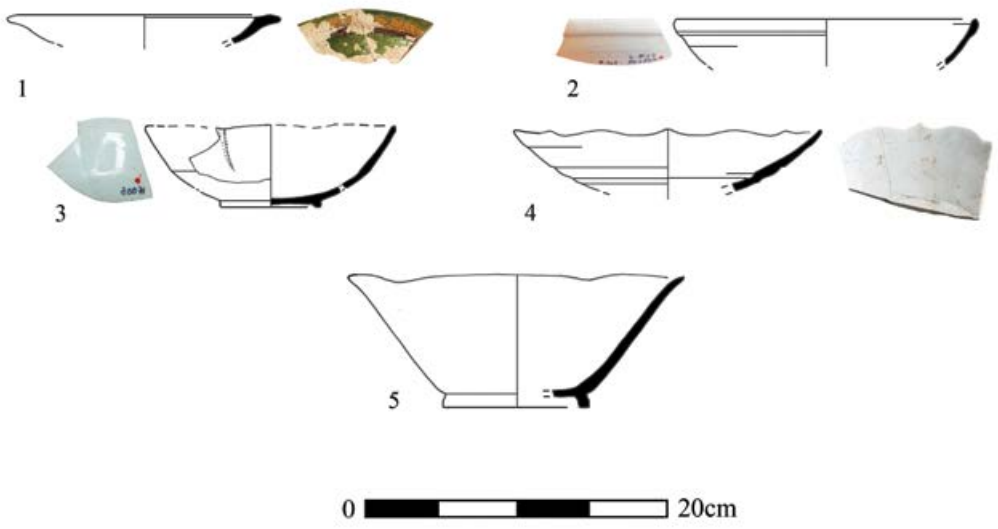


Figure 2.10. Mold-made glazed bowls (1); porcelain bowls (2-5).

No.	Reg. no.	Locus	Description	Parallels
1	70029	7007	Dark pinkish and coarse clay, black grits. Mold-made vessel. Thick dark green glaze on interior. Yellow and brown glaze on rim, thin yellowish glaze on rim exterior.	Stacey 2004: Fig. 5.23:2; Arnon 2008a: 35, Type 224d; Kletter 2005: Fig. 12:3
2	80283/1	8102	Porcelain, fine white clay. Shiny white glaze.	Kletter 2005: Fig. 12:19
3	80071	8026	Porcelain, fine white clay. Shiny green-cream glaze.	Arnon 2007: Fig. 5:5
4	80283/2	8102	Porcelain, fine white clay. Shiny white glaze.	Kletter 2005: Fig. 12:19
5	40648	4536	Porcelain; fine white clay; lustrous white glaze.	

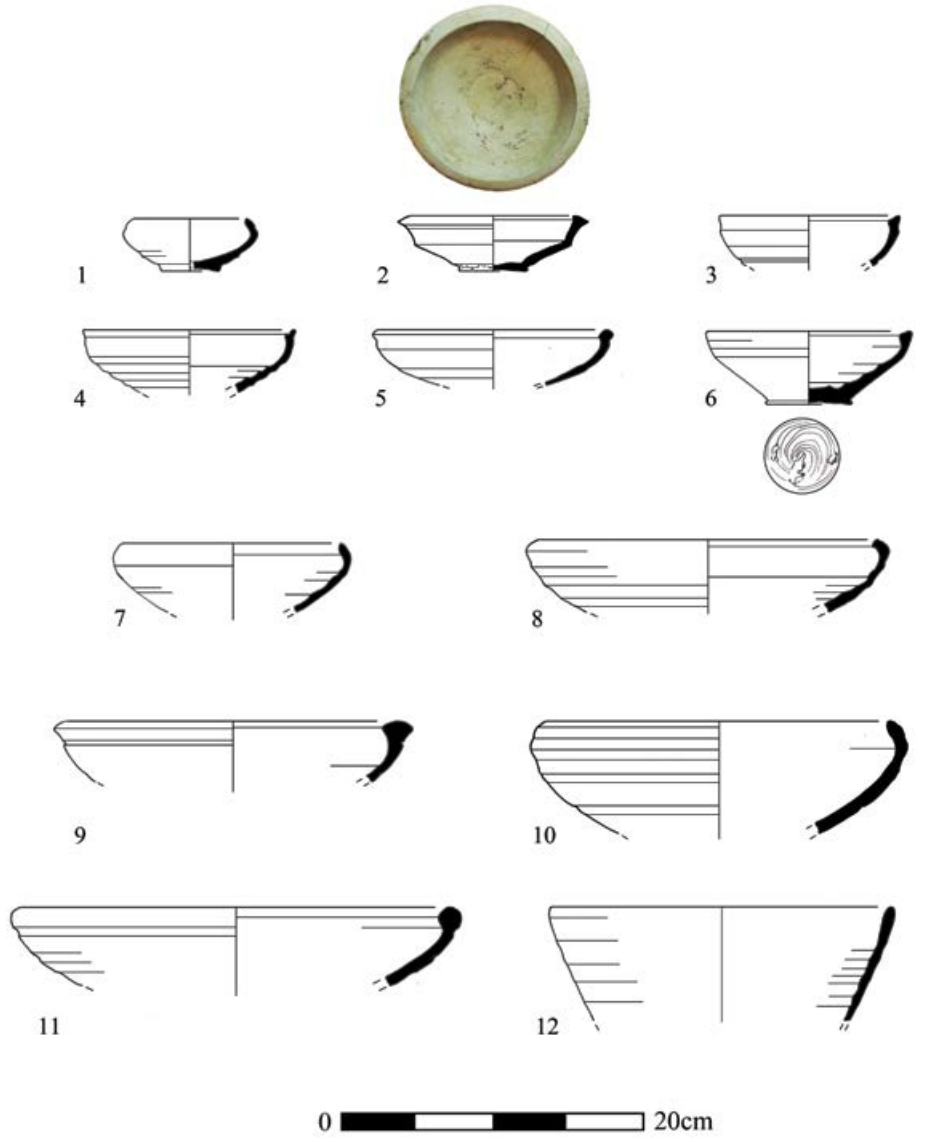


Figure 2.11. Unglazed bowls: buff hemispherical bowls.

Figure 2.11.

No.	Reg. no.	Locus	Description	Parallels
1	40274	4093	Coarse grayish clay, large black grits. Soot stains.	Kletter 2005: Fig. 14:5
2	90045	9022	Buff ware, black, white and orange grits.	
3	40100/6	4039	Buff ware, black and white grits.	Kletter 2005: Fig. 14:6; Tal and Taxel 2007: Fig 9.79:5
4	60539	6514	Fine orange clay; small white grits; fired to metallic quality.	Kletter 2005: Fig. 15:8
5	40121	4036	Buff ware, large black and white grits.	Kletter 2005: Fig. 14:5; Arnon 2008a: Type122a
6	40524	4500	Buff ware, large black grits. Soot traces.	Kletter 2005: Fig. 14: 6; Arnon 2007: Fig. 1:1, 5; Tal and Taxel 2007: Fig 9.79:5
7	40618	4528		
8	90726	9713	Orange clay; white grits; fired to metallic quality.	Cytryn-Silverman 2010: Pl. 9.2:35
9	40631	4532	Fine pinkish clay, black grits. Pale slip?	Tal and Taxel 2007: Fig. 9.79:7; Avissar 2011: Fig. 15:4; Rauchberger and Bouchenino 2013: Fig. 7:10
10	40683	4548	Buff clay, small black grits. Soot stains.	Kletter 2005: Fig. 14:6; Arnon 2008a: Type122b; Avissar 2011: Fig. 15:8
11	40630	4529	Coarse buff clay, large black, white and brown grits.	Arnon 2008a: Type122a; Haddad 2013: Fig. 10:1, 2; Rauchberger and Bouchenino 2013: Fig. 7:6
12	40121/1	4036	Buff yellowish coarse clay, large black and white grits.	

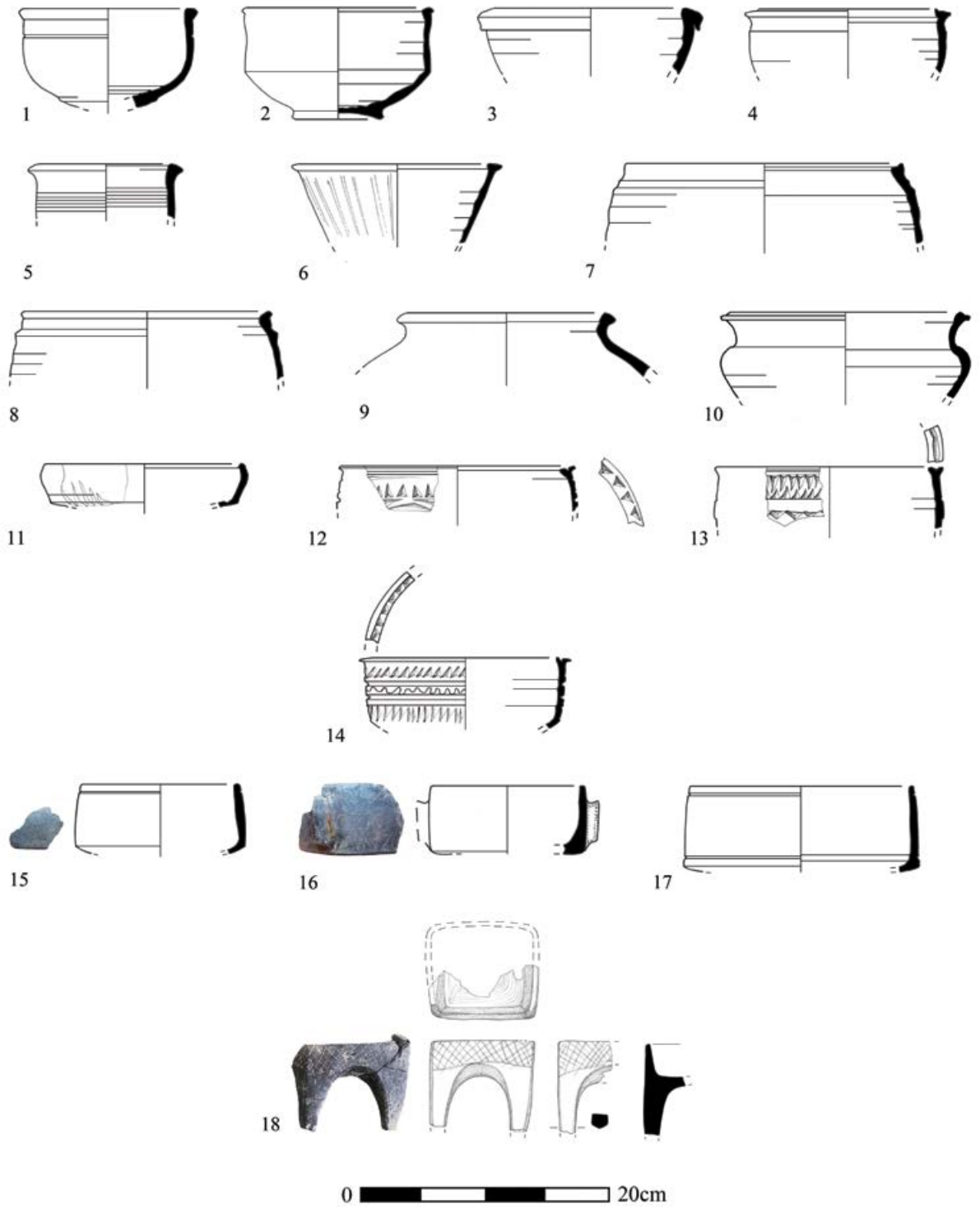


Figure 2.12. Unglazed bowls: deep bowls, buff ware (1-10); white-painted bowls (11); bowls with chisel-cut decoration (Kerbschnitt; 12-14); and black bowls (15-18).

Figure 2.12.

No.	Reg. no.	Locus	Description	Parallels
1	50110/13	5030	Coarse buff clay, large black and white grits.	Kletter 2005: Fig. 14:3; Cytryn-Silverman 2010: Pl. 9.11:13
2	90048	9026	Fine buff ware. Traces of white material on the surface.	Avissar 1996: Fig. XIII.64:2; Arnon 2008a: Type 141g; Tal and Taxel 2007: Fig 9.79:6
3	50064/7	5022	Buff clay, black and white grits.	
4	50036/2		Buff yellow clay; large black and white grits.	
5	40131	4048	Buff orange clay, black and white grits.	Arnon 2008a: Type 141f
6	60556	6520	Buff-orange clay, black and white grits. White slip. External incisions with sharp tool.	
7	80136	8028	Orange clay, black and white grits.	Arnon 2008a: Type 141g; Tal and Taxel 2007: Fig 9.79:6; Avisaar 2011: Fig. 12:8
8	40121/2	4036	Coarse buff clay, black and white grits.	Kletter 2005: Fig. 14:10
9	60021/1	6005	Coarse buff clay, large black and white grits; may be closed vessel	Barmaki 1944: Fig. 4:1
10	90057	9026	Buff clay, black and white grits. Pale slip.	Arnon 2008a: Type 141f; Avissar 2011: Fig. 12:9
11	60561	6520	Orange clay, outside gray, large white grits. White painted lines.	
12	50105/10	5018	Orange clay, gray core, white grits. *Kerbschnitt* decoration outside and on the rim top.	Tal and Taxel 2008: Fig. 6.82:1; Kletter 2005: Fig. 15:6-7; Haddad 2013: Fig. 10:5
13	80056	8022	Orange clay, white grits. *Kerbschnitt* decoration on exterior. Groove on rim top.	
14	70027	7007	Orange clay, gray core, white grits. *Kerbschnitt* decoration on exterior and rim top.	Tal and Taxel 2008: Fig. 6.82:1; Kletter 2005: Fig. 15:6-7
15	80514	8004	Coarse orangish clay, black and white grits. Thick burnishing in black throughout the vessel. Uneven firing.	
16	90531	9531	Coarse brown-gray clay, large white and brown grits. Thick black burnishing on interior and exterior.	Avissar 2013a: Fig. 6:19
17	40580	4520	Coarse gray clay, large white grits. Fine black burnishing on exterior. Engraved decoration.	Arnon 2007: Fig. 1:11
18	50036	5015	Coarse gray clay, white grits. Thick black burnishing on interior and exterior. Uneven firing.	Le Maguer 2011:175, Type C1

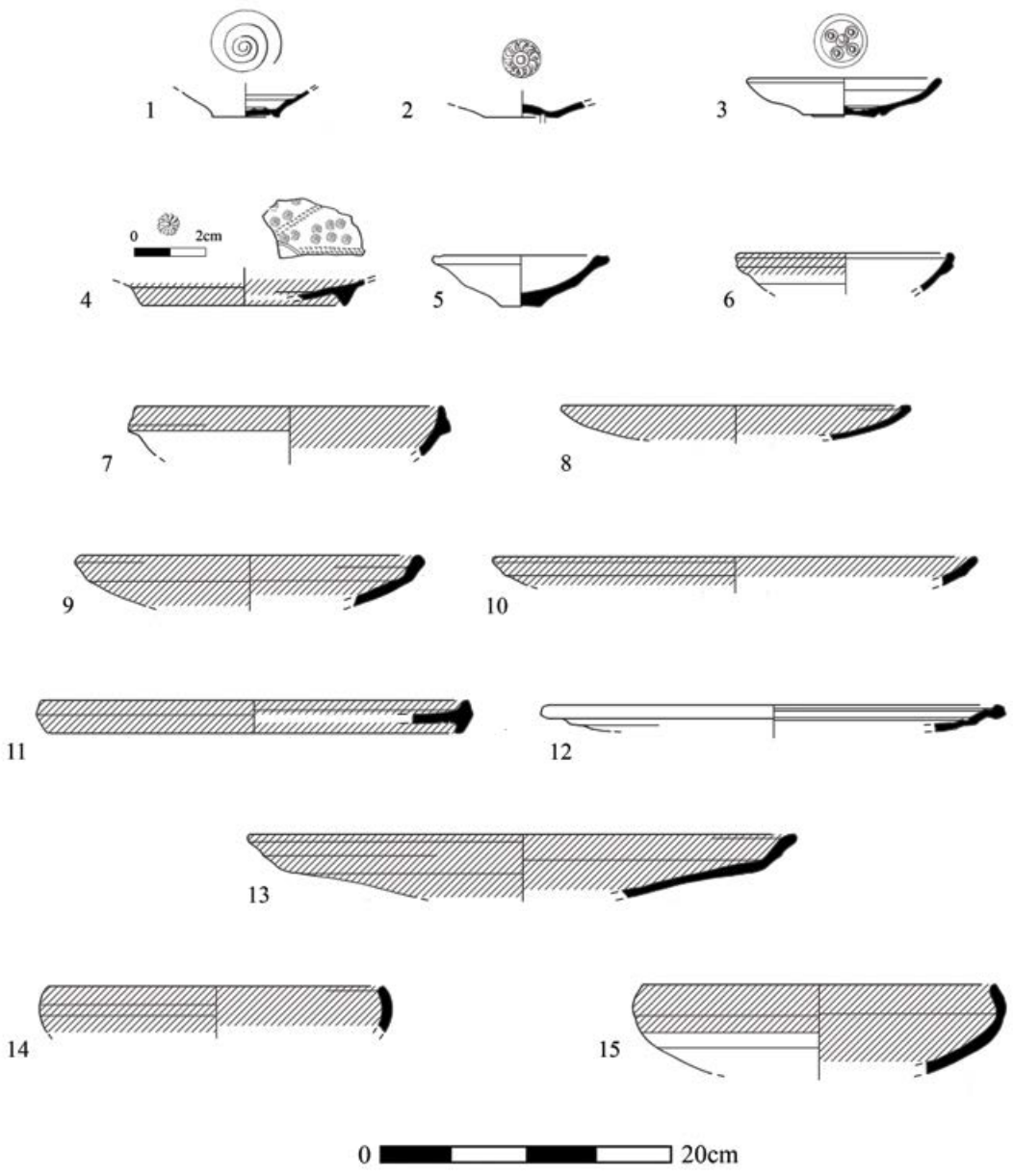


Figure 2.13. Egyptian Red Slip A Bowls.

Figure 2.13.

No.	Reg. no.	Locus	Description	Parallels
1	60532	6010	Fine red clay; well fired.	
2	90032	9023	Fine pinkish clay, mica grit. High-quality firing. Cream slip. Interior burnishing. Rosetta print decoration.	Haddad 2011: Fig. 4:1
3	40582	4522	Fine pinkish clay, mica grit. Remains of pale slip on interior and exterior. Circular print decoration.	
4	60560	6521	Fine pinkish clay, mica grit. High-quality firing. Red slip. Internal burnishing. Print decorated.	
5	60526	6508	Fine red clay; well fired.	
6	80162	8049	Fine pinkish clay. High-quality firing. Red slip on rim exterior.	
7	60556	6520	Pink-gray clay, small brown and black grits and mica. Cream slip on throughout the vessel, red slip on rim exterior. Interior burnishing.	
8	40590	4522	Fine pinkish clay, high-quality firing. Red slip. Interior burnishing.	
9	50041/5	5017	Fine pinkish clay, high-quality firing. brown grits, mica. Flaking, red slip, interior burnishing.	Arnon 2007: Fig. 25:3
10	70023	7005	Fine pinkish clay, high-quality firing. Flaking red slip, red burnishing on interior.	
11	50091/1	5029	Fine pinkish clay, mica. High-quality firing. Red slip. Interior burnishing.	Kletter 2005: Fig. 15:5; Egloff 1979:79, group I; Cytryn-Silverman 2013: Fig. 7.1:1; Avissar 2013b: Fig. 11:11
12	40568	4512	Coarse pink clay; large black and white grits; red burnish inside and outside.	
13	907424	9711	Fine pinkish clay, mica. High-quality firing. Red slip. Interior burnishing.	Avissar 2013b: Fig. 11:10
14	40634	4532	Fine pinkish clay. High-quality firing. Red slip on rim exterior.	
15	80236	8085	Fine pinkish clay, brown grits. High-quality firing. Red-cream slip throughout the vessel, dark red on rim exterior.	Arnon 2007 Fig. 1:6; Arnon 2008a: Type 125c; Rauchberger and Bouchenino 2013: Fig. 7:17

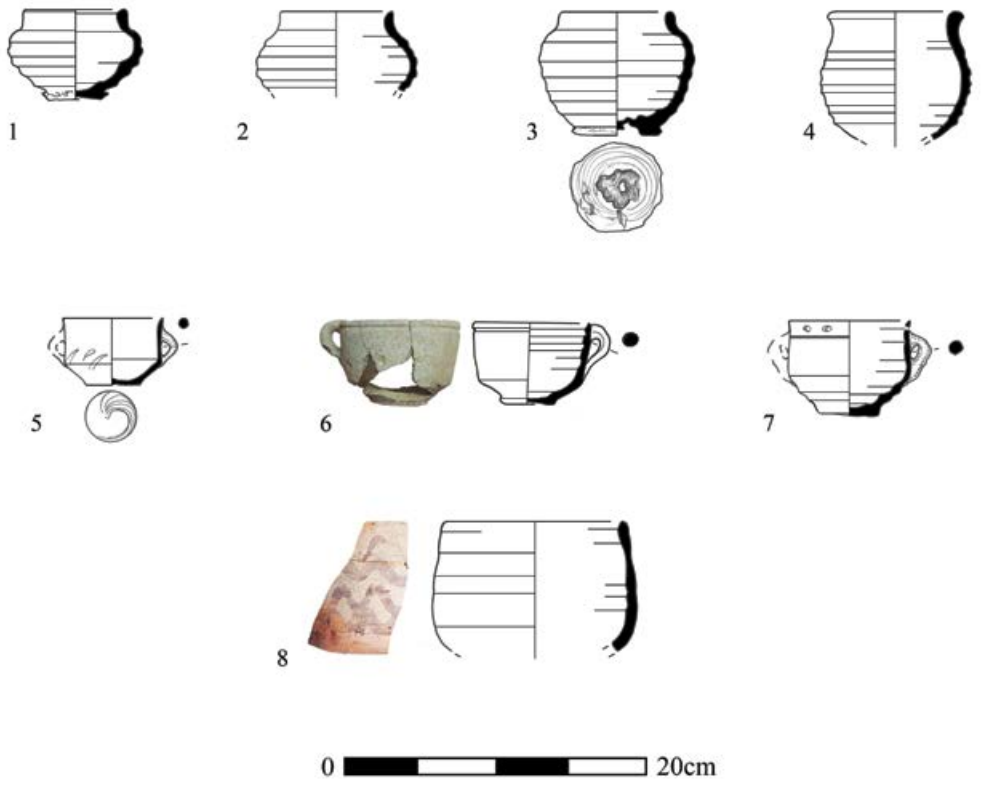


Figure 2.14. Goblets and cups.

No.	Reg. no.	Locus	Description	Parallels
1	40033/1	4018	Buff clay, black and white grits.	Tal and Taxel 2008: Fig. 6.86:5; Kletter 2005: Fig. 17:6
2	40683	4548	Buff clay, small black grits.	Tal and Taxel 2008: Fig. 6.86:5; Kletter 2005: Fig. 17:4
3	60539	6514	Buff clay, black and white grits.	Cytryn-Silverman 2010: Pl. 9.24:11; Rauchberger and Bouchenino 2013: Fig. 7:11
4	50144	5092	Buff orangish ware, black and white grits. Green slime residue.	Cytryn-Silverman 2010: Pl. 9.24:11; Tal and Taxel 2008: Fig. 6.86:4; Kletter 2005: Fig. 17:4
5	40639	4528	Buff white clay, black and white grits.	Tal and Taxel 2008: Fig. 6.86:3; Kletter 2005: Fig. 17:11
6	40648	4536		
7	40639/2	4528	Buff ware, black and white grits.	Kletter 2005: Fig. 17:11; Kogan-Zehavi 2004: Fig. 2:11; Arnon 2007: Fig. 7:4
8	40182	4067	Pink clay, white grits. Pale slip on exterior, over which brown-red waves were painted.	Avissar 2013a: Fig. 19:5

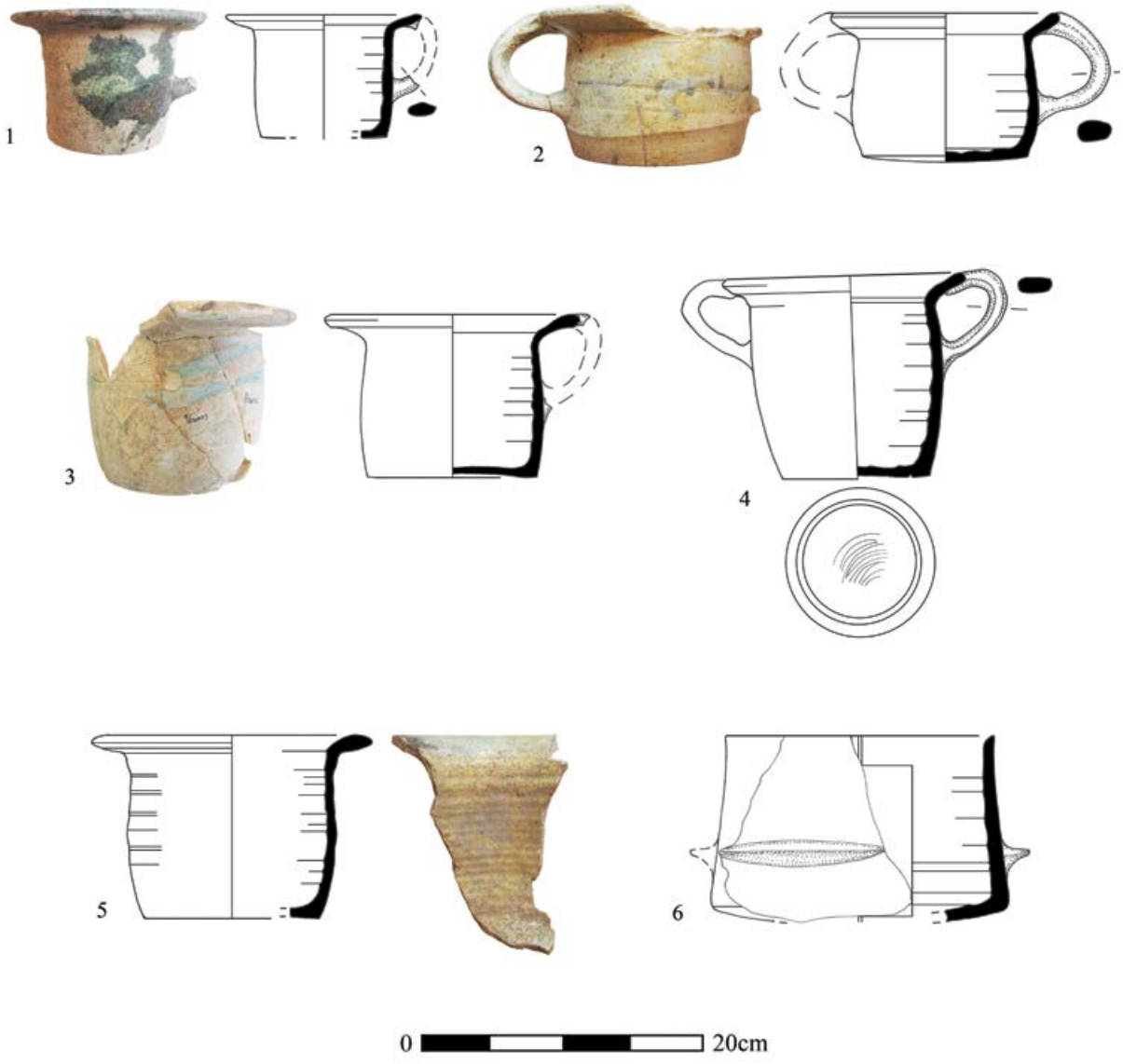


Figure 2.15. Chamber pots (1-5) and krater (6).

←Figure 2.15.

No.	Reg. no.	Locus	Description	Parallels
1	40110/1	4008	Very coarse brown clay, very large black and white grits. Pale slip throughout the vessel. Thick and dark green glaze inside and on the rim, with plastic line of glaze which indicates contact with another vessel during firing. Green spots of glaze on exterior.	Arnon 2007: Fig. 2:5; Arnon 2008a: Type 231k
2	60539	6514	Buff ware, small black grits. Green and yellow glaze over pale slip on interior, green spots of glaze on outside.	Rauchberger and Bouchenino 2013: Fig. 7:4; Arnon 2007: Fig. 3:8
3	50077/1	5015	Buff yellowish clay. Green and yellow glaze over pale slip throughout the vessel. Black lines of glaze on the rim, green spots of glaze on exterior.	Bouchenino 2007: Fig. 13:6
4	40657	4536	Buff clay. Large black, white and brown grits.	Cytryn-Silverman 2010: Pl. 9.4:20
5	90713	9713	Buff, brown-yellowish clay. Small black and white grits. Green and yellow glaze over pale slip on interior. Green glaze spots on exterior.	Arnon 2007: Fig. 3:8
6	90713	9713	Very coarse and porous gray ware. Large white grits. Handmade.	Stacey 2004: Pl. 5.16:1

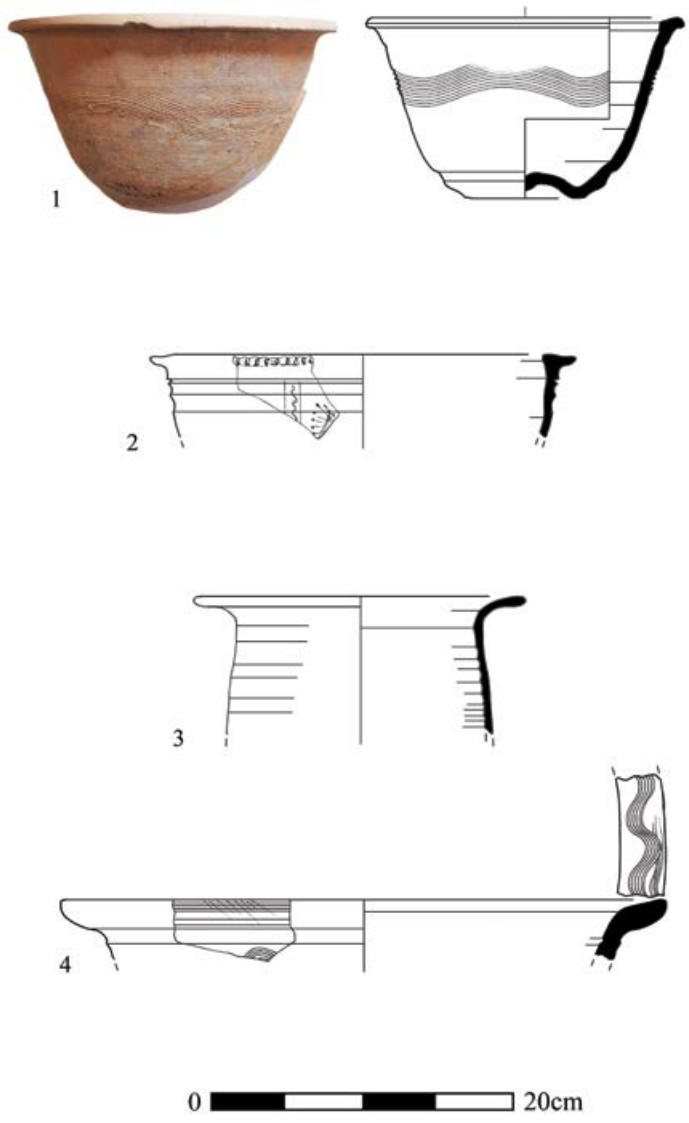


Figure 2.16. Arched-rim basins..

No.	Reg. no.	Locus	Description	Parallels
1	40251	4092	Fine orange clay, gray core.	
2	60545	-	Orange clay; white grits; gray core; pale slip.	Toueg 2011b: Fig. 5:17
3	90738	9713	Orangish clay, large black grits.	Cytryn-Silverman 2013: Fig. 7.1:2
4	50110/18	5030	Fine pinkish clay; white grits.	

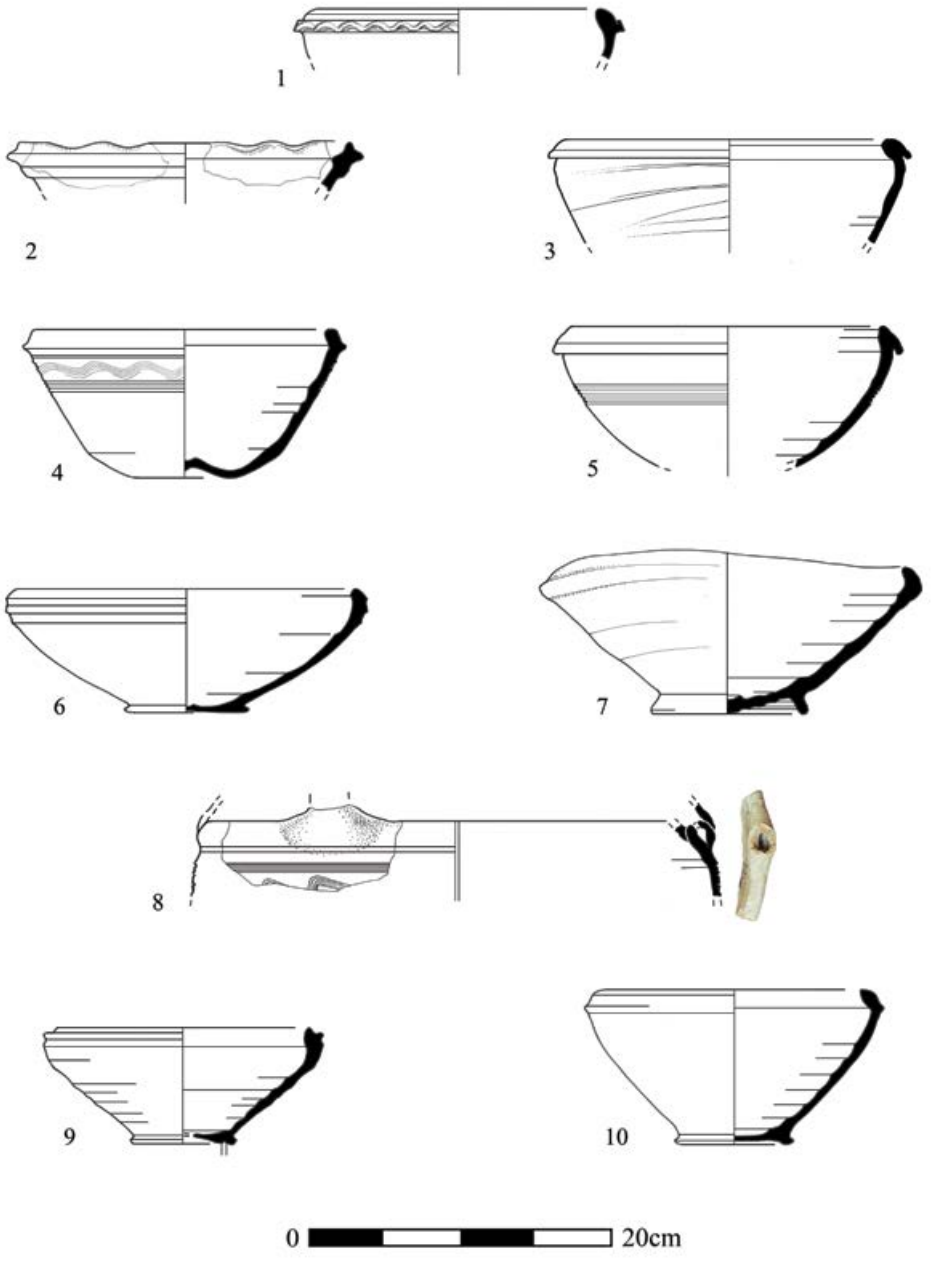


Figure 2.17. Small basins with folded rim.

Figure 2.17.

No.	Reg. no.	Locus	Description	Parallels
1	90727	9718	Orange clay; black grits; grey core.	Cytryn-Silverman 2010: Pl. 9.15:2
2	80048	8007	Coarse orange clay; very large black and white grits.	
3	40669/1	4535	Coarse orange clay; very large black and white grits.	
4	50063	5021	Coarse orange clay, white grits.	Avissar 2006: Fig. 4:9; Cytryn-Silverman 2010: Pl. 9.3:6
5	-	-		
6	80120	8043	Buff pinkish clay. black and white grits. Pale slip on the rim.	Rauchberger and Bouchenino 2013: Fig. 7:13
7	90545	9542	Coarse brown clay, white grits, pale slip.	
8	80165	8048	Pinkish clay, white grits, pale slip.	Tushingham 1985: Fig. 14:29
9	50135	5033	Buff yellowish clay; large black and white grits.	Kletter 2005: Fig. 14:5
10	90056	9026	Coarse buff yellowish clay; large black and white grits.	Kletter 2005: Fig. 14:5

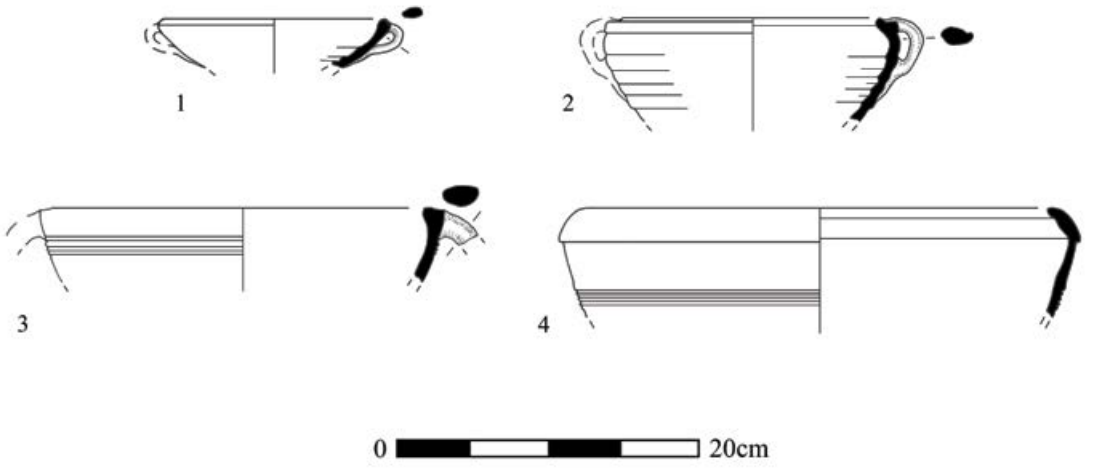


Figure 2.18. Small basins of buff clay.

No.	Reg. no.	Locus	Description	Parallels
1	50018/3	5009	Coarse pink clay, large white grits.	
2	50058/19	5015	Coarse buff yellowish clay. Large black and white grits.	Kletter 2005: Fig. 16:9; Cytryn-Silverman 2010: Pl. 9.5:3
3	40302	4057	Buff orangish clay, large black and white grits.	Avissar 2011: Fig. 15:6
4	30015	3005	Coarse buff yellowish clay. Large black and white grits. Slime residue.	Haddad 2011: Fig. 4:2

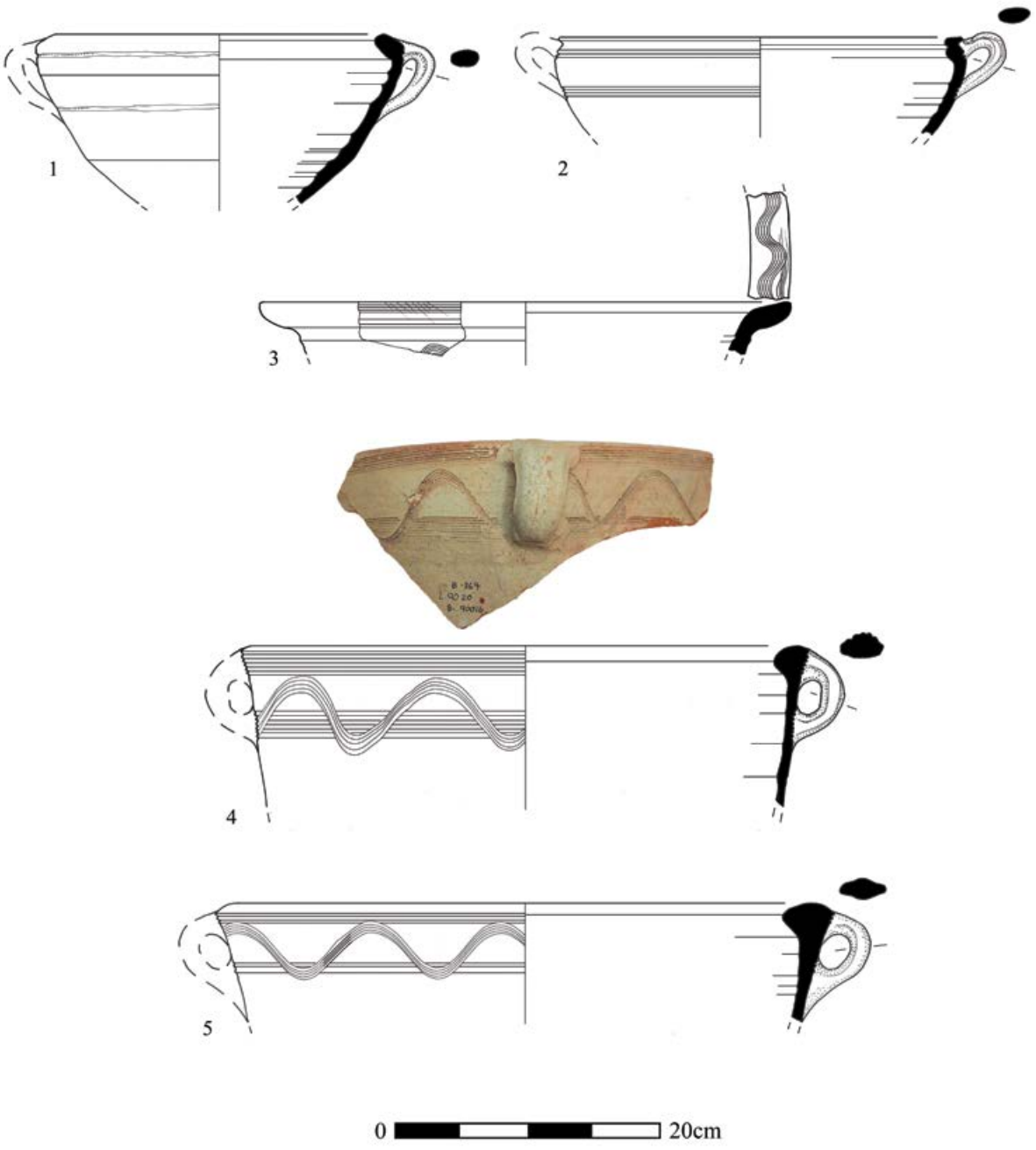


Figure 2.19. Large basins.

←Figure 2.19. Large basins.

No.	Reg. no.	Locus	Description	Parallels
1	50108	5033	Coarse brown clay, very large white grits. Pale slip.	Cytryn-Silverman 2010: Pl. 9.3:4-5; Kletter 2005: Fig. 13: 1; Arnon 2008a: Type 425b
2	40104/2	4036	Coarse grayish clay. Large black and white grits. Pale slip. Soot stains on interior.	Arnon 2007: Fig. 11:4; Kletter 2005: Fig. 13:2
3	50110/18	5030	Fine pinkish clay, grayish core. Very large white grits. Pale slip.	Cytryn-Silverman 2010: Pl. 9.15:3
4	90016	9020	Coarse brown clay, grayish core. Very large white grits. Pale slip.	Cytryn-Silverman 2010: Pl. 9.3:4-5; Arnon 2008a: Type 423b; Arnon 2007: Fig. 11:2
5	40292	4079	Coarse brown clay, very large black and white grits.	Cytryn-Silverman 2010: Pl. 9.3:2-3; Kletter 2005: Fig. 13:3; Rauchberger and Bouchenino 2013: Fig. 7:18

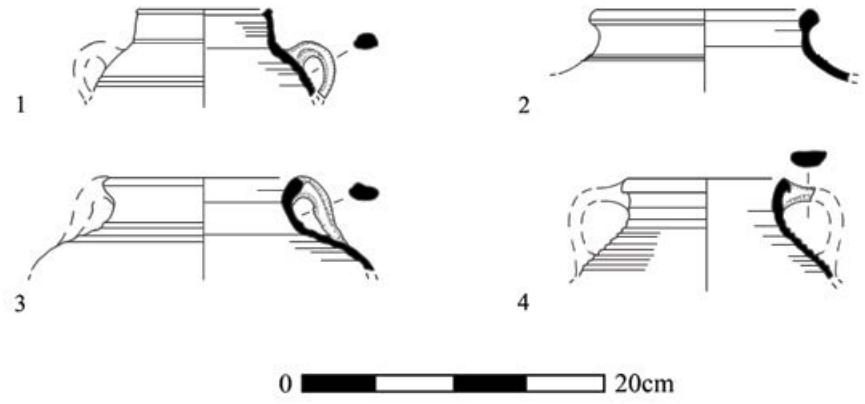


Figure 2.20. Cooking pots with neck.

No.	Reg. no.	Locus	Description	Parallels
1	80539	8509	Brown clay; white grits; mica; soot marks.	Stacey 2004: Fig. 5.32:1
2	90501	9501	Brown clay; white grits; mica.	Kletter 2005: Fig. 18:3; Arnon 2008a: Type 711b; Avissar 2006: Fig. 5:8
3	80100	8016	Brown clay; very large black and white grits.	Kletter 2005: Fig. 18:2; Arnon 2008a: Type 711b; Avissar 2013b: Fig. 11:13
4	80151	8047	Brown clay; white grits; soot marks.	Cytryn-Silverman 2010: Pl. 9.6:1; Kletter 2005: Fig. 18:1; Arnon 2007: Fig. 15:7; Arnon 2008a: Type 711a

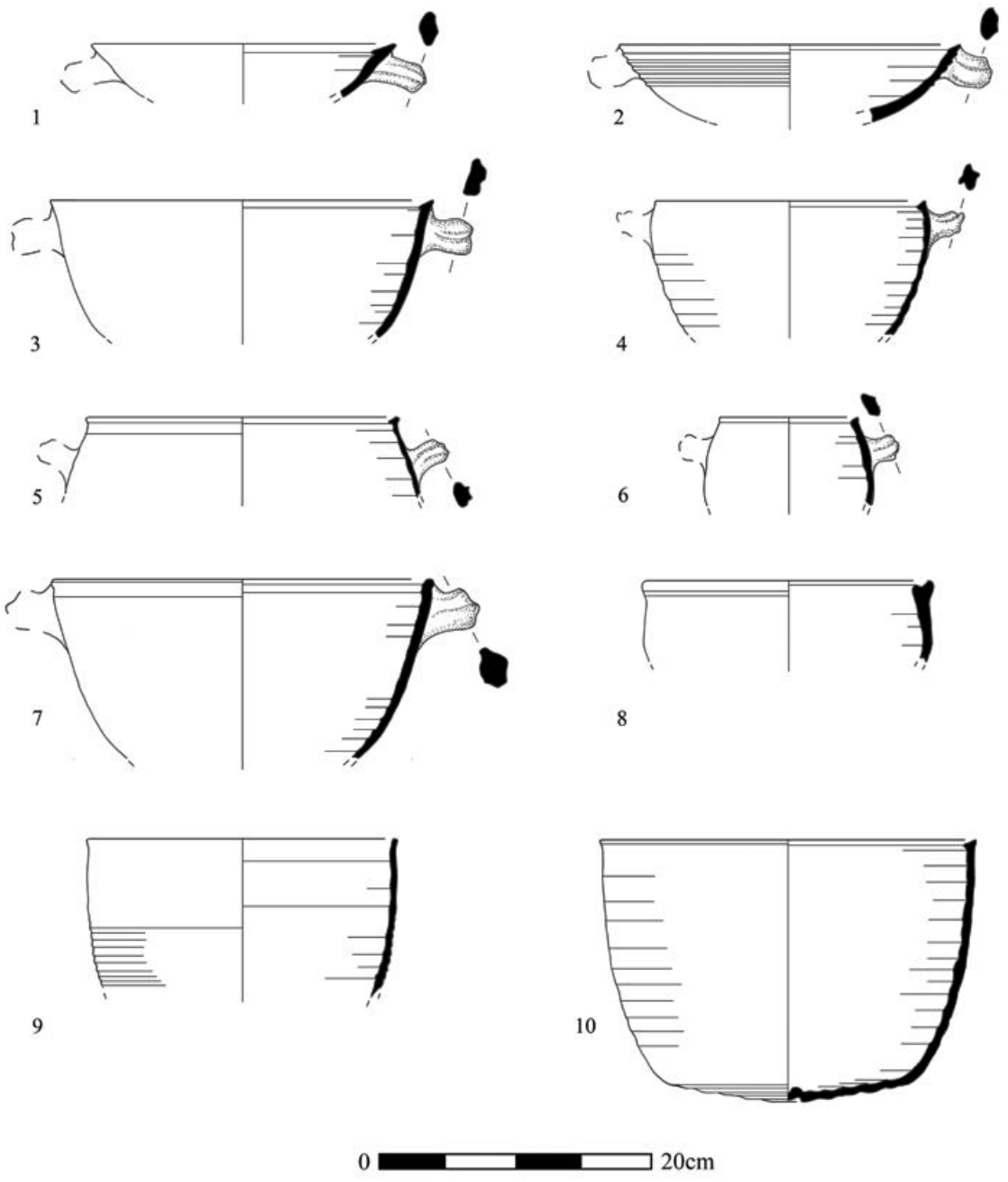


Figure 2.21. Casseroles.

Figure 2.21. Casseroles.

No.	Reg. no.	Locus	Description	Parallels
1	60560	6521	Brown clay; black and white grits; heavy soots marks.	Tal and Taxel 2008: Fig. 6.87:7; Avissar 1996: Fig. XIII.99:2
2	50122	5033	Brown clay; black and white grits; soot marks; mold stains.	Tal and Taxel 2008: Fig. 6.87:7; Arnon 2007: Fig. 15:3
3	80162	8049	Brown clay; black and white grits; soot marks.	Cytryn-Silverman 2010: Pl. 9.6:10; Tal and Taxel 2008: Fig. 6.87:6; Arnon 2008a: Type 721b
4	50162	5043	Fine pinkish clay; well fired; mold stains.	Cytryn-Silverman 2010: Pl. 9.6:9; Tal and Taxel 2008: Fig. 6.87:2
5	50131/13	5030	Brown clay; black and white grits.	Kletter 2005: Fig. 18:7; Arnon 2008a: Type 721a
6	80161	8028	Brown clay; black and white grits; soot marks.	Cytryn-Silverman 2010: Pl. 9.6:11; Tal and Taxel 2008: Fig. 6.87:9; Arnon 2007: Fig. 15:4; Avissar 2011: Fig. 13:3
7	40566	4504	Brown clay; black and white grits; soot marks.	Tal and Taxel 2008: Fig. 6.87:7; Avissar 1996: Fig. XIII.99:7
8	10004	1001	Coarse gray clay; large black and white grits; soot marks.	Avissar 1996: Fig. XIII.99:8
9	60556	6520	Brown clay; black and white grits; soot marks.	Arnon 2008a: Type 721d
10	40036	4010	Red-brown clay; large white grits; mica; soot marks.	Cytryn-Silverman 2010: Pl. 9.6:10; Tal and Taxel 2008: Fig. 6.87:10; Avissar 2006: Fig. 5:10; Arnon 2008a: Type 721a

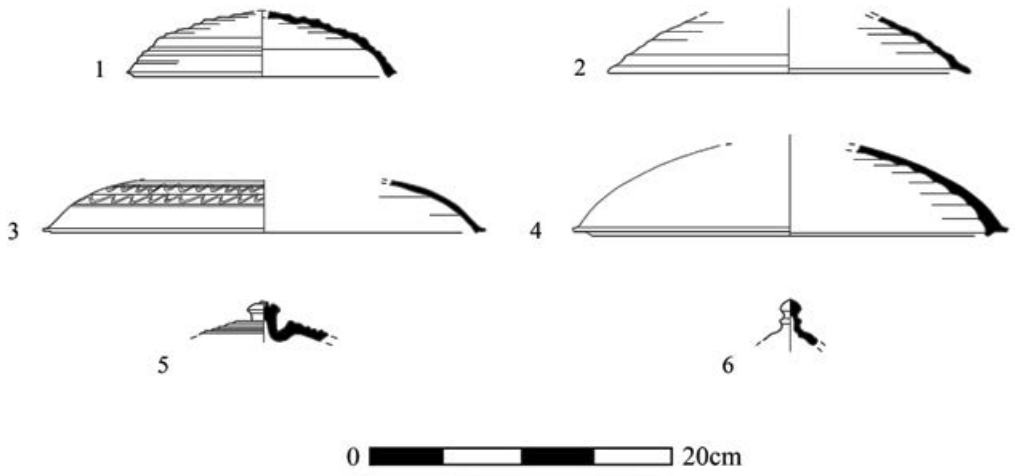


Figure 2.22. Casserole lids.

No.	Reg. no.	Locus	Description	Parallels
1	40057/4	4027	Brown clay; black and white grits; soot marks.	Avissar 2011: Fig. 13:2; Cytryn-Silverman 2010: Pl. 9.6:6
2	50122	5033	Brown clay; black and white grits.	
3	40625	4529	Metallic red clay; black and white grits.	Tal and Taxel 2008: Fig. 6.90:8-9
4	40256/2	4092	Brown clay; black and white grits; soot marks.	
5	60017/5	6003	Brown clay; black and white grits; soot marks.	Tal and Taxel 2008: Fig. 6.84:6; Arnon 2007: Fig. 18:12
6	60516	6510	Brown clay; black and white grits.	

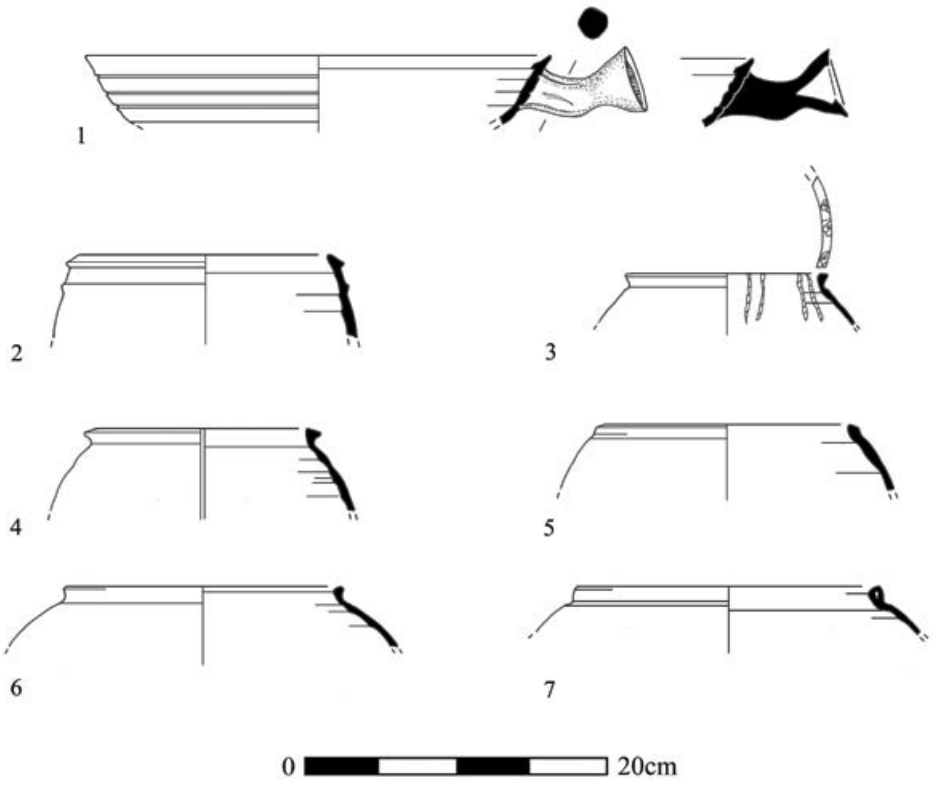


Figure 2.23. Casserole with wishbone handle (1); glazed cooking pots with no neck (2); globular cooking pots (3-7).

No.	Reg. no.	Locus	Description	Parallels
1	6010/17	6002	Brown clay; black and white grits; soot marks.	
2	60558	6521	Coarse brown clay; white grits; soot marks.	Avissar 1996: Fig. XIII.90; Cytryn-Silverman 2010: Pl. 9.35:14; Kletter 2005: Fig. 18:4; Arnon 2007: Fig. 15:9; Arnon 2008a: Type 732a
3	80534	8509	Brown clay; large white grits; brown glaze splashes.	Avissar 2006: Fig. 5:7; Avissar 1996: Fig. XIII.92:1; Arnon 2007: Fig. 15:10
4	80161	8028	Brown clay; white grits; brown glaze splashes.	Avissar 1996: Fig. XIII.92:4; Avissar 2006: Fig. 5:8; Arnon 2007: Fig. 15:11
5	80099	8028	Brown clay; black and white grits.	
6	50068/1	5022	Brown clay; white grits.	Arnon 2008a: Type 732b, 741b; Avissar 2013b: Fig. 11:16
7	90524	9519	Brown clay; white grits.	Avissar 1996: Fig. XIII.92:3; Arnon 2007: Fig. 15:10; Arnon 2008a: Type 741c

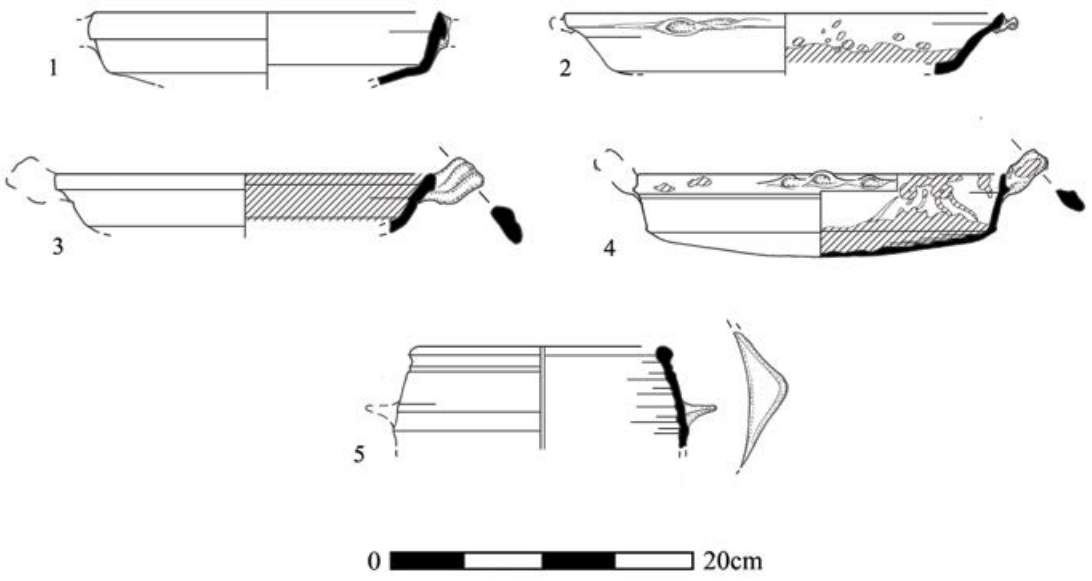


Figure 2.24. Pans (1-4) and a handmade cooking pot (5).

No.	Reg. no.	Locus	Description	Parallels
1	50011/1	5009	Coarse red-gray clay; very large white grits; glazed in brown in the base; soot stains.	Cytryn-Silverman 2010: Pl. 9.8:16; Tal and Taxel 2008: Fig. 6.89:2; Kletter 2005: Fig. 18:9; Avissar 1996: Fig. XIII.100:2; Arnon 2008a: Type 742a; Avissar 2013b: Fig. 11:18
2	70504	7501	Brown clay; black and white grits; gray core; poorly fired; base glazed brown; soot marks.	Tal and Taxel 2008: Fig. 6.89:3; Arnon 2007: Fig. 15:2
3	80189	8028	Red clay; large white grits; brown glaze on interior; soot marks.	Tal and Taxel 2008: Fig. 6.89:1; Arnon 2008a: Type 742d; Arnon 2007: Fig. 15:1
4	40256	4092	Brown clay; gray core; large black and white grits; brown glaze on base, with dripping on rim.	Tal and Taxel 2008: Fig. 6.89:2; Kletter 2005: Fig. 18:9; Avissar 2006: Fig. 5:9; Arnon 2007: Fig. 15:2, T. 4.4
5	80257	8087	Coarse brown-gray clay; large white grits; poorly fired; soot marks; handmade.	

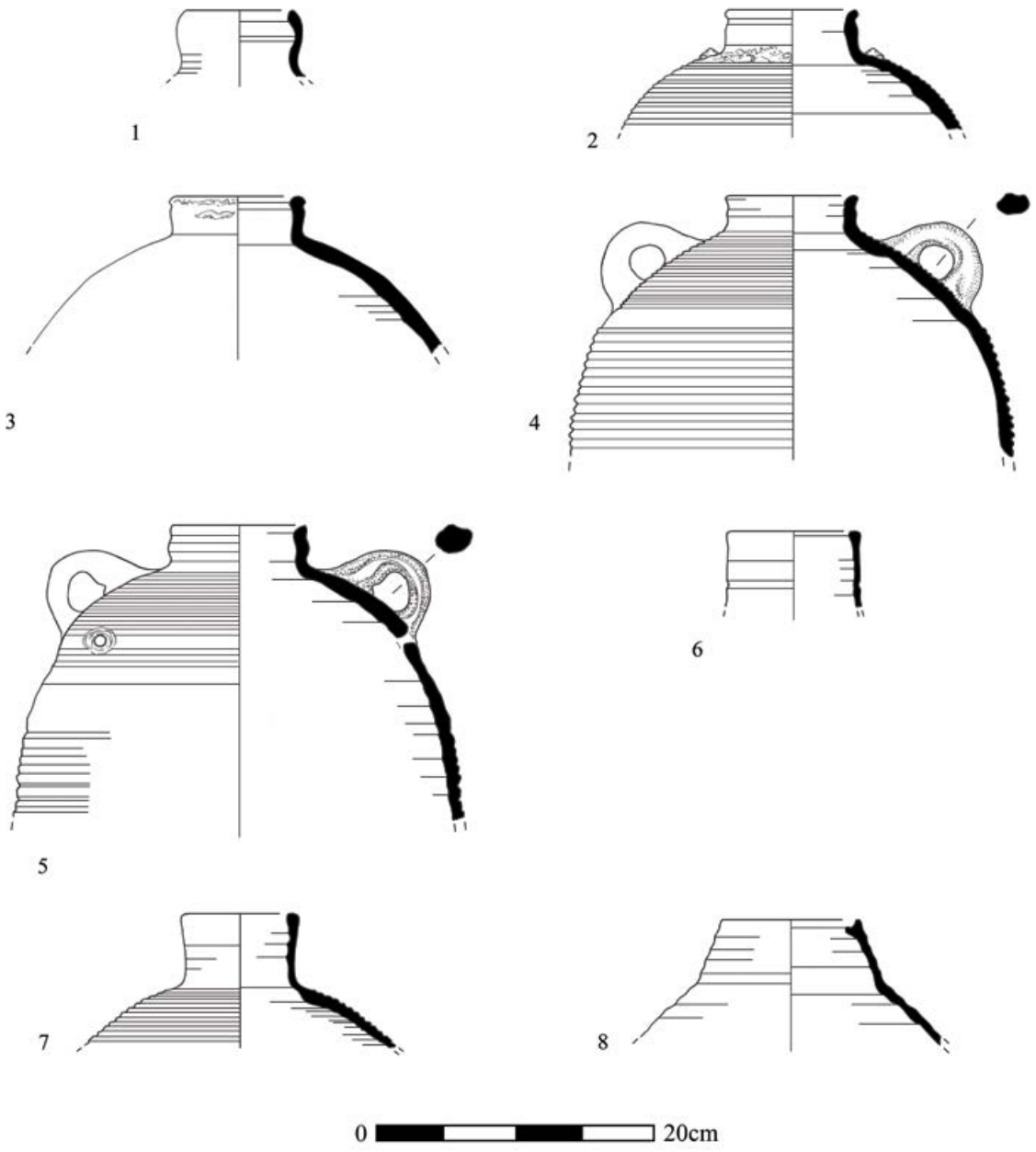


Figure 2.25. Bag-shaped storage jars (southern [1-5] and northern [6-8]).

←Figure 2.25.

No.	Reg. no.	Locus	Description	Parallels
1	40639	4528	Fine orange clay; white grits; well fired.	
2	40256/1	4092	Orange clay; white grits; clay lumps on shoulder; well fired; pale slip on exterior.	
3	-	-	Orange clay; red core; black and white grits.	Arnon 2008a: Type 811a
4	60536	6504	Fine reddish-brown clay; well fired; clay lumps on neck; soot marks on interior.	Cytryn-Silverman 2010: Pl. 9.18: 1; 2013: Fig. 7.2:6; Arnon 2008a: Type 811a
5	90559	9539	Reddish-brown clay; large white grits; well fired.	Cytryn-Silverman 2010: Pl. 9.18:1
6	40092/2	4033	Gray metallic clay; large black and white grits.	Cytryn-Silverman 2010: Pl. 9.10:3; Tal and Taxel 2008: Fig. 6.94:21; Avissar 2006: Fig. 5:13; Arnon 2007: Fig. 12:2
7	90734	9719	Dark, metallic gray clay; brown surface; large black and white grits.	Cytryn-Silverman 2010: Pl. 9.10:3; Tal and Taxel 2008: Fig. 6.94:26; Avissar 2006: Fig. 5:13
8	80283	8102	Orange, metallic clay; black and white grits.	Kletter 2005: Fig. 19:10; Rauchberger and Bouchenino 2013: Fig. 7:25; Arnon 2008a: Type 831e; Avissar 2013b: Fig. 11:3

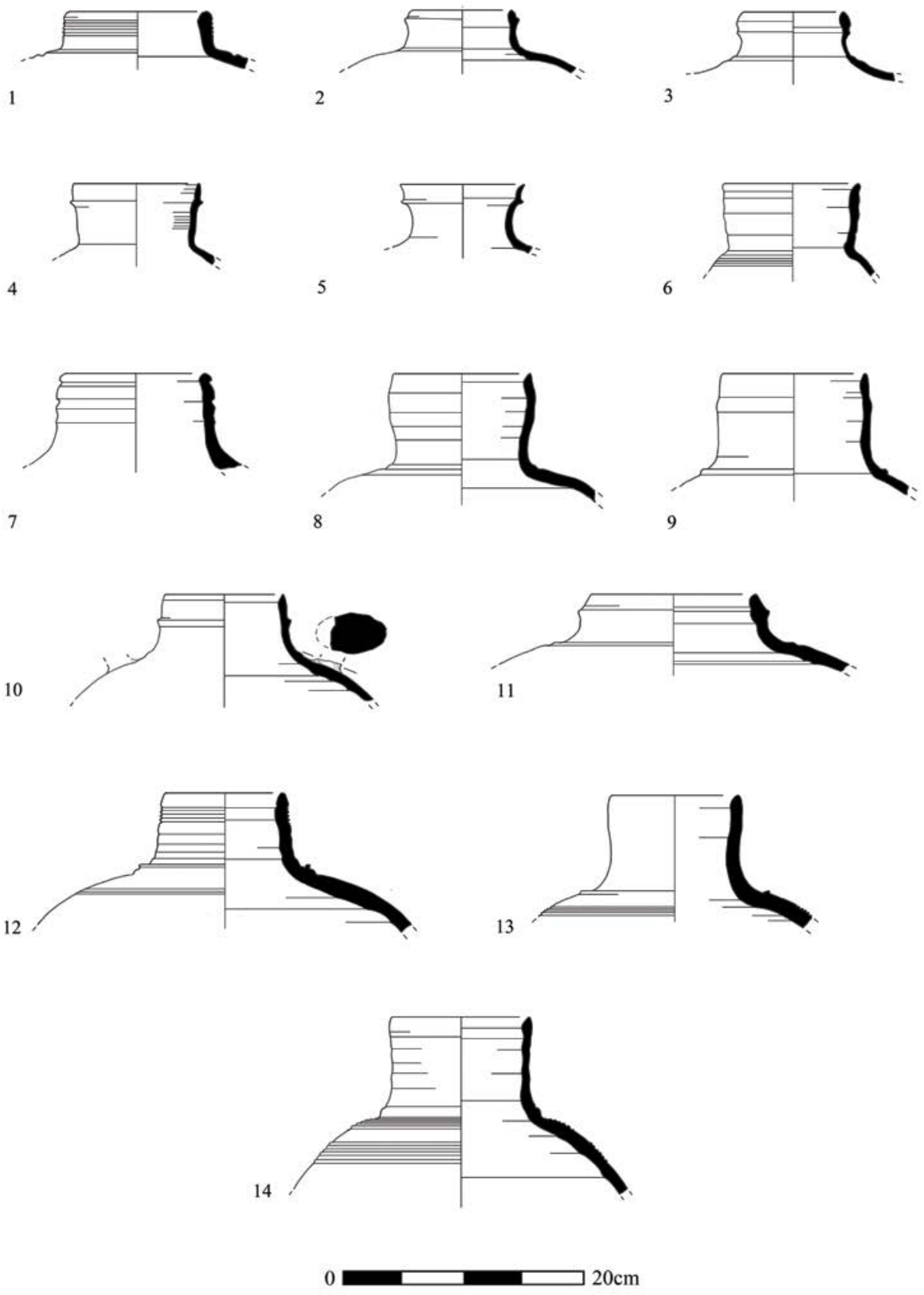


Figure 2.26. Central hill country storage jars.

←Figure 2.26.

No.	Reg. no.	Locus	Description	Parallels
1	40091/1	4036	Orangish clay; grayish core; large black and white grits.	Cytryn-Silverman 2010: Fig. 9.2:3, 9.1:10; Kletter 2005 Fig. 19:11; Arnon 2007: Fig. 12:7
2	90535	4037	Orange-gray clay; large black and white grits.	Arnon 2007: Fig. 12:13
3	80119	4038	Orange clay; white grits.	Kletter 2005: Fig. 19:8; Avissar 2006: Fig. 5:11; Arnon 2007: Fig. 12:14
4	80099	4039	Buff clay; large black and white grits.	
5	50040/10	5040	Buff clay; large black and orange grits.	
6	60578	6516	Orange clay; gray core; large black grits.	Kletter 2005: Fig. 19:3
7	40590	4522	Grayish-orange clay; large black and white grits.	
8	50090/1	5015	Grayish clay, burnt brown-red on vessel surface; white grits.	Cytryn-Silverman 2013: Fig. 7.2:8, P. 171; Kletter 2005: Fig. 19:6; Tal and Taxel 2008: Fig. 6.94.14; Torgë 2005: Fig. 2:12
9	40669/2	4535	Orangish clay; large black and white grits.	Cytryn-Silverman 2010: 9.1:10; Kletter 2005: Fig. 19:9
10	40176	4064	Orange clay; gray core.	
11	40618	4528	Orangish clay; gray core; large black and white grits.	Kletter 2005: Fig. 19:7; Arnon 2007: Fig. 12:13, T.3.1e; Cytryn-Silverman 2013: Fig. 7.5:2
12	60560	6521	Orangish clay; gray core; black and white grits.	Cytryn-Silverman 2010: Fig. 9.2:9; Kletter 2005: Fig. 19:12; Rauchberger and Bouchenino 2013: Fig. 7:22; Arnon 2007: Fig. 12:5
13	30008	3004	Orangish clay; small black and white grits; mold stains.	Cytryn-Silverman 2010: Pl. 9.2:4
14	40653	4535	Orangish clay; small black and white grits.	Cytryn-Silverman 2010: Fig. 9.2:4

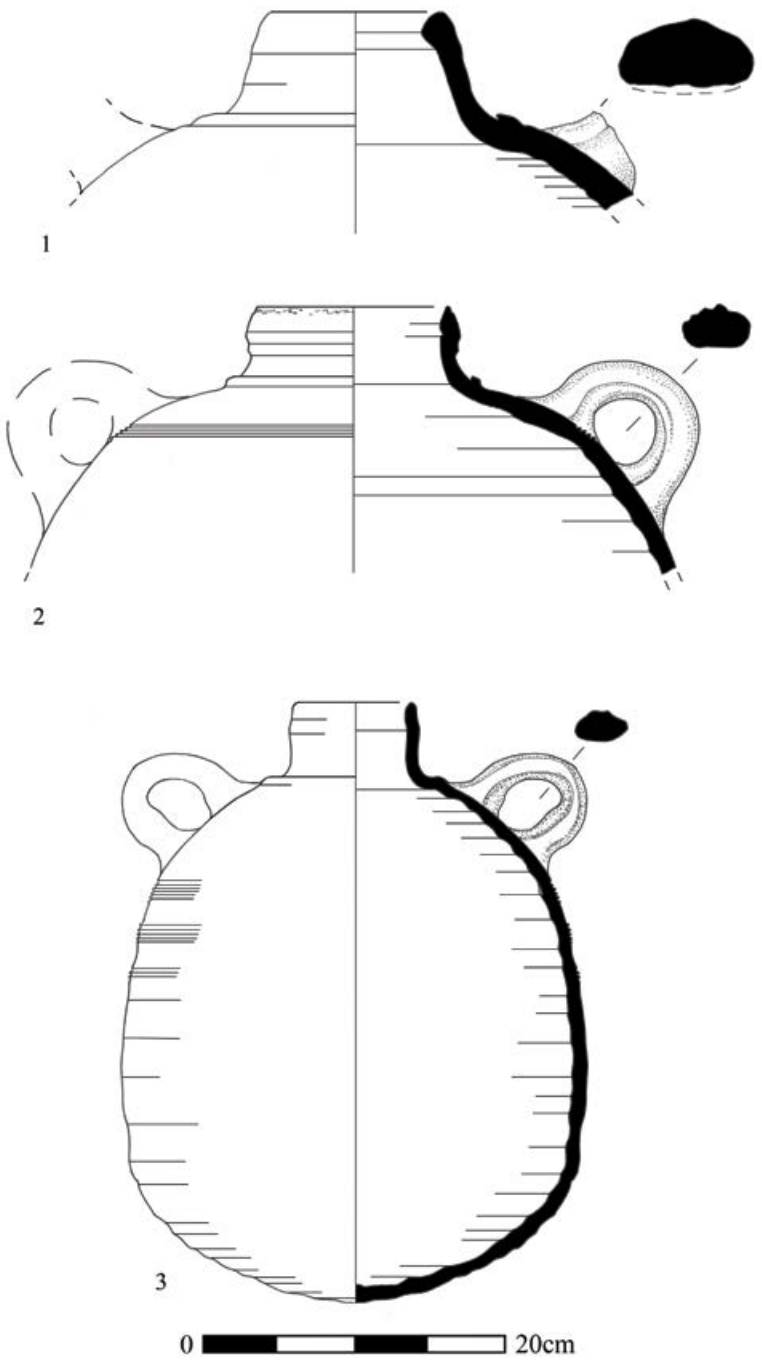


Figure 2.27. Central hill country jars.(cont.)

No.	Reg. no.	Locus	Description	Parallels
1	90018	9022	Orangish clay; grayish core; black and white grits.	Arnon 2007: Fig. 13:5, T. 3.3a; Cytryn-Silverman 2010: Fig. 9.1:10; Haddad 2013: Fig. 10:9
2	60500/2	6500	Orangish clay; grayish core; large white grits.	Arnon 2007: Fig. 12:11 Avissar 2013b: Fig. 11:1
3	40176	4064	Complete profile	

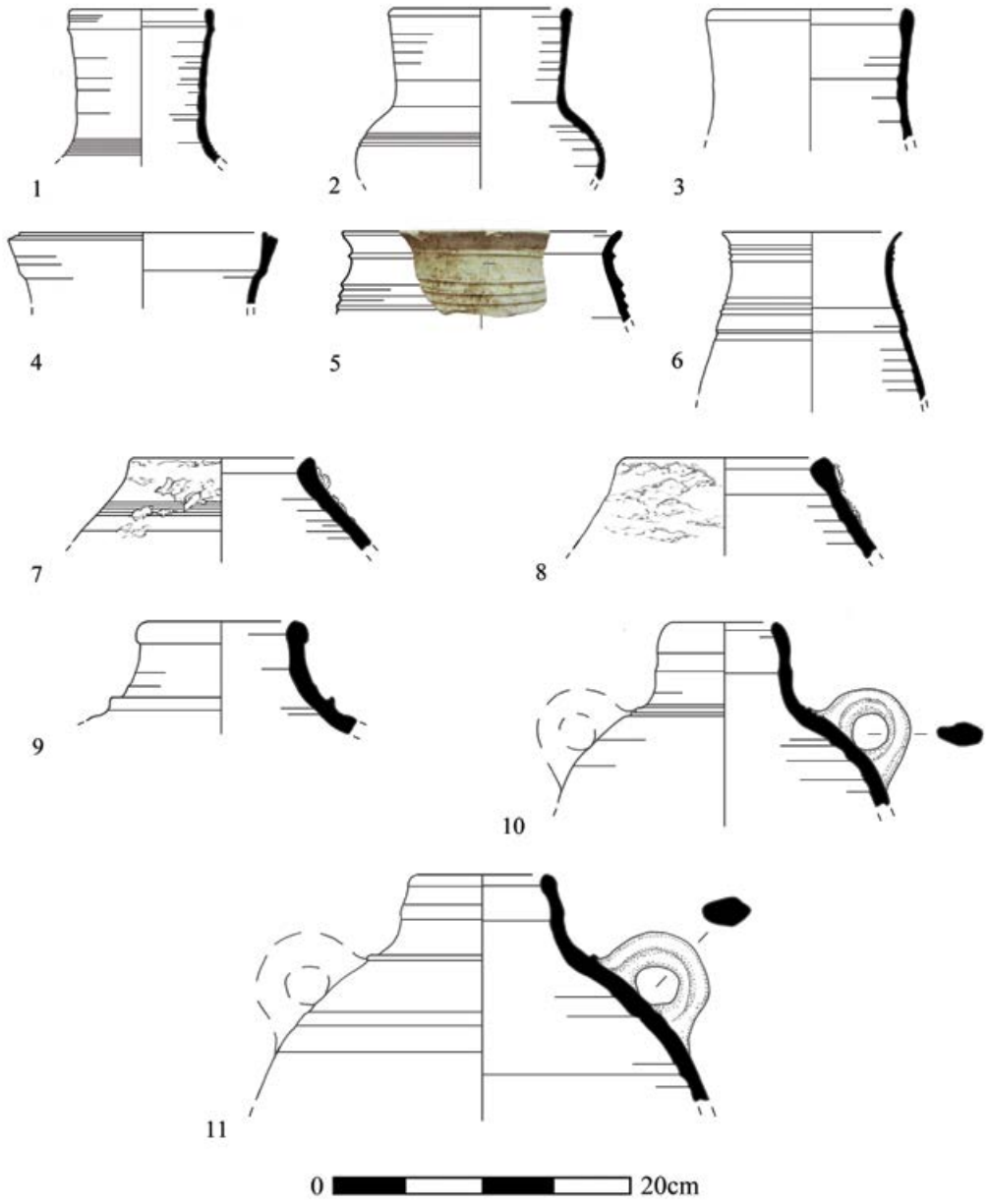


Figure 2.28. Jars (buff ware [1-6]; Gaza ware [7-8]; Egyptian [9-11]).

Figure 2.28.

No.	Reg. no.	Locus	Description	Parallels
1	40102	4039	Buff ware; coarse; small black grits.	
2	40126	4045	Buff ware; pinkish clay; small black grits.	Avissar 2009: Fig. 6:16
3	40645	4532	Buff ware; black and white grits.	Arnon 2008a: Type 822b
4	80052	8013	Orangish clay; black and white grits.	Kletter 2005: Fig. 14:3
5	60560	6521	Buff ware; yellowish clay; black grits; slime stains.	Arbel 2005: Fig. 2:4
6	40684	4550	Buff ware; yellowish clay; small black grits; slime stains.	Avissar 2009: Fig. 6:16
7	40104/1	4036	Coarse orange clay; gray core; very large black and white grits; lumps of clay around rim.	Cytryn-Silverman 2010: Pl. 9.14:2; Arnon 2007: Fig. 16:5; Cytryn-Silverman 2013: Fig. 7.1:3
8	40112/2	4036	Coarse orange clay; very large black and white grits; lumps of clay around rim.	Cytryn-Silverman 2010: Pl. 9.14:2; Arnon 2007: Fig. 16:5; Cytryn-Silverman 2013: Fig. 7.1:3
9	50043/1	5019	Coarse orange clay; large white grits.	Arnon 2008a:33, Type 814b
10	80106	8038	Brown-red clay; small white grits; lumps of clay on neck.	Tal and Taxel 2008:151; Avissar 2006: Fig. 5:12; Arnon 2007: Fig. 16:8; Arnon 2008a:33, Type 814a
11	40657	4536	Coarse brown clay; black and white grits.	Avissar 2013b: Fig. 11:3

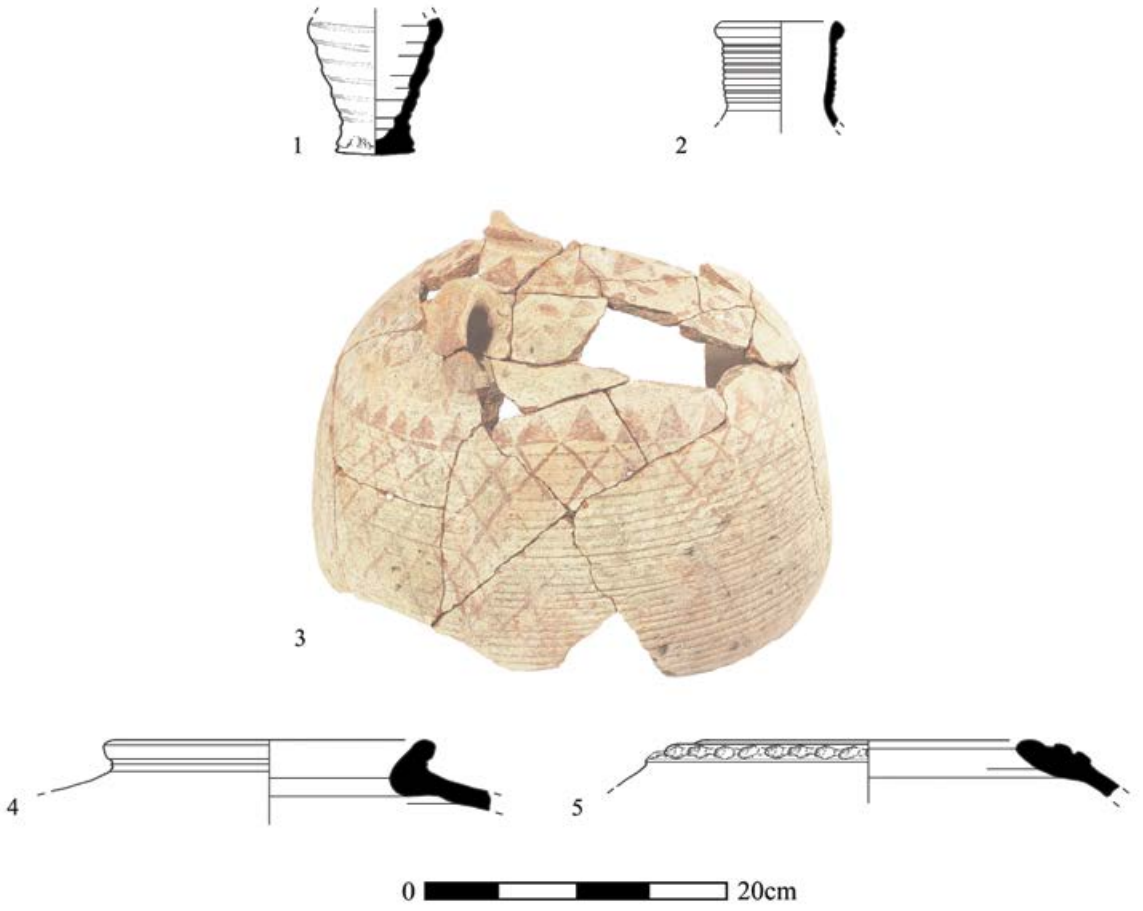


Figure 2.29. Amphorae (1-2), red-painted jar (3) and pithoi/zir (4, 5).

No.	Reg. no.	Locus	Description	Parallels
1	90567	9549	Yellowish clay, greyish core; black and white grits; mica; unequal firing.	Cytryn-Silverman 2010: Fig. 9.2:11; Kletter 2005: Fig. 19:15
2	90725	9711	Brown clay; white grits.	Avissar 2005: Fig. 2.21:6-7
3	40258	4092	Coarse orangish clay; large black and white grits; pale slip; red paint.	
4	40567	4511	Orangish clay; large black and white grits.	Kletter 2005: Fig. 19: 14 Avissar 1996: Fig. XIII.116:2
5	40578/2	4512	Orangish clay; large black and white grits.	Cytryn-Silverman 2010: Fig. 9.22:3-4

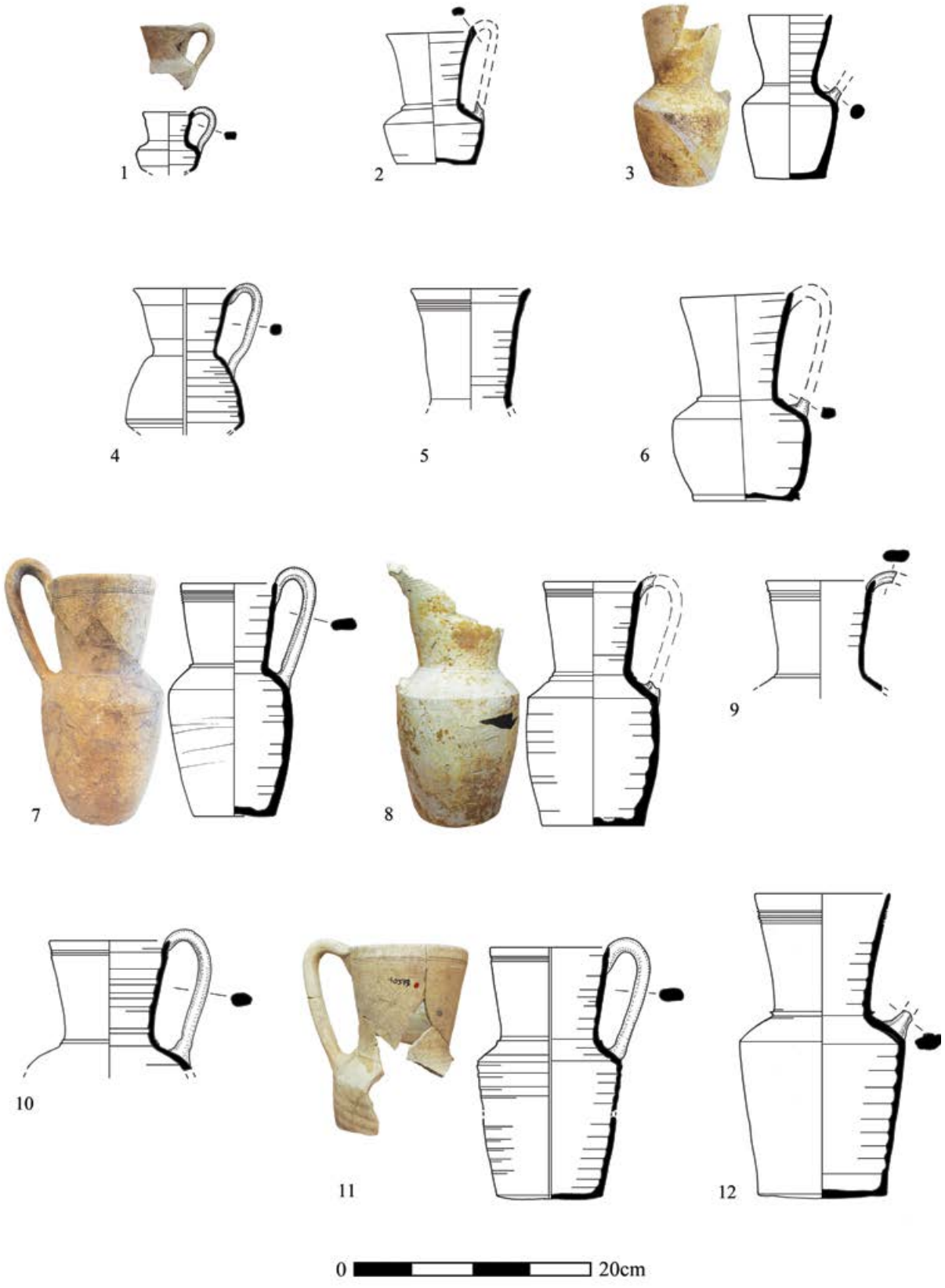


Figure 2.30. Carinated buff jugs and juglets.

←Figure 2.30.

No.	Reg. no.	Locus	Description	Parallels
1	40651	4536	Buff ware; small black and white grits; fine yellow glaze on interior and exterior.	Cytryn- Silverman 2010: Pl. 9.24:5
2	50162/1	5043	Buff ware; yellowish clay; small black grits.	Cytryn- Silverman 2010: Pl. 9.24:5
3	40684	4550	Buff ware; yellowish clay; black and white grits.	Arnon 2007: Fig. 12:1
4	40178	4063	Buff ware; brown clay; black and white grits; mold stains.	
5	40108/2	4039	Buff ware; coarse yellowish clay; large black grits.	Cytryn-Silverman 2010: Pl. 9.17:7
6	50164	5043	Buff ware; black, white and orange grits.	Arnon 2008a: Type 531f
7	40174	4064	Buff ware; yellowish clay; black and white grits.	Cytryn-Silverman 2010: Pl. 9.17:11; Kletter 2005: Fig. 16:1; Arnon 2007: Fig. 7:1 לכל BGJ1 Cytryn-Silverman 2013: Fig. 7.3:1, P. 173
8	40635	4529	Buff ware; yellowish clay; black and white grits; mold stains.	Cytryn-Silverman 2010: Pl. 9.17:11; Kletter 2005: Fig. 16:1; Haddad 2013: Fig. 10:14
9	40093/1	4033		See no. 7
10	50162/2	5043	Light brown clay; large white grits; mold stains.	See no. 7
11	40579	4521	Buff ware; yellowish clay; black, white and brown grits.	Cytryn- Silverman 2010: Pl. 9.17:11; Kletter 2005: Fig. 16:1; Cytryn-Silverman 2013: Fig. 7.6:4, P. 173; Arnon 2008a: Type 521c; Arnon 2007: Fig. 7:1
12	90055	9023	Buff ware; black and white grits.	Rosen-Ayalon & Eitan 1969; Kletter 2005: Fig. 16:1; Rauchberger and Bouchenino 2013: Fig. 7:27; Avissar 2013b: Fig. 11:5

Figure 2.31. Jugs and juglets with spherical body and wide neck (Type 2A).

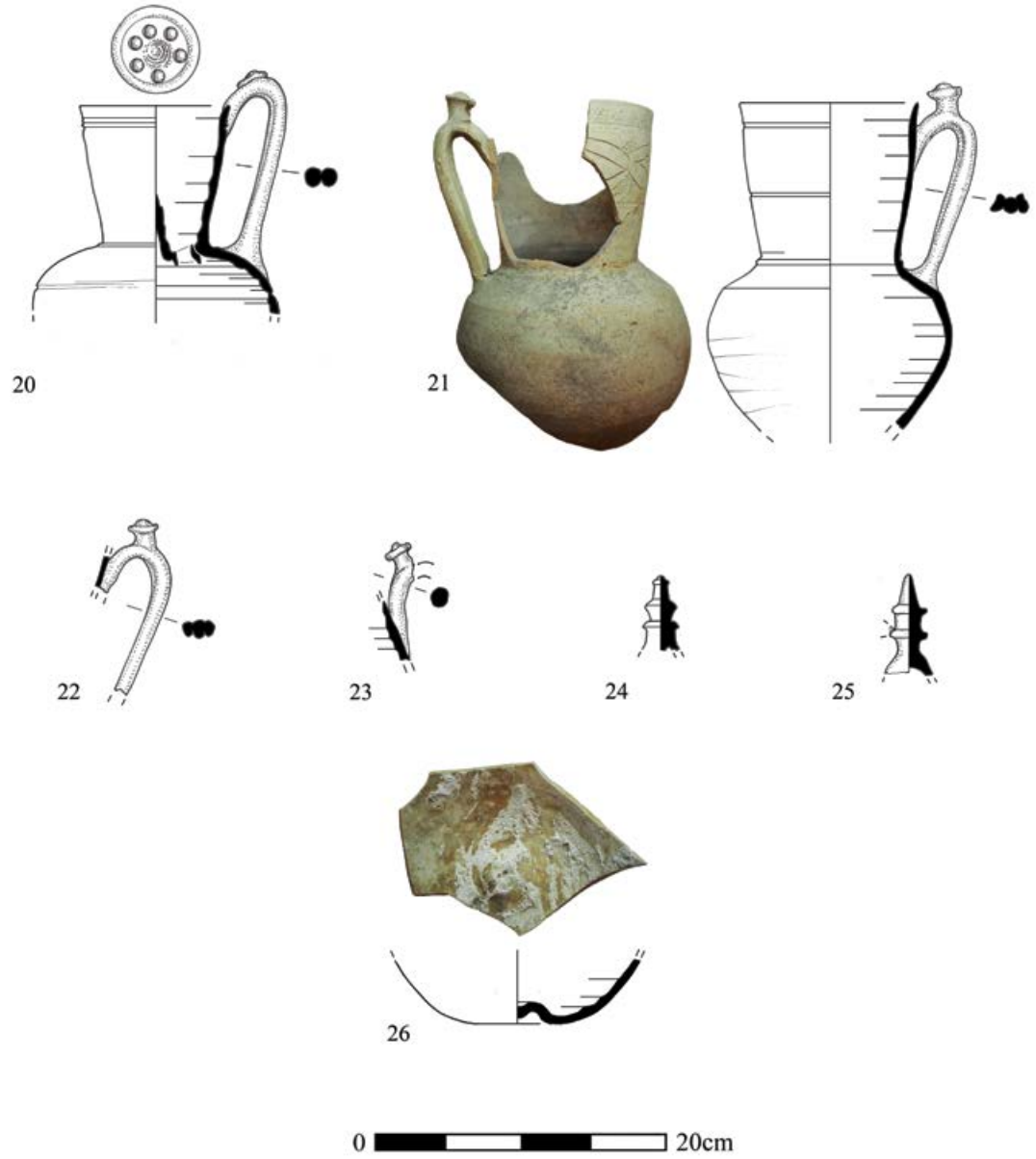


Figure 2.31. Jugs and juglets with spherical body and wide neck (Type 2A).
(Cont.)

Figure 2.31.

No.	Reg. no.	Locus	Description	Parallels
1	80201	8065	Buff ware; pinkish clay; black and white grits.	
2	60560	6521	Buff ware, pinkish clay; black and white grits; mold stains.	Kletter 2005: Fig. 16:1
3	40635	4529	Buff ware; yellowish clay; black and white grits; mold stains.	Arnon 2008a: Type 531d לבדוק בציור
4	40184	4056	Buff ware; yellowish clay; black and white grits.	Arnon 2007: Fig.7:12

Figure 2.31 (cont).

No.	Reg. no.	Locus	Description	Parallels
5	40577	4520	Buff ware; yellowish clay; black and white grits.	Tal and Taxel 2008: Fig. 6.91:8; Arnon 2008a: Type 541c
6	60552	6518	Buff ware; yellowish clay; small black grits; mold stains.	Cytryn- Silverman 2010: Pl. 9.12:3-4; Arnon 2007: Fig. 8:2
7	40675	4545	Buff ware; orangish clay; small white grits; mold stains.	Kletter 2005: Fig. 16:4
8	60539	6514	Buff ware; yellowish clay; small black grits.	See no. 7
9	80239	8082	Buff ware; yellowish clay; small black grits; mold stains.	Kletter 2005: Fig. 16:11; Rauchberger and Bouchenino 2013: Fig. 7:28; Arnon 2007: Fig. 8:5; Avissar 2013b: Fig. 11:6
10	10019	1009	Buff ware; black, white and orange grits.	Cytryn- Silverman 2010: Pl. 9.1:5, 9.4:4; Arnon 2007: Fig. 8:1-2
11	50047/2	5017	Buff ware; yellowish clay; small black and white grits.	Cytryn 2010: Pl. 9.24:2, Ph. 9.13:1-2; Kletter 2005: Fig. 16:6
12	40168/1	4064	Buff ware; black and white grits; incised decoration on the neck; mold stains.	Arnon 2007: Fig. 9:4
13	40110/3	4008	Buff ware; yellowish clay; black and white grits.	Cytryn-Silverman 2010: Pl. 9.20:2; Cytryn-Silverman 2013: Figs. 7.5:6, 7.7:11-12; Arnon 2007: Fig. 7:10
14	40296	4100	Buff ware; yellowish clay; black and white grits.	See no. 13
15	60539	6514	Buff ware; black and white grits; incised decoration on the neck.	Cytryn-Silverman 2010: Pl. 9.20:2; Arnon 2007: Fig.7:10
16	60539	6514	Buff ware; yellowish clay; black and white grits.	Cytryn-Silverman 2013: Fig. 7.9:8, P. 173
17	60021/2	6005	Buff ware; yellowish clay; small black grits.	See no. 15
18	90519	9510	Buff ware; yellowish clay; black and white grits.	Cytryn-Silverman 2010: Pl. 9.12:4; Kletter 2005: Fig. 16:11; Arnon 2007: Fig. 8:2
19	surface	Area E		See no.17
20	90016	9021	Buff ware; yellowish clay; small black grits.	Cytryn-Silverman 2010: Pl. 9.11:8, 9.4:17; Kletter 2005: Fig. 16:12; Arnon 2007: Fig. 8:4; Arnon 2008a: Type 521i
21	90712	9713	Buff ware; yellowish clay; small black grits.	Tal and Taxel 2008: Fig. 6.91:5; Arnon 2008a: Type 531i; Arnon 2008a: Type 541a
22	40628	4500	Buff ware; white clay; small black grits.	Arnon 2007: Fig. 9:9
23	40273	4096	Buff ware; yellowish clay; black and white grits.	Arnon 2007: Fig. 9:4
24	?		Buff ware; pinkish clay; black and white grits.	Tal and Taxel 2008: Fig. 6.91:18
25	40121	4036	Buff ware; pinkish clay; black and white grits.	Tal and Taxel 2008: Fig. 6.91:18; Kletter 2005: Fig. 20:1; Rosen-Ayalon & Eitan 1969
26	30015	3005	Buff ware; yellowish clay; orangish core; black and white grits; plaster stains on interior.	Cytryn- Silverman 2010: Pl. 9.4:8; Barmaki 1944: Fig. 15:23

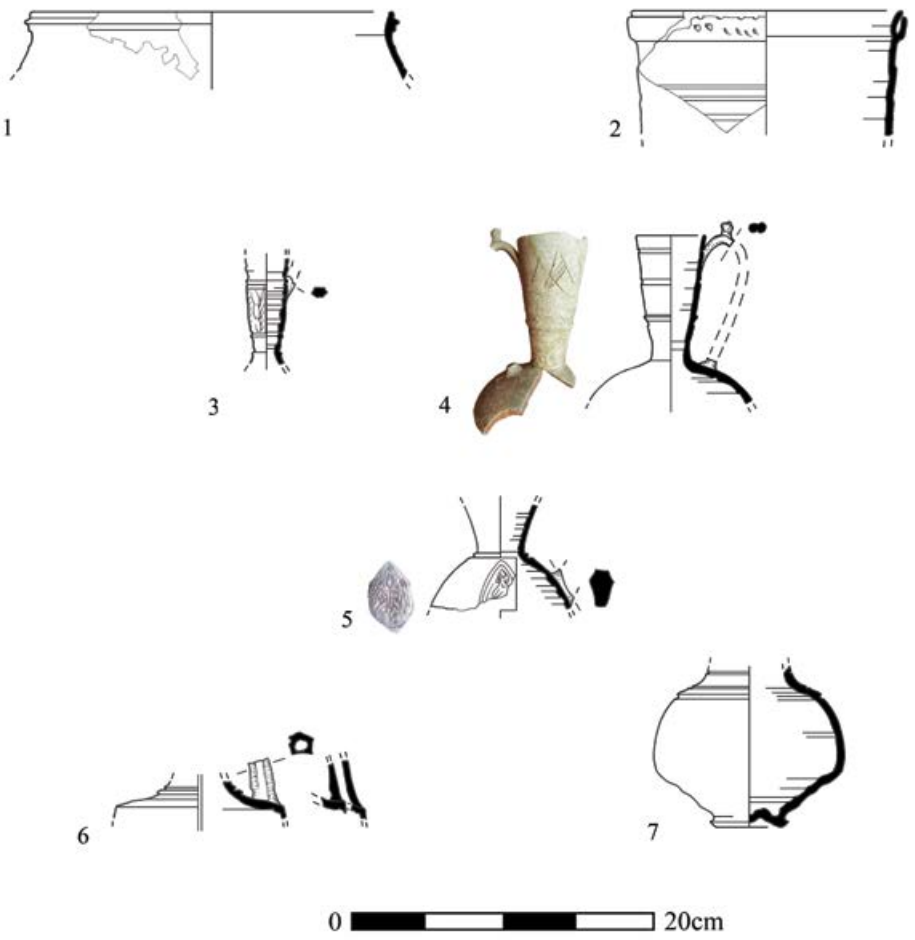


Figure 2.32. Spherical jugs and juglets, Types 2B-2E.

No.	Reg. no.	Locus	Description	Parallels
1	40168	4064	Buff ware; yellowish clay; black grits.	Arnon 2008a: Type 141e
2	40109/10	4008	Buff ware; pinkish clay; black and white grits; mould stains.	Tal and Taxel 2008: Fig. 6.91:17; Kletter 2005: Fig. 14:4; Arnon 2008a: Type 541b; Stacey 2004: Fig. 5.43:7; Avissar 2009: Fig. 9:20
3	40639	4528	Buff ware; yellowish clay; black and white grits.	Cytryn-Silverman 2010: Pl. 9.24:3; Tal and Taxel 2008: Fig. 6.91:14; Avissar 2013b: Fig. 12:14
4	40306	-	Buff ware; pinkish clay; small black and white grits.	
5	50126	5037	Buff ware; yellowish clay; black and white grits.	Shlomi 2007: Fig. 2:15
6	90739	9713	Buff ware; yellowish clay; black and white grits.	
7	90711	9712	Buff ware; yellowish clay; black and white grits.	

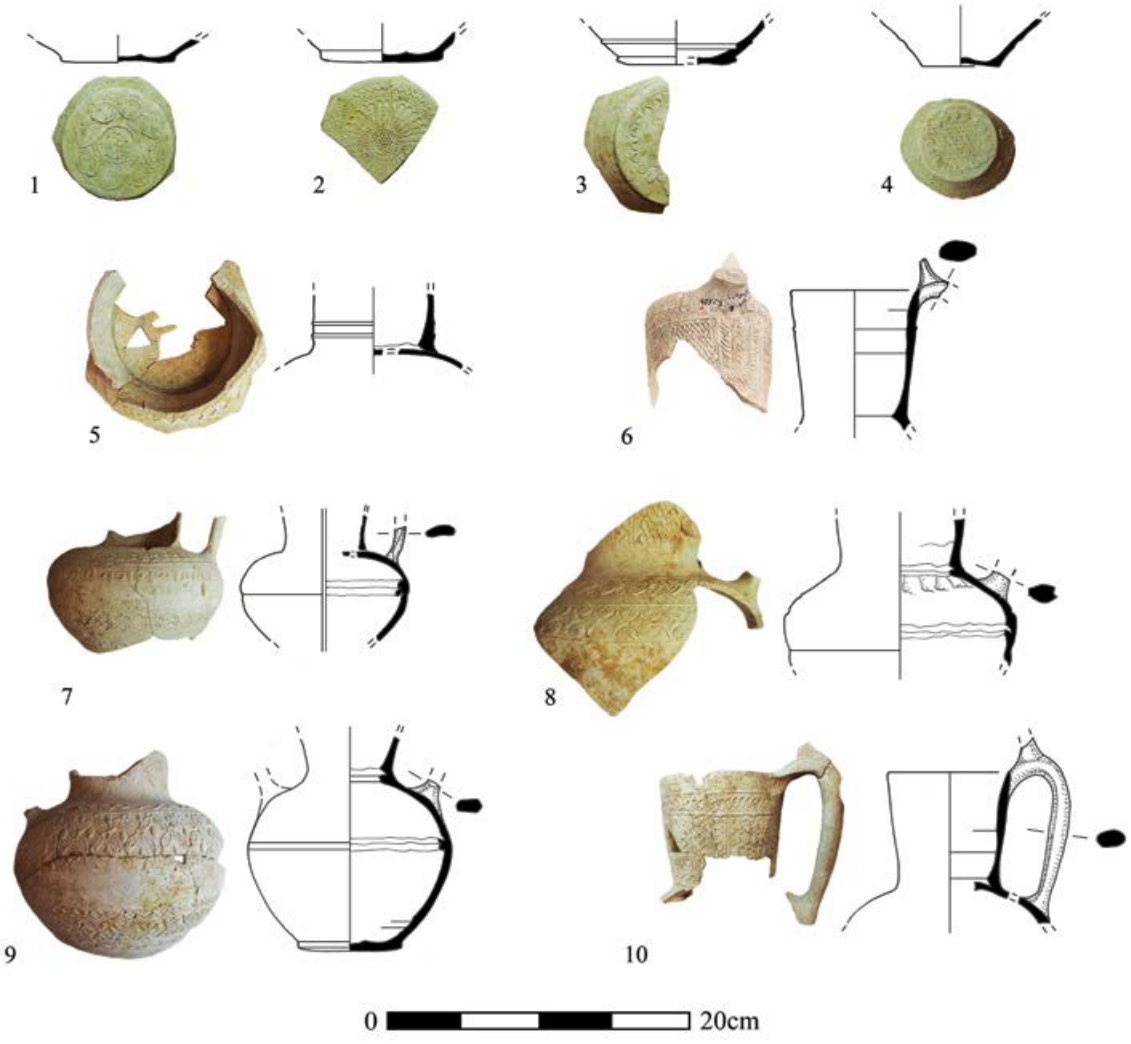


Figure 2.33. Jug Type 3: mold-made jugs.

←Figure 2.33.

No.	Reg. no.	Locus	Description	Parallels
1	50099/1	5025	Buff ware; small black grits; fingerprints on interior; mold-made.	Kohn-Tavor 2013: Fig. 16:10
2	40642	4529	Buff ware; pinkish clay; white grits; mold-made.	
3	50087/3	5025	Buff ware; pinkish clay; small black grits; mold-made.	
4	50162	5043	Buff ware; yellowish clay; small black grits; mold-made.	
5	50162	5043	Buff ware; yellowish clay; small black and white grits; mold-made; mould stains.	Arnon 2007: Fig. 8:11
6	90583	9565	Buff ware; yellowish clay; small black grits; mold-made.	Cytryn-Silverman 2010: Pl. 9.24:2, Ph. 9.13:1-2; Kletter 2005: Fig. 16:6
7	90560	9546	Buff ware; yellowish clay; small black and white grits; mold-made.	Rauchberger and Bouchenino 2013: Fig. 7:26; Avissar 2013b: Fig. 12:9
8	50070/2	5025	Buff ware; yellowish clay; small black and white grits; mold-made; mold stains.	Cytryn-Silverman 2010: Pl. 9.20:3, Ph. 9.13:5
9	50047/4	5017	Buff ware; yellowish clay; small black grits; finger-print marks on interior; mold-made..	Cytryn-Silverman 2010: Pl. 9.20:3, Ph. 9.13:5; Cytryn-Silverman 2013: Figs. 7.6:6, 7.3:7, P. 173; Kletter 2005: Fig. 17:9
10	90563	9549	Buff ware; yellowish clay; small black grits; mold-made.	Cytryn-Silverman 2010: Pl. 9.24:2, Ph. 9.13:1-2; Kletter 2005: Fig. 16:6

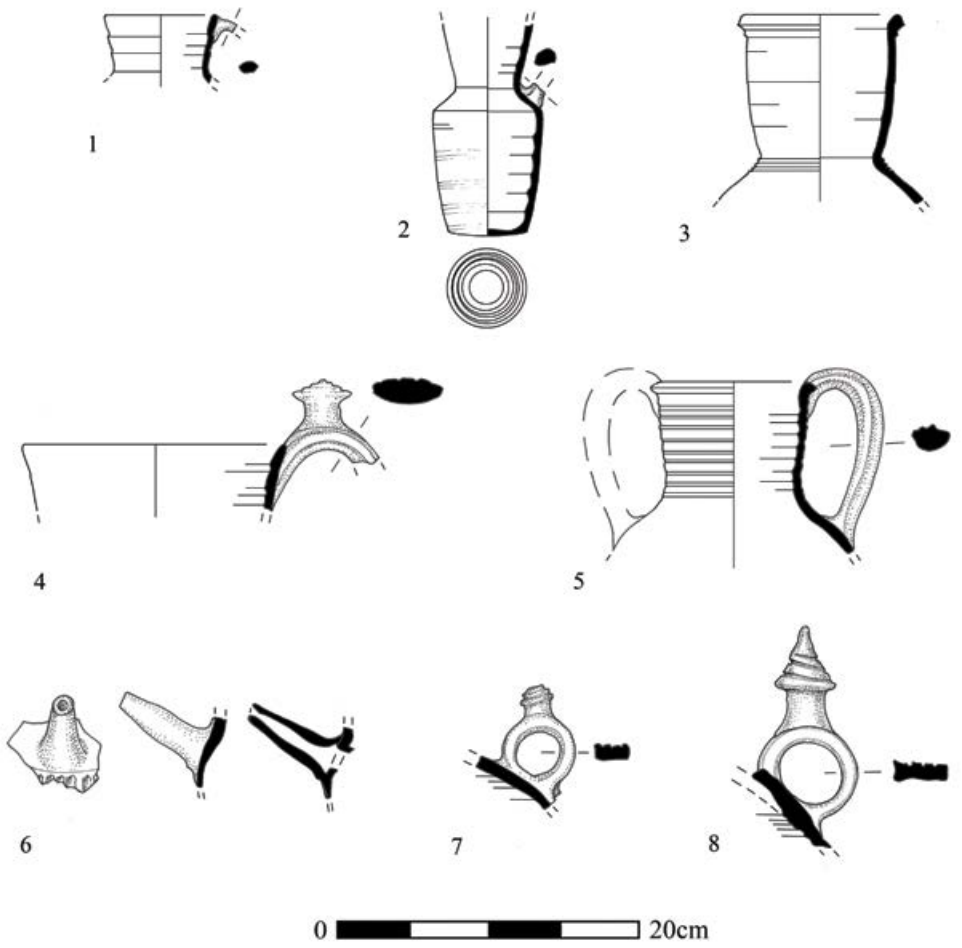


Figure 2.34. Jug Type 4: thick-walled jugs..

No.	Reg. no.	Locus	Description	Parallels
1	40679	4545	Coarse orangish clay; large white grits.	Tal and Taxel 2008: Fig. 6.90:26
2	80239	8082	Buff ware; yellowish clay; white and black grits; mold stains.	
3	60015	6003	Buff ware; yellowish clay; black and white grits.	Cytryn-Silverman 2010: Pl. 9.11:5, Pl. 9.17:7; Avissar 2006: Fig. 4:13; Arnon 2008a: Type 521f
4	80549	8518	Buff ware; coarse pinkish clay; large white grits.	
5	60018/7	6002	Buff ware; pinkish clay; small black and brown grits.	
6	40207	4036	Buff ware; yellowish clay; black, white and orange grits.	Cytryn-Silverman 2010: Pl. 9.34:3
7	40566	4504	Buff ware; yellowish clay; black and white grits.	Tal and Taxel 2008: Fig. 6.91:18; Arnon 2007: Fig. 9:8
8	90026	9023	Buff ware; yellowish clay; black and white grits.	Tal and Taxel 2008: Fig. 6.91:18; Kletter 2005: Fig. 20:2; Arnon 2007: Fig. 9:8

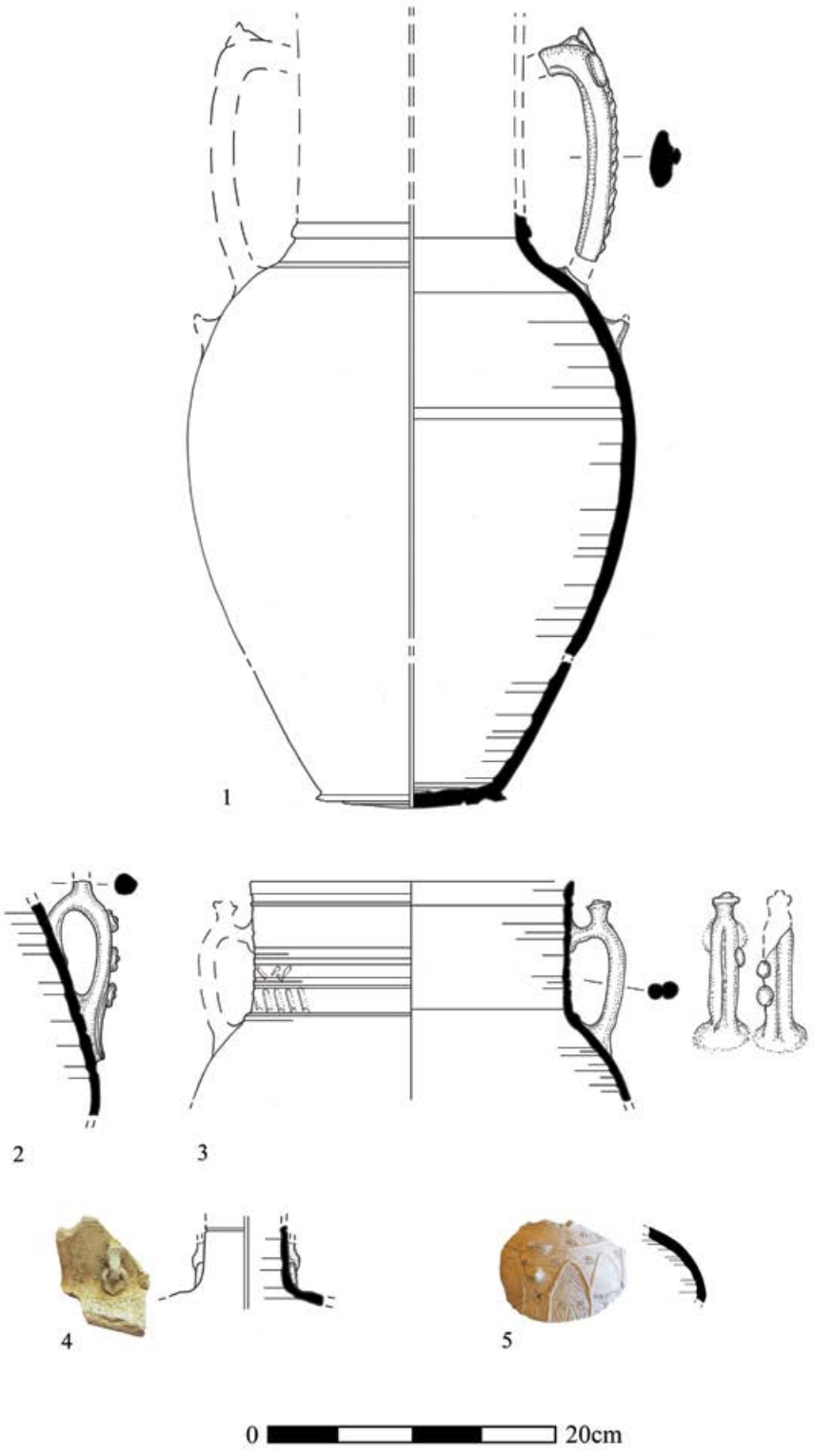


Figure 2.35. Barbotine-decorated jars.

Figure 2.35.

No.	Reg. no.	Locus	Description	Parallels
1	80277	8088	Buff ware; yellowish clay; black and white grits.	
2	60013/1	6003	Buff ware; yellowish clay; black and white grits.	Barmaki 1944: Fig. 16:2
3	40115/2	4008	Buff ware; yellowish clay; black and white grits; mold stains.	Barmaki 1944: Fig. 16:2; Toueg 2013: Fig. 29:14
4	90522	9510	Buff ware; pinkish clay; black and white grits.	Cytryn-Silverman 2010: Pl. 9.4:15-16; Kletter 2005: Fig. 16:3,8; Kogan-Zahavi 2004: Fig. 2:6
5	40582	4522	Coarse orange clay; large white grits; pale slip; incised and stamped decoration.	

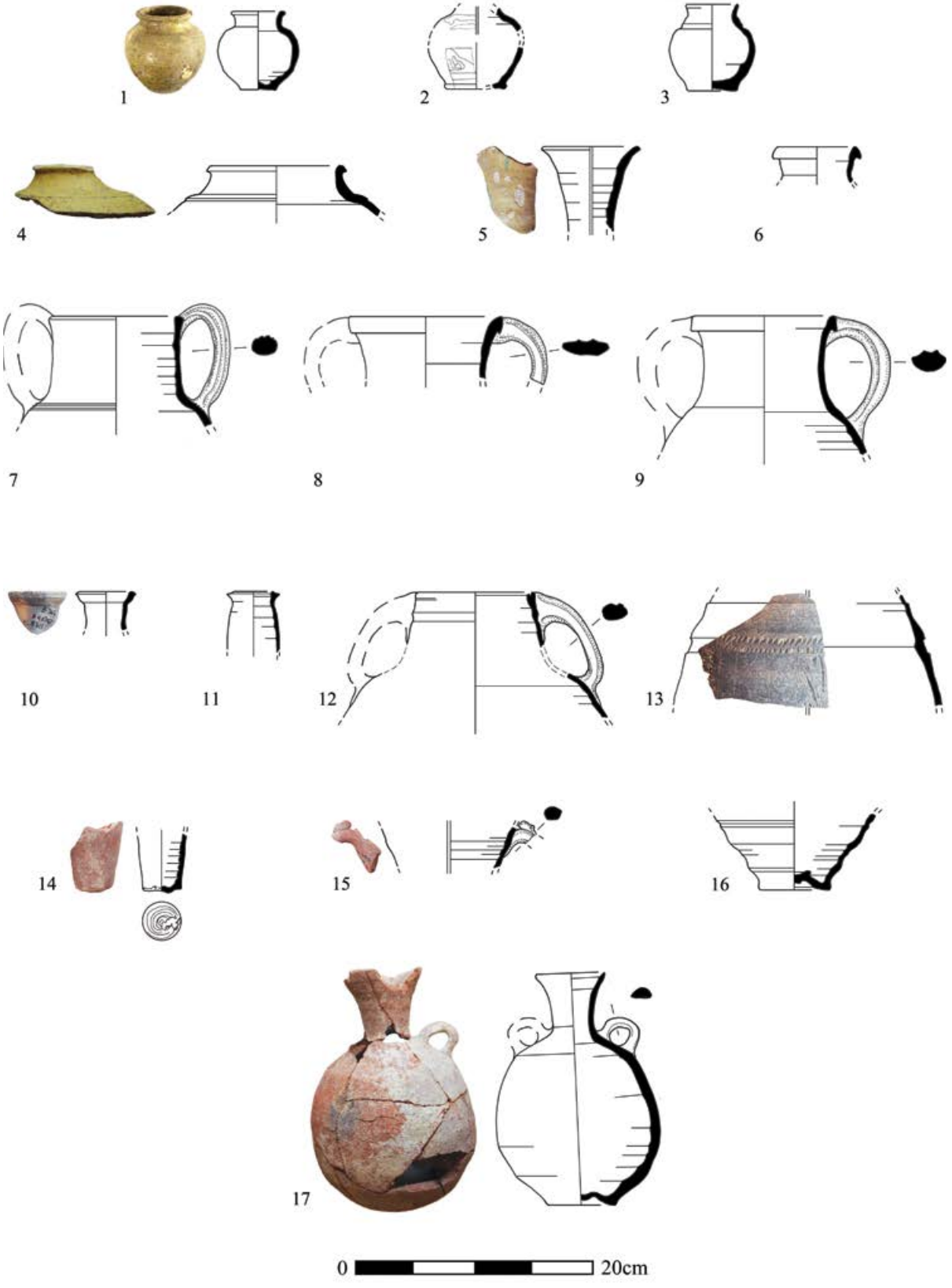


Figure 2.36. Glazed jugs and juglets (1-5), coarse brown ware jugs (6-9), white-painted jugs (10-13) and 'Coptic' jugs (14-17).

Figure 2.36.

No.	Reg. no.	Locus	Description	Parallels
1	40109	4008	Buff ware; black and white grits; yellow-green glaze on interior and exterior, with green dots and splashes; adhesion marks with adjacent vessels during firing; mold stains.	Arnon 2008a: Type 631a
2	40121	4036	Coarse orange clay; small black and white grits; thick dark green glaze on exterior; dripping on interior.	Arnon 2008a: Type 631b; Avisaar 2011: Fig. 14:5
3	70504	7501	Coarse brown clay; white grits; flaking; turquoise green glaze on body, base and rim.	Arnon 2008a: Type 631a; Arnon 2007 Fig. 10:9
4	40112/1	4036	Pale sandy clay; black and white grits; thick mustard-yellow glaze outside, greenish-yellow glaze inside with many grits.	Avissar 2006: Fig. 4:12; Arnon 2007: Fig. 10:7; Arnon 2008a: Type 631c; Tal and Taxel 2008: Fig 6.91:50; Toueg 2013: Fig. 29:7; Toueg 2012: Fig. 7:12
5	60560	6521	Pinkish clay; black, white and orange grits; green-yellow glaze, thick outside and thin inside.	
6	90524	9519	Coarse orange clay; large white grits.	Avissar 1996: Fig. XIII.139:5
7	50041/2	5017	Coarse brown clay; white grits.	Tal and Taxel 2008: Fig. 6.91:26
8	40168/7	4064	Coarse orange clay; large white grits; mold stains.	
9	40159	4059	Coarse brown clay, grayish core; large black and white grits; pale slip.	
10	90710	9711	Orangish clay; white grits; black-orange walls.	Arnon 2008a: Type 513e
11	90741	9713	Orangish clay; large black and white grits.	Tal and Taxel 2008: Fig. 6.91:29; Arnon 2007: Fig. 10:5; Arnon 2008a: Type 522e
12	90736	9714	Thin orange clay; white grits; metallic.	Tal and Taxel 2008: Fig. 6.91:32; Arnon 2008a: Type 513d
13	90019	9023	Orange metallic clay, gray core; black on outside; large black and white grits.	Avissar 1996: Fig. XIII.141:1
14	40628	4528	Red clay; white grits.	
15	60532	6010	Coarse red clay; white clay; flaking.	
16	50122	5033	Coarse sandy red clay; very large black and white grits.	Arnon 2008a: Type 514d
17	40519	4500	Coarse brown clay; large black and white grits; pale slip outside.	Avisaar 2011: Fig.14:6

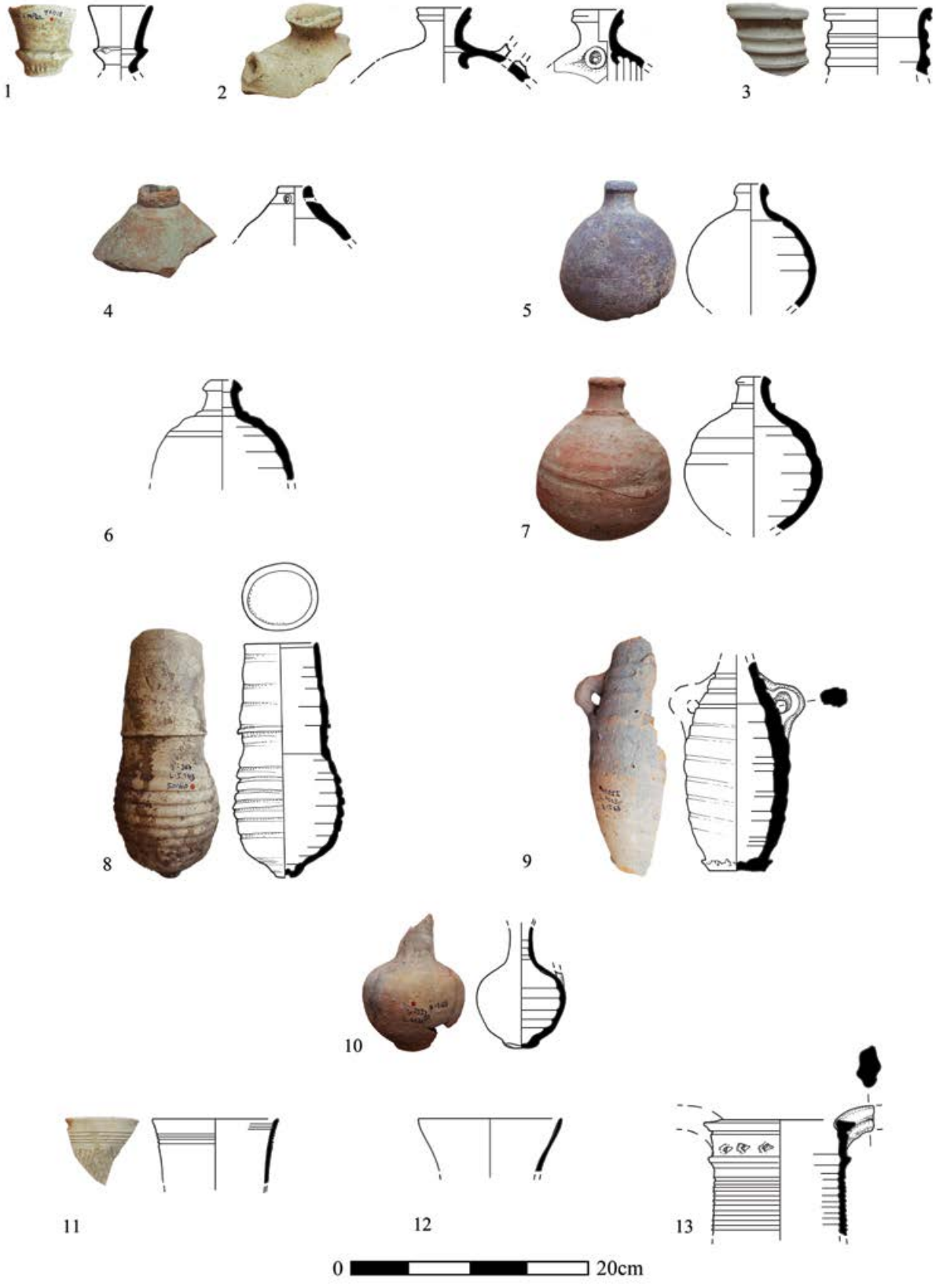


Figure 2.37. Flasks (1-3), 'grenades' (4-7), water-wheel vessels (8-9) and miscellaneous jugs (10-13).

Figure 2.37.

No.	Reg. no.	Locus	Description	Parallels
1	90018	9022	Buff ware; yellowish clay; black and white grits.	
2	60560	6056	Buff ware; yellowish clay; very large black, white and brown grits.	
3	40093/4	4033	Buff ware; grayish clay; black and white grits.	Cytryn-Silverman 2010: Pl. 9.24:3; Arnon 2008a: Type 528b; Avissar 2009: Fig. 5:5
4	90726	9713	Orange clay; large white and brown grits; flaking.	
5	90019	9023	Brown-gray clay; white grits; exterior burnished.	Cytryn-Silverman 2010: Pl. 9.13:6, Ph. 9.22, Ph. 9.23; Tal and Taxel 2008: Fig. 6.92:14-15
6	-	-	Dark gray clay; brown surface; metallic.	Tal and Taxel 2008: Fig. 6.92:14; Kletter 2005: Fig. 17:2; Rauchberger and Bouchenino 2013: Fig. 7:29; Arnon 2007: Fig. 14:2; Arnon 2008a: Type 516
7	60560	6521	Orange clay; large white and brown grits; flaking.	Cytryn-Silverman 2010: Pl. 9.13:6, Ph. 9.22, Ph. 9.23
8	50160	5043	Buff ware; black and white grits.	Tal and Taxel 2008: Fig. 6.96:1-6; Kletter 2005: Fig. 16:13; Arnon 2007: Fig. 18:9
9	90055	9023	Coarse orange clay; large black and white grits; coarse finishing.	
10	60556	6520	Orange clay; large white grits; metallic.	Kletter 2005: Fig. 17:1
11	60560	6521	Orangish clay; black and white grits; pale slip.	Cytryn-Silverman 2010: Pl. 9.20:8
12	40023/9	4010	Pinkish clay; black and white grits; white self-slip; exterior shaved, producing white burnish.	
13	40678	4535	Orange clay; large black and white grits; pale self-slip outside.	

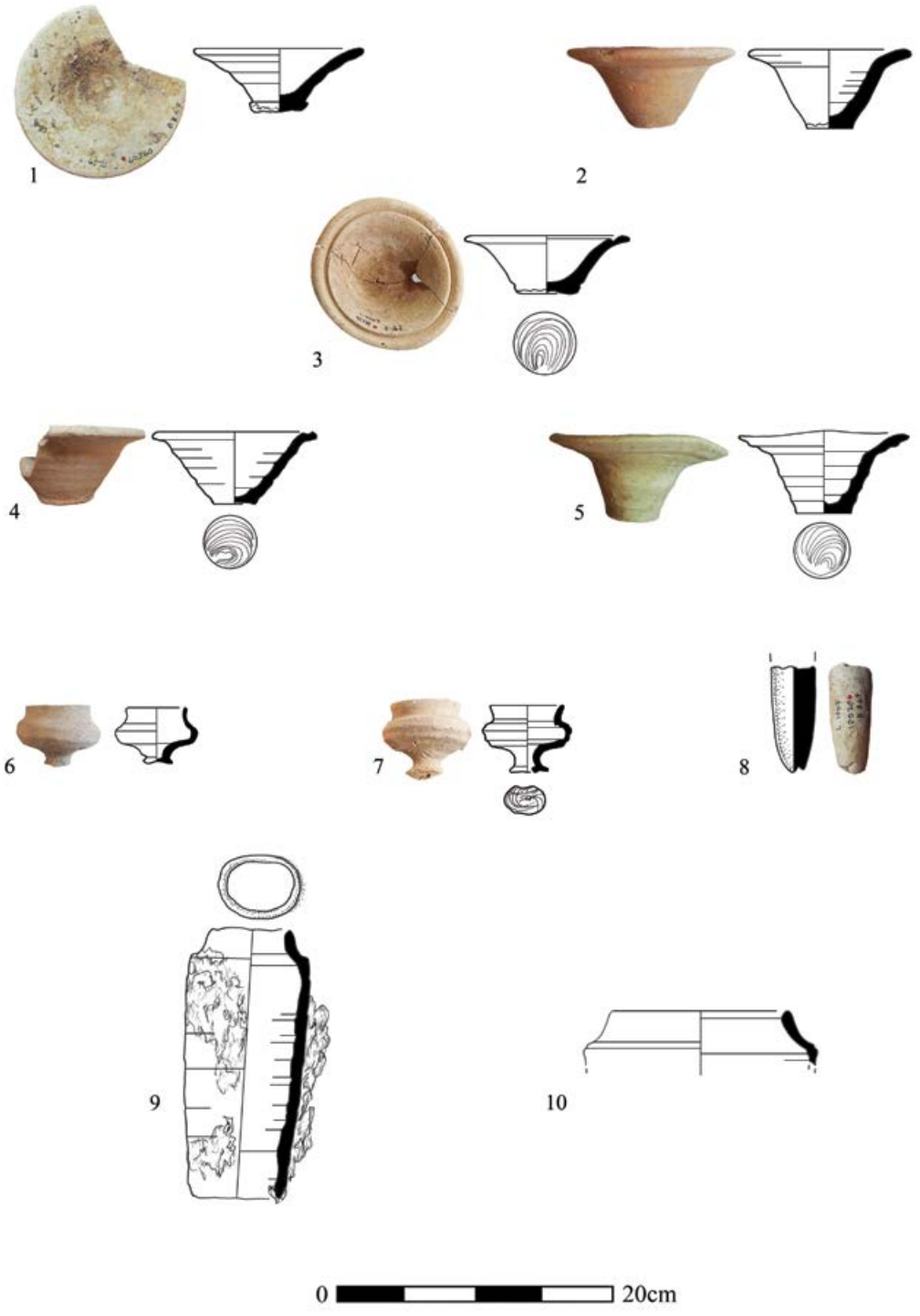


Figure 2.38. Lids (bowl-shaped jar lids [1-5] and S-shaped lids [6, 7]), kiln bar (8) and pipes (9, 10).

Figure 2.38.

No.	Reg. no.	Locus	Description	Parallels
1	60560	6521	Buff ware; brown, black and white grits.	
2	89000	8992	Coarse orange clay; large white grits.	Cytryn-Silverman 2010: Pl. 9.11:18
3	40178	4063	Coarse orangish clay; large black and white grits; mica; pale slip.	Cytryn-Silverman 2010: Pl. 9.4:21; Tal and Taxel 2008: Fig. 6.97:1; Kletter 2005: Fig. 20:4-5; Arnon 2007: Fig. 18:10
4	50036/1	5015	Coarse brown clay; large white grits; pale slip on exterior?	
5	90036	9022	Buff clay; brown, black and white grits.	
6	80290	8102	Buff clay, black and white grits.	Tal and Taxel 2008: Fig. 6.86:6-7
7	80103	8009	Buff clay; black and white grits; poorly fired.	Tal and Taxel 2008: Fig. 6.86:6-7
8	10020	1007	Buff ware; coarse pinkish clay; black, white and orange grits; mold stains.	
9	80052	8013	Coarse brown clay; grayish core; large black and white grits.	Cytryn-Silverman 2010: Pl. 9.19:10; Tal and Taxel 2008: Fig. 6.10:1-2
10	80052	8013	Coarse orange clay; large white and orange grits.	Cytryn-Silverman 2010: Pl. 9.16:1, Pl. 9.9:22; Tal and Taxel 2008: Fig. 6.10:3; Kletter 2005: Fig. 17:10

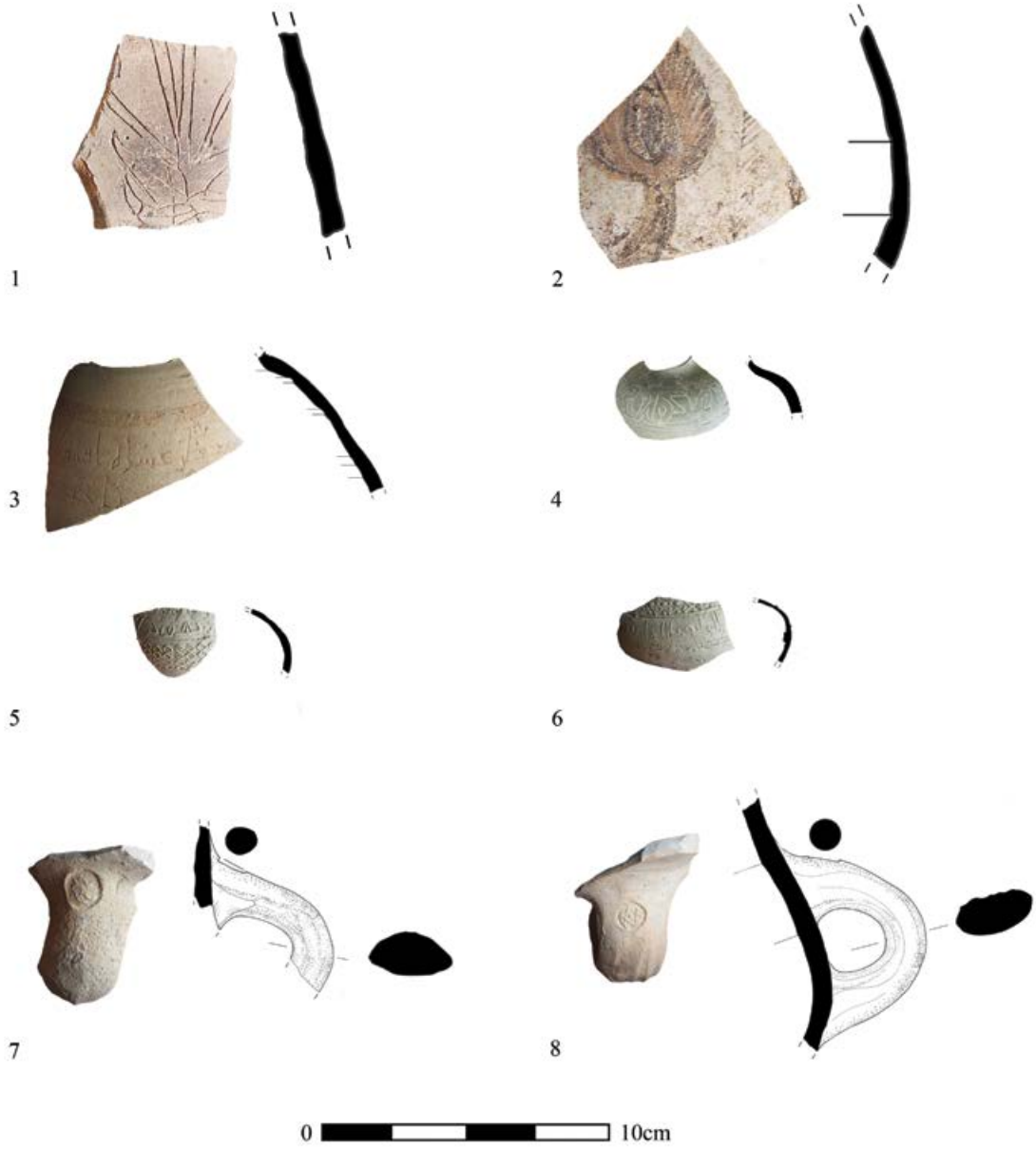


Figure 2.39. Sherds bearing incised decoration (1-2) and inscriptions (3-8) (for close-ups see Fig. 10.1, this volume).

Figure 2.39.

No.	Reg. no.	Locus	Description	Parallels
1	40027	4004	Body sherd of jar or jug; orangish clay; small black and white grits; pale slip? incised decoration, applied before firing.	
2	50162	5043	Body sherd of jar or jug; coarse metallic orange clay; large black and white grits; pale slip and black paint over incised decoration, applied before firing; mold stains.	This sherd shows some similarity to quite fine wares painted in dark brown or black on a pale background, which were influenced by Coptic ceramics but apparently made locally.
3	80100	8016	Arabic inscription	See Chapter 10, this volume
4	40029	4013	Arabic inscription	
5	50033	5011	Arabic inscription and Barbotine decoration	
6	100074	10076	Arabic inscription and Barbotine decoration	
7	40578/1	4512	Stamp (unclear) on handle	
8	50113/1	5022	*Khatim Sulayman* stamp on handle	

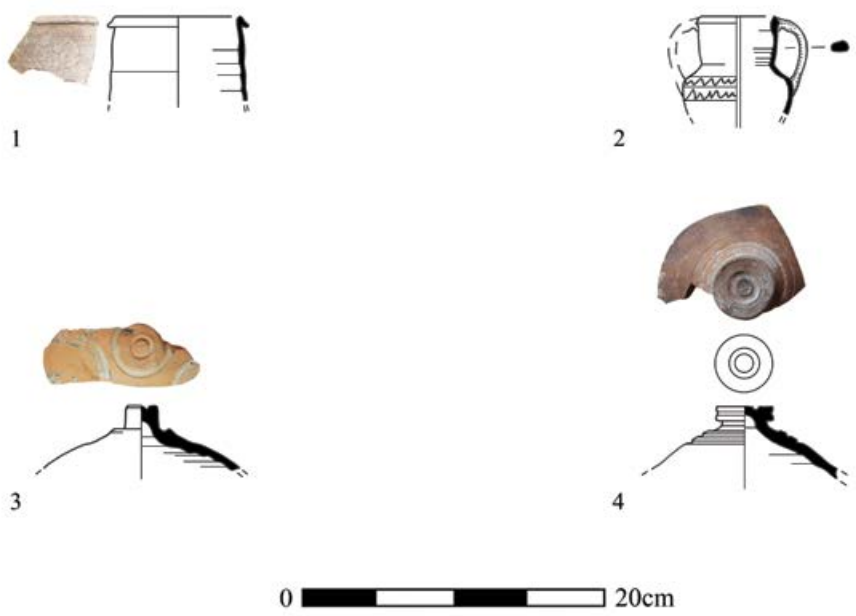


Figure 2.40. Fine Byzantine Ware: jugs (Form 1B [1]), juglet (2) and lids (3, 4).

No.	Object	Reg. no.	Locus	Description	Parallels
1	Jug	40675	4545	Fine, metallic orange clay; white grits; white slip on exterior, one which is applied black-painted decoration.	Tal and Taxel 2008: Fig. 6.91:45-46; Cytryn-Silverman 2013: Fig. 7.5:5; Arnon 2008a: Type 514b, Pl. 14:1
2	Juglet	-	-	Fine ware; black-painted decoration.	
3	Lid	80284	8088	Metallic orange clay; gray core; white grits; fragments of black- and white-painted decoration.	
4	Lid	90725	9711	Metallic orange clay; gray core; white grits; soot stains.	Arnon 2007: Fig. 18:11, 13; Torgë 2008: Fig. 3:12; Rauchberger and Bouchenino 2013: Fig. 7:21

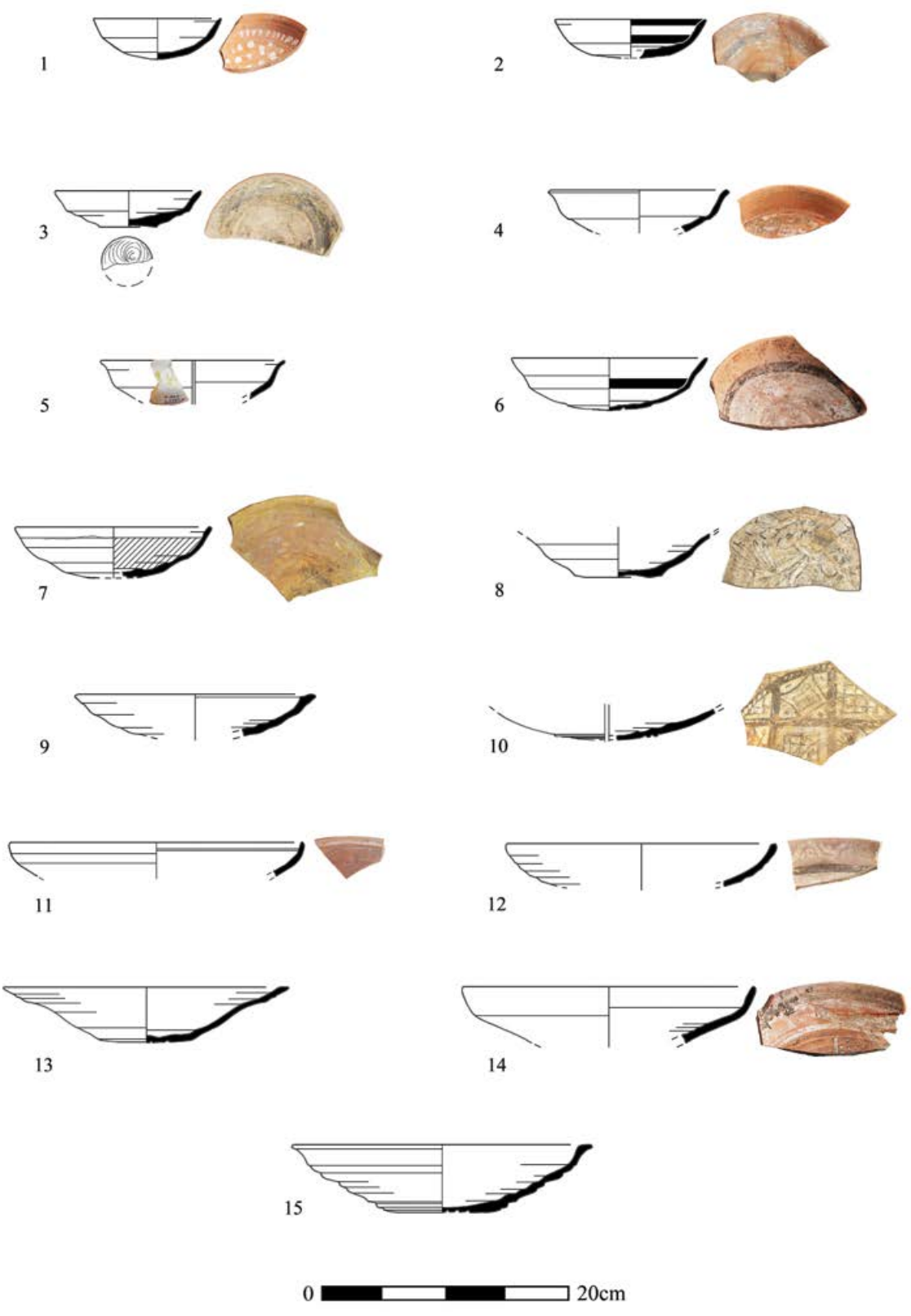


Figure 2.41. Fine Byzantine Ware: bowls (Form 2B).

←Figure 2.41.

No.	Reg. no.	Locus	Description	Parallels
1	50065/1	5023	Orange clay; large white grits; metallic; decorated on the interior with white dots.	
2	80521	8505	Fine brown clay; small black and white grits; gray core; metallic; interior decorated in black on a white background.	Arnon 2007: Fig. 1:8
3	40102	4039	Grayish clay; white grits; metallic; black slip on interior, covered by a white pattern.	Arnon 2008a: Type 121j
4	50065/2	5023	Fine, metallic orange clay; decorated on interior with white-painted net and dots over a red slip.	
5	50127/1	5033	Fine, metallic orange clay; gray core; burnished stripes on interior and exterior; mold stains.	Cytryn-Silverman 2010: Pl. 9.10:8; Avissar 2006: Fig. 5:5; Arnon 2008a: Type 121a
6	90587	9561	Fine brown clay; small black and white grits; base decorated in black paint on white background.	Cytryn-Silverman 2010: Pl. 9.10:8
7	50108	5033	Fine brown clay; small black and white grits; interior decorated in black on a white background; painted strips on exterior; mold stains.	
8	50099/3	5025	Fine gray metallic clay; very large black and white grits; black painted decoration on interior, over white background; black strip on exterior.	Barmaki 1944: Fig. 6:8-14
9	50108	5033	Fine, metallic orange clay; small black and white grits; burnished strips on interior and exterior.	Arnon 2007: Fig. 1:7; Arnon 2008a: Type 121d; Avissar 2011: Fig. 12:7
10	50070	5025	Fine, metallic brown clay; small black and white grits; base painted in black on white background.	Cytryn-Silverman 2010: Pl. 9.10:8
11	50105/23	5018	Fine, metallic brown clay; small black and white grits; gray core; black and white slip; burnished strips on exterior.	
12	-	-	Metallic orangish clay; white grits; decorated in black on white background.	
13	50108	5033	Fine, metallic brown clay; small black and white grits; gray core; interior decorated in black on white background; burnished strips throughout vessel.	Barmaki 1944: Fig. 6: 8-14
14	90039	9022	Fine, metallic brown clay; small black and white grits; gray core; black paint decoration on white background.	
15	60047	6010	Fine, metallic orange clay; gray core; burnished strips on interior.	Cytryn-Silverman 2010: Pl. 9.10:8; Rauchberger and Bouchenino 2013: Fig. 7:15

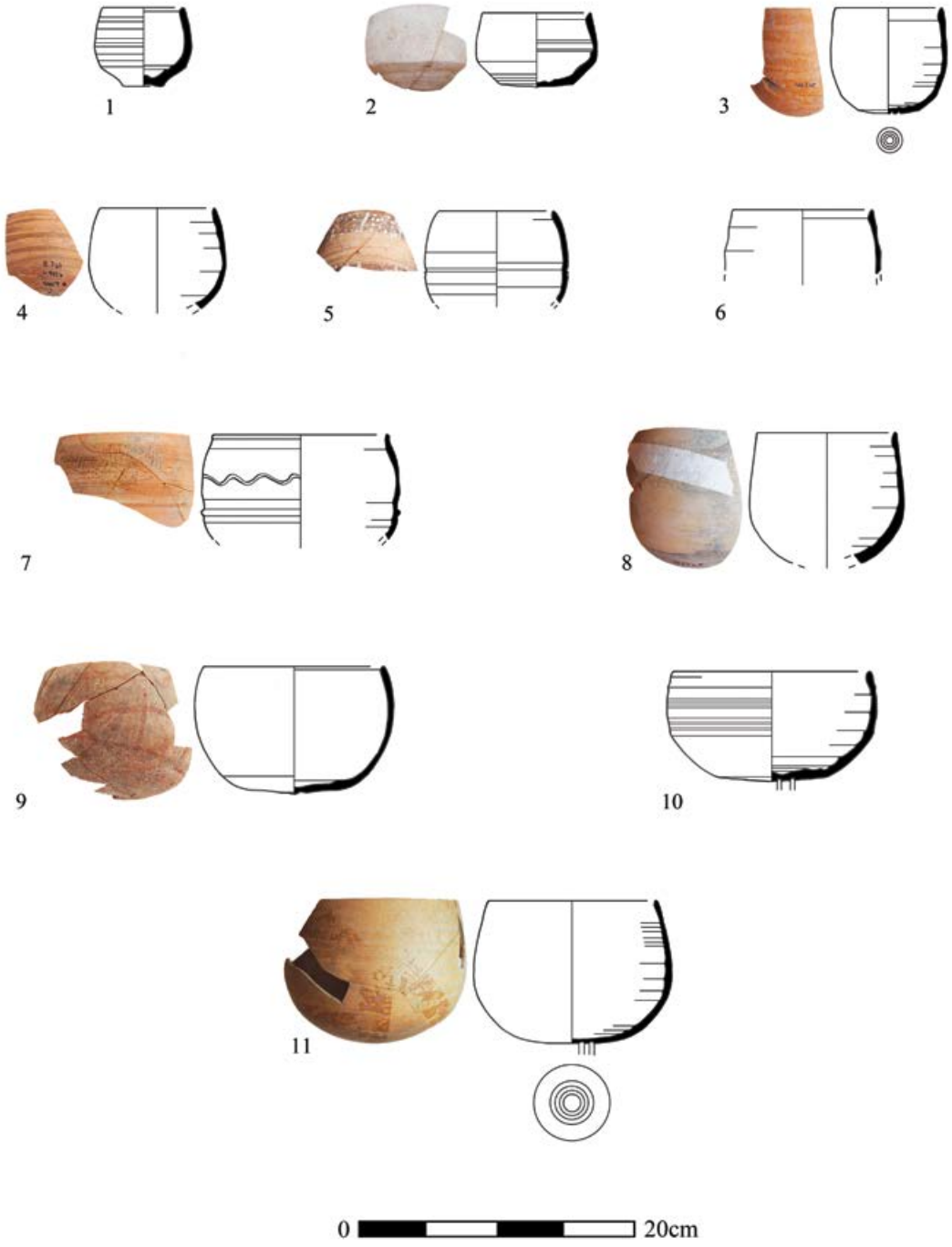


Figure 2.42. Fine Byzantine Ware: bowls (Form 1E).

←Figure 2.42.

No.	Reg. no.	Locus	Description	Parallels
1	40108/5	4039	Orange, metallic clay; gray core; small white grits; burnished strips on exterior.	Avissar 2009: Fig. 4:14; Cytryn-Silverman 2013: Fig. 7.10:1; Barmaki 1944: Fig. 6:8
2	40154/3	4059	Orangish clay; large white grits; pale slip.	Arnon 2008a:119, Type 322a; Avissar 2009: Fig. 4:14
3	40209	4013	Fine, metallic brown clay.	
4	90057	9026	Fine, metallic brown clay; small black and white grits; gray core; burnished strips on exterior.	Cytryn-Silverman 2010: Pl. 9.23:5, 9.5:9-10
5	-		Fine, metallic brown clay; small black and white grits; gray core; black slip under rim and around base; white dots over slip; burnished strip on exterior.	Barmaki 1944: Fig. 7:7
6	60568	6521	Fine, metallic orange clay; burnished strips on inside and outside of rim.	Rauchberger and Bouchenino 2013: Fig. 7:16
7	40256/2	4092	Fine, metallic brown clay.	
8	40226	4092	Metallic pinkish clay; gray core; white grits; burnished strips.	Cytryn-Silverman 2010: Pl. 9.23:5, 9.5:9-10
9	40251	4092	Coarse orange clay; large white grits; pale slip; red paint on exterior.	Cytryn-Silverman 2010 Pl. 9.3: 8
10	50129/1	5035	Metallic orange clay; large white grits; exterior burnishing.	Tal and Taxel 2008: Fig. 6.78:3; Kletter 2005: Fig. 17:7; Arnon 2007: Fig. 6:1-2
11	40256	4092	Metallic pinkish clay; gray core; white grits; burnished strips.	Cytryn-Silverman 2010 Pl. 9.23: 5, 9.5: 9-10; Avissar 2006: Fig. 4:4

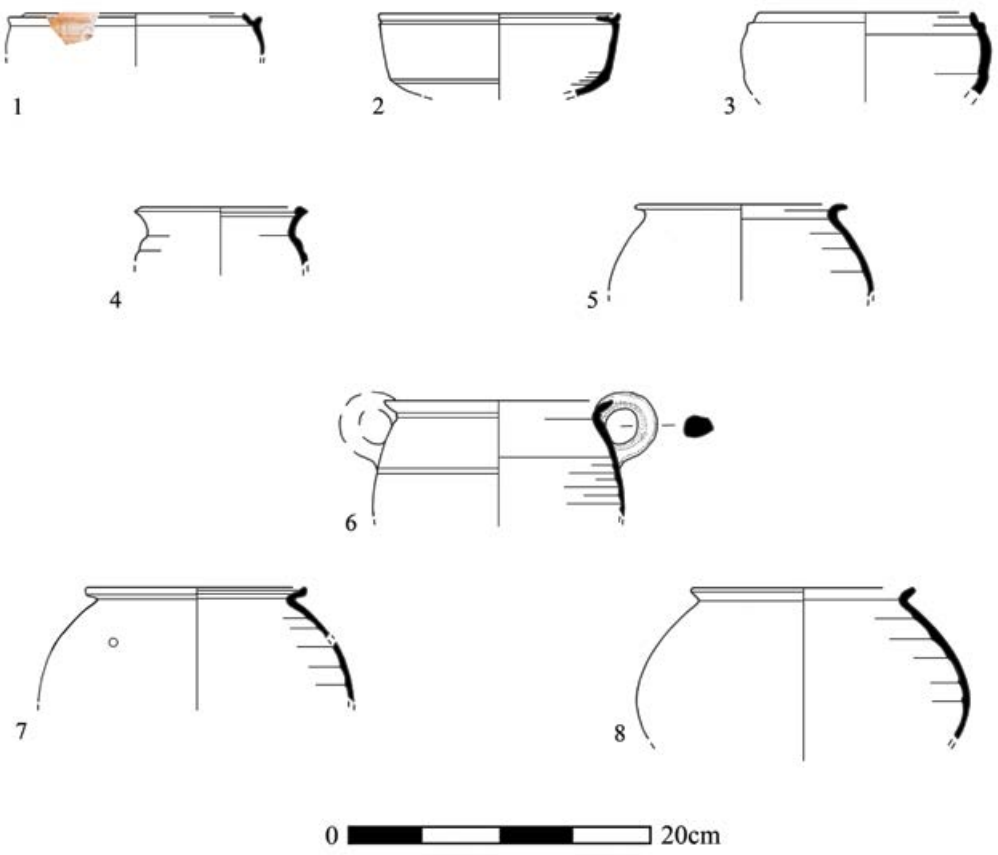


Figure 2.43. Fine Byzantine Ware: bowls (Form 2A [1-3]) and globular kraters (4-8).

No.	Reg. no.	Locus	Description	Parallels
1	60026	6003	Fine, metallic orange; gray core; white grits; black paint decoration on exterior, on white background.	Avissar 2006: Fig. 5:6; Tal & Taxel 2008: Fig. 6.78:2
2	60039	6003	Metallic orange clay; gray core; white grits; exterior burnishing.	Rauchberger and Bouchenino 2013: Fig. 7:9; Avissar 2006: Fig. 5:6; Tal and Taxel 2008: Fig. 6.78:2; Arnon 2007: Fig. 1:9
3	50036/4	5015	Orangish clay; black and white grits.	Tal and Taxel 2008: Fig. 6.78:2; Arnon 2008a: Type 121e
4	50052/18	5011	Pink clay; white grits.	Kletter 2005: Fig. 15:8
5	40625	4529	Metallic orange clay; large white grits.	Kletter 2005: Fig. 15:8; Arnon 2007: Fig. 1:10
6	40101	4039	Fine, metallic orangish clay; mold stains.	Kletter 2005: Fig. 15:9; Cytryn-Silverman 2013: Figs. 7.2:3; 7.7:6
7	50114	5034	Fine orange clay; white grits; well fired; horizontal burnished strips on vessel body.	
8	60539	6514	Fine, metallic orangish clay; small white grits.	Kletter 2005: Fig. 15:8

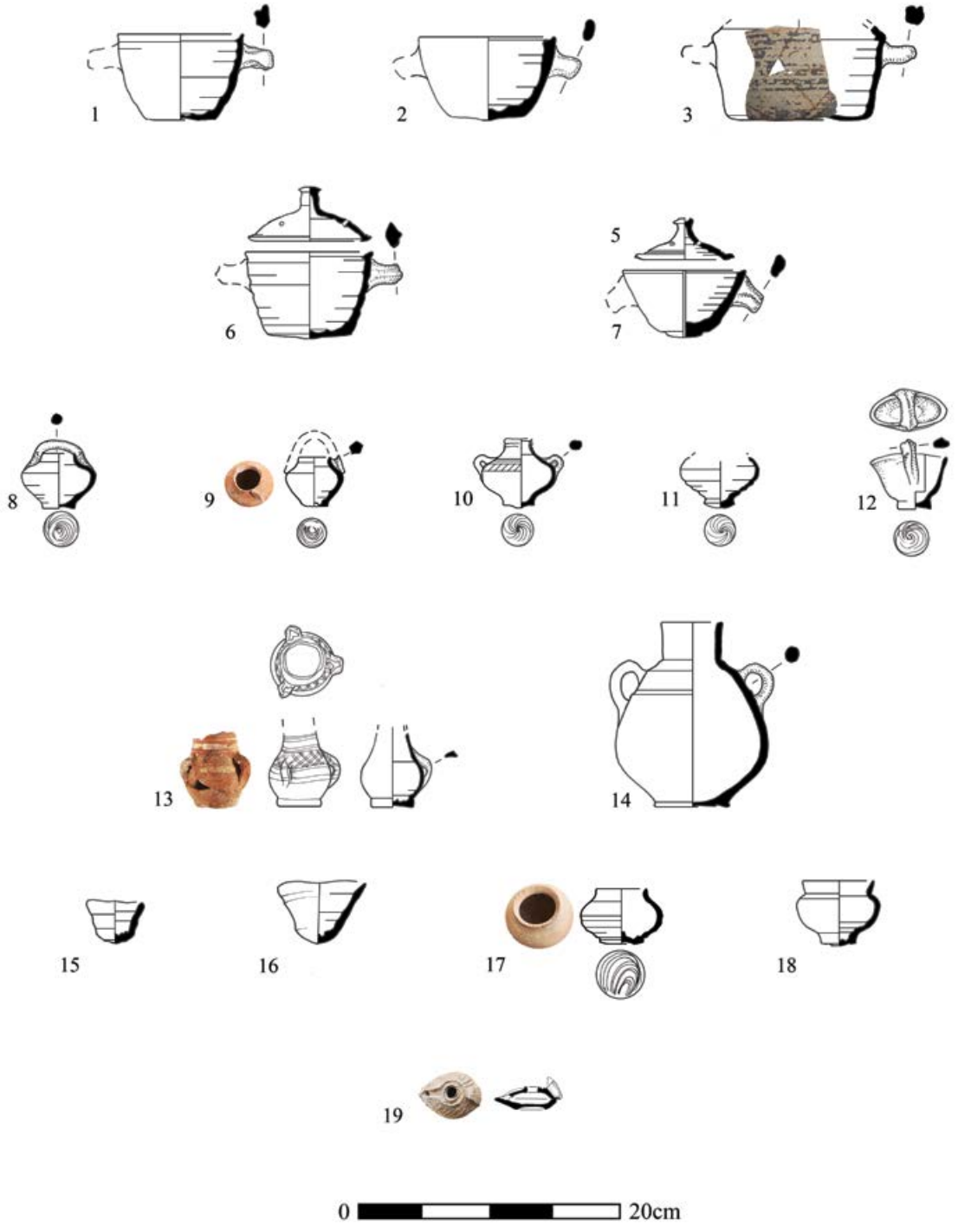


Figure 2.44. Miniature vessels: casseroles (1-5), jars, jugs and juglets (6-14), lids (15-16), cups (17-18) and oil lamp (19).

Figure 2.44.

No.	Reg. no.	Locus	Description	Parallels
1	40630/2	4529	Coarse orange clay; large black and white grits.	
2	40614	4530	Orangish clay; very large black and white grits; soot marks.	Kletter 2005: Fig. 18:6; Avissar 2013b: Fig. 11:15
3	40520/1	4500	Coarse metallic gray clay; orange on exterior; large black, white and orange grits; peeling self-slip.	
4	40630/3	4529	Orange metallic clay; large white grits.	
5	80169	8028	Orangish metallic clay; black and white grits.	Tal and Taxel 2008: Fig. 6.84:10; Kletter 2005: Fig. 18:13
6	90548	9542	Coarse orange clay; large black and white grits; soot marks on base.	Arnon 2007: Fig. 15:5
7	40630/1	4529	Coarse orange clay; large black and white grits.	Tal and Taxel 2008: Fig. 6.84:1-14; Arnon: 59-112a; Kohn-Tavor 2013: Fig. 17:5-8
8	-	-	Fine metallic red clay; pale slip.	
9	90701	9701	Orange clay; large white grits.	Barmaki 1944: Fig. 15:32-33
10	-	-	Fine metallic red clay; black painted decoration on exterior, over white background.	Barmaki 1944: Fig. 15:32-33
11	100106	10113	Red-brown clay; black and white grits; decorated by line of paint around vessel?	
12	-	-	Fine metallic red clay; pale slip.	
13	90546	9542	Reddish clay; white grits; pale slip; decorated by white painted lines.	
14	70501	7501	Buff clay; small black and white grits; lid.	Arbel 2005 Fig. 2:9
15	25208	8087	Coarse brown clay; large black and white grits.	
16	90009	9010	Coarse brown clay; large black and white grits.	
17	90001	9001		
18	60516	6510	Buff clay; black and white grits.	Cytryn-Silverman 2010: Pl. 9.24:11; Tal and Taxel 2008: Fig. 6.86:5; Stacey 2004: Fig. 5.54:4
19	40100	4039	Gray metallic clay; white grits.	Kletter 2005: Fig. 21:11; Bouchenino 2007: Figs. 9:15, 16:30; Cytryn-Silverman 2013:179; Rosenthal and Sivan 1978:136;

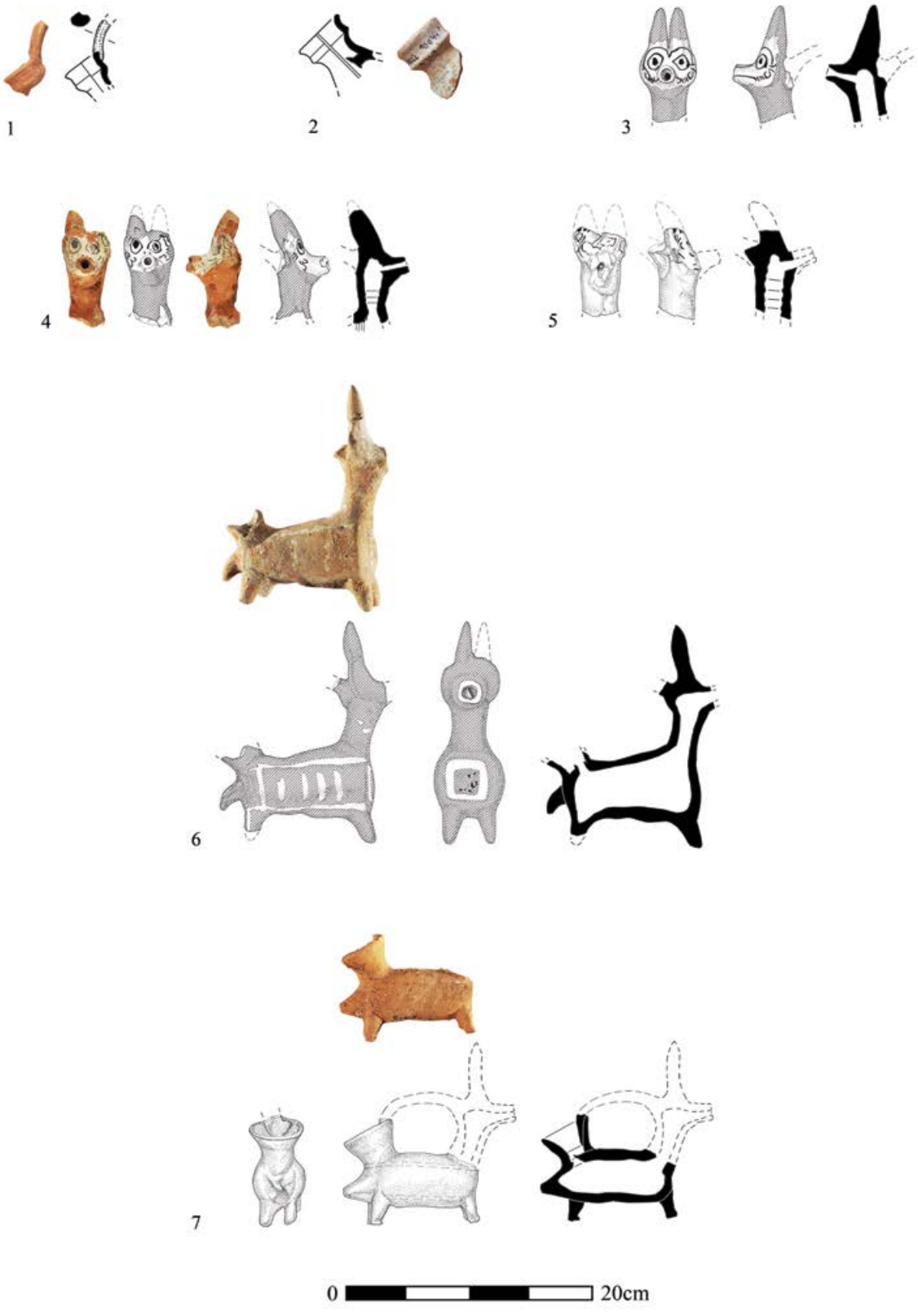


Figure 2.45. Zoomorphic vessels.

Figure 2.45.

No.	Reg. no.	Locus	Description	Parallels
1	80277	8088	Orangish clay; white grits; red slip.	
2	90044	9022	Orange clay; white grits.	Cytryn-Silverman 2010 Pl. 9.24:7; Tal and Taxel 2008: Fig. 6.93:4; Haddad 2013: Fig. 9:12; Kletter 2005: Fig. 16:10
3	50020/2	5008	Orangish clay; white and black grits; red slip; crude finish.	Vilozny 2010: Ph. 15.1; Toueg 2013: Fig. 34:2, 3
4	80059	8022	Red-orange clay, gray core; black and white grits; crude finish; animal face painted in black on a white background.	Kletter 2005: Fig. 22; Avissar 1996: Fig. XIII.158:4-5; Arnon 2007: Fig. 18:3, 4; Haddad 2013: Fig. 10:22
5	40092/4	4033	Coarse orange clay, gray core; large black and white grits; animal face painted in black on a white background.	
6	50020/1	5008	Metallic orange clay; gray core; small white grits; crude finish; red-orange slip; white stripes on the body; remains of black and white paint on the chest; white paint on the face; remains of black paint; face painted in black on a white background.	Cytryn-Silverman 2010: Pl. 9.12: 8; Avissar 2013a: Fig. 3:35; Vilozny 2010: Ph. 15.2; Haddad 2013: Fig. 10:23
7	40000	4000	Orange-red coarse clay; gray core; large black and white grits.	

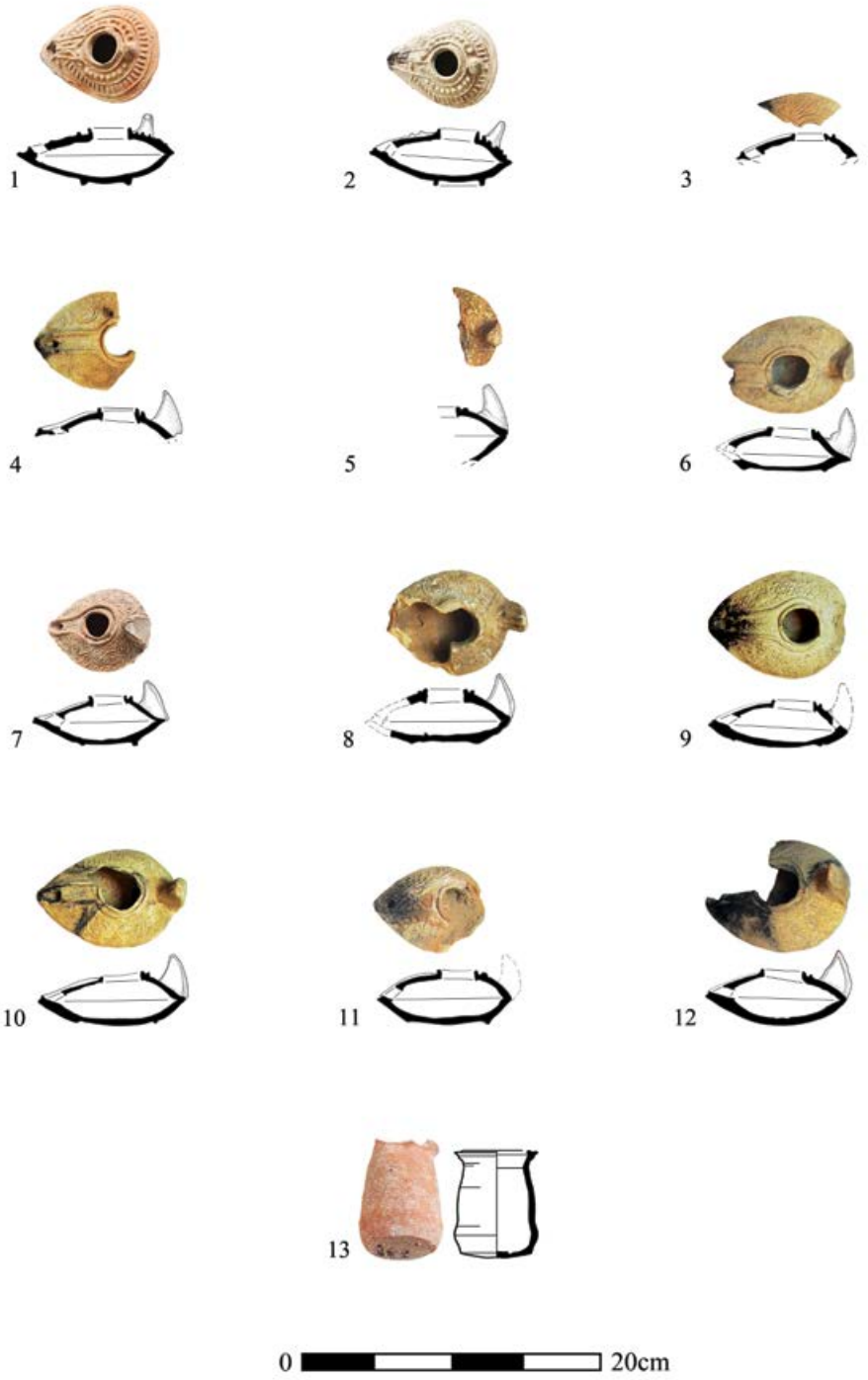


Figure 2.46. Oil lamps: Types 1 (1, 2), 2 (3-12) and 3 (13).

Figure 2.46.

No.	Reg. no.	Locus	Description	Parallels
1	80031	8009	Orange-yellow, non-homogeneous clay; many black and white grits.	Cytryn-Silverrman 2013: Fig. 9.7:4; Arnon 2007: Fig. 17:1
2	40591	4503	Buff clay; black and white grits.	Cytryn-Silverrman 2013: Fig. 9.7:4; Haddad 2013: Fig. 7:14
3	80015	8002	Pale and coarse orangish clay; white grits.	Cytryn-Silverrman 2013: Fig. 9.13:2
4	50129	5035	Coarse pale orange clay; large white and orange grits.	Kletter 2005: Fig. 21:6
5	90000	9000	Very coarse, mixed buff and orange clay; very large white grits.	Kletter 2005: Fig. 21:9; Rosen-Ayalon & Eitan 1969
6	90017	9021	Buff clay; many orange and white grits.	Cytryn-Silverman 2013: Figs. 9.12:1; 9.13:1; Tal and Taxel 2008: Fig. 6.106:1; Rosen-Ayalon & Eitan 1969
7	80290	8102	Fine orange clay.	Cytryn-Silverman 2013: Fig. 9.12:1-2; Arnon 2007: Fig. 16: 5-7, 17:1-3
8	80511	8501	Coarse buff clay; orangish core; large white and orange grits.	Tal and Taxel 2008: Fig. 6.105:4; Avissar 1996:191
9	40061/.	4029	Buff-orangish clay; large white and orange grits.	Avissar 1996: Fig XV.19; Tal and Taxel 2008: Fig. 6.106:2
10	50112	5034	Coarse buff clay; orange grits.	Cytryn-Silverrman 2013: Fig. 9.2:1; Tal and Taxel 2008: Fig. 6.106:1; Cytryn-Silverman 2013: Fig. 7.8:7; Rosen-Ayalon & Eitan 1969
11	surface	-	Friable orange clay; large and small grits.	
12	60008	6001	Coarse buff-orangish clay.	
13	90001	9001	Orangish clay; black and white grits; pale slip.	Fritz & Kampinski 1983: Taf. 169:3-4; Arbel 2005: Fig. 2:7-8

CHAPTER 3
GLASS VESSELS

Ofer Gat

The glass assemblage recovered in the current excavation (see Chapter 1, this volume) is unusual among Early Islamic findings in Ramla, in terms of both quantities and breadth of repertoire. It comprises hundreds of items and is dated mainly to the eighth-ninth centuries CE. Also represented are vessel types which were in production over a longer timespan, and which continued to appear during the tenth-twelfth centuries. The vessels include mainly tableware and storage utensils, attesting to the urban and civilian nature of this part of Ramla. Most of the vessels represent common types prevalent throughout the Islamic empire. This report focuses on a partial sample of the assemblage, but one that is representative (a description of the entire assemblage is in preparation). Many of the vessels were recovered in defined archaeological contexts such as pits and installations, or in their vicinity. The specific function and character of these contexts is somewhat obscured by post-occupational damage (see Chapter 1, this volume), but with regard to the pits it is to be assumed that most served as storage facilities for various commodities.

The vessels in the assemblage are all made from blown glass. The mold-blown type decorated with a hexagonal pattern—relatively typical of the Islamic period—was lacking. The range of colors in the assemblage includes mainly pale blue and greenish hues. There are also vessels made of colorless glass, as well as several which are pinkish, yellowish, golden, and light and dark brown.

This report will be structured first and foremost typologically, and within each vessel category the discussion will follow a chronological order, as well as situating finds in their discovery. I am grateful to Hagit Torgë for her review of this report.

Jugs/jars (Fig. 3.1:1-3)

Figure 3.1:1

Jug or jar with straight elevated neck; colorless glass; neck length: 5 cm; neck diameter: 6.3 cm. The jug was recovered in a nondescript sediment context (L4079). Part of the vessel's neck was preserved, representing its full length until the point of contact with the vessel's widening and curving body. Here is a small groove, after which the body of the jug rises slightly above the point of contact. The vessel's rim is sharpened, upright, and slightly thickened compared to the wall of the neck. The neck is straight in profile, and becomes gradually constricted toward the jug body. This type was first produced in the Umayyad period, and with the transition to the Abbasid period its prevalence grew, becoming very common. Early parallels from the Umayyad period are known from Bet She'an (Haddad 1998:38, 132), and parallels of this type from the Abbasid period are known from Ramla (Gorin-Rosen 2008:47; 2011: Fig. 4:5; 2013:46, Fig. 1:4; Gorin-Rosen and Katsnelson 2005:102, Fig. 1:1), from Caesarea where they date from the mid-eighth to ninth centuries CE (Pollak 2003:166-167, Fig. 2:2), and from Hammat Gader (Lester 1977:434, Pl. 1:8). Outside the Palestinian region, parallels for this bottle were unearthed in Jerash, Jordan, in the theater complex dated to the eighth century CE, where some of the bottle necks were produced and decorated with a spiral glass trail (Clark, Bowsher and Stewart 1986:368, Fig. 9:23).

Figure 3.1:2

The flat base of a jug or jar, from which also part of the lower wall was preserved; colorless glass; base diameter: 5 cm. This base was found in the same sediment

context as Fig. 3.1:1 and other glass finds presented here (see below).

When found, this base fragment was still attached to part of the vessel wall. The wall contour is slightly rounded at the point of departure from the base, and then immediately straightens. The base exterior is flat. At its center can be seen four scars, forming a square that encloses the perimeter of the inner concavity and a round scar marking the point at which the vessel was broken from the pontil rod. Specifically, this scar attests to a receding separation, achieved by rotating the vessel while pulling the pontil over the fire (Gat 2013:172). The interior of the base is thickened and convex, a result of the manufacturing process. The date range of this type of base is extensive, and in the Islamic it appears from the seventh century on. Based on ceramic findings from the excavation (see Chapter 2, this volume), this glass vessel should be dated to the eighth century CE.

In the archaeological record bases of this type represent a limited range of vessels, such as jugs, bottles, and bowls dated to the Byzantine and Islamic periods. This refers to tableware and storage vessels used side by side with earthenware vessels in that period. A wide array of rim shapes and sizes is typical of vessels that could be represented by such a base, and the various manifestations of this extensive utilitarian set include the manner in which the rim is folded, the width of the fold, how it is pressed, and its round or flat contour. The contour of the vessels' body also varies, including shallow or deep bodies in the case of bowls, or straight-and-cylindrical or rounded-and-bulbous in the case of jugs and bottles (Pollak 2007:100). Parallels of this type are known from Ramla (Gorin-Rosen 2008; Sion 2004:86, Fig. 18:6). For example, flat based bowls (plain bowls) dating to the Islamic period have been found there, with walls that are straight or whose initial height near the base is straight (see in Marcus Street, Ramla (Pollak 2007:102, Figs. 1, 4). Such forms are also known from Bet She'an (Katsnelson, 2014:39, Figs. 6-8) and the North Theater complex at Jerash (Meyer 1988:192, Fig. 7: L). Another parallel is known from Limyra in the Antalya region of Turkey, in a public bath dated to the late Byzantine and Early Islamic periods (Ganzert 1984:62, Abb. 32:3).

Figure 3.1:3

Rim and part of a neck belonging to a jug or jar with rounded upright rim; pale blue glass; neck diameter: 4 cm. This jug rim was found in the same generic sediment as the previous two vessel sherds (L4079).

The rim is rounded and vertical, with a neck that is uniform in wall thickness throughout its entire preserved length. The symmetrical axis of the neck gradually constricts towards its point of contact with the vessel's body, which was not preserved. Parallels for this vessel type are common in Early Islamic Ramla, dating to the Abbasid and Fatimid periods. One parallel for this rim was unearthed during an excavation ahead of construction of a new railway line and in Ramla itself in excavations near the Ma'asiyahu Prison (Sion 2004:86, Fig. 18:8).

Bottles and Flasks (Fig. 3.1:4-19)

Figure 3.1:4

Flask with infolded and pressed rim: pale blue-greenish glass; neck diameter: 1.7 cm; length of neck: 2.3 cm; neck diameter at neck base: 1 cm. This flask was also found in L4079, a nondescript sediment outside archaeological features.

This flask constitutes one of the common and characteristic types of the Umayyad period (eighth century CE). The rim of the flask is infolded and its contour is uniform throughout almost the entire circumference. The rim is thickened by infolding. From the rim, the flask neck constricts very moderately, before gradually expanding somewhat toward the point of contact with the vessel's body. As a technological characteristics which is common in several periods, a type of gentle indent is formed at the point of contact between neck and body, after which the shoulder of the vessel rises slightly above the level of the neck base. Parallels for this type of flask are known from elsewhere in Ramla (Gorin-Rosen 2011: Fig. 14:4; Gorin-Rosen and Katsnelson 2007: Fig. 3:6; Gorin-Rosen and Katsnelson 2005:108, Fig. 3:31). Other parallels from the wider region are known from the north in Khirbet Tinani (Haifa), located opposite Tel

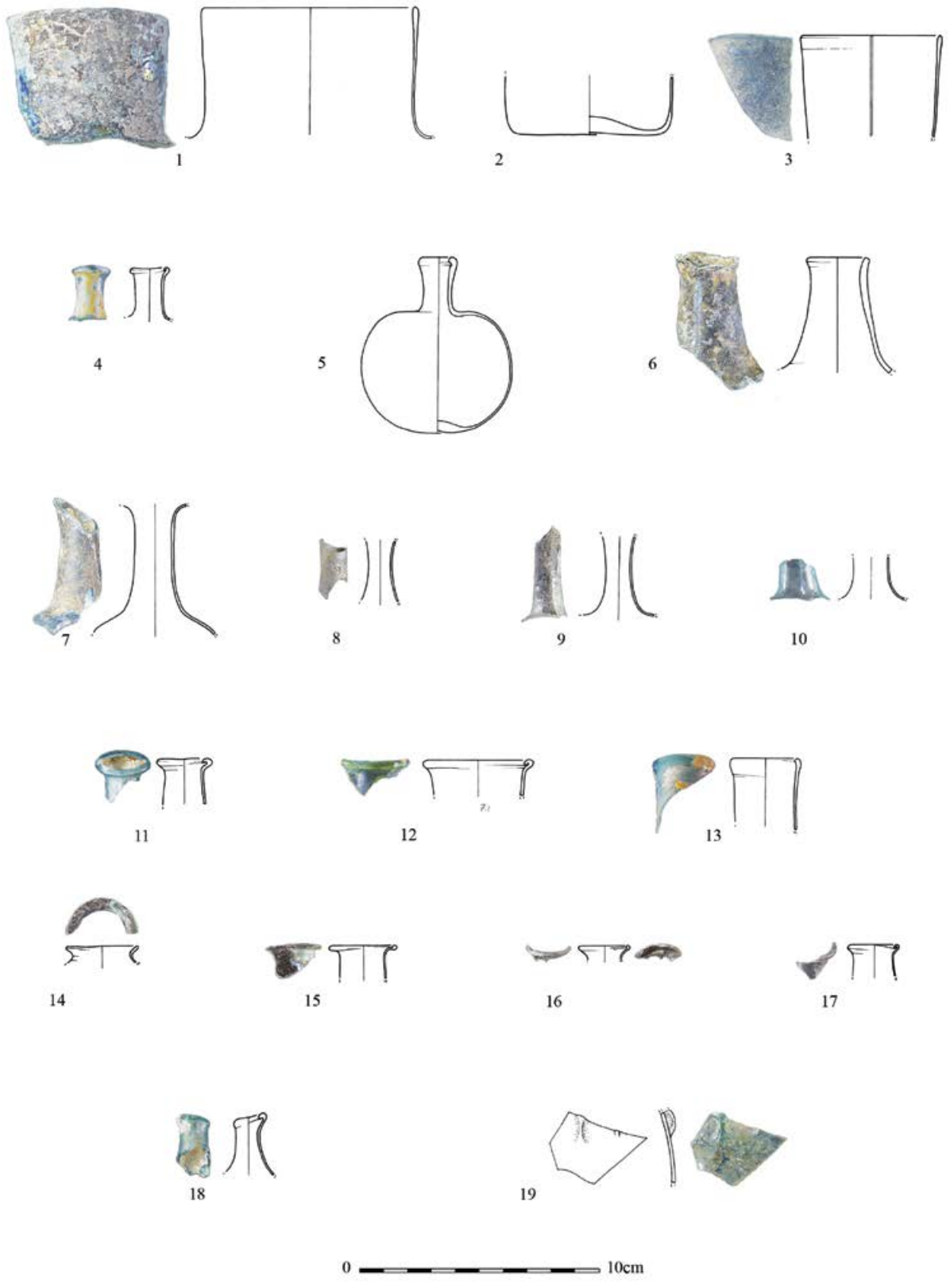


Figure 3.1. Jugs/jars (1-3) and bottles/flasks (4-19).

Figure 3.1.

No.	Object	Reg. no.	Locus
1	Jug/jar	40255	4079
2	Jug/jar	40259	4079
3	Jug/jar	40293	4079
4	Bottle/flask	40281	4079
5	Bottle/flask	50141	5041
6	Bottle/flask	40630	4529
7	Bottle/flask	40614	4536
8	Bottle/flask	40651	4531
9	Bottle/flask	40615	4531
10	Bottle/flask	40265	4079
11	Bottle/flask	40656	4534
12	Bottle/flask	40291	4106
13	Bottle/flask	40669	4536
14	Bottle/flask	40665	4536
15	Bottle/flask	40642	4529
16	Bottle/flask	40642	4529
17	Bottle/flask	40642	4529
18	Bottle/flask	40665	4536
19	Bottle/flask	40291	4100

Shikmona (Yavor 1999:31, Fig. 36:5). Outside the Palestinian region flasks of this type are known from Jerash, Jordan, in the theater complex dating to the eighth century CE (Clark et al. 1986:368, Figs. 9:65, 66; 23:1).

Figure 3.1:5

This flask was discovered intact: greenish glass; rim diameter: 1.4 cm; neck length: 2 cm; neck diameter: 1.3 cm. This flask features a rounded body and rounded, indented base. After its separation from the pontil rod during the manufacturing process, the vessel's base was pressed slightly against the glassmith's work surface, in order to straighten it. There is a scar representing the point of separation (pontil mark) of the vessel from the pontil rod. The flask was uncovered in a storage pit (L5041).

Figure 3.1:6

Cone-shaped bottle rim and neck with a pontil mark in its center: green-grayish glass; upper diameter of bottle neck: 2.5 cm; diameter at base of neck: 3.5 cm. This bottle was uncovered in a pit complex (L4529). Pits are very common in various sites from the Islamic period in Ramla, and they seem to have served for storage.

This bottle neck was preserved intact. The neck is long and prominent because it was pulled while in the glassmith's fire. Its shape in profile gradually tapers from the point of contact with the vessel's body to the rim. The bottle's rim was not preserved but it is evident from the curvature of the upper neck that the rim was everted and thicker than the neck wall. As part of the multistage manufacturing process, the rim was worked last. There is a slight indentation in the rim, evidently where the glassmith applied pressure during production. Bottles of this type are very common at Early Islamic sites—products of the local glass industry and apparently serving a variety of functions in everyday life (Gorin-Rosen and Katsnelson 2005:106). Similar bottles dating to the Umayyad period are known from Ramla (Gorin-Rosen 2011: Fig. 14:4; Gorin-Rosen and Katsnelson 2005: Fig. 2:14; Sion 2004:86, Fig. 18:9). Coeval parallels for this type are also known outside the Palestinian region, from Iran (Kroger 1995:73, No. 92), as well as Jordan where it dates from the Byzantine period (fourth century CE) through the Umayyad period in (eighth century; Meyer 1988:210, Fig. 12: O). Parallels from the theater complex in Jerash are similar in date to our findings (Clark et al. 1986:368, Fig. 23: S). Another parallel from Carthage, Tunisia constitutes the earliest representation of this type, it usage dating from the early second century CE through the end of the fourth century CE (Hurst and Roskams 1984:202, 203, Fig. 67:63). The latest known example of this type is from Al Qadim in

Egypt, found in a residential complex thought to belong to a sheikh (Whitcomb 1983:103, Fig. 3: H).

Figure 3.1:7
Bottle with a conical neck and rounded rim protruding from the neck's contourpale blue glass; upper diameter of bottle neck: 1.5 cm; diameter of neck base: 2 cm; preserved length of neck: 4.5 cm. The bottle neck was uncovered in a pit complex that appears to have served for storage purposes (L4530).

The neck itself of the bottle was preserved in its entire length, although not the rim. However, judging by the outwardly inclined profile of the neck it appears that the rim protruded in a rounded form. The neck widens gently from rim to base, where the body rounds into the shoulder. The latter was preserved, and slopes gently downwards. This vessel type is known in several sizes and is a smaller version of Fig. 3.1:6. The neck was blown in a multistage process, involving two compressions of air through the pontil rod. Parallels for this type have been uncovered elsewhere in Ramla (Gorin-Rosen and Katsnelson 2005:105, Fig. 2:17), and at Hammat Gader, where a similar type was uncovered with one shoulder bearing a plastic decoration of connected semi-circles (Lester 1977:434, Pl. 1:6). Parallels were also discovered in Jordan, in the prayer room complex in the theater structure at Jerash, dated to the eighth century CE (Clark et al. 1986:254, Fig. 23: S), and in the coeval church complex at the same site (Meyer 1988:200, Fig. 9: P). Finally, a similar type is known from Carthage, from a residential complex dating to the Byzantine and Early Islamic periods (Tatton-Brown 1984:203, Figs. 67, 63, 65). The first appearance of this type of flask can be ascribed to the late Roman Period, based on parallels found at 'En Ya'el, near Jerusalem (Winter 2014:17, Fig. 2:6). A smaller version with a shorter neck can also be found from the transition to the Byzantine period, as at Deir Ghazali (Avner 2011:48, Fig. 26:2) and Khirbet Tinani (Yavor 1999:31, Fig. 36:5). This flask type's simple form facilitated its continued use. For example, a later parallel was found in the twelfth-century sheikh's complex at Al Qadim, Egypt (Whitcomb 1983:104, Fig. 4: j).

Other flasks of this type were also found in this excavation, exhibiting a range of sizes and forms, particularly with regard to typological features of vessel neck:

Figure 3.1:8
Small flask; colorless glass; length of neck: 3 cm; upper neck diameter: 1 cm; lower neck diameter: 1.2 cm; found on a surface (L4531).

Figure 3.1:9
Narrow-necked flask; pale blue glass; length of neck: 3.5 cm; upper neck diameter: 1 cm; lower neck diameter: 1.4 cm; characterized by a narrow neck relative to other flasks in this assemblage; also found on the L4531 surface.

Figure 3.1:10
Wide-necked flask; pale blue glass; preserved middle diameter: 1.5 cm; lower diameter: 1.8 cm; found in a nondescript sediment context (L4079).

Figure 3.1:11
Flask, of which inverted rim and part of the neck are preserved; greenish glass; neck diameter: 1.3 cm; rim's external diameter: 2.3 cm; rim's internal diameter: 1.5 cm; found in a building complex, near a wall, in the sediment (L4534) above a floor level.

This bottle's rim and part of its neck were preserved in a fragment 1.5 cm long. The rim is infolded, with the contour of the fold being uniform throughout most of the rim circumference. The surface of the rim is flat and forms a short ledge (Gorin-Rosen 2009a, b), as a result of being pushed against the glassmith's work surface in order to achieve this outcome. The rim flares outward and its diameter is larger than that of the neck. The neck's profile is straight, at least in the preserved fragment. These types first appeared in the Late Roman period, judging by findings in the funerary fresco from Ashkelon Tower (Katsnelson 1999:72, Fig. 3:3-6). They continued to appear throughout the second half of the fourth century CE, according to discoveries at a glass workshop in Jalame (Weinberger and Goldstein 1988:257, Fig, 4:30). If we can extrapolate from findings at Nitzana, flasks of this type also continued to be manufactured into the seventh century (Harden 1962:89, Pl. 20:80).

This dating is supported by similar vessels at Deir Ghazali (Avner 2011:48, Fig. 26:2) and Hermeshit (Avner 2011:48; 175, Fig. 2:14, 15), which have been assigned to the Late Byzantine and Umayyad periods. Bottles of this typological family have also been found at eighth century CE sites (Gorin-Rosen 2011), and their main prevalence is evident in assemblages dating to the Mamluk period (Gorin-Rosen 2009a, b). Parallels for this type have been found at other sites in Ramla, such as: on Ha-Palmach Street (Gorin-Rosen, in Kletter 2009: Fig. 13:7); and at the Ma'asiyahu Prison (Sion 2004:86, Fig. 18:8). In northern Israel, similar flasks have been found at Hammat Gader (Lester 1977:434, Pl. 1:6) and Ramat Yishai (Porat 2007: Fig. 9:6). Outside the Palestinian region, these flasks are known from the north theater complex at Jerash, Jordan, in a layer dated to the third century CE (Clark et al. 1986: Fig. 9:45-46), and from the eighth century church complex at the same site (Meyer 1988:210, Fig. 12: M, N). They have also been recovered at Carthage, Tunisia, where they date to the Byzantine and Islamic periods (Tatton-Brown 1984:203, Figs. 67, 70). In Egypt, flasks of the type are known from the twelfth century CE (Whitcomb 1983:102, Fig. 2: Y).

Figure 3.1:12

Wide-necked flask, belonging to the same typological group as Fig. 3.1:11. Part of the rim and a fragment of the neck were preserved. The flask was made of greenish glass, and has an external rim diameter of 3.5 cm. This flask was unearthed in a layer (L4100) associated with a water drainage system. It was found together with a cup/bowl (see Fig. 3.3:2), as well as a ridged oil lamp bowl, a lamp base, and a flask base.

The rim of the flask is inverted and of fine quality. By folding the vessel neck's upper edge, there was produced a rounded, thickened rim which flares outward to a diameter wider than that of the neck. The neck widens downward to a gently concave profile, but parallels indicate that it then constricted, continuing straight until its point of contact with the vessel's body.

Figure 3.1:13

Flask with everted, rounded and thickened rimgreenish glass; external diameter of rim: 2.8 cm; internal diameter of rim: 2.5 cm; found in a pit complex that seems to have been intended for storage purposes (L4535).

About half the rim and the upper part of this flask's neck were preserved. The rim is thickened outward and is almost oval in profile. Viewed from above, the preserved portion of the rim's circumference suggests a shape that is even and circular. The horizontal plane of the rim is level, which was achieved by pressing against the glassmith's work surface. As a result of this pressure, the surface of the rim protrudes into the interior of the vessel. Under the level of the rim and in order to emphasize it against the neck, a slight indentation is evident, obtained by the glassmith pressing with his tongs during the production process. The shape in profile of the preserved neck fragment is straight.

Some bottles with this rim and neck type feature a round spherical body. These rim forms are more commonly seen in bowls of the Umayyad period (eighth century CE). Flasks of this type are relatively uncommon in the region of Ramla. Parallels re known from Khirbet Tinani in Haifa, where they have been dated to the seventh-eighth centuries CE (Yavor 1999:31, Fig. 36:7).

Termed "simple bottles" and featuring a thickened everted rim, the initial appearance of these bottles can be set in the Late Roman and Byzantine periods, when they were very common, according to the glass and ceramic finds from 'En Ya'el, near Jerusalem (Winter 2014:17, Fig. 2:2). They continued to be produced in the Islamic period, mainly in the vicinity of Jerusalem. Parallels dated to the fifth-sixth centuries have been found at Ras Abu Ma'ruf north of Jerusalem (Gorin-Rosen 1999a:208, Fig. 1:9-10) and in the burial complex found at Khirbet Gores in Giv'at Gonen (Solimani, Winter and de Vincenz 2007, Fig. 2.1:4). Parallels from the same period in northern Israel were collected at the church complex at Shavei Zion (Barag and Prausnitz 1967:66, Fig. 16:1-3) and the residential complex in Bet She'an, dated to the sixth century CE by numismatic findings

(Peleg 1994:143-144, Fig. 15:1). Other parallels are known from Byzantine-period Jordan, unearthed in the theater complex in Jerash (Clark et al. 1986:254, Fig. 23:1), with another from the same site dating to the eighth century CE. The incurving of these Jerash flasks' rims is notably prominent and emphasized, and the profile shape of their spherical bodies is identical (Meyer 1988:210, Fig. 12: O). A similar flask has been found in Israel, at Dabburiya, dating to twelfth-thirteenth centuries CE (Gal and Abu Yunes 1999:45, Fig. 63). These flasks circulated throughout a lengthy period, although according to current research knowledge there seems to be a gap as none have yet been found from the ninth-tenth centuries CE. They continue to appear in the eleventh to fourteenth centuries CE also. A parallel from northern Israel in the eleventh-twelfth centuries CE was found at Acre (Gorin-Rosen 1997:77, Fig. 1:8). Similar flasks were also found at Al Qadim in Egypt, dated to the twelfth century CE (Whitcomb 1983:102, Fig. 2: BB). A parallel dated to the eleventh-twelfth centuries CE was found in Corinth, Greece (Davidson 1952:116, Fig. 14:764, 765).

Figure 3.1:14

Flask with a "short funnel rim and an open fold under the rim" (Gorin-Rosen 2013:73); the vessel's rim and part of the lower body were preserved; made of greenish—pale blue glass; rim's external diameter: 3.4 cm; rim's internal diameter: 3 cm; found in the fill (L4536) of a structure.

This flask has a bulbous neck, with a rounded protrusion under the rim. About half the diameter of the rim and a fragment of the initial sub-shoulder section were preserved. The collar rim flares outward at a sharp angle. This gives the appearance of a funnel. The wall of the rim is slightly thickened compared to that of the vessel itself. Parallels indicate that after the bulge below the rim, the neck widened out and its continued profile was straight.

The earliest examples of this bottle type are dated to the eighth century CE, and they continued to appear until the fourteenth century. In the transition between periods and throughout this type's lifespan, minor changes are evident. These manifest themselves mainly in the rim design and varying neck lengths (Gorin-Rosen 2013a:73). Flasks of this type were very common in the Islamic period and are known from various sites, such as Ramla (Gorin-Rosen 2013a:72, Fig. 1:3; Gorin-Rosen and Katsnelson 2005:108, Fig. 3:32, 33), where they date from the eighth to eleventh centuries (Gorin-Rosen and Katsnelson 2007). A similar and coeval flask was found in nearby excavations, adjacent to the White Mosque in Ramla (Gorin-Rosen and Katsnelson 2007: Fig. 3, 5), as well as at Bet She'an (Haddad 1998: Pl. 43:72; Katsnelson 2014b:49, Fig, 13:1, 2, 4), Khirbet Tabbaliya (where they date to the Mamluk period; Gorin-Rosen 2011:93, Fig. 4:41), and Sarafand (assigned to the twelfth to fourteenth centuries CE; Gorin-Rosen 2004:62; 60, Fig. 8). Another parallel from northern Israel was found at al-Wata, Safed, which dates to the Mamluk period (Katsnelson 2014a:154, Fig. 1:7). A parallel from Al-Qadim, Egypt, is from the twelfth century CE (Whitcomb 1983:104, Fig. 4: H). Similar vessels are also known from Hama, Syria (Riis 1957:35, Figs. 39-45).

Figure 3.1:15

Flask with inverted ledge rim; made of low-quality colorless glass. The vessel is coated with silver patina and its walls are very thin. The diameter of the neck is 1.6 cm, while that of the ledge rim is 2.3 cm. The flask was found in a storage pit (L4529) of a form which is typical of Early Islamic-period sites. In many cases these flasks feature a straight elongated neck. Such rims are characteristic of flasks with a pear-shaped body; others are often found on tubular flasks (Gorin-Rosen and Katsnelson 2007). The Fig. 3.1:15 flask of this type in the current assemblage was discovered together with two others (see Fig. 3.1:16, 17), one of an identical type and the other featuring a slightly protruding rounded rim, also with an inverted element (see Fig. 3.1:17).

Parallels for this type are known from Ramla, such as in excavations adjacent to the White Mosque where they are dated to the eighth-ninth centuries, and they continue to appear until the eleventh century CE (Gorin-Rosen and Katsnelson 2007: Fig. 3:6). A similar flask type from Metzad Tamar

in southern Israel has been dated from the third to seventh centuries CE (Erdmann 1977:123, Pl. 4), but their first appearance should probably be dated to the Byzantine period (Meyers 1988:212). Early parallels are also known from Carthage, Tunisia, from a residential complex dated to the Byzantine and Early Islamic periods (Hurst and Roskams 1984:203, Figs. 67, 74, 75). Flasks of this type were also found in Iran, where they were dated to between the sixth and eighth centuries CE (Lamm 1935:9, Pl. 9). Late parallels attest to the lengthy manufacture and use of these flasks. These are known from Acre, and date to the twelfth century. Typological changes evident among representations of the later type are manifested in rim form, which may be characterized as conspicuously everted and straight ledges, and with a lengthening of the neck (Gorin-Rosen 1997:77, Figs. 1, 2a, 3). Other twelfth century parallels are known from the 'sheikh's house' residential complex at Al-Qadim, Egypt (Whitcomb 1983:103, Fig. 3: E, G), from the north theater and church complex at Jerash, Jordan, where such flasks were assigned to the eighth century (Clark et al. 1986:254, Fig. 23: S; Meyers 1988:210, Fig. 12: M).

Figure 3.1:16

Flask with inverted ledge rim. This vessel is of the same type as the Fig. 3.1:15 flask. Together with the Fig. 3.1:17 flask, these were found in a storage pit (L4529). This concentration of flasks may provide some clue as to the function of this pit. The flask was made of low-quality colorless glass. The vessel is coated with silver patina and its walls are very thin. The neck diameter is about 1.6 cm and the diameter of the ledge rim 2.3 cm. For parallels, see discussion of Fig. 3.1:15.

Figure 3.1:17

Flask with an inverted flattened rim and spherical or bulbous body; made of colorless glass; rim diameter: 1.5 cm. The rim of the flask is infolded and its shape in profile is not uniform. This unevenness seems to be due to the rim's limited diameter. The vessel neck is elongated and narrow and (as stated) the profile shape of the body is spherical or bulbous. This flask was discovered in a storage pit (L4529), together with Fig. 3.1:15 and 16 (see above).

Flasks of this type found have been discovered on floors at various sites in Ramla, dating to the late eighth and early ninth centuries CE (Katsnelson 2009: Fig. 8:2). Their dating can be pushed back to the Byzantine era. However, they are most prevalent in the Umayyad period (Gorin-Rosen and Katsnelson 2007; Gorin-Rosen and Katsnelson 2005:108, Fig. 3:25). Parallels for this type are known from Ramat Yishay, where they were dated to the Early Islamic period (Gorin-Rosen and Katsnelson 2007: Fig. 9:6). A similar vessel dating to the late eighth and early ninth centuries CE was found Herzl Street, Ramla (Katsnelson 2009: Fig. 8:2). Another example comes from excavations at Ma'asiyahu Prison, where it was dated to between the Early Islamic and Mamluk periods (Sion 2004:86, Fig. 18:8). Parallels from northern Israel are known from Tiberias, where a flask of this type was found on a plastered floor dated to the Abbasid period (Lester 2003:158, Fig. 1:9), and from Khirbet Tinani, Haifa (assigned to the Byzantine period; Yavor 1999:31, Fig. 36:5). A similar flask was also discovered in Bet She'an, in a complex in use between the second half of the eighth century through the eleventh (Haddad 1998:91, Pl. 41, 68). Parallels for these flasks are also known from Jordan, such as those found in the north theater and church complex at Jerash, again dated to the eighth century CE (Clark et al. 1986:368, Fig. 9:46; Meyers 1988:210, Fig, 12: N).

Figure 3.1:18

Flask with a coarse, uneven rim that is inverted and sloping substantially on the horizontal plane; made of greenish glass; upper rim's external upper diameter: 1.2 cm; neck diameter: 0.8 cm; lower neck diameter, at point of contact with shoulder: 1.4 cm; neck length: 2.5 cm. This flask was found in a pit (L4093).

This diminutive flask constitutes one of the most common types in the eighth century CE. Due to its small size, the infolding and pressing of the rim was only partial, creating a diagonal surface and a thickened non uniform shape in profile. This caused the rim to be thickened, rounded, and slightly flaring

outward. The flask's short neck gently widens towards the point of contact with the vessel's shoulders, which are narrow and slope downwards.

Parallels for this type are known from other sites in Ramla (Gorin-Rosen 2005:108, Fig. 3:29), including the HaNevi'im nursery school (Gorin-Rosen 2011: Fig. 14:3) and Herzl Street, where they have been dated to the late eighth and early ninth centuries CE (Katsnelson 2009: Fig. 10). A similar type was discovered at Khirbet Gores, in the Gonen neighborhood of Jerusalem (Solimani, Winter and de Vincenz 2006:90, Fig. 4:5), where they were assigned a slightly earlier date, between the Byzantine and Umayyad periods. Other parallels from Jerusalem and its surroundings derive from the city's Jewish Quarter (Gorin-Rosen 2003:384, Pl. 15:9), from the Byzantine convent discovered at Deir Ghazali (Gorin-Rosen 2001b:48, Fig. 2:26), and from a convent complex at Khirbet Hermeshit, near Ne'ot Qedumim between Jerusalem and the Lydda plain (Ramla) (Marcus 2015), where this flask type dates to the seventh to ninth centuries CE, as at the Ramla sites discussed in this report (Winter 1998:178, Fig. 15). These flasks are indeed known mainly from the territory between Jerusalem and the Lydda plain, but they have also been unearthed in northern Israel—for instance, at Ramat Yishay (Gorin-Rosen and Katsnelson 2007: Fig. 9:6), also dating to the seventh to ninth centuries CE. Although the flask may be a local Palestinian type, this possibility must be more extensively explored.

Figure 3.1:19

Flask with a spherical rounded body, made from green glass, and decorated with a row of horizontal scallops encircling its lower part. Only the vessel's body was preserved (a fragment measuring 2.3 × 3 cm). However, according to parallels many of these flasks feature a narrow neck and flat inverted rim (Gorin-Rosen 2008:44). The fragment was unearthed in sediments associated with a water drainage system (L4100).

Known flasks of this type are short; on average they reach no more than 5 cm high. They are characterized by an inverted rim and a short funnel-shaped neck that tapers from rim to vessel body. The latter is round or bulbous and decorated at its center or margins with a row of parallel scallops that extend around the entire circumference of the vessel.

These flasks are particularly representative of the Umayyad period (Gorin-Rosen 2008:44), and date from the sixth to the mid-eighth century CE. Several flasks with a similar profile but no scalloped decoration have also been discovered (e.g. the chapel excavation at Kursi [Tzaferis 1983:63, Fig. 9:5]). The distribution of this vessel type is very extensive. Examples are known from many sites in Palestine, such as: Ramla (Mordechai Ha-Yehudi Street [Katsnelson 2011: Fig. 3:7]), Hammat Gader, Tiberias, Acre, Jaffa, Be'er Sheva, Jericho, Samaria, Jerusalem, Capernaum and Khirbet al Thahiriya (Jackson-Tal 2012: Fig. 3:38, 39).

Parallels of Byzantine date are also known:

- the convent complex at Deir Ghazali, northeast of Jerusalem (Gorin-Rosen 2001b:48, Fig. 26:3)
- a Byzantine-Umayyad burial cave at Khirbet Gores in Gonen, Jerusalem (Solimani et al. 2007:90, Fig. 4:6)
- Khirbet Tabbaliya, where the remains of a late Byzantine—early Umayyad town and graves were discovered (Kogan-Zehavi 2001:53) and the relevant flask was found in a complex incorporating a large structure, which was partially paved with a white industrially produced mosaic (Gorin-Rosen 2001a:85, Fig. 2:13; Kogan-Zehavi 2001:63)
- Ma'in (Barag 1985:372, Fig. 8: IX; Photo 23)
- the Bet She'an tell (Haddad 2005:21, Pl. 4:78-81) and youth hostel (Katsnelson 2014b:37, Fig. 7:1)
- Kursi (Barag 1983:37-38, Fig. 9:7)
- Caesarea (Pollak 2003:165, Fig. 1:13)

Outside Palestine, this flask type has been found in Sinai, Egypt, Transjordan, Lebanon, and Syria (Gorin-Rosen 2008:44). Parallels from these regions include Umm al-Rasas (Piccirillo and Alliata 1994:287, Pl. XXX:4, 9), Pella (Smith and Day 1989:102, Pl. 21:51), and Jerash, Jordan (Dussart 1998:93, Pl. 1:9). Based on the Jerash findings, it seems that in Transjordan flasks of this type appeared earlier (fourth century CE [Baur 1938: Fig. 17:508; 18:509; 19:510]). This

spatial-chronological discrepancy begs the suggestion that the geographical origin of these flasks should be sought outside Palestine, and that they were acquired through trade relations or knowledge transfer as part of a regional network.

Bowls (Fig. 3.2)

Figure 3.2:1

Bowl with fine-quality everted rim; pale greenish glass; diameter: 10 cm. This bowl was found in sediment (L4100) associated with a water drainage system.

This vessel's folded rim has a round thickened shape in profile, protruding from the vessel's evenly rounded body. The base was not preserved. The first bowls of this type date to the late Byzantine period, and they continued in circulation until the end of the eighth century CE. When only their rims are recovered, such bowls are sometimes also classified as oil lamp bowls (Barash 2013; Gat 2013). Simple in form, this broader family of bowls were very common in Palestine and elsewhere from Late Roman through Islamic times (Jackson-Tal 2012:57).

A parallel for this bowl type is known from the synagogue complex discovered at Meron, where the glass assemblage is dated to the late Byzantine and Early Islamic periods (Meyers, Strange and Meyers 1981: Pl. 9.13:1). Another example of this type was discovered at Khirbet Thahiriya (Jackson-Tal 2012:58, Fig. 1:3). It is also known from an amphitheater complex in the city of Busra al-Sham, Syria, from a level dated to the Umayyad period (Wilson and Sa'd 1984:75, 147, No. 561). Similar bowls dated to the sixth and seventh centuries CE are known from Tunisia: the Sidi Jdidi site, as well as a church complex (Ben Khader et al. 2004:273, Fig. 192:63); and Bir El Knissia in Carthage, also from a church complex (Stevens 1993:292, Fig. 2:15). Another parallel is known from Jordan, where it was found at yet another church complex in Dibon, Moab (Tushingham 1972: Pl. 13:16).

Figure 3.2:2

Bowl with fine-quality everted rim; greenish glass; diameter: 10 cm. The rim of this bowl was folded slightly narrower than that of Fig. 3.2:1, and thus protrudes further outward and is more rounded. Otherwise, these types are very similar (i.e. parallels above apply here also). This bowl was discovered in a the fill (L4536) of a structure, presumably part of a residential complex.

Figure 3.2:3

Shallow bowl with everted hollow rim; greenish glass; diameter: 9 cm. For parallels, see Winter (1998:173). This bowl was discovered in a storage pit (L4535), together with a similar bowl and the base of a bottle (Fig. 3.1:13).

These bowls are very common in Palestine, and their first appearance is dated to the third century CE (Katsnelson and Jackson-Tal 2004:100), or perhaps the Byzantine period (Winter 1998:173). Their production continued in the Early Islamic period, albeit less prolifically. Their appearance in Islamic-period contexts is thus best taken as a likely indication of an early date within that timespan.

Byzantine examples of this type are known from the workshop discovered at Jalame (Weinberg and Goldstein 1988:41, Fig. 4), as well as from Khirbet Hermeshit (Winter 1998:175, Fig. 2.1:4). Other coeval examples have been found at: Nazareth (Bagatti 1969:311, Fig. 273:13); a convent complex at Khirbet Tabbaliya, nearby Giv'at Hamatos (northeast of Jerusalem) (Gorin-Rosen 2001a:90, Fig. 3:40); and Ashkelon (Smadar Hotel)(seventh-eighth centuries CE; Katsnelson and Jackson-Tal 2004:101, Fig. 1:3). In Jordan similar parallels are known from the eighth-century church complex in the north theater at Jerash (Meyers 1988:204, Fig. 10: O-S).

Figure 3.2:4

Bowl or cup bowl with a rounded upright rim, decorated with a vertical two-walled scalloped decoration under the rim; made of pale blue glass; diameter: 7 cm. The bowl was discovered on a floor (L4526) near an installation whose purpose is yet to be clarified.

The decoration comprises a series of horizontal lines cut by a vertical line. Such vessels bear one of two styles of decoration: the more common is seen in this case, a vertical band of decoration under the level of the rim; the other is a horizontal decorative style

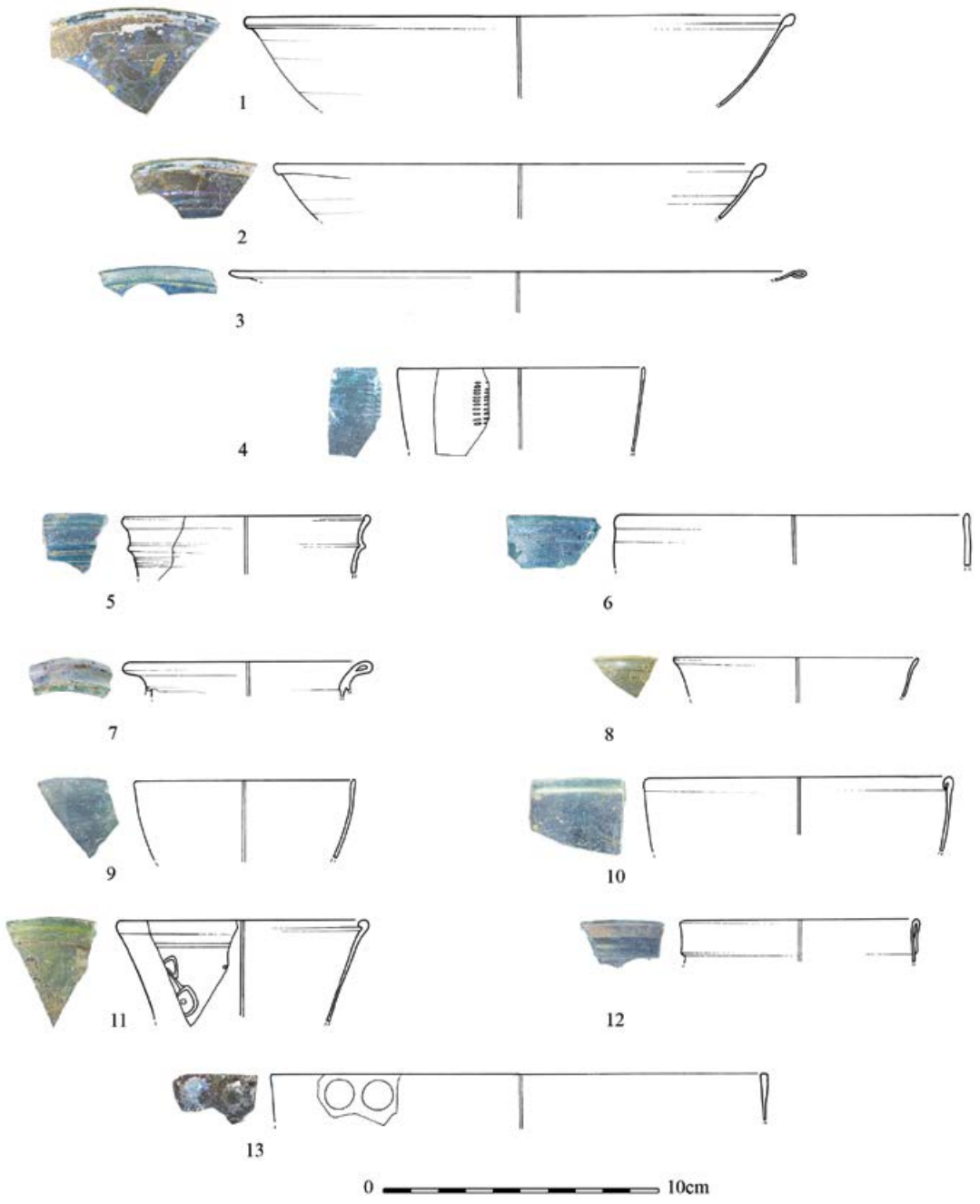


Figure 3.2. Bowls.

Figure 3.2. Bowls.

No.	Reg. no.	Locus
1	40291	4100
2	40651	4536
3	40669	4535
4	40226	4526
5	40291	4100
6	40642	4529
7	40642	4529
8	40267	4079
9	40267	4079
10	40633	4527
11	40632	4526
12	40266	4093
13	40270	4079

located in the center of the vessel's body, and found mainly on bowls or oil lamps whose profile shape gradually widens and rounds out toward the rim. The first bowls of this type date to the Umayyad period, and they become very common in the Abbasid period. Based on finds known to date, their production does not continue after the tenth century (Katsnelson, 2014:352, Fig. 12.3:1, 2). Many of these Palestinian types are known from Bet She'an, leading some researchers to conclude that there was a surplus of them, and that they were distributed through trade routes to other locations in the region (Katsnelson 2014b:41). They were manufactured in a variety of colors, such as pale blue, pale green, and pale yellow.

Unsurprisingly, therefore, many parallels for this vessel type are known from Bet She'an: the tell (Haddad 2005:37); a dig at an old stone structure 70 m south of the Crusader fortress and 15 m southwest of the Saraya where the vessel is dated to the beginning of the Muslim period (Gorin-Rosen 2010a: Fig. 5:1); and from the youth hostel excavation (Katsnelson 2014b: Fig. 9:1-3). Another example, dated to the Abbasid and Fatimid periods, was discovered at Khirbet Thahiriya (Jackson-Tal 2012:66, Fig. 3:40) and at excavations in Ramla (Gorin-Rosen and Katsnelson 2005:101, 103, Fig. 1:2; Gorin-Rosen 2008:49; 2010:242-243, Pl. 10.8:1-5). Evidence of this decorative style was also found in Carthage, Tunisia, on a jug representative of the vertical style (Hurst and Roskams 1984:203, Fig. 67, 68). Other examples from Carthage were found in a church complex at Bir El Knissia: deep bowls with a horizontal two-walled scalloped decoration (Stevens 1993:290, Fig. 1:5-6). The presence of these vessels in Tunisia may attest to trade relationships between Bet She'an and Carthage.

Figure 3.2:5

Carinated bowl with an encircling trail and a three-thread horizontal trail below the ridge. This bowl was made of greenish glass, with a diameter of 7 cm, and was found in sediment (L4100) associated with a water drainage system.

This carinated bowl is decorated with trailed thread and has a fine-quality inverted rim. This fold gives the rim a thickened ovoid profile that protrudes from the vessel body. On the inner wall the fold creates a type of groove between bowl rim and body. From here the vessel wall continues down vertically, after which it widens and then tapers again to form the carination. This was achieved by applying pressure during heating of the bowl in the production process. A glass trail was applied at the height of the carination ridge, emphasizing the bowl's shape. Under the carination the bowl was decorated with three encircling horizontal trails. The two upper trails are close together; the lower trail is slightly apart.

Carinated bowls are known from the Byzantine period on, in both shallow and deep vessels (Katsnelson 2014b:24). This typological group comprises two types, distinguished by their form of carination. In grooved carinated vessels—exemplified here by Fig. 3.2:5—the carination was unsurprisingly made from a groove, which was created by pushing the bowl outward with particular glassmith tools during production, and then installing a glass trail on

top of the ridge thus formed. The ridge might take one of three shapes, according to its inclination: horizontal and straight, un upturned ridge, or a downturned ridge. Among bowls of the second carination type—trailed carinated vessels—this feature was formed from a ridge made by applying a prominent horizontal trail around the bowl. Trailed carinated bowls are more common. In some cases it is evident that the carination or groove was formed in oil lamp bowls in order to generate the hoop-shaped lamp ring set under the encircling carination (Gat 2013). Figure 3.2:5 may be an oil lamp bowl of this type.

The earliest trailed carinated vessels are known from the Roman period (Katsnelson 2014b:25, Fig. 1:1-7). They became very common from the fourth century on, into the Byzantine period. They continued to be produced during the early Islamic period as well, albeit to a lesser extent. These vessels are mostly found in northern Israel (Katsnelson 2014b:24). Trailed carinated bowls of fourth century date are known from the workshop at Jalame (Weinberg and Goldstein 1988:53-54; Fig. 4.15:109, 111, 112), from Tirat Ha-Carmel (Pollak 2005:16, Fig. 4:28), and from Deir Ghazali (Gorin-Rosen 2001:48, Fig. 26:1). Byzantine-period examples are known from Khirbet Hermeshit (Winter 1998:175, Fig. 2:7), and the youth hostel (Katsnelson 2014b:25, Fig. 1:2-7) and tell at Bet She'an. Finally, a vessel of this type dating to the Mamluk period is known from a residential complex elsewhere in Ramla (Ha-Palmah Street; Kletter 2009; Gorin-Rosen 2009a, Fig. 13:10). Thus, these vessels appeared over a lengthy timespan.

Figure 3.2:6

Bowl or oil lamp with straight body and upright rounded rim; made of light blue glass; diameter: 9 cm. This vessel was found in a storage pit (L4529) together with a bowl with everted rim and neck and other vessels (see Fig. 3.2:7 below).

The bowl's rim and a small part of its body are preserved. These types served both as bowls and oil lamps; in the absence of a more completely preserved body profile it is hard to distinguish between the two. The bowl rim is vertical and rounded, directly continuing the body profile shape which seems to incline outward slightly and to taper at its midpoint or toward the base. Such bowls are generally characterized by a limited repertoire of rims that differ only in their wall angle, being vertical or moderately inclined outward toward rim. They first appear in the Byzantine period, and thereafter they retain their simple form and continue in circulation during Early Islamic times. Due to their simple form, these bowls constitute a relatively broad typological family that includes two subtypes. One bears a two-walled scalloped decoration. The other comprises cups, which are similar to the bowls but are smaller (diameter: 6 cm or less) and therefore probably serving a distinct function.

Parallels for these vessels are known from other sites in Ramla (e.g. Gorin-Rosen and Katsnelson 2005:105, Fig. 3:28), as well as Bet She'an (Gorin-Rosen 2010c: Fig. 5:6), Shikmona (Barash 2013:132, Fig. 1:8), Bat Galim (Haifa) (Pollak 2008:58, Fig. 2:12) and Ashkelon (Katsnelson and Jackson-Tal 2004:101, Fig. 2:12).

Figure 3.2:7

Bowl with everted rim and neck; greenish glass; diameter: 8 cm. The bowl was recovered in a storage pit (L4529) together with two other bowls of different types, a goblet (of which only the base was preserved) and three handles that appear to represent different jugs.

Of the bowl, a fragment of the rim and neck was preserved. These were formed through a single folding that pulled the glass outward in the heating process, creating a thicker wall than throughout the rest of the vessel. As a result of this folding, the rim profile is round, thickened, and slopes outward. The body of the bowl widens from the point of contact with the neck and—judging from parallels—its form is sacklike. Both deep and shallow bowls of this type have been found. With their everted rim, they served both as regular bowls and also as oil lamps.

This type first appeared in the Byzantine period, and its production continued during Early Islamic times. Coeval parallels for this bowl have been recovered elsewhere in Ramla (Gorin-Rosen and Katsnelson 2005:105, Fig. 2:15), as well as in

Ashkelon (Katsnelson and Jackson-Tal 2004:101, Fig. 1:2), a habitation cave complex found on the Mount of Olives, Jerusalem (Seligman and Abu Raya 2000:133, Fig. 10:1), and in a synagogue complex in Meron (Meyers, Strange and Meyers 1981: Pl. 9.13:10).

Figure 3.2:9
Small bowl with inverted rounded rim; yellowish glass; diameter: 6 cm. The bowl was recovered in a nondescript context (L4079) below a surface.

This small bowl has an infolded and rounded rim which is moderately thick relative to the width of the vessel walls. According to the preserved body fragment, the bowl appears to have been rounded in shape. Vessels of this type have been found in a variety of sizes and depths. The earliest examples date to the eighth century CE, and they continued to appear until the eleventh century (Gorin-Rosen and Katsnelson 2005:104, Fig. 2:14).

Parallels for these bowls are known from Ramla (Gorin-Rosen and Katsnelson 2005:104, Fig. 2:14), Bet She'an (where they are dated to the early second half of the eighth through eleventh centuries [Haddad 1998:75, Pl. 28:469-470]); Yokne'am (similar dating of eighth through eleventh centuries [Lester 1996:203, Fig. XVII.2:3]); Tirat Ha-Carmel (Pollak 2005:16, Fig. 4:35), and Khirbet Tabbaliya in Givat Hamatos near Jerusalem (Gorin-Rosen 2001a:90, Fig. 3:34).

Figure 3.2:10
Deep bowl with inverted cylindrical rim; greenish glass; diameter: 10 cm. The bowl was recovered from the fill (L4527) of a building complex.

The rim of the bowl and part of its body were preserved. The glasswork is of fine quality. The rim has the shape of a narrow inverted cylinder. In bowls of this typological group there is some variety in the angle of the rim, including examples that are slightly incurved (as in the current case), and others which are outward-flaring and thus maintain the symmetrical axis of the bowl's body (e.g. from Shikmona [Barash 2013:132, Fig. 2:24]), and rims that are inclined and rounded slightly outward (e.g. from Bet She'an [Tzuri 1973: Fig. 11:4; Hadad 2005:636, Fig. 19.4:73]). The body is straight-side, deep and rounded toward the base. Bowls of this type are very common during the Umayyad period, mainly in the Ramla area but they have also discovered been in Ashdod and Caesarea (Pollak 2003). However, the first appearance of this rim type—found in a variety of vessels such as bowls and bottles—dates to the Roman period (e.g. Bet She'an [Pollak 2008:57]), and they continued to appear during the Byzantine (Tzuri, 1973: 246) and Early Islamic periods, which constituted their main prevalence.

Other parallels for this bowl type are known from Ramla (Gorin-Rosen and Katsnelson 2005:105, Fig. 3:24; Pollak 2007: Fig. 2:9, 10; Yekuel 2011: Fig. 8:1), Shikmona (Barash 2013:132, Fig. 2:24), Bet She'an (Tzuri 1973, Fig. 11:4; Hadad 2005:636, Fig. 19.4:73), Bat Galim (Haifa) (Pollak 2008:58, Fig. 2:13), and in Jordan at Dibon (Moab)(Tushingham 1972: Fig. 13:10-11) and the church compound in the north theater complex in Jerash, dated to the eighth century (Meyers 1988:204, Fig. 10: H).

Reg. no.? (not illustrated)
Bowl with upright rounded rim and rounded body; greenish glass; diameter: 9 cm. This bowl was recovered in a storage pit (L4093), together with another bowl with a widely folded rim (see Fig. 3.2:12 below), and an oil lamp bowl body fragment made of yellowish glass and bearing a circumscribing ridge, and a goblet base.

This bowl is relatively deep and has a rounded body shape. The rim is vertical and rounded in profile, smoothly continuing the angle of the vessel walls. Bowls of this type are found in varying sizes and volumes, with the design of their rounded and upright rim coming in a relatively wide variety of shapes and angles. In keeping with the utilitarian and somewhat *ad hoc* functions of glass vessels, these bowls could have served as containers or oil lamps (suspended or table-based). This type belongs within the larger typological family of straight bowls with an upright rounded rim, which might be either undecordated or adorned with a two-walled scalloped pattern. As hinted at by the simple form of these vessels, the first date to the Roman period; their production

continued until the eleventh-twelfth centuries CE, with a very wide distribution.

Parallels for these bowls have been recovered in Ramla (Gorin-Rosen and Katsnelson 2005:108, Fig. 3:28), Bet She'an (Katsnelson 2014b:39, Fig. 8:4), Khirbet Tabbaliya (Givat Hamatos) near Jerusalem (Gorin-Rosen 2001b: Fig. 2:9-11), Tirat Ha-Carmel (Pollak 2005:16, Fig. 4:33); Nir Galim (where they are dated to the Early Islamic period [Gorin-Rosen 2002: Fig. 2:1]), and Caesarea (where they are dated to the Byzantine period [Peleg and Reich 1992: Fig. 18:4]), as well as at Rehovot in the Negev (where they are dated to the fifth through seventh centuries [Patrich 1988: Pl. XIII:9]). Outside Palestine parallels are known from Egypt (Crowfoot and Harden 1931: Pl. XXIX: 21.1) and Carthage, Tunisia, where they date to the sixth century CE (Tatton-Brown 1984: Figs. 65:12, 66:27).

Figure 3.2:11
Cylindrical bowl with rounded, inverted and outward-inclined rim; greenish glass; diameter: 9 cm. The body of the bowl is decorated with a trail below the rim and with a floral decoration on the upper part of the body, preserved in brownish-yellow colors. This bowl was found on a floor (L4526) near an installation of unknown function.

This straight-sided cylindrical bowl has a fine-quality inverted rim. Because the rim is folded, its profile shape is rounded and slightly thickened outward. Under the rim there is a horizontal brown-yellowish trail, and slightly below that a floral decoration seems to have been applied in a similar hue. The earliest appearance of this bowl type dates to the Late Byzantine period, and they were very common during the eighth century CE when they seem to have concentrated in Ramla and its environs (Yekuel 2011). These decorative style and hues are also known in other coeval glass vessels found in that locale (Katsnelson 2011).

Both typological and decorative parallels will be presented here. As stated, similar bowl types discovered in Ramla date to the Late Byzantine period and the early eighth century (Yekuel 2011: Fig. 8.1:3; Gorin-Rosen and Katsnelson 2005:105, Fig. 3:24; Pollak 2007: Fig. 2:9, 10), Shikmona (Barash 2013:132, Fig. 2:24), Bet She'an (Tzuri 1973, Fig. 11:4; Hadad 2005:636, Fig. 19.4:73) and Bat Galim (Haifa) (Pollak 2008:58, Fig. 2:13), as well as in Jordan, at Dibon (Moab) Tushingham 1972: Fig. 13:10-11) and the eighth-century church complex in the north theater compound in Jerash (Meyers 1988:204, Fig. 10: H). As mentioned, parallels for the decorative style that match this vessel's typological dating are also known from Ramla (Katsnelson 2011: Fig. 8; Gorin-Rosen 2008:49, Table 1.7).

Figure 3.2:12
Bowl with widely folded rim; pale blue glass. This bowl was recovered in the same L4093 storage pit as bottle Fig. 3.1:18 and another bowl. This rim form is mainly found in three vessel types: straight bowls, suspended oil lamp bowls with handles for hanging, and storage bottles. It has been suggested that the latter vessels were used in the sugar industry (Gorin-Rosen 2010a:241-242, Pl. 10.7:4, 5; Katsnelson 2014b:23-57, Fig. 12:4).

This bowl features an everted rim with a wide fold and a body that is straight in profile. Due to the fold, the wall of the wide rim is thicker than the thin wall of the bowl. The earliest of these vessels were bowls with a widely folded rim, dating to the Byzantine period. As stated for other vessels above, this style of rim-folding continued until the eleventh century CE.

This rim type has been found in bottles from Ramla (Gorin-Rosen 2010a: Pl. 10.7:4, 5) and Bet She'an (Katsnelson 2014b:39, Fig. 12:4), in bowls from Ramla (Marcus Street) (Pollak 2007: Fig. 1.3:7), a Late Byzantine phase of a synagogue in Meron (Meyers, Strange and Meyers 1981: Pl. 9:8, 12, 13). As stated, these rims also feature on three-handled suspended oil lamp bowls, with example known from Hammat Tverya (Johnson 2000: Figs. 23, 24, 26) and a sixth-seventh century church complext at Sidi Jdidi (Ben Khader et al. 2004:327, Fig. 192:61).

Figure 3.2:13
Bowl adorned with impressed decoration of concentric circles; dark-hued glass, heavily patinated; sherd dimensions: 3 x 1.5 cm. Its decoration was applied by

blowing this vessel in a mold. It was recovered in a nondescript sediment (L4079).

This small body fragment of a bowl bears traces of decoration in the form of two impressed circles. The bowl was manufactured by a combination of two technological methods of blowing glass into a mold, which gave its walls their decorations. Based on typological comparison to similar bowls found at other sites, this vessel would have featured decoration comprised of several rows of concentric circles. Such mold decoration is also known from other vessels, including bottles (Katsnelson 2014b:42; Haddad 2005). In some cases this decoration are applied to two-part vessels, which are relatively rare types made by joining two vessel sections of different colored glass (Haddad 2005:42). The bowl's walls are straight and gradually and gently taper from rim to base. Bowls of this type feature a flat base.

Parallels for these bowls have been found at Hammat Gader, in an assemblage dated to the seventh and eighth centuries CE (Lester 1977: Pl. 1:13). Similar bowls have been discovered at Bet She'an, where they are dated to the eighth through tenth centuries CE (Katsnelson 2014b:41, Fig. 9:4). Parallels are also known from Ramla, where they are dated to the eighth century CE (Gorin-Rosen and Katsnelson 2005: Fig. 2:20, 22). Another parallel from Ramla incorporates a similar decorative style, although in that case the sequence of circles is replaced by a sequence of perpendicular diamonds encircling a concentric circle (Pollak 2007:106, Fig. 3:17). Outside Israel, vessels of this type have been discovered in Egypt, where they are also dated to the eighth to tenth centuries CE (Pinder Wilson 1991), and in Syria and Iran (Gorin-Rosen 2006:236), and in Baghdad, Iraq (Haddad 2005:42-43).

Cups/bowls (Fig. 3.3)

This is one of the more common regional vessel types known from the Early Islamic period. Palestine comprises their main area of distribution, indicating that they were produced and diffused from here. The main unifying feature of this typological group is the body shape, which is mostly cylindrical, with straight walls. A small number of spherical vessels in this group has also been noted (Gorin-Rosen 2008:45). By contrast with this general consistency, there is a conspicuous diversity in the vessel rims. This results mainly from the relationship between the elastic features of the glass and the hand of the glassblower. Variability is evident in the rim's angle (straight, inclined outward or inward), its thickness relative to the vessel's walls, its rounding or uprightness, and sometimes also folding.

Figure 3.3:1
Bowl/cup with rounded thickened rim that gently protrudes outward; greenish glass; diameter: 5.5 cm. The glasswork on this cup/bowl is of fine quality and it features a thin wall and cylindrical straight profile. The vessel was blown in the two-stage method, as shown by a horizontal dividing line within the glass near the rim. Despite this, the glassmith managed to maintain a consistent profile shape throughout both stages. This vessel was discovered in a nondescript sediment (L4079).

Figure 3.3:2
Cup/bowl with rounded rim that thickens outward; colorless glass; diameter: 5 cm. The cup was recovered sediment (L4100) associated with a water drainage system, in which were also found several other glass items: flasks (see Fig. 3.1:12, 19), the Fig. 3.4:4 ridged oil lamp bowl, a flask base, and a goblet base. This cup is straight-sided, apart from in the center of its body which slightly widens slightly and becomes rounded (a result of the two-stage blowing technique). Consequently, as in the previously discussed cup there are delicate striations on the cup wall's outer surface that gradually taper due to pulling upward of the glass in the second blowing stage. The rim of this cup/bowl differs from others in this assemblage, and it does not retain the uniform thickness of the vessel's walls but rather gradually thickens, while also slanting slightly outward.

Figure 3.3:3
Cup/bowl with a mostly rounded rim, which continues the straight wall of the vessel; made of colorless glass; diameter: 6 cm. This cup was recovered in a storage pit (L4530) together with the neck of a

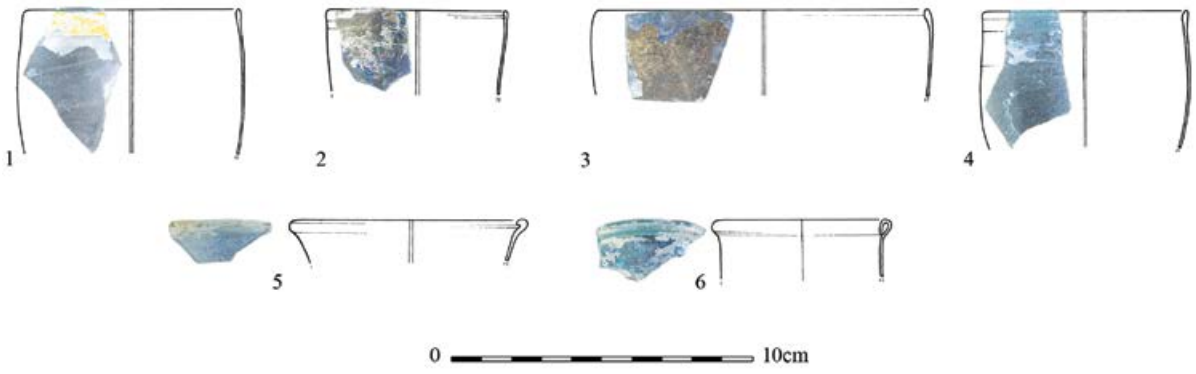


Figure 3.3. Cups/bowls.

No.	Reg. no.	Locus
1	40265	4079
2	40290	4100
3	40214	4530
4	40282	4079
5	40282	4079
6	40666	4539

flask (Fig. 3.1:7), two other flask bases, a bottle base, and the elongated spout of an *alembic*.

Cups of this type feature a straight upright wall and rounded rim, which usually continue the angle of the vessel wall. Similar vessels have been found in small numbers, being defined as cups according to their rim diameter. Such vessels feature various different rim types: inverted and flaring outward (Fig. 3.3:5); or rounded, thickened and slanting gently outward. These vessels' walls are thin and of fine quality. Straight cups with a rounded upright rim are a very common type during the Islamic era, and continue to appear until the Mamluk period (Gorin-Rosen 2010b). Fragments of these cups can be easily mis-identified as bottles. The distinction should be made according to wall thickness, with cup walls being thinner than those of bottles.

This cup type has been found in Bet She'an (dated to the entire Islamic period [Gorin-Rosen 2010c: Fig. 5:6]), Shikmona (dated to the Late Byzantine and initial Early Islamic period [Barash 2013:132, Fig. 2:26]), Ashkelon (Katsnelson and Jackson-Tal 2004), Bat Galim (Haifa) (Pollak 2008: Fig. 2:12), and Hammat Gader (Lester 1977: Pl. 1:2).

Figure 3.3:4

Cup/bowl with rounded rim that follows the profile shape of the vessel walls; greenish glass; diameter: 4 cm. This vessel was discovered in a nondescript sediment (L4079). It is similar to Fig. 3.3:3 in most of its features, but differs in the manner of its production, as is evident in the vessel wall which is straight and then widens and becomes rounded in the center of the body, following a two-stage blowing process. This technique stems from the need to pull the vessel in the second upper stage of production, creating delicate striations on the vessel's external wall surface which gradually narrow. In addition, although belonging to the same typological family, Figs. 3.3:3 and 3.3:4 differ in their rim design. Unlike Fig. 3.3:3 which features a rounded rim of the same thickness as the vessel's sides, the rim of this cup is thicker and flares outward.

Figure 3.3:5

Cup/bowl with a rounded rim infolded in a narrow and non-hollow fold, and then pressed; greenish glass; diameter: 5 cm. This cup was found in a nondescript sediment (L4079).

In most of its typological features this cup is similar to Fig. 3.3:6. Although the vessels are part of the same typological family, the difference between the two is in the rim fold: a wide fold that creates a

hollow rim (Fig. 3.3:6) versus a narrow non-hollow fold (Fig. 3.3:5). In both cases the profile shape of this rim is ovoid, flaring outward from the vessel walls. In Fig. 3.3:5 the vessel walls are diagonal, gradually and gently tapering from the bottom of the rim to the base. The same vessel type has been found at Bat Galim (Pollak 2008:58, Fig. 2:13), Bet She'an (Hadad 2005:636), and Dibon (Moab), Jordan (Tushingham 1972: Fig. 13:10-11).

Figure 3.3:6
Cup/bowl with a hollow rounded oval rim; greenish glass; diameter: 5 cm. This vessel was discovered in a nondescript sediment (L4539) together with two fragments of oil lamp bowl bases, a concave bottle base, and the widely everted rim of a bowl.

The rim of the cup is inverted, creating an ovoid profile that flares outward from the vessel's straight walls. This type and its sub-variants are characteristic of the beginning of the Islamic period (Gorin-Rosen 2008:45) and constitute one of the more common vessel types of the Early Islamic period, particularly in the Ramla area. This concentration indicates that the region represents the manufacturing center of these vessels, from which they spread. This type is also known from Bet She'an (youth hostel excavations: Katsnelson 2014b:39, Fig. 8:1; the tell: Haddad 2005:21, Pl. 3:58-62). Additional examples are known from eighth through eleventh century Ramla (Marcus Street: Pollak 2007:104, Fig. 2:10; Ma'asiyahu Prison: Sion 2004:88, Fig. 18:1). Parallels are also known in Jerusalem, such as from a dwelling cave on the Mount of Olives, where this vessel is dated to the Late Byzantine and Early Islamic periods (Seligman and Abu Raya 2000:133, Fig. 10:7). Outside the Palestinian region, examples are also known from Jordan, such as from the eighth century church complex in the north theater of Jerash (Meyers 1988:208, Fig. 11: R).

Oil lamp bowls (Fig. 3.4)

Figure 3.4:1
Oil lamp bowl with elongated hollow base; made of a dark-hued glass coated by much silver patina; diameter of base: 0.8 cm. This lamp was discovered in a storage pit (L4550), together with the Fig. 3.4:3 drip lamp.

The walls of this oil lamp bowl's base are straight and rounded at their edge. On the bottom of the base the pontil mark can be discerned, with a diameter of 0.4 cm. Oil lamp bowls with an elongated base, (hollow or non-hollow) constitute one of the earliest variants of this typological group. They appear first in the Roman period (Gat 2013:164). However, the bulk of these lighting vessels date to the Byzantine period, after which their numbers fall away noticeably from the beginning of the Islamic period (Gat 2013:181). From the Roman period, only elongated and hollow oil lamp bases are known to date, all recovered in burial complexes (Gat 2013:165) such as in the seven-niched tomb in Hall A at Gilboa (Gorin-Rosen in Sion 2000:66, Fig. 66:8), in Catacomb 20 at Bet She'arim (Avigad 1976:98, Figs. 43:96-97, 98:204), and in Nablus (Rafidiye) where two lamps of this type were found on the floor of a burial cave, alongside disc-shaped lamps dating to the Roman period (Hizmi 1997:127, Fig. 125:1, 127:6). Another lamp is known from Givat Yasef (Tell er-Ras) (Rochman Halperin 1999:84), found in a complex of Mamluk date assumed by the author to originate in nearby Roman-period burial complexes (Gorin-Rosen 1999b:138, Fig. 138:1). Another example is known from a burial complex at Khirbet al N'iana (Sion 2007; Gorin-Rosen and Katsnelson 2007: Fig. 37:4). Byzantine-period oil lamp bowls of this type are known mainly from public structures associated with various activities, particularly churches, convents, ritual baths, and burial complexes. Others such lamps have been discovered in residential contexts. These oil lamp bowls mark the gradual entrance of glass vessels into everyday life, to the growing exclusion of various types of earthenware vessels (Gat 2013:181).

As stated, most oil lamp bowls with elongated hollow bases have been discovered in church and monastery complexes, as in the church complex at Deir Ghazali (Avner 2001, Fig. 29:3, 34:11, 48:26), and a baptistry at Nir Galim (Gorin-Rosen 2002:123, Fig. 2:123; Gorzalczany 2002:115). Two oil lamp bowls with elongated hollow bases were discovered at Mahoza D-Yamnin near Palmahim, in a church and hostel structure room with a mosaic floor (Vitto 1998: Fig. 1:109, 18:123). A lamp was found in a

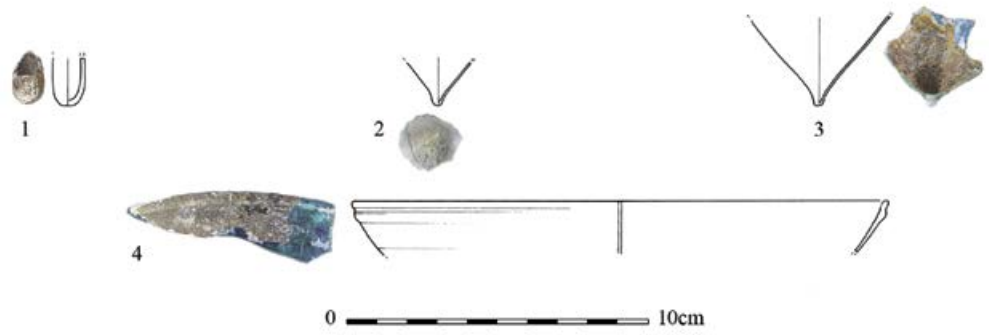


Figure 3.4. Oil lamp bowls.

No.	Reg. no.	Locus
1	40684	4550
2	40633	4522
3	40684	4550
4	40291	4101

convent complex at Khirbet Ed-Deir in the Judean Desert, in a cave laid with a mosaic floor that served as a church (Hirschfeld 1999: Figs. 1:2, 2:10, 37:32, 59-60:43, 65:46, 97:65, 101:89, 121-122:77). Two elongated hollow bases of oil lamp bowls of this type were discovered in the mosaic-paved apse courtyard of a church complex at Shilo (Flemminf Gorm 1969: Fig. 20:69). Another lamp of this type was found in the nave of a church in 'En Karim in the Judean hills (Bagatti 1948). The bases of two oil lamp bowls of this type were found in two separate complexes of distinct functions within a convent in Khirbet Hermeshit (Greenhut 1998; Winter 1998:175, Fig. 175:2). One find context was a chapel laid with a mosaic floor decorated with crosses, while the other lamp was found by an olive press, in a room with a row of feeding troughs, indicating that it served as a stable for animals used to operate the olive press (Greenhut 1998). Three other lamps have been found in ritual bath complexes at various sites. Two lamps were found at Ras Abu Ma'ruf, near Pisgat Ze'ev in Jerusalem, on the floor of a ritual bath in a cave that also housed an olive press (Gorin-Rosen 1999a:211, Fig. 2:211). The site also incorporated a burial complex, and was part of a large agricultural compound (Seligman 1999). Beyond ecclesiastical contexts, three lamps of this type have also been found in burials at two sites. One was unearthed at al-Jesh (Makhouly 1939: Fig. 1:44) near Gush Halav in Upper Galilee. Two other lamps were found in a grave at Rifat, near Bet Shemesh (Bagatti 1990:284, Fig. 1:265, 2:267, 11:284). These oil lamp bowls are mostly found in the east and south of Israel, and tend to come from churches. The same is true for the many sites where this vessel type has been found outside Palestine: a temple in Amman (Herr 1983: Figs. 22.5:53, 24.32:59); near a church on the *cardo maximus* street in Byzantine Jerash (Baur 1938: Figs. 17:508, 18:509, 19:510); in coeval churches at Lejjun (Parker 1985: Fig. 1:132, 16:147, 19:149, 20:150; 1987: Fig. 136, 72-75:653) and Dibon, Moab (Tushingham 1972: Figs. 13, 20, 27, 42-44); a large residential quarter of Byzantine Carthage (Von den Driesch 1999, Abb. 1, 15, 20, 519, 521A, 521B, 526-530, 533-545, 742-763, 766, 768, 769, 771); churches at Aliki, Greece (Sodini and Kolokotsas 1984, Fig. 1:10, 11:11, 150:188), Mount Nebo (Sylveser and Saller 1941: Pl. 38:1, 39:2, 140:1-28, 142:3), Umm al-Rasras (Piccirillo 1987: Fig. 7:228; Alliata 1991: Figs. 6:375, 18:398, 19:401, 26:413, Pl. 1.2:825; Alliata 1992, Fig. 4:231, foto. 1:1) and Uyun Musa (Alliata 1990: Fig. 8:258, Pl. 1, Foto 3:3); a

residential complex in Byzantine Beirut (Jennings 1997: Figs. 17:138, 18:139, 19:139, 20:141; in the same city during the Islamic period, a church (Foy 1996: Fig. 2:9) and a workshop dated to the eighth and ninth centuries (Foy 2000: Figs. 1:240, 4:244, 5:245, 6:246, 7:247, 8:249, 9:253, 10:255, 27:278, 28:279); a Byzantine church at Nahr Ibrahim in the Yanouh Valley, Lebanon (Gatier 2002, Figs. 11:219, 20:227, Pl. 12.10-13:252; 2004: Pl. 22.14-18:170; 2005: Fig. 2:163, Pl. 5:173); and a church at Iqlim El Kharoub, southern Lebanon (El Tayeb 2002, Fig. 5:13, 46:43); a Byzantine church at Resafa, Syria (Thilo 1986; Tafel 72, 1977/18, 4-8, 1978/39, 29, 1977/1, 5-11, 27, 28; Tafel 73, 1977/37, 1-32, 40); a sixth century church at Apamee, Syria (Napoleone Lemair and Balty 1969: Figs. 19.14, 20:79, 26.1-5:111); and a tenth century church in Venice (Gasparetto 1979: Fig. 16:86).

Figure 3.4:2

Oil lamp bowl with short drip base; colorless glass; diameter of base exterior: 2 cm. Similarly to the previous vessel, this lamp bowl was found in a storage pit (L4527). The drip base of this lamp is less prominent and it appears to constitute an almost direct continuation of the vessel body's conical shape. The distinction between the bottom part of the vessel's body and its base was achieved by slight pressure applied to the circumference of the pointed part in order to create the drip.

The lamp is triangular in profile and its walls gradually widen from base to rim. Oil lamp bowls were hung by placing them in a metal ring or metal wire smaller than their circumference, thus supporting the vessel body. The metal ring or wire was fastened to three hanging chains or three thin metal wires when the hanging implement was made of metal wire, topped by a hanging hook held by another hook that was attached to the ceiling or wall. Drip base oil lamp bowls in Palestine first appear in the Byzantine period. Similar lamps have been discovered in Caesarea (Gat 2013: Fig. 12.83; Patrich 2008: Pl. 309, 404, 407, 409, 411, Fig.1:1, 3:3, 7:5-6, 9:7-8). They further developed in the Early Islamic period, moving from an elongated drip base and a neck that stands out from the body of the bowl to a shorter and sharper drip that followed the vessel's profile shape (Gat 2013:52). Oil lamp bowl bases also changed over time. In the Byzantine era we see two oil lamp bowl types: graded bowls and bowls with a depression. With the transition to the Early Islamic period these disappeared, and a single type with either a narrow or wide triangular profile shape came to prominence.

Byzantine examples of this type have been recovered in Bet She'an (Haddad 1998: Fig. 2.28) and in Carthage, Tunisia (Von Den Driesch et al. 1999, Abb. 1, 15, 518, 519, 521A, 521B, 526-530, 533-545, 20, 742, 743, 760-763, 766, 768, 769, 771, 744-759), dated to the late Byzantine period. Early Islamic examples have also been found in the same city (Salammbo Blvd. [Hurst 1984: Fig. 66:37, 57-60; Fig. 67:86-91]). Elsewhere in Tunisia lamps of this type were discovered in a church complex at Nabeul (Julia Neapolis) (Foy 2003: Figs. 1:60, 77:79). The earliest known oil lamp bowls of this type have been found in Italy, in the main ceremonial hall of the Tempio della Magna Mater in Paltino, Rome, dating to the late Roman and early Byzantine periods (Sternini 2001: Figs. 22:1-2, 23:3, 54:12). Fifth century CE parallels are known from the 'sheikh's house' at Al Qadim, Egypt (Whitcomb 1983: Fig. 1:101). Other parallels of oil lamp bowls with drip base were found in an early Byzantine residential context in Beirut, Lebanon (Jennings 1997: Figs. 17:138, 18:139, 19:139, 20:141;).

Figure 3.4:3

Oil lamp bowl with short drip base; colorless glass; diameter of base exterior: 4 cm. The lamp was recovered in a storage pit (L4550) together with the abovementioned lamp Fig. 3.4:1, which features an elongated hollow base.

Figure 3.4:4

Oil lamp bowl or ridged bowl; pale blue glass; diameter: 10.5 cm. The vessel was found in sediment (L4100) associated with a water drainage system.

Part of the bowl's rim and upper body were preserved. The vessel has a wide rounded shape and appears not to have been deep, according to its wall profile. The rim is upright and rounded, and follows the angle and thickness of the bowl's walls. About 0.6

cm under the rim a glass trail was applied, forming a type of encircling ridge that encompasses the entire circumference of the bowl. In many oil lamp bowls such a ridge is used to hold the hanging ring by which the lamp was suspended. In some cases the glass trail is not a plastic addition, but rather was shaped by pinching a fold in the vessel wall (e.g. from Shikmona: [Barash 2013: Fig. 2:27]; Ramla: Gorin-Rosen 2009a: Fig. 13:10). Furthermore, sometimes use of a ridge was replaced by one of two alternatives: a ledge rim under which the hanging ring could hold the vessel; or a depression under the level of the rim, in which the hanging ring was fastened (Gat 2013). Ridged oil lamp bowls are first seen in the first century CE, and continued to appear into the fourth century (Pollak 2005:14; Isings 1957:136). It is now known that these vessels also preserved their typological features after this period, and are also found in Byzantine and Islamic-period contexts (Gat 2013).

A Roman-era oil lamp bowl of this type is known from Catacomb 20 at Bet She'arim (Avigad 1976: Fig. 98:204). Another oil lamp bowl of this ridged type from the late Roman period (third/fourth century CE) was recovered in Tirat Ha-Carmel (Pollak 2005: Fig. 4:28). An example of the hanging ridge type was recovered in a mortuary context at Byzantine Khirbet Tabbaliya (Kogan-Zehavi 1998: Fig. 1:135). From the Early Islamic period, a parallel is known from Ashkelon (Katsnelson 2012: Fig, 1:7) with a ledge rim on the downturned lower part to which a round thickened glass trail was also applied, seemingly to support the hanging ring. An identical parallel to the bowl found in the current dig was recovered at another site in Ramla (Gorin-Rosen and Katsnelson 2005: Fig. 2:13).

Parallels for this type outside Palestine have been recovered in Egypt (Pinder-Wilson and Scanlon 1973: Fig. 18:20). Other lamps dated to the eight century CE were found in the north theater complex in Jerash, Jordan (Meyer 1988:204, Fig. 10: L-M). A ridged hanging oil lamp dated to the Byzantine period was recovered at Farfa in central Italy (Newby 1991: Fig. 3, 5, h:37). A similar type was found at Corinth, also of Byzantine date (Davidson 1952: Pl. 60:804).

Base finds (Fig. 3.5)

Vessel bases are treated separately here, as they may have belonged to a relatively wide variety of vessel types. The bases here are organized according to a univalent classification, focusing on their extant wall profiles (either vertical or rounded). In the few cases where it is not possible to discern wall shape, other classification options will be presented.

Figure 3.5:1

Thickened, pushed-in base of a bottle or jug; green glass; diameter of base: 8 cm. This vessel fragment was found in a storage pit (L4547).

The base was preserved together with the beginning of the body's walls. This vessel had relatively thick walls and a thickened base—features which usually represent jugs and bottles of the Early Islamic period, which are usually characterized by a straight cylindrical body and a straight or conical neck with a rounded rim, or one that slopes slightly outward. Parallels for these bases are known from Bet She'an (Katsnelson 2014b:46, Fig. 11:11. A similar bottle dating to the Early Islamic period was recovered at Bat Galim, near Haifa (Gorin-Rosen 2002:123, Fig. 2:7). Another example of these eighth-century spherical bottles with a straight-surfaced and thickened pushed-in base is known from the north theater complex in Jerash (Clark et al. 1986:386, Fig. 9:23). An earlier parallel from Israel is known from the synagogue complex in Bet She'an, dated to the Byzantine period (Tzuri 1967:162, Fig. 11:6).

Figure 3.5:2

Flat, rounded and pushed-in base that might represent a jug, bottle or bowl; made of colorless glass, mostly covered in thick silver patina; diameter of base: 7 cm. This vessel fragment was recovered in a nondescript sediment (L4526) under a surface layer.

In the archaeological record bases of this type represent a limited variety of vessel types, such as jugs, bottles, and bowls, and date to the Byzantine and Islamic periods. These vessels may have been tableware or for storage, used side by side with earthenware containers. At the same time, despite the limited number of vessel categories to which this base might have belonged, within that set of potential matches

there is a wide variety of rim shapes and sizes in the current assemblage which might be represented by such a base (see discussion of Fig. 3.1:2 jug base above).

Figure 3.5:3

Concave jug or bottle base; pinkish glass; diameter of base: 7 cm. This base was found in the fill of a ceramic pipe (L4528) which was part of a structure's water system.

According to its size, the body of the bottle this which this base belonged to would have been wide and bulbous. Based on intact parallels (e.g. from Bet She'an: Katsnelson 2014b:49, Fig. 13:2), such bottles are characterized by an elongated neck which was sometimes decorated with spiral glass beads that encircle the neck base. It has been suggested that bottles of this type were blown into a mold, given the absence of any scars on the base (Katsnelson 2014b:50). The earliest known examples of these bottles date to the eighth century (Gorin-Rosen 2008:47) and they continued to appear until the twelfth century CE, based on a similar find from the *cardo maximus* street of Jerusalem (Brosh 2012: Pl. 14.1: G7-G12). Parallels for this type of base—usually representing bottles and jugs—have also been found in Byzantine Bet She'an (e.g. the synagogue (Tzuri 1967: Fig. 11:8) and from the same town during the eleventh and twelfth centuries CE (i.e. the Ayyubid and Mamluk periods; Katsnelson 2014b:49, Fig. 13:2). Other parallels dating to the eighth century CE are known from Ramla (Gorin-Rosen 2008:47) and from Kursi, Galilee (Katsnelson 2014c:200, Fig. 1:1-2).

Figure 3.5:4

Base of flat bowl; pale yellow glass; diameter of base: 13 cm. This bowl was found in the fill (L4536) of a structure of unclear function, together with the Fig. 3.1:14 flask, the 3.2:2 bowl and the base of a bottle with a narrow and cylindrical body featuring a small depression in its center.

This base belongs to a type of flat-based bowls with a cylindrical body shape. The distinguishing feature of these bowls is their flat base, which curves around into the vessel wall's body. This type is subdivided according to bowl' depth. Based on intact examples, these bowls are usually characterized by rounded and vertical rims. The earliest date to the Abbasid period (eighth century CE; Katsnelson 2014b:40, Fig. 8:3; Gorin-Rosen 2010a:228-229, Pl. 10.4:1). Such bowls have been recovered at several sites in Ramla: the city center (Gorin-Rosen 2008:48), Marcus Street (Pollak 2007:106, Fig. 3:15, 16), Ma'asiyahu Prison (Sion 2004:86; Fig. 18:6); the White Mosque (Zelinger 2007: Fig. 3:2); and the railway line (Hadad 2010: Fig. 22:2). They have also been found in Bet She'an (Katsnelson 2014b:40, Fig. 8:3), Hammat Gader (Lester 1977:434, Pl. I:13) and at a synagogue in Meron (Meyers et al. 1981: Pl. 9.13, 14-16).

Figure 3.5:5

Flat and thickened bottle bases; one was made of pale blue glass, and the other is greenish; diameter of both bases: 6.5 cm. These vessel fragments were found in a nondescript sediment (L4526) around various architectural features of this residential quarter.

Bottles of this type are thickened where the base meets the vessel walls. The larger of these bottle bases are similar to those of bowls, to which they are sometimes assigned (Katsnelson 2014b:40, Fig. 8:6). In other cases they are defined as bottles or bowls (Gorin-Rosen and Katsnelson 2005:110, Fig. 4:43). The earliest of these bottles or bowls date to the eighth century (Umayyad period [Wilson and Sa'd 1984:75, Fig. 572]) and they continued to appear in the Abbasid period, as is evident from examples found in a Bet She'an workshop (Winter 2011:254, Fig. 12.3:5). Vessels of this type dating to the eighth-tenth centuries CE are known from Fustat, Cairo (Scanlon and Pinder-Wilson 2001:21-23, 28-29, Figs. 1, 2:7C, D).

Figure 3.5:6

Large-sized jug base with a central dome in its external surface and a rounded thickness in its internal surface; greenish glass; diameter of base: 13 cm. This base was found in a nondescript sediment (L4545) overlying area features.

This jug's base was preserved, as well as the initial rounding upwards to the vessel walls. The 13-cm diameter of the base represents a relatively large jug. The external surface of the base is flat and has

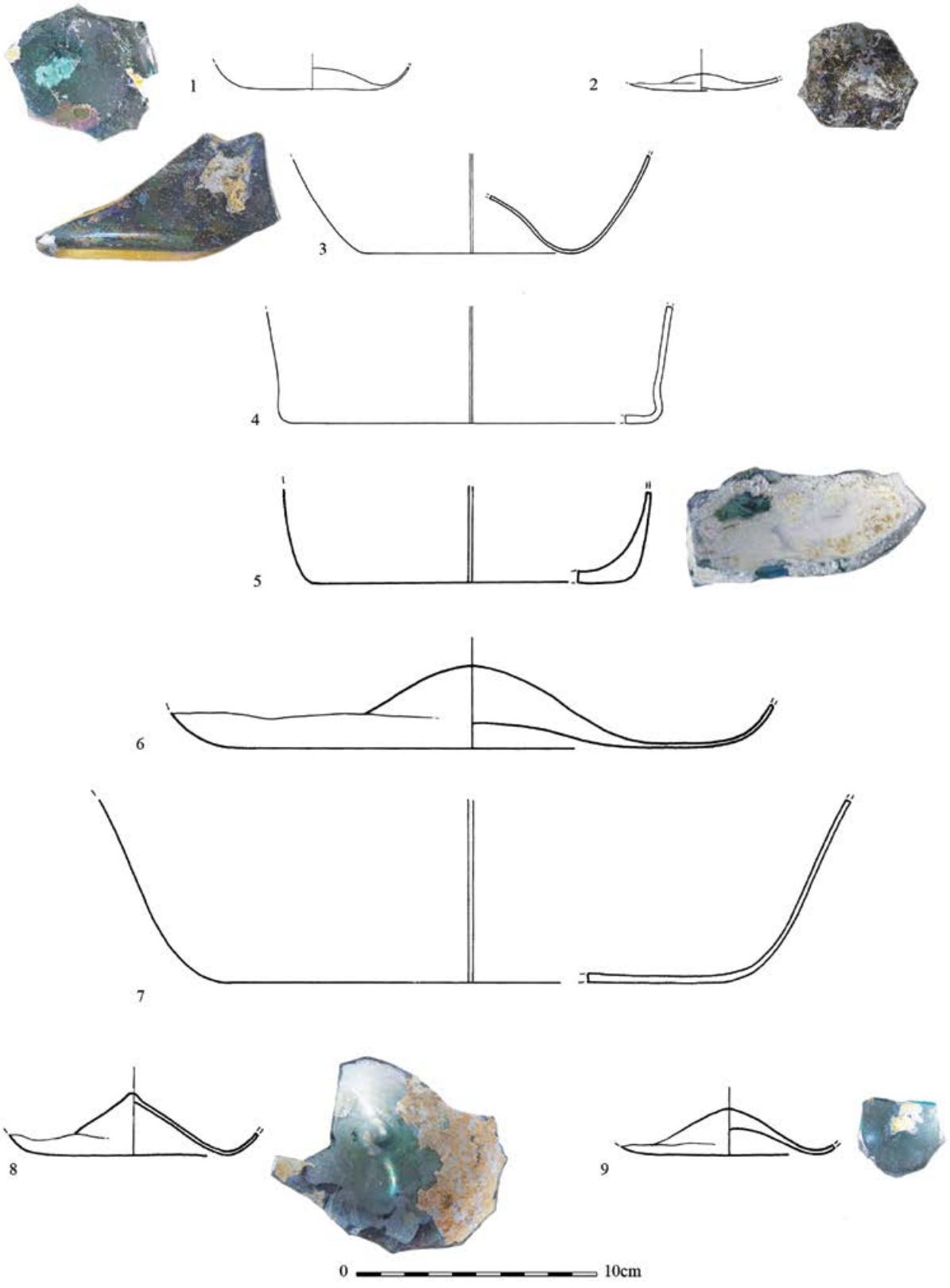


Figure 3.5. Base finds.

Figure 3.5. Base finds.

No.	Reg. no.	Locus
1	40680	4547
2	40632	4526
3	40639	4528
4	40648	4536
5	40626	4526
6	40679	4545
7	40615	4531
8	40626	4526
9	40614	4530

a shallow indentation in its center. A round scar is evident within this indentation, with a type of flat rounded protrusion on one wall. This scar and protrusion attest to the location of the pontil rod and show that the vessel was broken off by being turned and pulled back. This base and wall shape might fit with a variety of jug types, but is rare in this region. A vessel from late eighth-century Bet She'an is the only example of this type yet to be found in Palestine (Katsnelson 2014b:38, 44, Fig. 11:11). It is better known from a late eleventh-century shipwreck found off the coast of Anatolia (Kenesson 2009:306-307, JG 25-28). According to the rest of the assemblage, the current jug base from Ramla may date to the early eighth through eleventh centuries.

Figure 3.5:7
Flat bowl base; greenish glass; diameter of base: 8 cm. This vessel fragment was found on a surface layer (L4531).

This bowl base is large and flat. The vessel's walls slope outward diagonally from the point of contact with the base. The base and walls are of the same thickness. Bowls of this type were very common in the Abbasid period. They feature a rim with a ridge or trail that inclines inward (Gorin-Rosen and Katsnelson 2007: Fig. 3:2), or a rounded rim (Gorin-Rosen 1999c:30, Fig. 36:1). Such bowls are known from Ramla (White Mosque) (Katsnelson 2007: Fig. 3:2) and from Haifa (Khirbat Tinani), dated to the eighth-ninth centuries CE (Gorin-Rosen 1999c:30, Fig. 36:1).

Figure 3.5:8
Flask or bowl base with tall conical depression base; greenish glass; diameter of base: 5 cm. This vessel fragment was found in a sediment (L4526) filling against probable residential features, together with two flat thickened bases (see Fig. 3.5:2, 5) and other glass finds.

Tall conical-depression bases are more common than bases with a low conical depression, and they were employed for both flasks and bowls. In some cases this base form was used in lamp bowls, with a wick holder installed at the top of the base interior. These vessels' body shapes vary, ranging from a straight to rounded profiles. A bowl with a tall conical-depression base was found elsewhere in Ramla (Marcus Street) (Pollak 2007:108, Fig. 4:21-22); at the same site was recovered a lamp bowl in which a wick holder was installed (Pollak 2007:115, Fig. 7:41). Another lamp bowl with a similar base is known from Khirbet Tabbaliya (Gorin-Rosen 2002:90, Fig. 3:33).

Figure 3.5:9
Flask base with low conical depression; greenish glass; diameter of base: 5 cm. This flask base was found in a pit (L4530) together with the Fig. 3.1:7 bottle, the Fig. 3.3:3 cup/bowl, another flask base with a shallow depression in its center and a thickened rounded bottle base.

Flask bases with both low or high conical shapes are first seen in the Roman period (e.g. from a burial cave at 'En Ya'el near Jerusalem [Winter 2014:17, Fig. 2:9]; at 'En Gedi [Jackson-Tal 2005:78, Fig. 3:19]), and they continue to appear throughout the Byzantine and Islamic periods in Bet She'an also (Katsnelson 2014b:37, Fig. 7:5). They are found in a variety of sizes and their shapes vary, including both rounded and straight walls. Sometimes bases of this type are found in lamp bowls, where a wick holder was installed at the top of the conical base's interior (Gat 2013). Islamic-period examples of this

are known from Ramla (Ha-Palmah Street: Gorin-Rosen 2009a: Fig. 13:11; Ma'asiyahu Prison: Sion 2004:86, Fig. 18:13) and in an early eighth century CE context at the north theater complex in Jerash (Clark, Boshwer and Stewart 1986:386, Fig. 9:58).

CONCLUSIONS

The glass finds discussed here are a partial representation of a vessel assemblage that would have comprised many hundreds of items. They are typical of the various sites in the Palestinian region and elsewhere. The typological repertoire seen here largely overlaps with coeval assemblages from elsewhere in Ramla. The assemblage mostly represents tableware, storage, and lighting vessels. In keeping with results of the analysis of ceramic vessels (Chapter 2), these glass vessels date to the seventh through eleventh centuries CE, but concentrate in the eight-ninth centuries.

REFERENCES

Alliata, E. 1990. Ceramica Bizatina e Omayyade di Uyun Musa. *Liber Annuus* XL. Rome.

Alliata, E. 1991. Ceramica dal Complesso di S. Stefano a Umm Al Rasas. *Liber Annuus* XLI. Rome.

Alliata, E. 1992. Ceramica e Piccoli Oggetti Dallo Scavo Della Chiesa dei Leoni a Umm Al Rasas. *Liber Annuus* XLII. Rome.

Avigad, N. 1976. *Beth She'arim Report on the Excavations During 1953-1958. Vol III: Catacombs 12-23*. Jerusalem.

Avner, R. 2011. Deir Gazali: A Byzantine Monastery Northeast of Jerusalem. *'Atikot* 30: 25-49. (Hebrew)

Bagatti, B. 1948. *Il Santuario della Visitazione ad Ain Karim (Montana Judaeae)*. Jerusalem.

Bagatti, B. 1969. *Excavations in Nazareth* (Vol. 1). Jerusalem.

Bagatti, B. 1990. Le Antichit'a di Rafat e Dintorni. *Liber Annuus* XL: 263-286.

Barag, D. and Prausnitz, M.W. 1967. *Excavations at Shavei Zion: the Early Christian Church. Centro per le Antichità e la Storia Dell'Arte del Vicino Oriente*. Jerusalem.

Barag, D. 1971. *Glass Vessels of the Roman and Byzantine Periods in Palestine* (Ph.D. dissertation, Hebrew University of Jerusalem). Jerusalem. (Hebrew)

Barag, D. 1983. Glass Vessels. In: Tzaferis, V. (ed.) The Excavations of Kursi–Gergesa. *'Atiqot* 16: 37-38, 62-63. Jerusalem.

Barag, D. 1985. Finds from a Tomb of the Byzantine Period at Ma'in. *Liber Annuus* 35: 365-374.

Barash, I. 2013. Glass Vessels from the Structures from the Late Byzantine Period on the Eastern Edge of Tell Shiqmona. *'Atiqot* 72: 131-134. (Hebrew)

Baur, P.V.C. 1938. Glassware. Christian Bowl or Chalice. In: Kraeling, C.H. (ed) *Gerasa: City of the Decapoli*s. New Haven. Pp. 508-510.

Ben Khader, B.A., Fixot, M., Bonifay, M. and Roucole, S. 2004. *Sidi Jdidi I La Basilique Sad*. Rome.

Brosh, N. 2012. Glass Objects from the Cardo and the Nea Church. In: Gutfeld, O. (ed) *Jewish Quarter Excavations in the Old City of Jerusalem Conducted by Nahman Avigad, 1969-1982. V: The Cardo (Area X) and the Nea Church (Areas D and T); Final Report*. Jerusalem. Pp. 400-425.

Clark, V.A., Bowsher, J.M.C. and Stewart, J.D. 1986. The Jerash North Theater Architecture and Archaeology 1982-1983. In: Zayadine, F. (ed) *Jerash Archaeological Project 1981-1983, I*. Amman. Pp. 205-368.

Crowfoot, G.M. and Harden, D.B. 1931. Early Byzantine and Later Glass Lamps. *Journal of Egyptian Archaeology* XVII: 196-208.

Davidson, G.R. 1952. *Corinth XII. The Minor Objects*. Princeton.

Davidson, G.R. 1952. *Corinth Result of Excavations the Minor Objects* (Vol. XII). New Jersey.

Dussart, O. 1998. *Le verre en Jordanie et en Syrie du Sud*. Beirut.

El Tayeb, M. 2002. Archaeological Reconnaissance in Iqlim el Kharoub Preliminary report. *Baal* 6: 10-105.

Erdmann, E. 1977. Die Glass von Mezad Tamar (Kasr Gehainijie) in Israel. *Saalburg Jahrbuch* 34: 98-146.

Flemming Gorm, A. 1969-1985. *Shiloh the Danish Excavations at Tall Sailun, Paestine in 1926, 1929, 1932 and 1963. II The Remains from the Hellenistic to the Mamluk Periods.* Copenhagen.

Foy, D. 1996. Bey 002 Context 24: les Verres. *Baal* 1:90-97.

Foy, D. 2000. Un Atelier de Verrier a Beyrouth au Debut de la Concuete Islamique. *Syria* 77: 239-290.

Foy, D. 2003. Le Verre en Tunisie: L'Apport des Foulles Recente Tuniso-Francaises. *Journal of Glass Studies* 45: 85-103.

Gal, Z. and Abu Yunes, N. 1999. Dabburiya. *Hadashot Arkheologiot* 109: 44-45. (Hebrew)

Ganzert, J. 1984. *Das Kenotaph fur Gaius Caesar in Limyra.* Tubingen.

Gasparetto, A. 1979. Matrici e Aspetti Della Vetria Veneziana e Veneta Medievale. *Journal of Glass Studies* 21: 76-86.

Gat, O. 2013. *Multi-Nozzled and Polycandalon in Comparative Regional Perspective Between: Israel, Lebanon, Syria, Turkey (Byzantium), Jordan, Egypt, Tunis, Cyprus, Greece, France and Italy from the Hellenistic Period to Early Muslim Period* (Ph.D. dissertation, Haifa University). Haifa. (Hebrew)

Gatier, P.L. 2002. Mission de Yanounh de la Haute Vallee du Nahr Ibrahim Repport Preliminaire 2002. *Baal* 6: 211-258.

Gatier, P.L. 2004. Mission de Yanouh de la Haute Vallee du Nahr Ibrahim Reppport Preliminaire 2003-2004. *Baal* 8: 119-210.

Gatier, P.L. 2005. Mission de Yanouh et de la Haute Vallee du Nahr Ibrahim Repport Preliminaire 2003-2004 (Suite). *Baal* 9: 161-188.

Gorin-Rosen, Y. 1997. Excavation of the Courthouse Site at 'Akko: Medieval Glass Vessels (Area TA). *'Atiqot* 31: 75-85.

Gorin-Rosen, Y. 1999a. Glass from Ras Abu Ma'aruf. *'Atiqo*t 38: 205-214.

Gorin-Rosen, Y. 1999b. The Glass Vessels from Giv'at Yasaf (Tell er-Ras). *'Atiqot* 37: 137-140. (Hebrew)

Gorin-Rosen, Y. 1999c. The Glass Vessels. In: Yavor, Z. (ed.) Haifa, Kh. Tinani. *Hadashot Arkheologiyot* 109: 22*.

Gorin-Rosen, Y. 2000. The Glass Vessels. In: D. Syon, D. (ed.) A Roman Burial Cave on Mt. Gilboa. *'Atiqot* 38: 63*-68*. (Hebrew)

Gorin-Rosen, Y. 2001a. The Glass Vessels from Khirbet Tabbaliya (Giv'at Hamatos). *'Atiqot* 30: 81-95. (Hebrew)

Gorin-Rosen, Y. 2001b. Glass Vessels. In: Avner, R.. Deir Gazali: A Byzantine Monastery Northeast of Jerusalem. *'Atikot* 30: 47-49. (Hebrew)

Gorin-Rosen, Y. 2002. A Group of Glass Vessels from Nir Galim. *'Atiqot* 43: 119-126.

Gorin-Rosen, Y. 2003. Glass Vessels from Area A. In: Geva, H. (ed.) *The Jewish Quarter Excavations in the Old City of Jerusalem II: The Finds from Areas A, W and X-2, Final Report.* Jerusalem. Pp. 364-386.

Gorin-Rosen, Y. 2004. Glass Vessels from a Salvage Excavation at Sarafand el-Kharab, Nes Ziyyona. *'Atiqot* 46:59-64. (Hebrew)

Gorin-Rosen, Y. 2006. The Glass Finds from Horbat Hermas. '*Atiqot* 51: 33-35.

Gorin-Rosen, Y. 2008. Glass Vessels from the Ramla Excavations. *Qadmoniot* 135: 45-50. (Hebrew)

Gorin-Rosen, Y. 2009a. Glass Vessels. In: Kletter, R. (ed.) Ramla, Ha-Palmah Street. *Hadashot Archeologiyot* 121. (Hebrew)

Gorin-Rosen, Y. 2009b. Glass Finds. In: Porat, L. (ed.) Ramat Yishay. *Hadashot Archeologiyot* 119. (Hebrew)

Gorin-Rosen, Y. 2010a. The Islamic Glass Vessels. In: Gutfeld, O. (ed.) *Ramla: Final Report on the Excavations North of the White Mosque* (Qedem 51). Jerusalem. Pp. 213-264.

Gorin-Rosen, Y. 2010b. The Glass Finds. In: Haddad, E. (ed.) Ramla Railway. *Hadashot Archeologiyot* 122. (Hebrew)

Gorin-Rosen, Y. 2010c. The Glass Vessels. In: Hanna, B. (ed.) Bet She'an. *Hadashot Archeologiyot* 122. (Hebrew)

Gorin-Rosen, Y. 2011. Glass Vessels. In: Haddad, E. (ed.) Ramla Ha-Nevi'im Nursery School. *Hadashot Archeologiyot* 123. (Hebrew)

Gorin-Rosen Y. 2013a. Glass Finds from the Abbasid and Mamluk Periods at Ramla. *'Atiqot* 75: 71-76. (Hebrew)

Gorin-Rosen, Y. 2013b. Glass Finds from the Early Islamic and Mamluk Periods at Ramla. *'Atiqot* 75: 45-50. (Hebrew)

Gorin-Rosen, Y. and Katsnelson, N. 2005. Glass Finds from the Salvage Excavation at Ramla. *'Atiqot* 49: 101-114.

Gorin-Rosen, Y. and Katsnelson, N. 2007. Local Glass Production in the Late Roman—Early Byzantine Periods in Light of the Glass Finds from Khirbet El Ni'ana. *'Atiqot* 57: 73-154.

Gorzalczany, A. 2002. A Baptismal Font at Nir Galim. *'Atiqot* 43.

Greenhut, Z. 1998. Ḥorvat Ḥermeshit (1988-1990). *'Atiqot* 34:121-172. (Hebrew)

Hadad, S. 1998. *Glass Vessels from the Umayyad through Mamluk Periods at Bet She'an (7th-14th Centuries CE)* (Ph.D. dissertation, Hebrew University of Jerusalem). Jerusalem. (Hebrew)

Hadad, S. 2005. *Islamic Glass Vessels from the Hebrew University Excavations at Bet She'an* (Qedem 8). Jerusalem.

Harden, D.B. 1962. Glass. In: Colt, H.D. (ed.) *Excavation in Nessana I*. London. Pp. 76-91.

Herr, L.G. 1983. *The Amman Airport Excavation, 1976* (Annual of the American Schools of Oriental Research 48). Ann Arbor.

Hirschfeld, Y. 1999. *The Byzantine Monastery at Khirbet Ed-Deir in the Judean Desert: The Excavations in 1981-1987* (Qedem 38). Jerusalem.

Hizmi, H. 1997. Two Burial Caves in Rafidiye (Shechem). *'Atiqot* 32. (Hebrew)

Hurst, H.R. and Roskams, S.P. 1984. *Excavation at Carthage The British Mission. Vol. I, 1. The Avenue Du President Habib Bourgoiba, Salammbo: The Site and Other Finds than Pottery*. Sheffield.

Ising, C. 1957. *Roman Glass from Dated Finds*. Groningen.

Jackson, R.A. 2005. The Glass Objects from Ein Gedi. *'Atiqot* 49: 73-82.

Jackson-Tal, R. 2012. The Early Islamic Glass Finds from Khirbat el-Thahiriya. *'Atiqot* 71: 57-72.

Jennings, S. 1997. The Roman and Early Byzantine Glass from the Souks Excavations: An Interim Statement. *Berytus* XLIII: 136-143.

Johnson, B.L. 2000. Small Finds. Chapter VI. In: Dothan, M. (ed.) *Hamath Tiberias. Vol. II: Late Synagogues*. Jerusalem.

Katsnelson, N. 1999. Glass Vessels from the Painted Tomb at Migdal Ashkelon. *'Atiqot* 37: 67-82.

Katsnelson, N. 2007. The Glass Vessels. In: Zelinger, Y. (ed.) The White Mosque. *Hadashot Archeologiyot* 119. (Hebrew)

Katsnelson, N. 2009. Glass Finds. In: Torgë, H. Ramla, Herzl Street. *Hadashot Archeologiyot* 121. (Hebrew)

Katsnelson, N. 2011. The Glass Vessels. In: Toueg, R. Ramla. *Hadashot Archeologiyot* 123. (Hebrew)

Katsnelson, N. 2014a. Glass Finds from the al-Wata Quarter, Safed (Zefat). *'Atiqot* 78: 153-157.

Katsnelson, N. 2014b. The Glass Finds from Bet She'an (Youth Hostel). *'Atiqot* 77: 23-57.

Katsnelson, N. 2014c. Glass Finds and Assorted Beads from Three Tombs at Kursi-Gergesa. *'Atiqot* 9: 199-208.

Katsnelson, N. 2012. The Glass Finds from a Roman-Period Farmstead at El-Qabu, South of Ashqelon. *'Atiqot* 71: 29-34.

Katsnelson, N. and Jakcson-Tal, R. 2004. The Glass Vessels from Ashqelon, Semadar Hotel. *'Atiqot* 48: 99-109.

Kletter, R. 2009. Ramla, Hapalmach Street. *Hadashot Archeologiyot* 121. (Hebrew)

Kenesson, S. 2009. Jugs. In: Bass, G.F., Brill, R.H., Lledó, B. and Matthews, S.D. (eds.) *Serçe*

Limani II: The Glass of an Eleventh-Century Shipwreck. College Station. Austin. Pp. 303-308.

Kogan-Zehavi, E. 1998. The Tomb and Memorial of a Chain-Wearing Anchorite at Kh. Tabaliya, near Jerusalem. *'Atiqot* 35: 135-149.

Kogan-Zehavi, E. 2001. Remnants of a Town and Graves at Khirbet Tabbaliya (Givat Ha-Matos). *'Atiqot* 30: 53-67. (Hebrew)

Kroger, J. 1995. *Nishapur—Glass of the Early Islamic Period*. New York.

Lamm, C.J. 1935. *Glass from Iran*. London.

Lester, A. 1977. Islamic Glass Finds. Chapter 11. In: Y. Hirschfeld, Y. (ed.) *The Roman Baths of Hammat Gader, Final Report*. Jerusalem.

Lester, A. 1996. The Glass from Yoqne'am: The Early Islamic, Crusader, and Mamluk Periods. In: Ben-Tor, A., Avissar, M. and Portugali, Y. (eds.). *Yoqne'am I: The Late Periods.* (Qedem 3). Pp. 202-217.

Lester, A. 2003. Glass Bottles and Vials from Tiberias. *Annales du 15' Congrès de l'Association Internationale pour l'Histoire du Verre, New York-Corning 2001*. Nottingham. P. 18.

Makhouly, N. 1939. *Rock Cut Tombs at El Jish* (Quarterly of the Department of Antiquities of Palestine 8). Jerusalem.

Marcus, G. 2015. Ḥorvat Ḥermeshit. *Hadashot Archeologiyot* 127. (Hebrew)

Meyer, C. 1988. Glass from the North Theater Byzantine Church and Sounding at Jerash, Jordan, 1982-1983. In: Rest, W.E. (ed.) *Preliminary Reports of ASOR Sponsored Excavations 1982-85*. Baltimore.

Meyers, E.M., Strange, J.F. and Meyers, C.L. 1981. *Excavations at Ancient Meiron, Upper Galilee, Israel, 1971-72, 1974-75, 1977*. Cambridge.

Napoleone-Lemair, J. and Balty, J. 1969. *Fouilles Dapamee de Syrie, I, 1. Leglise a atriume de la Grand Colonnade*. Brussels.

Newby, M.S. 1991. The Glass from Farfa Abbey an Interim Report. *Journal of Glass Studies* 33: 32-37.

Parker, T.S. 1985. Preliminary Report on the 1985 Season of the Limes Arabicus Project. *Bulletin of the American Schools of Oriental Research. Supplementary Studies* 25: 131-174.

Parker, T.S. (ed.) 1987. *The Roman Frontier in Central Jordan. Interim Report on the Limes Arabicus Project, 1980-1985 (Part ii)* (British Archaeological Reports, International Series 340). Oxford.

Patrich, J. 1988. The Glass Vessels. In: Tsafrir, Y. (ed.) *Excavations at Rehovot in the Negev, Vol. I. The Northern Church* (Qedem 25). Jerusalem. Pp. 134-141.

Patrich, Y. 2008. *Archaeological Excavations at Caesarea Maritima: Areas CC, KK and NN.* Jerusalem.

Peleg, M. 1994. Bet She'an: A Paved Street and Adjacent Remains. *'Atiqot* 25: 139-155.

Peleg, M. and Reich, R. 1992. Excavations of a Segment of the Byzantine City Wall of Caesarea Maritima. *'Atiqot* 21: 137-160.

Piccirillo, M. 1987. Nota Sulla Ceramica dello Scavo (Eugnio Alliata). *Liber Annuus* XXXVII. Rome.

Piccirillo, M. and Alliata, E. 1994. *Umm al-Rasas Mayfa'ah I: Gli scavi del complesso di Santo Stefano.* Jerusalem.

Pinder-Wilson, R. 1991. The Islamic Lands and China. In: Tait, H. (ed.) *Five Thousand Years of Glass.* London. Pp. 112-143.

Pinder-Wilson, R.H. and Scanlon, G.T. 1973. Glass Finds from Fustat: 1964-71. *Journal of Glass Studies* XV.

Pollak, R. 2003. Early Islamic Glass from Caesarea: A Chronological and Typological Study. *Annales du 15e Congrès de l'Association Internationale pour l'Histoire du Verre, New York-Corning 2001*. Nottingham. Pp. 165-170.

Pollak, R. 2005. Tirat Ha-Carmel—The Glass Vessels. *Contract Archaeology Report* I: 5-28.

Pollak, R. 2007. Excavation in Marcus Street, Ramla: The Glass Vessels. *Contract Archaeology Reports* II: 100-133.

Pollak, R. 2008. Excavation at Bat Galim: The Glass Vessels. *Contract Archaeology Reports* III: 54-61.

Porat, L. 2009. Ramat Yishay. *Hadashot Archeologiyot* 119. (Hebrew)

Riis, P.J. 1957. Les verreries. In: Riis, P.J. and Poulsen, V. (ed.) *Hama, fouilles et recherches de la Foundation Carlsberg 1931-1938 IV, 2: Les verreries et poteries médiévales.* Copenhagen. Pp. 30-116.

Rochman Halperin, A. 1999. Excavations at Givat Yasef (Tell er-Ras) 1984-1985. *'Atiqot* 37. (Hebrew)

Scanlon, G.T. and Pinder-Wilson, R. 2001. *Fustat Glass of the Early Islamic Period: Finds Excavated by the American Research Center in Egypt 1964-1980.* London.

Seligman, J. 1999. Agricultural Complexes at Ras Abu Na'aruf (Pisgat Ze'ev East A), North of Jerusalem. *'Atiqot* 38.

Seligman, J. and Abu Raya, R. 2000. Dwelling Caves on the Mount of Olives (Et – Tur). *'Atiqot* 40: 123-138.

Sion, O. 2000. Burial Cave at the Gilboa. *'Atiqot* 38: 55-72.

Sion, O. 2004. Remains of a Town from the Early Islamic Period in Ramla. *'Atiqot* 46: 64-92. (Hebrew)

Sion, O. 2007. The Excavations at Khirbat el-Ni'ana. *'Atiqot* 57:29. (Hebrew)

Smith, R.H. and Day, L.P. 1989. *Pella of the Decapolis 2: Final Report on the College of Wooster Excavations in Area IX, The Civic Complex, 1979-1985.* Wooster.

Sodini, J.P. and Kolokotsas, K. 1984. *Aliki, II: La Basilique Double.* Paris.

Solimani, G., Winter, T. and de Vincenz, A. 2006. *A Burial Cave from the Byzantine and Early Islamic Periods in Ḥorbat Gores, the Gonen Quarter, Jerusalem*. Jerusalem. (Hebrew)

Sternini, M. 2001. Reperti in Vetro da un Deposito Tardoantico Sul Colle Paltino. *Journal of Glass Studies* 43: 21-54.

Stevens, S.T. 1993. *Bir el Knissia at Carthage: a Rediscovered Cemetery Church*. Ann Arbor.

Sylveser, J. and Saller, O.F.M. 1941. *Memorial of Moses on Mount Nebo. Part II. The Plats.* Jerusalem.

Tatton-Brown, V.A. 1984. The Glass. In: Hurst, H.R. and Roskams, S.P. (eds.) *Excavations at Carthage. The British Mission. Vol. I.* I. Sheffield. Pp. 195-212.

Thilo, A. 1986. *Resafa II Die Basilika des Heiligen Kreuzes in Resafa Sergiupolis*. Mainz-am-Rhein.

Tushingham, A.D. 1972. *The Excavations at Dibon (Dhiban) in Moab, The Third Campaign 1952-53*. Cambridge.

Tzaferis, V. 1983. The Excavations of Kursi—Gergesa. *'Atiqot* 16: 63.

Tzuri, N. 1967. *The Ancient Synagogue at Bet-Shean* (Erez Yisrael 8). Jerusalem. (Hebrew)

Tzuri, N. 1973. *Leonitas House at Bet-Shean* (Erez Yisrael 11). Jerusalem. (Hebrew)

Vitto, F. 1998. Mahoza D-Yamnin: A Mosaic Floor from the Time of Eudocia? *'Atiqot* 35.

Von den Driesch, A. 1999. *Die Deutschen Ausgrabungen in Karthago.* Mainz-am-Rhein.

Weinberg, G.D. and Goldstein, S.M. 1988. The Glass Vessels. In: Weinberg, G.D. (ed.) *Excavations at Jalame: Site of a Glass Factory in Late Roman Palestine*. Columbia. Pp. 38-102.

Whitcomb, D.S. 1983. Islamic Glass from Al Qadim, Egypt. *Journal of Glass Studies* 25: 101-107.

Wilson, J. and Sa'd, M. 1984. The Domestic Material Culture of Nabataean to Umayyad Period Busrā. *Berytus* 32: 35-147.

Winter, T. 1998. The Glass Vessels from Ḥorvat Hermeshit (1988-1990). *'Atiqot* 34: 175-179. (Hebrew)

Winter, T. 2011. The Glass Finds. In: Bar-Nathan, N. and Atrash, W. (eds.) *Bet She'an II: Baysān: The Theater Pottery Workshop* (Israel Antiquities Authority Reports 48). Jerusalem. Pp. 345-62.

Winter, T. 2014. The Glass Vessels, Beads and Metal Artifacts from the Burial Cave at 'En Ya'el, Jerusalem. *'Atiqot* 76: 15-22. (Hebrew)

Yekuel, E. 2011. Ramla. *Hadashot Archeaologiot* 123. (Hebrew)

CHAPTER 4
ARCHITECTURAL ELEMENTS

Conn Herriott
with a contribution by Nitzan Amitai-Preiss

Among the variety of architectural elements recovered at the site, none were found *in situ* (except those in Structure 8028, discussed below). Therefore they probably predate the features around them. Very close parallels for this assemblage have been found in the Khirbet es-Suyyagh Byzantine monastery in the Shephelah (Taxel 2009). Most are made from limestone, as well as marble and basalt.

Mouldings (Fig. 4.1:1-8)
Several architectural furnishing elements were found that appear to have adorned rooms and structures as revetments, cornices, sills (Fig. 4.1:4), chancel screens or window grilles (Fig. 4.1:6), chancel posts, tables, etc. These were finely made. Some (Fig. 4.1:4) are simple with rounded edges (see Chachy-Laureys 2010:321, Pl. 14.11:2, 8, 9), while a variety of other forms are also evinced. Others—from Structure 8028—are chiselled with crenellated patterns (Fig. 4.1:2), another (Fig. 4.1:3) with frond-like wavy lines similar to those on possible vessel 90012 (see Taxel 2009:165-171; Chachy-Laureys 2010:323, Pl. 14.13). One marble fragment was chiselled with curvilinear grooves and a circular hole, and may have been some form of altar or façade decoration. A similar piece was found in a nearby site, but made from a 'hard green stone' (Chachy-Laureys 2010:308, 319, Pl. 14.9:4). Close parallels for such mouldings have also been found elsewhere in Ramla and the surrounding region (e.g. Tal and Taxel 2008:196, Fig. 6.132; Taxel 2009:165-171), often dating to the Byzantine period.

Varia (Fig. 4.1:9)
Several small and unidentifiable marble fragments were recovered. Figure 4.1:9 (and reg. no. 90059 [not drawn]) may be floor tiles or other parts of room fittings which were coarsely reworked into rough disc shapes, perhaps to serve as rubbing stones or lids (Chachy-Laureys 2010:307, 317, Pl. 14.7:5).

Floor tiles (Fig. 4.1:10)
Several tiles and slabs made from marble and limestone were recovered from fills, never *in situ*—as was the case with almost all floors in this heavily robbed-out and damaged part of the early city. Figure 4.1:10 (and reg. no. 90059 [not drawn, see Table 4.1]) may be a floor or wall tile. The paved floor of the unique Structure 8028 was an exception, but this could not be investigated because of the prompt collapse of an exploratory tractor trench in this subterranean feature (see Chapter 1, this volume, p. 14). Another piece (reg. no. 40244 [not illustrated; see Table 4.1]) is an example of a rough limestone slab or tile (33.5 x 30 x 5cm).

Basin (Fig. 4.1:11)
This dark gray marble fragment appears to have been a basin of some sort, integrated into a floor or room fitting.

Column base (Fig. 4.1:12)
A column base was found *ex situ* in a fill. It appears to be of a simple style that bears resemblance to the later Tuscan order, and has been found elsewhere in Ramla (Yehuda 2016:104, Fig. 6.10). Tal and Taxel (2008:185, 186, Fig. 6.122:2) report a cruder example of similar type from south Ramla, which they assign to the Ionic order. Other Early Islamic column bases tend to be more highly decorated or finely made (e.g. Chachy-Laureys 2010:322, Pl. 14.12:3). Possibly

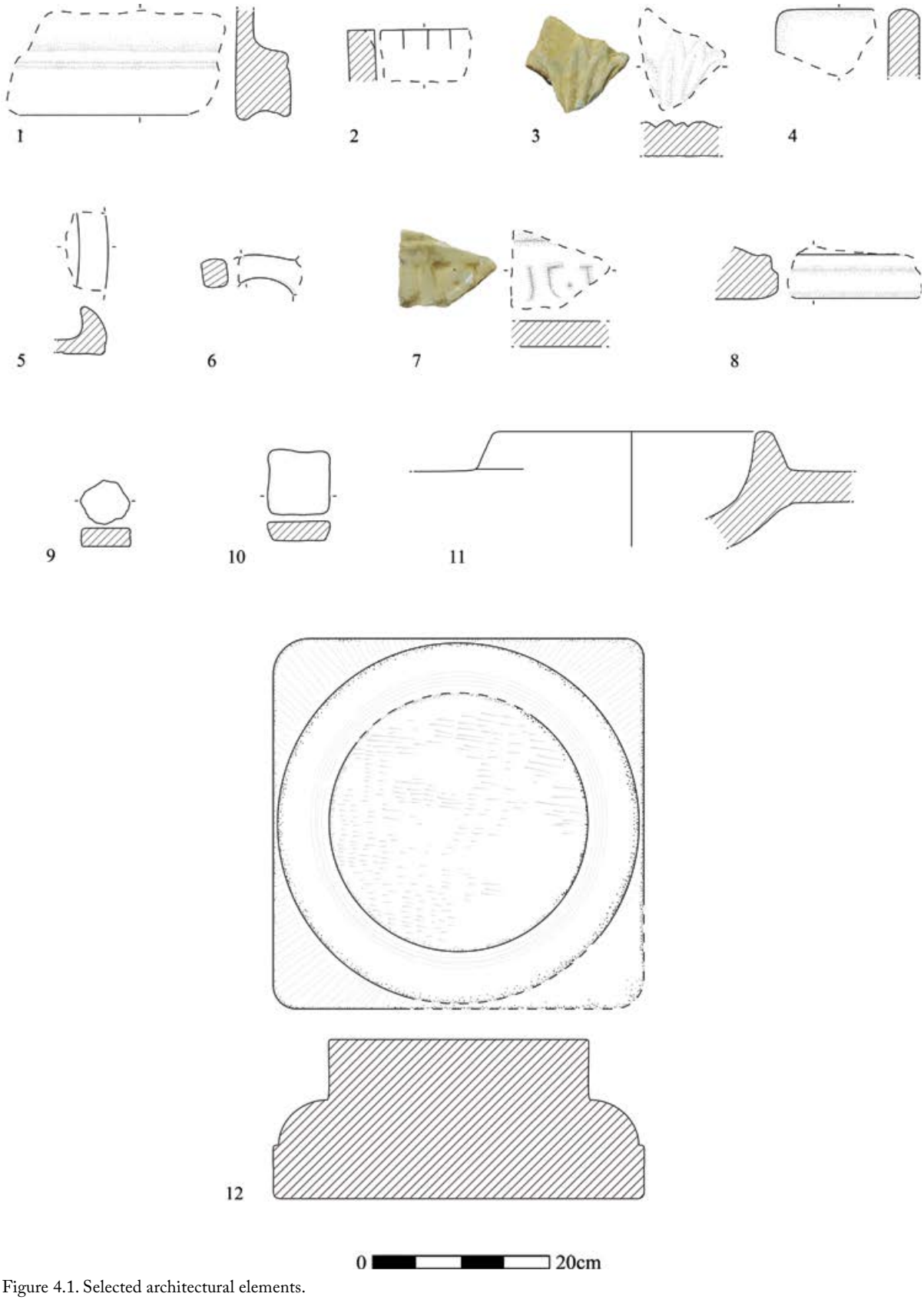


Figure 4.1. Selected architectural elements.

Figure 4.1. Selected architectural elements.

No.	Object	Locus	Reg. no.	Description
1	Moulding	8086	80246	Marble
2	Moulding	8013	80052	Marble (= fragments from L8028)
3	Moulding	9706	90707	Marble
4	Moulding	5031	50109	Marble; Sill? Step?
5	Moulding	4078	40221	Marble
6	Moulding	6508	60526	Marble; architectural decoration element, for chancel screen or window grille (Tal and Taxel 2008:185)
7	Moulding	5012	50027/1	Marble
8	Moulding	5031	50109	Marble
9	?	4525	40619	Marble
10	Floor tile?	5037	50126	Marble
11	?	5031	50121	Marble? Granite?
12	Column base	8093	80266	Marble

Figure 4.2. Stucco/plaster.

No.	Locus	Reg. no.	Description
1	9706	90707	Single ridge/step
2	10133	100137	Red color
3	9530	90541	Herring-bone incised pattern

this was a re-used piece originally dating the the Byzantine era.

Stucco/plaster (Fig. 4.2)

A substantial number of walls and floors retained stucco or plaster. Samples were taken. Most plaster was plain and in some cases was obviously hydraulic (e.g. in cisterns). Fragments of red-painted plaster were also recovered in a few loci (Fig. 4.2:2). Examples of stucco that was imprinted while wet were also found (Fig. 4.2:1, 3). Some thickened and stepped fragments similar to Figure 4.2:1 have also been found from coeval southern Ramla and may be from stucco window frames (Jackson-Tal 2008:181, 184). This imprinting has been said to provide an anchor for the next plaster layer to be secured against the wall. However, it is also possible that these imprints also played a decorative role.

Table 4.1. Architectural elements.

Object	**Locus**	**Reg. no.**	**Comments**	**Find context**
Floor tile?	4079	40244	Limestone? Sandstone?	Sediment cut by structure
Column base/capital	8093	80266	Marble	Sediment between wall and pits
?	5031	50121	Marble? Granite?	Cistern
Floor tile?	5037	50126	Marble	Pit; Umayyad/Abbasid?
?	6508	60526	Marble; architectural decoration element	Sediment near dig starting depth
?	5031	50109	Marble; Sill? Step?	Cistern
?	5031	50109	Marble	Cistern
?	9706	90707	Marble	Fill under Floor 9704
?	9029	90059	Marble	Sediment on Floor 9033
?	8086	80246	Marble	Fill of built feature 8105
?	4078	40221	Marble	Sediment cut by Pit 4133
?	5012	50027/1	Marble	Pit
?	9010	90012	Marble (?) capital/basin	Sediment between floors
Mosaic	4529	40630	Limestone? Sandstone?	Pipe leading to cistern; Abbasid?
?	8013	80052	Marble (=fragments from L8028)	Fill of hexagonal fountain 8014; 10th-11th century
?	8028	80143	Marble; 2 fagments (=other fragments from L8028 and L8013)	Fill of large stone-lined feature
?	8028	80099	Marble	Fill of large stone-lined feature
?	8028	80161	Marble	Fill of large stone-lined feature
?	4525	40619	Marble	Cistern

Mosaic Floors

Nitzan Amitai-Preiss

A 2 x 1.6m fragment of a white mosaic floor was found in Area B (L7001), comprising white and colored sections, which of the latter only a small part survived that included white and orange pieces. The *tesserae* of the white section were coarser than those of the colored part. The two sections were divided by a line of orange *tesserae*. Five rows away from this can be discerned one or two partial arches of orange *tesserae*, filled in white *tesserae*. The northeast arch was better preserved. There is no resemblance between those two fragmentary arches to any published parts of mosaic floors from Ramla's other excavations (Avner 2007). North of the orange dividing line there were two roundish arrangements of white *tesserae*.

Only two squares were dug in Area B, which was located at the southern end of the main excavation area (Areas A to H) which appears to have been a possibly higher status residential area dating to the Umayyad, Abbasid or Fatimid period. The mosaic lies about 10m southeast from the nearest excavation square of that probable residential area, and therefore may well have been laid in a residential context. Several walls and floors were also uncovered in Area B. These had the same masonry and orientation as the Areas A-H features, and were at the same elevation.

In summary, the mosaic's immediate context is not well understood but only several meters away are what appear to be associated residential features. The mosaic may therefore be reasonably considered to have been laid in a domestic rather than industrial or public setting.

Evidence for other mosaic floors was also found. A fragment was recovered *in situ* on an Umayyad-Abbasid surface in Area I (L9704; see Chapter 1, Fig. 1.19), together with its plaster bedding. However, the majority of mosaic evidence concentrated in Area J, but only as isolated *tesserae* in separate loci. A single *tessera* (1.7 x 2cm) was found *ex situ* in the fill of a stone-lined feature (L10113, B100116). A second *tessera* (2.6 x 1.9cm) was recovered in a sediment (L10118, B100140) under a plastered surface (10132). Two more *tesserae* (2.5 x 2cm, 2.3-3 x 2.2cm) were also found out of context in sediment (L10077, B100079) between plastered surfaces. It is unlikely that these pieces originated in any of the associated surfaces, as no other *tesserae* were found in the surrounding contexts. In the same area a single *tessera* (1.6 x 1.5cm) was in fact found on a plastered surface (L10082, B100081), but here again the fact that only one piece was recovered suggests that this was not a mosaic surface, and that the *tessera* originated elsewhere. In a nondescript sediment (L10003, B100020) was found a stone of white squarish shape (4 x 3.8-4.4 cm). This was an *opus sectile* floor or wall tile. There is mortar around all four of the tile's sides. It comes from an area that appears non-specialised and of no particular status.

Finally, glass-like greenish tesserae were found in the 8014 octagonal fountain (Chapter 1, p. 14; Appendix 3, p. 236). Presumably the fountain was lined with mosaic decoration. However, these *tesserae* were misplaced during excavation.

REFERENCES

Avner, R. 2007. Mosaic Floors from the Excavations South of the White Mosque. *Qadmoniyot* 135: 21-25. (Hebrew)

Chachy-Laureys, R. 2010. The Stone Artifacts. In: Gutfeld, O. (ed.) *Ramla: Excavations North of the White Mosque* (Qedem 51). Jerusalem. Pp. 303-324.

Jackson-Tal, R.E. 2008. Glass Vessels. In: Tal, O. and Taxel, I. (eds.) *Ramla (South): An Early Islamic Industrial Site and Remains of Previous Periods* (Salvage Excavation Reports 5). Tel Aviv. Pp. 166-184.

Tal, O. and Taxel, I. 2008 (eds.). *Ramla (South): An Early Islamic Industrial Site and Remains of Previous Periods* (Salvage Excavation Reports 5). Tel Aviv.

Taxel, I. 2009. *Khirbet es-Suyyagh: a Byzantine Monastery in the Judaean Shephelah* (Salvage Excavation Reports 6). Tel Aviv.

Yehuda, E. 2016. Stone Artifacts. In: Yehuda, E. and Y. Paz, Y. (eds.) *An Early Islamic Industrial Site at Ramla (South)* (Salvage Excavation Reports 9). Tel Aviv.

CHAPTER 5
SOFTSTONE VESSELS

Conn Herriott[1]

INTRODUCTION

The softstone[2] vessels of Early Islamic Palestine have not been studied comprehensively. Indeed, little work has been done on these items from any region of the Islamic empire. Such finds are known from Amman, Fudayn, Jarash, Pella and Tabariyah, and further north at Qasr al-Hayral-Sharqi and Hamah (although this may not have been Hijaz steatite [Grabar et al. 1978:187-8]) and Aleppo (Gonella 2006:169). Walmsley (2007:68) comments that the stone vessels at Rusafah (Mackensen 1984:69, 70) were probably locally-sourced 'green slate' rather than steatite. Lane (1938) published steatite finds from al-Mina in Syria. Kohl (1974; Kohl *et al.* 1979) conducted an in-depth study of the assemblage from Tepe Yahya in Iran. Hallett (1990) gave an important general overview of the Middle Eastern soft-stone industry, and Le Maguer (2011) focused on incense-burners. The steatite from Aila (Aqaba) were researched thoroughly by Grubisha (2001)—a study which the present report closely follows. Magness (1994:200-204) noted the finding in Israel/Palestine and Jordan of steatite bowls, and ceramic imitations of these. Harrell and Brown (2000, 2008) documented a stone vessel production site in eastern Egypt. However, in general to date in Israeli and Palestinian archaeology steatite has only been briefly described in excavation reports, together with ancillary suggestive interpretations and parallels (e.g. Stacey 2004). Little attempt has been made to engage with typological variability, function, social value and the intra- and inter-regional implications of these Arabian imports.

However, several very good Early Islamic steatite assemblages have been recovered in Israel (a sharp increase from previous periods [see Hallett 1990]), and several forthcoming publications are expected to address this research lacuna. It is hoped that the present report will also make some contribution.

Due to the fragmentary nature of the remains and the lack of a general typology to work with, we will compare the current corpus with the largest published Early Islamic steatite assemblage to date: the 462 items from Early Islamic Aila (Aqaba) (Grubisha 2001).

THE ASSEMBLAGE

The steatite assemblage found at this Ramla site comprises some 28 vessels. We will discuss them by stone and vessel type, and by decoration.

Stone types

It appears that a single general stone type was found. This is grey in color, and green-grey when broken—which can happen quite easily!—and has a quartz-like composition densely packed with crystalline granules and occasional white chalky inclusions. The most likely provenance of this stone was the dominant source area in the west-central Arabian Peninsula, where also most likely the steatite objects were produced and

1 Thanks to J.P. Oleson, H. Nol, K. Cytryn-Silverman, J. Magness. S. Le Maguer and especially D. Grubisha, who generously allowed me to make use of her Master's thesis.

2 The term 'softstone' seems to be used interchangeably with 'soapstone', 'steatite', chlorite, 'gneiss-schist' (Saller 1941:75) and chlorite schist. In Arabic, among other names it is known as *rigām* (Scanlon 1968:5).

then exported (Zarins *et al.* 1980:27-28; Kisnawi *et al.* 1983:78-79; Al-Rashid 1986:77; Hallett 1990:7-10, 53-55; Magness 1994:204; Whitcomb 1994:27; see analyses and extended discussion in Grubisha 2001:35-44). However, another source was in modern Yemen (Whitcomb 1994:27), and there is limited evidence for mining and production in eastern Egypt (Harrell and Brown 2000:39-40; see also discussion in Grubisha 2001:16-17) and Iran (Hallett 1990:65). Only a closer examination might reveal the source of the steatite found at Ramla.[3] What is clear is that export of steatite increased after the integration of the Arabian Peninsula into a single Islamic polity.

Vessel types

Softstone was particularly favoured for items which needed to tolerate or retain heat, such as those used for lighting, deodorizing and cooking (Walmsley 2007:68-69). In the current assemblage almost all of the vessels are too fragmented to provide full profiles, but the majority appear to represent thin-walled, flat-bottomed circular vessels with simple rounded rims (e.g. Fig. 5.2:1). Two have slightly rounded bases (Fig. 5.1:5, reg. no. 40639/140571, 40639 [not illustrated]). Most are decorated by incision (but see discussion below). The majority are probably bowls and cooking pots, although some of these non-diagnostic sherds may be from incense-burners, the legs of which have not survived (Le Maguer 2011:175, 178).

There is no sign here of the vessels having been used to mix plaster, as it seems was the case with one vessel found at Aila (Grubisha 2001:21).[4]

Decorated steatite vessels tend to be circular in shape (Grubisha 2001:21), with 'broad, flat bases and straight, slightly incurved, or slightly flaring walls' (Magness 1994:201).

This vessel range fits with the limited repertoire found throughout the Early Islamic empire (Hallett 1990:51), which generally includes cooking vessels, lamps, incense-burners and bowls. The most common regional steatite vessel type is the cooking pot (Whitcomb 1994:27). Given the items' fragmentary state, it is not clear that this accords with our assemblage, but bowls or cooking pots clearly dominate.

Beyond this general bowl/cooking pot picture, described below are several vessel types and features which are positively identifiable.

Incense-burners

We recovered one fragment of a softstone incense-burner's[5] trefoil-shaped leg (Fig. 5.2:5). This form broadly fits with the most numerous and widely-circulated incense-burner type, dating to the 9-11th centuries. Le Maguer (2011) classified these as Type S5, which are polygonal, multi-lobed or circular four-legged vessels with a handle.

Similar softstone incense-burners with legs that are trefoil-shaped in section have been found elsewhere

Figure 5.1. Open vessels.

No.	Object	Reg. no.	Locus
1	Vessel	40268	4084
2	Incense-burner?	80075/1	8004
3	Bowl/cooking pot	40644	4535
4	Bowl/cooking pot	90703	9703
5	Vessel	40571	4511

3 Based on analyses she and others conducted, Grubisha (2001:43) suggested using a combination of inductively coupled plasma-mass spectrometry (ICP-MS) and x-ray diffraction, in order to identify the tell-tale trace elements and minerals which might indicate stone provenance. Zarins *et al.* (1980) used direct geological comparison between sources and finished products. For stone variation and composition details, see Grubisha (2001:34-35 and references therein) and Lucas (1962:419-428).

4 Neither could we find evidence for a supposed 'Arab folk remedy' for fright in women: a draught of water mixed with ground-up gneiss-schist stone (Saller 1941:75).

5 *Mijmarah*, *mibkharah* and *miqtarah* in Arabic (Le Maguer 2011:174).

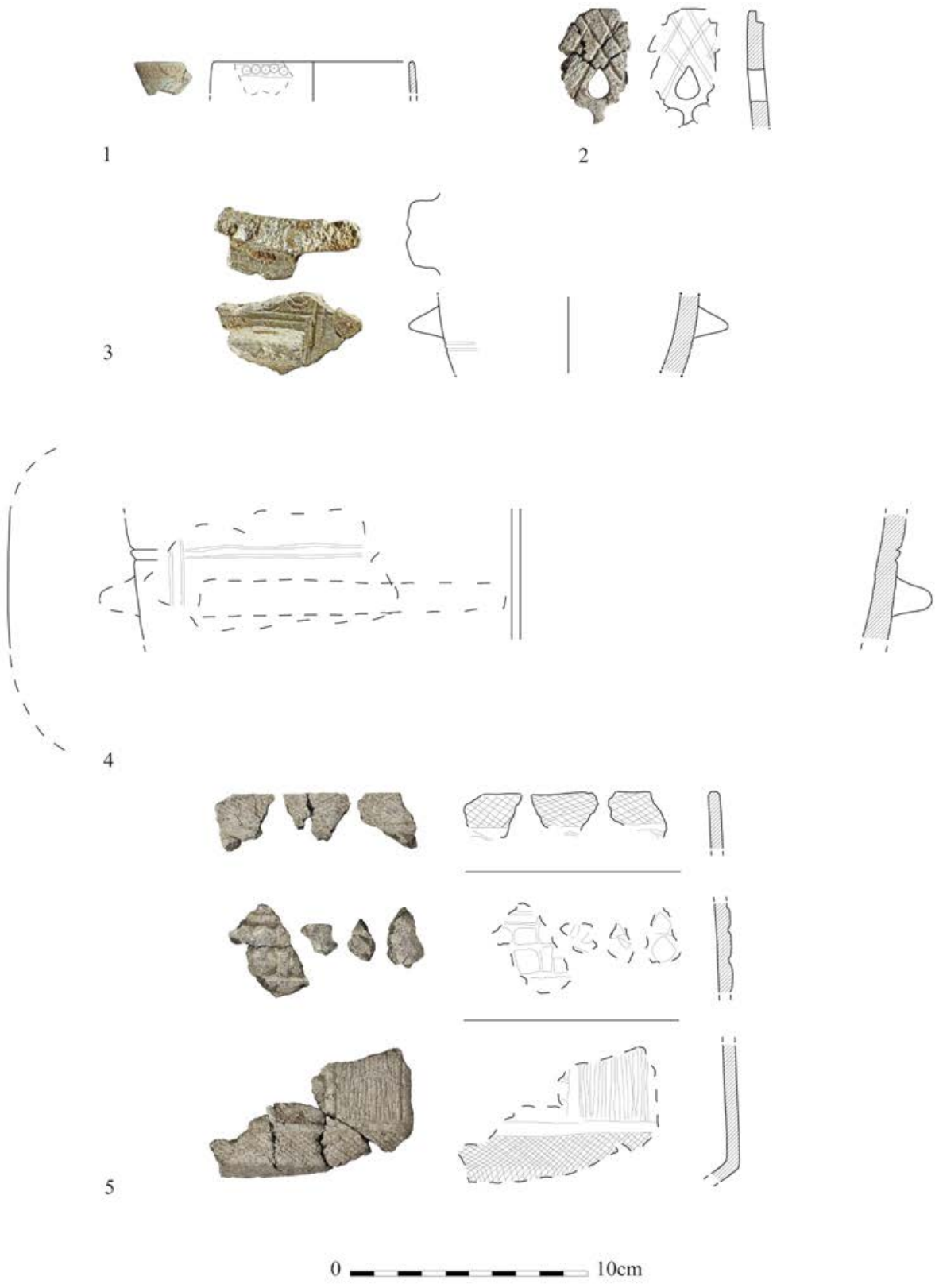


Figure 5.1. Open vessels.

in Ramla, although not properly identified. Chachy-Laureys (2010:306, Pl. 14.4:5) classified a fragment of such a vessel as a bowl leg, and Haddad (2013:*40-*41, Fig. 15:2) suggested that a similar fragment might have been a handle or base of some sort. Tal and Taxel (2008:190) correctly suggested a 'lamp/burner' possible attribution for a fragment they found, based on Byzantine boat-shaped parallels. Gorzalczany *et alia* (2010: Fig. 7) recovered a complete incense-burner of this type, but interpreted it as a 'coal pan'.

The more common Type S5 incense-burner variants—with legs that are quadrilateral, circular or 'floral' in section (Le Maguer 2011:183, Fig. 10)—have also been recovered in Ramla. One example is an intact vessel with quadrilateral legs (Elisha 2009: Fig. 3). Further afield in the region, vessels of this square-legged sub-type were recovered at Fustat (Cairo; Scanlon 1968: Fig. 2b) and Aila (Aqaba; Whitcomb 1991: Fig. 4: e), while Stacey (2004:94, Fig. 5.7:1) found a fragment of a quatrefoil leg at Tiberias.

The origin of the trefoil-legged S5 incense-burner sub-type is unclear. The more common variants were almost definitely exported from the Arabian Peninsula (Le Maguer 2011:181). However, some workers have proposed that the sub-type with the trefoil-shaped leg originated in northeast Iran[6] (Le Maguer 2011:181-2, Fig. 9:1; Simpson, forthcoming). If so, this would lend credence to the possibility of at least indirect trade links between that region and the Levant.

Notwithstanding this question about the immediate origins of any particular design, like the aromatic frankincense and other resins they held incense-burners originated in the Southern Arabian Peninsula. Le Maguer (2011:174) points out that they generally served a 'secular' function, being used in homes.[7] This is in somewhat permeable contrast to incense altars and censers, which were preferred for temples, mosques and churches. However, the latter could have also been used in domestic contexts, while mosques and ritual events such as weddings may equally have incorporated incense-burners (Le Maguer 2011:174). Their use and social meaning could therefore vary according to need.

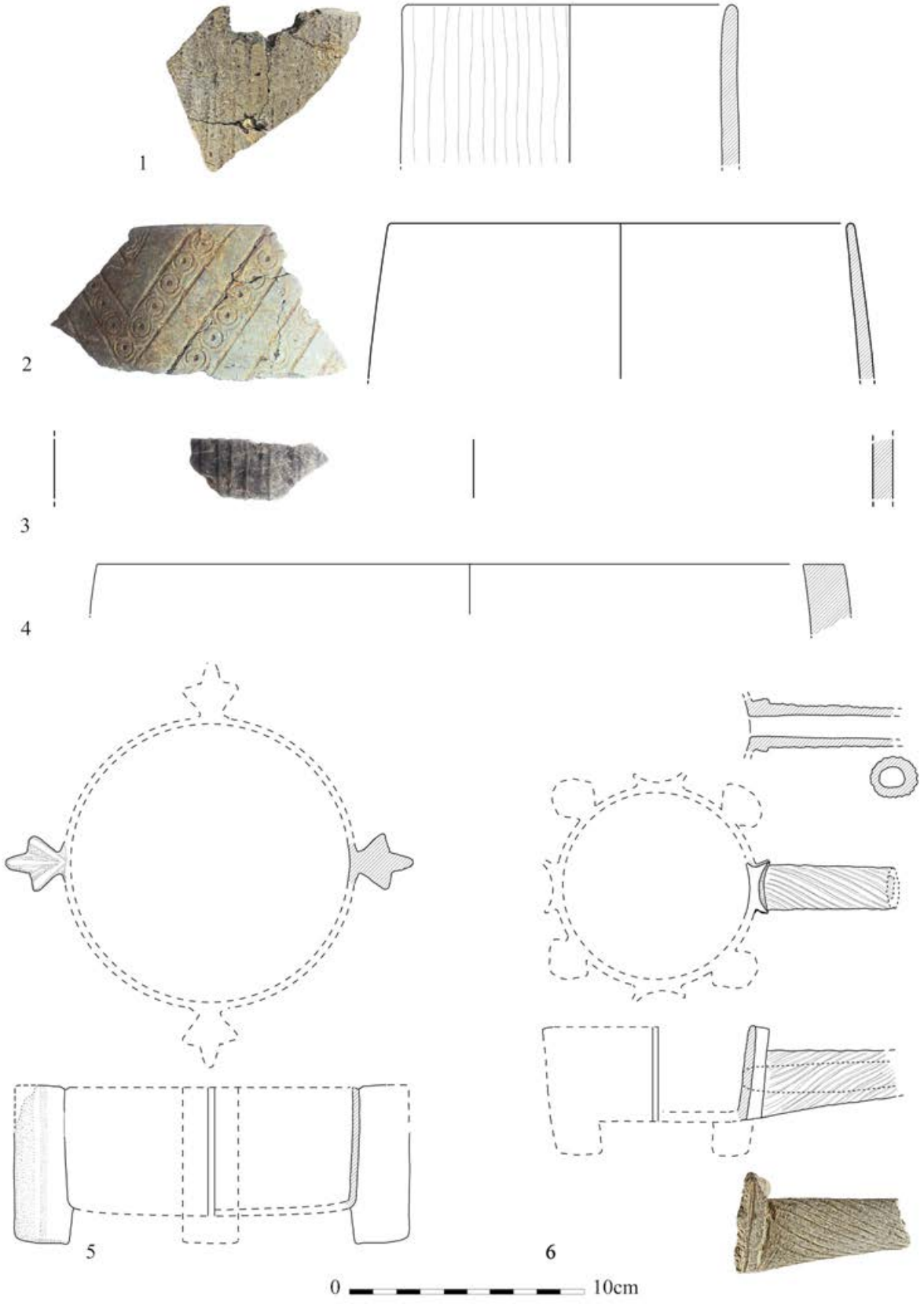
Le Maguer (2011:182) observes that while ceramic incense-burners were mostly produced from local clays, the stone vessels they imitated were traded widely. Early Islamic authors attest that a high value was attached to chlorite because its properties made it suitable to cooking and heating (Simpson, forthcoming), and it is known to be less easily damaged by heat than clay (Hallett 1990:7, 12). However, Le Maguer (*ibid.*) also suggests that these steatite objects may have been pilgrimage souvenirs from Mecca, 'and thus had a sentimental and religious value'. In either case, as she points out, their relative value—and the status of their owners—is evinced by the copying of steatite types in pottery and the common repairing of stone incense-burners.

Figure 5.2. Bowls and incense-burners.

No.	Object	Reg. no.	Locus	Comments
1	Bowl	40582	4522	
2	Bowl	80114	8043	
3	Bowl	80091	8035	Charring (exterior)
4	Bowl	60044	6008	Charring (exterior)
5	Incense-burner	40621	4531	
6	Incense-burner?	90037	9023	

6 http://www.metmuseum.org/collection/the-collection-online/search/454757

7 Le Maguer (2011:182) notes that—in keeping with ancient tradition—incense is still burnt to welcome guests in South Arabian homes.



5.2. Bowls and incense-burners.

Possible incense-burner

One vessel fragment (Fig. 5.1:2) has a step on its rim interior, possibly for holding a lid (Rice 1987:241; Grubisha 2001:68). This vessel appears to have had a slightly concave wall, and was rectangular. Decoration includes lozenge-shaped incised patterns on the outside, as well as a tear-drop perforation. The only comparable rim form is on an incense-burner from Athar in the southern Arabian Peninsula (Le Maguer 2011:167, Fig. 6:3); another unclear potential parallel is a re-used sherd from Aila [Grubisha 2001:191, Fig. 9]). However, the step in that vessel is on the other side of the rim (i.e. the exterior) and the Ramla fragment has no charring on it, as might be expected on an incense-burner. It may be part of a box, as have been found at Aila and Khirbet al'Askar, near Karak [unpublished; Grubisha 2011:20-21]). Nonetheless, this seems most likely to be a fragment of an incense-burner. The piercing of these vessels is not unknown (Le Maguer 2011:177, Fig. 4:2).

Possible incense-burner spout/handles

Two hollow cylindrical spouts/handles were recovered, decorated with incised spiralled lines. One 5cm-long fragment (Fig. 5.2:6) incorporates a small part of the vessel body (vertical incised lines on the exterior) and its flat rim. No specific function could be identified for this piece, its find context being generic and it bearing no organic residue. However, very close parallels have been recovered at Tiberias (Stacey 2004:94, Fig. 5.7:2), Aila (Aqaba; Grubisha 2001:107-8, Fig. 8) and Siraf, Iran (Hallett 1990:50, Pl. 17:8-11). Only one of these—from Aila—is still attached to the nearly-intact vessel, which is shaped like a shallow bowl with four perforated vertical appendages around the sides. Unlike the Ramla piece, this vessel has no incised decoration, but does bear 'comb markings' (Grubisha 2001:107). The Aila and Siraf spouts/handles are more complete than the Ramla piece, and appear to change direction near the end. Grubisha (2001:108-9) interpreted the Aila vessel as a possible incense-burner, on the basis of its appendages which may have been feet, and the slight charring on the interior rim. The Tiberias fragment is believed by its excavator to date to the late 8th/9th century, which fits with the Aila and Siraf chronologies also.

Large bowl

One rim sherd (Fig. 5.2:4) is thicker (1.5cm) than the average (0.6cm), bears exterior charring, possible vertical striations, and has a flat rim (as opposed to the common round rim). This appears to have been a large straight-walled circular cooking vessel. The present author could not find any exact parallels, but similar vessels—albeit with slightly more rounded rims—have been documented from elsewhere in Ramla (Torgë 2009: Fig. 7:10; Haddad 2013:*41, Fig. 15:1; Rauchberger and Bouchenino 2013:*58, Fig. 7:31; Toueg 2013: Fig. 33:1) and Caesarea (Arnon 2007:69, Fig. 14:12).

Handles

Crescent-shaped ledge handles

First Saller (1941: Fig. 34:3) at Mt Nebo and later Whitcomb (1994:28 [e, f]) and Grubisha (2001:184, Fig. 2) at Aila identified several handles of this type. These are quite common in steatite bowls and cooking pots found throughout the empire, including in Palestine (e.g. Toueg 2006: Fig. 1:15; Chachy-Laureys 2010:313, Pl. 14.3:3; 314, Pl. 14.4:1, 2; Torgë 2009: Fig. 7:10; Stacey 2004:94, Fig. 5.7:4; Erikson-Gini 2013: Fig. 12:11). Three such handles were recovered at the current Ramla site (Fig. 1:4; reg. nos. 40625, 80267 [not illustrated]).

Rectangular-shaped ledge handle

One example of this appendage type was found (Fig. 5.1:3), being smaller than the crescent-shaped handles and having sharp corners rather than extending from the side of the vessel at a gentle angle. This handle form is even more common than the crescent-shaped type in Early Islamic steatite bowls and cooking pots (e.g. Chachy-Laureys 2010:314, Pl. 14.4:3; Haddad 2013:*41, Fig. 15:1; Grubisha 2001:187 [Fig. 5]; Vroom 2009:258, Fig. 17). The piece from Ramla is unusual in coming from a decorated vessel (by incisions), as most handled vessels are undecorated and charred (Grubisha 2001:70)—i.e. they were unadorned functional objects, with handles helping to carry them when they were hot

(as mentioned, steatite was preferred to ceramics due to its thermal insulation qualities [Whitcomb 1988:25; 1994:27; Hallett 1990:12; Harrell and Brown 2000:39-40]).

Lids

These fragments are too small and worn to offer any firm identification, but appear to be from vessel lids. One (Fig. 5.3:1) is steeper, has oblique incised decoration on the exterior, and three repair holes with attendant grooves for holding the string, cord, iron (Amman [Harding 1951:10]) or copper (Mt Nebo [Saller 1941:287, 300; Fig. 34:2]; eastern Arabia [Burkholder 1984:218; Fig. 67]). This may have been re-used for another purpose, as it is broken in such a way as to form a fairly even rectangle. Grubisha (2001:50, 127-132, 191 [Fig. 9]) suggests possible recycling of such steatite pieces as pendants, polishers, spindle whorls, gaming pieces and other unknown uses.

The other lid fragment is thicker, shallower and may also bear oblique incisions (Fig. 5.3:4), and could also have been re-used. Such pieces have been found at several sites in the region (e.g. Hallett 1990:48-49; Oleson 2014:512, Fig. 13.22:32).

Spindle whorl

A single object of this type was recovered (Fig. 5.3:3). It has close parallels from Aila (Grubisha 2001:183, 190, Figs. 1, 8]), Bethany (Saller 1957:340) and

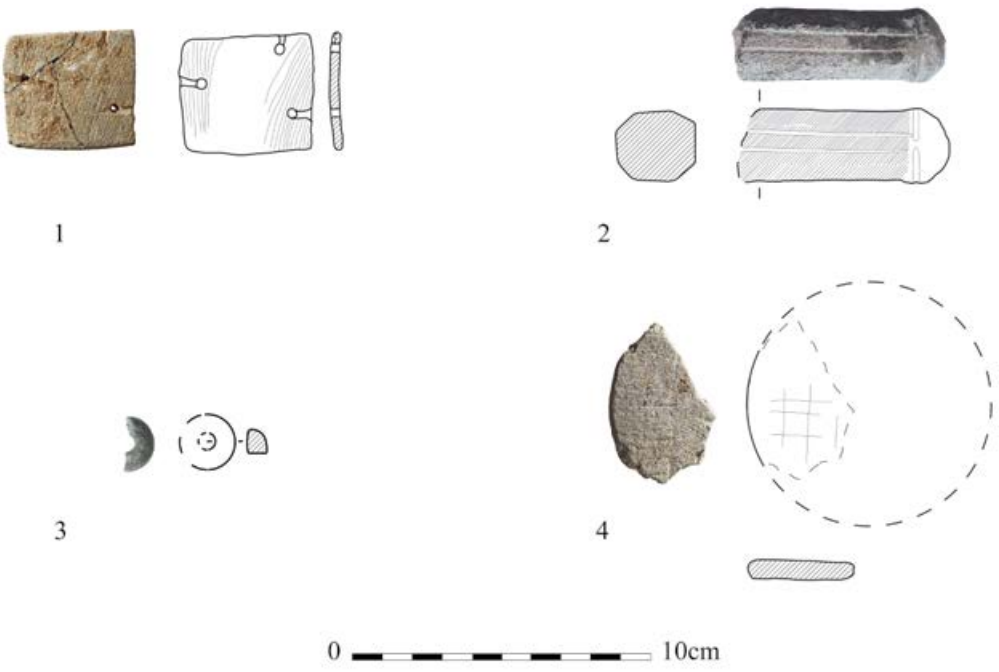


Figure 5.3. Various objects.

No.	Object	Reg. no.	Locus
1	Lid	40152	4055
2	Gaming piece?	100057	10058
3	Spindle whorl	90543	9514
4	Lid	80075/2	8004

el-Lejjun, Jordan (Grubisha 2001:110). One side is flat, which may have had functional importance.

Unidentified Object (Fig. 5.3:2)

This finger-shaped piece is octagonal in section, with two parallel longitudinal incised lines on one facet and diagonal striations on all sides. One end is broken, but the other is roughly rounded and over three facets is separated from the rest of the piece by a cross-cutting incision.

Grubisha (2001:111) suggested that a similar piece from Aila may have been a marker or gaming piece.

Other Characteristics of the Assemblage

Decoration

Almost all the pieces are decorated. Several types of incised decoration are evinced. These fit with the categories established by Hallett (1990:45-48) and expanded by Grubisha (2001:100-107). One decoration type involves parallel vertical incisions or relief ridges (Fig. 5.2:3; reg. no. 40630 [not illustrated]). A second sees diagonal cross-hatching (Fig. 5.1:2). A third is the 'dot-in-circle' motif (Figs. 5.1:1, 5.2:2; reg. nos. 40198, 40156, 90578 [not illustrated]). One piece incorporates wider incisions which form bas-relief geometric patterns (Fig. 5.1:5). Another two (Fig. 5.1:2) have tear-drop apertures. Many of the items incorporate several decorative motifs, intermingled or divided into horizontal or vertical panels, or one motif comprising a border for the dominant decoration. Some of this repertoire differs from the Abbasid-period 'incised cross-hatching, zigzag lines, and interlocked triangles and squares' which Hallett (1990:32) thought might have been inspired by pre-Islamic ceramic and limestone incense-burners and other ceramic vessels of the Arabian Peninsula.

These decorative motifs are found on steatite items throughout the Early Islamic lands.

Charring

Five vessels (Fig. 5.2:3, 4; reg. nos. 80088, 40596 [not illustrated]) had soot on their exterior. The general consensus (e.g. Hallett 1990:7, 12; Whitcomb 1994:27) is that most steatite objects tended to have a strong utilitarian advantage, being not easily damaged by heat while at the same time retaining a high temperature better than pottery. It is common for steatite vessels to have soot-blackened exteriors, as was the case for the majority of the some 462 vessels from Aila (Aqaba) studied by Grubisha (2001). Magness (1994:201) noted charring particularly on larger vessels. These have also been found at Bethany (Saller 1957:340, Fig. 65). Three soapstone ledge-handled vessels with charring on base and exterior sides were found near an Early Umayyad oven at Amman citadel (Harding 1951:9, 10; Pl. I.7, II.17-19). Charred vessels were also found at Mt Nebo[8] (Saller 1941:287, 300-302), an assemblage with traits shared by several others from Early Islamic Palestine (Saller 1941:125, 300; Grubisha 2001:24).

FINAL REMARKS

This steatite assemblage represents a fairly standard repertoire of cooking and serving vessels, as well as incense-burners and a somewhat uncommon spindle whorl. There is still much work to be done in providing a finer-grained typology of vessels and decoration, which might help us with dating, as well as identifying trade routes and other socio-economic issues. Beyond this, we have much to learn about the significance of steatite in the various regions and social strata of the Early Islamic empire. The fact that they were imitated by certain pottery types says something about the perceived value of steatite objects (see Kohn-Tavor, this volume, p. 30). As the parallels and references in this study demonstrate, Early Islamic-period stone vessels have been found at many sites

8 At first glance it perhaps seems non-complimentary for the cooking skills of the Mt Nebo site occupants that these vessels were also charred on their interiors. However, more likely this indicates their use for incense-burning or as lamps.

in Ramla and elsewhere in *Jund Filastin*.[9] Steatite was imported in fewer quantities during pre-Islamic periods (e.g. Brandl 2014; Covello-Paran and Porat 2011; Ganor *et al.* 2009; Gershuny and Aviam 2010; Givon 2004; Keel 2012; Tepper 2013). Based on the stratigraphic location of steatite assemblages at sites around the empire, Hallett (1990:64-65) gives dates ranging from the 8-11th centuries. After this, political turmoil seems to have disrupted trade.[10]

Hallett (1990:77, 83) believed that it was professional traders who exported steatite vessels along with other wares from the Arabian Peninsula, both by land and sea (according to the proximity of find sites to water routes). The demand for steatite may have been fuelled by its thermal properties (Hallett 1990:82), but also perhaps its social value. Steatite vessels often imitated more expensive metal objects (which survive more rarely, due to re-use), the status associated with which was sought after in what Walmsley (2007:69) describes as 'the emergence of an expanded educated and merchant group in early Islamic society.' It may be this class which occupied the current site area in central Ramla.

To address a final point raised by Grubisha (2001:18), the findspots of the steatite vessels at the current site do not suggest specialised functions or other associations. The distribution across the site appears to be random, concentrated within the best-preserved early strata of the site center. However, the wide-ranging find contexts—e.g. tabun, surface, surface bedding, floor, pit, dump, occupation layer—do not invite any further interpretations beyond the impression that access to steatite was not restricted among the residents in this well-to-do quarter of early Ramla.

REFERENCES

Al-Rashid, S.A. 1986. *Al-Rabadhah: A Portrait of early Islamic civilization in Saudi Arabia*. Essex.

Arbel, Y. 2012. Yafo, Yehuda Ha-Yamit Street. *Hadashot Arkheologiyot* 124: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=2150&mag_id=119

Arnon, Y.D. 2007. Excavation in Marcus Street, Ramla: Pottery, Oil Lamps and Carved Stone Vessels. *Contract Archaeology Reports* 2: 38-99.

Burkholder, G. 1984. *An Arabian Collection: Artifacts from the Eastern Province.* Boulder City.

Brandl, B. 2014. Three Canaanite Design Scarabs, One Egyptian Obsidian Scarab and One Syrian Cylinder Seal from a Burial Cave near Ras 'Ali, in Nahal Zippori. *'Atiqot* 78: 1-11.

Chachy-Laureys, R. 2010. The Stone Artifacts. In: Gutfeld, O. (ed.) *Ramla. Final Report on the Excavations North of the White Mosque* (Qedem 51). Jerusalem. Pp. 303-310.

Covello-Paran, K. and Porat, L. 2011. Jalame. *Hadashot Arkheologiyot* 123: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=1708&mag_id=118

Elisha, Y. 2009. Ramla. *Hadashot Arkheologiyot* 121: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=1023&mag_id=115

Elisha, Y. 2013. Khirbat Birkat Umm el-'Idham. *Hadashot Arkheologiyot* 125: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=5444&mag_id=120

Erickson-Gini, T. 2013. Shivta. *Hadashot Arkheologiyot* 125: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=5420&mag_id=120

9 E.g. Elisha 2009; Gorzalczany 2009; Chachy-Laureys 2010; Gorzalczany *et al.* 2010; Gorzalczany and 'Ad 2010; Kletter 2009; Torgë 2009; Toueg 2006, 2013, 2015). Relevant sites further afield in the region include Azor [Volynsky 2011], Bersheva [Fabian and Gil'ad 2010], Horbat 'Anim [Shmueli and Amit 2014], Horbat Kasif [Shmueli 2012], Jaffa [Arbel 2012], Kefar Yona [Elisha 2013], Shivta [Erickson-Gini 2013] and Tiberias [Stacey 2004]).

10 While the steatite trade appears to have slowed down considerably in the 12th century, these objects have also been found at sites in Palestine dating to the Mamluk period (e.g. a steatite/soapstone whetstone from Jerusalem [Storchan and Dolinka 2014]).

Fabian, P. and Gil'ad, Y. 2010. Be'er Sheva (Compound C). *Hadashot Arkheologiyot* 122: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=1386&mag_id=117

Ganor, A., Kehati, R. and Ganor, S. 2009. Khirbat Abu Khaff. *Hadashot Arkheologiyot* 121: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=1145&mag_id=115

Gershuny, L. and Aviam, M. 2010. Middle Bronze Age Tombs at Fassuta. *'Atiqot* 62: 17-42.

Givon, S. 2004. Nahal Barkai 1998-2000. *Hadashot Arkheologiyot* 116: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=38&mag_id=108

Gorzalczany, A. 2009. Ramla (South). *Hadashot Arkheologiyot* 121: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=1254&mag_id=115

Gorzalczany, A. and 'Ad, U. 2010. Ramla (South). *Hadashot Arkheologiyot* 122: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=1418&mag_id=117

Gorzalczany, A., Yehuda, L. and Torgë, H. 2010. Ramla (South). *Hadashot Arkheologiyot* 122: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=1398&mag_id=117

Grubisha, D.H. 2001. An Analysis of the Steatite Artifacts from the Archaeological Site of Aila, Jordan (MSc thesis, University of Wisconsin-Milwaulkee). Milwaulkee.

Haddad, E. 2013. An Early Islamic-Period Roadbed(?) in Ramla. *'Atiqot* 75: *-31-*44. (Hebrew; summary in English)

Hallett, J. 1990. *The Early Islamic Soft-Stone Industry* (MA thesis, University of Oxford). Oxford.

Harding, G.L. 1951. Excavations on the Citadel, Amman. *Annual of the Department of Antiquities of Jordan* 1: 7-16.

Harrell, J. and Brown, V.M. 2000. Discovery of a Steatite Baram Industry of the Medieval Islamic Period in Egypt's Eastern Desert. Presentation at 51st Annual Meeting of the American Research Center in Egypt, Berkeley, CA; abstract in 'Program and Abstracts'. Pp. 39-40.

Harrell, J. and Brown, V.M. 2008. Discovery of a Medieval Islamic Industry for Steatite Cooking Vessels in Egypt's Eastern Desert. In: Rowan, Y.M. and Ebeling, J.R. (eds.) *New Approaches to Old Stones: Recent Studies on Ground Stone Artifacts*. London and Oakville. Pp. 41-65.

Keel, O. 2012. A Scarab from the Western Wall Excavations, Jerusalem. *'Atiqot* 72: 21*-23*.

Kisnawi, A., de Jesus, P.S. and Rihani, B. 1983. Preliminary Report on the Mining Survey, Northeast Hijaz. *Atlal: The Journal of the Archaeology of Saudi Arabia* 7: 76-83.

Kletter, R. 2009. Ramla, Ha-Palmah Street. *Hadashot Arkheologiyot* 121: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=1168&mag_id=115

Kohl, P. 1974. *Seeds of Upheaval: The Production of Chlorite at Tepe Yahya and an Analysis of Commodity Production and Trade in Southwestern Asia in the Third Millenium* (Ph.D. dissertation, Harvard University). Cambridge.

Kohl, P., Harbottle, G. and Sayre, E.V. 1979. Physical and Chemical Analysis of Soft Stone Vessels from South West Asia. *Archaeometry* 21: 131-159.

Lane, A. 1938. Medieval finds at Al Mina in North Syria. *Archaeologia* 87: 19-78.

Le Maguer, S. 2011. Typology of Incense-Burners of the Islamic Period. *Proceedings of the Seminar for Arabian Studies* 41: 173-186.

Lucas, A. 1962. *Ancient Egyptian Materials and Industries*. London.

Magness, J. 1994. The Dating of the Black Ceramic Bowl with a Depiction of the Torah Shrine from Nabratein. *Levant* 26: 199-206.

Oleson, J.P. 2014. Miscellaneous Stone Objects. In: Oleson, J.P. and R. Schick, R. (eds.) *Humayma Excavation Project, 2. Nabatean Campground and Necropolis, Byzantine Churches, and Early Islamic Domestic Structures* (American Schools of Oriental Research Archaeological Report 18). Boston. Pp. 510-518.

Rauchberger, L. and Bouchenino, A. 2013. A Fountain and Other Remains from the Middle Ages in Ramla. *'Atiqot* 75: *51-*70. (Hebrew; summary in English)

Rice, P. 1987. *Pottery Analysis: A Sourcebook*. Chicago.

Saller, S.J. 1941. *The Memorial of Moses on Mt. Nebo*. Jerusalem.

——— 1957. *Excavations at Bethany (1949-1953)*. Jerusalem.

Scanlon, G.T. 1968. Ancillary Dating Materials from Fustat. *Ars Orientalis* 7: 1-17.

Shmueli, O. 2012. Horbat Kasif. *Hadashot Arkheologiyot* 124: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=1942&mag_id=119

Shmueli, O. and Amit, D. 2014. Horbat 'Anim. *Hadashot Arkheologiyot* 126: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=10618&mag_id=121

Simpson, St J. Forthcoming. Observations on the Manufacture, Circulation and Function of Chlorite Vessels during the Sasanian and Islamic Periods. In: Philips, C.S. and Simpson, St J. (eds.) *Softstone: Approaches to the Study of Chlorite and Calcite Vessels in the Middle East and Central Asia from Prehistory to the Present*. Oxford.

Stacey, D. 2004. *Excavations at Tiberias, 1973-1974, The Early Islamic Periods* (Israel Antiquities Authority Reports 21). Jerusalem.

Storchan, D. and Dolinka, B.J. 2014. Jerusalem, Bayit Va-Gan. *Hadashot Arkheologiyot* 126: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=11622&mag_id=121

Tepper, Y. 2013. Tamra. *Hadashot Arkheologiyot* 125: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=5461&mag_id=120

Torgë, H. 2009. Ramla, Herzl Street. *Hadashot Arkheologiyot* 121: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=1095&mag_id=115

Toueg, R. 2006. Ramla, Marcus Street. *Hadashot Arkheologiyot* 118: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=338&mag_id=111

Toueg, R. 2013. Ramla. *Hadashot Arkheologiyot* 125: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=5439&mag_id=120

Toueg, R. 2015. Ramla, Fleming Street. *Hadashot Arkheologiyot* 127: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=15735&mag_id=122

Volynsky, F. 2011. Azor, Sokolov Street. *Hadashot Arkheologiyot* 123: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=1805&mag_id=118

Vroom, J. 2009. Medieval Ceramics and the Archaeology of Consumption in Eastern Anatolia. In: Vorderstrasse, T. and Roodenberg, J. (eds.) *Archaeology of the Countryside in Medieval Anatolia*. Leiden. Pp. 235-258.

Walmsley, A. 2007. *Early Islamic Syria. An Archaeological Assessment*. London.

Whitcomb, D.S. 1988. *'Aqaba: Port of Palestine on the China Sea*. Amman.

——— 1991. Excavations in the Site of Medieval 'Aqaba. In: Rāgib, Y. (ed.) *Documents d'Islam Médiéval. Nouvelles perspectives de recherche*. Cairo. Pp. 123-130.

——— 1994. *Ayla: Art and Industry in the Islamic Port of 'Aqaba*. Chicago.

Zarins, J., Whalen, N., Ibrahim, M., Mursi, A.J. and Khan, M. 1980. Comprehensive Archaeological Survey Program: Preliminary Report on the Central and Southwestern Provinces Survey: 1979. *Atlal: The Journal of Saudi Arabian Archaeology* 4: 9-36.

CHAPTER 6
STONE IMPLEMENTS AND OTHER OBJECTS

Conn Herriott

Several items in this broad category were found at this site, including four polishers, a pestle, two pounders, two grinding slabs, two vessels, a whetstone and five objects of unclear function. Similar finds have been recovered from elsewhere in Ramla (e.g. Tal and Taxel 2008:185-197). Many items may have been re-used as weights.

Polishers/weights (n=4; Fig. 6.1:1, 2)
All four items are made from non-vesicular basalt. Figure 6.1:5 has a roughly elongated cuboid shape, with most sides slightly indented. This suggests prolonged use in some abrasive activity against a convex or pointed surface. It was found in nondescript Abbasid fill. Figure 1:1 is a more evenly shaped cuboid, with smooth and straight sides. Its findspot was an interesting small pit, which yielded a variety of artifacts. Perhaps this piece was of personal value. Finally, a fragment of a smaller piece was also found (not registered), roughly cuboid in shape. Two architectural elements (tiles?) were found which may have been reused as rubbing stones (or lids; see Chapter 4, Fig. 4.1:10 and reg. no. 90059 [not illustrated, see Table 6.1]). Comparable items were found at a nearby site (Chachy-Laureys 2010:318, Pl. 14.8:1-4).

Pestle/weight (n=1; Fig. 6.1:5)
This basalt implement was also found in a finds-rich pit (Umayyad/Abbasid). It is slightly conical, with rounded top and flat bottom, and all sides very smooth and slightly straightened.

Pounders/weights (n=2; Fig. 6.1:3)
Both of these items are roughly round in plan, with flat top and bottom. One (Table 6.1: reg. no. 90580) appears to be made from a hard whitish limestone-like stone—with impact scars on its top and bottom faces—while the other (Fig. 6.1:3) is a vesicular basalt. Neither were found in contexts which are suggestive of their use. Such hammerstones are quite common in this period (e.g. Chachy-Laureys 2010:318, Pl. 14.8:4).

Grinding slabs (n=2; Fig. 6.1:12, 13)
Two fragments of rotary grinding slabs were recovered, both made from vesicular basalt. Neither were found in primary context. Similar grinding stones have commonly been found elsewhere in Ramla (e.g. Chachy-Laureys 2010:303, 304, 317, Pl. 14.7:1, 2; Storchan and Dolinka 2014: Fig. 10:1, 2).

Vessels (n=2; Fig. 6.1:10)
A deep vessel of vesicular basalt has a slightly rounded rim which protrudes slightly on the outside. Its function is unclear, although it appears too finely made to have served as a common mortar. It was found in a common fill, which may date to the 9th or 10th century according to ceramic finds. Similar vessels have been found elsewhere in Ramla (Chachy-Laureys 2010:311, Pl. 14.1:3; Yehuda 2016:98, Fig. 6.2:3).

A fragment of coarse marble (Fig. 6.1:12) is carved with stylized botanical elements, including a bud-like boss and frond-like features. These wavy lines, similar to those in Fig. 4.1:3 (Chapter 4, this volume), have been described as 'a stylized *fleur-de-lis*' in a comparable capital fragment found at a nearby site (Chachy-Laureys 2010:310, 323, Pl. 14.13). However, unlike the latter piece, B90012 is hollowed and with a smoothened interior surface, so this was a vessel of some sort—perhaps on a pillar or otherwise integrated into an architectural element—rather than a capital, or more likely a capital which was reused as a vessel. t may be worth noting that a basalt object fragment of similar form was recovered in southern

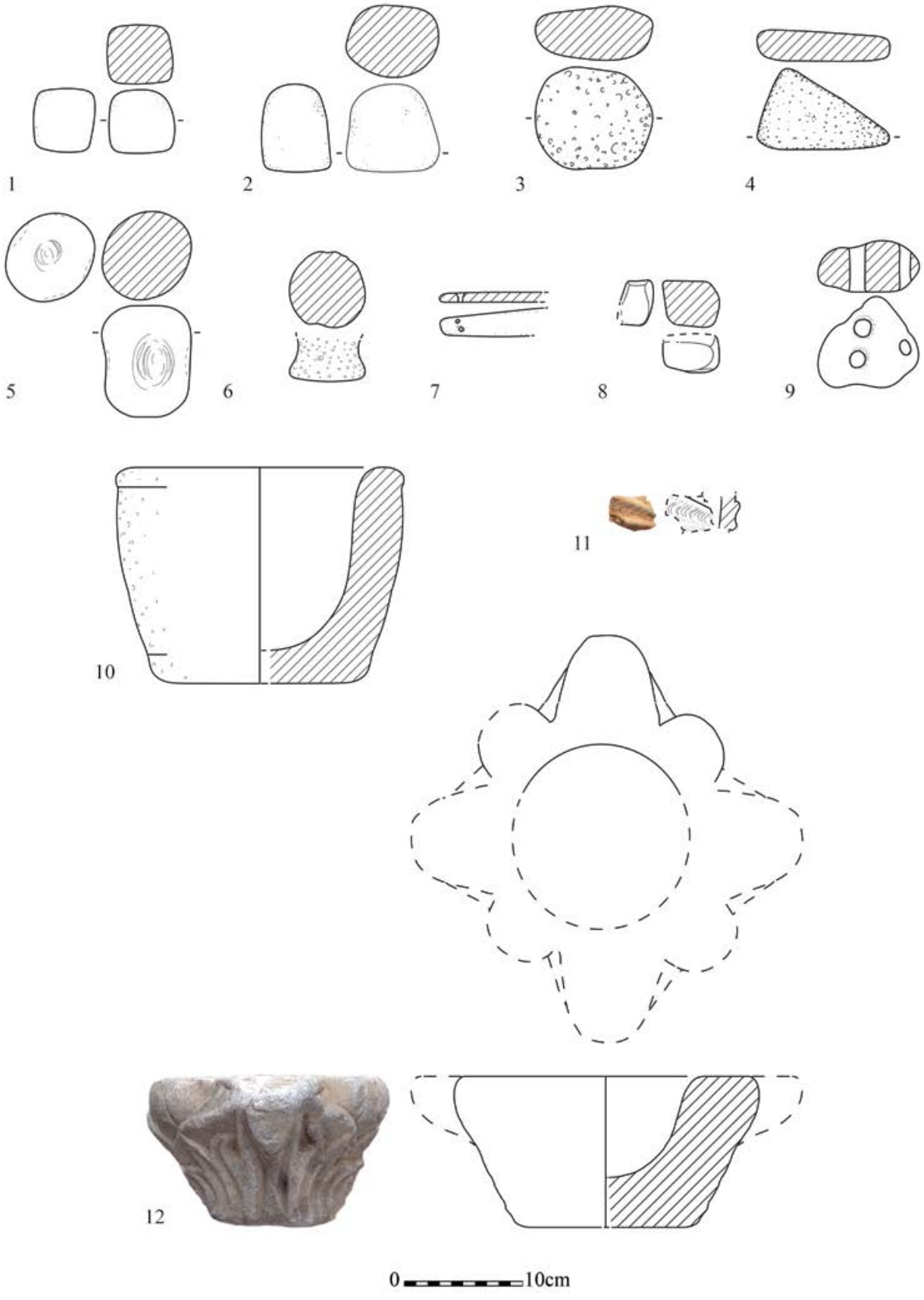


Figure 6.1. Selected tone tools and vessels.

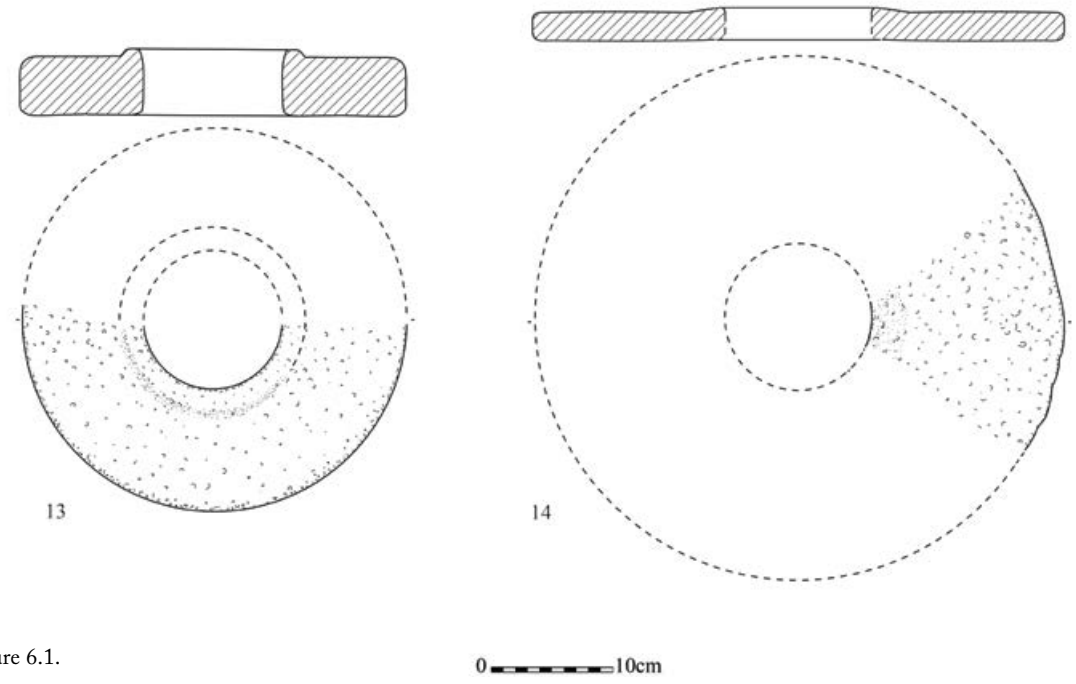


Figure 6.1.

No.	Object	Reg. no.	Locus	Comments
1	Polisher	40096	4025	Basalt
2	Polisher	40259	4092	Basalt
3	Pounder	40563	4507	Basalt
4	Rubbing stone?	80283	8102	Basalt
5	Pestle	90056	9026	Basalt
6	Millstone?	80015	8002	Basalt
7	Unlnown	-	Area E stray find	Basalt
8	Polisher?	100,101	10114	Dolomite?
9	Drilling practice stone?	90056	9026	Marble?
10	Bowl/mortar	60538	6514	Basalt
11	?	90039	9024	Marble
12	Vessel	90012	9010	Re-used column capital
13	Grinding slab	70003	surface	Basalt
14	Grinding slab	90744	9718	Basalt

Ramla, and was identified as a vessel (Yehuda 2016:97, 98, Table 6.2:2). Certainly, however, Fig. 6.1:12 seems to also reference architectural decoration. This bowl type has been widely noted Byzantine contexts—to which growing evidence from Ramla seems to indicate continuation in the Early Islamic period—and was commonly used for grinding spices and incense in both religious and non-religious contexts (Taxel 2009:170, Fig. 6.4:1). The smooth interior surface of the current example fits with a grinding function.

Whetstone (n=1; Fig. 6.1:7)

This elongated slate piece has worn surfaces and rounded edges, and bears two perforations at one end. It was found *ex situ*, but near an interesting stone-lined feature (L3005; see Chapter 1, this volume). It may have had a polishing or sharpening function. Similar artifacts have been found in coeval contexts nearby in Ramla, some with parallel striations. Given their shape, material, holes (presumably for suspension), and the lines that appear to be from knife use,

these items have generally been interpreted as whetstones (e.g. Tal and Taxel 2008:193 and references therein; Chachy-Laureys?:311, Pl. 14.2:4; Storchan and Dolinka 2014: Fig.10:3) or burnishers (Messika 2006:102). Alternatively they may have been for some other sort of polishing, or functions as weights (Kennet 2013:56), decorative items or amulets—although no research has been done into these possibilities. Also in Ramla, Kletter (2009: Fig. 12:1) found a similar piece made from soapstone.

Unidentified objects (n=5; Fig. 6.1:4, 6-9)

A knob-like fragment of vesicular basalt (Fig. 6.1:6) was found near the substantial and well-built Structure 8028 (see Chapter 1, this volume). This piece may have been the top of a Pompeiian or "hour-glass" millstone (see Tal and Taxel 2008:195, Fig. 6.129:2), or—less likely—the toe of a vessel, a stopper or a lid knob. A small cuboid piece of worked quartz- or dolomite-like stone (Fig. 6.1:8) was recovered in Area J. The friable nature of the stone goes against a rubbing or polishing function, but otherwise this piece is similar to the aforementioned polishers. A further piece (Fig. 6.1:9) was made from a marble-like stone. Its function is unclear, being amorphous and unworked in form, but bearing three regular and anthropogenic-seeming perforations. Perhaps it was used for drilling practice. Figure 6.1:11 is also made from marble, and appears to be a fragment of a vessel neck cylindrical object.

A long and relatively thin stone object (Fig. 6.1:4) was made from scoria. Maybe for this reason it functioned as a rubbing stone of some sort for soft materials (e.g. leather [Tal and Taxel 2008:195, Fig. 6.130:1).

Table 6.1. Stone tools and vessels from the current excavation.

Object	Locus	Basket	Square	Date	Comments	Context description
Grinding slab (?)	surface	70003	B1/2	2.6.11	Basalt; ring-shaped; fragment	Area surface at start of dig
Grinding slab (?)	9718	90744	I14	?	Basalt; fragment; ring-shaped?	Non-descript sediment in area
Handstone	4092	40259	C18	22.6.11	Pestle?	Pit; Umayyad/Abbasid? (based on some pottery: Fig. 41:8)
Bowl	6514	60538	F4	7.7.11	Mortar?	Non-descript sediment in area; 9th-10th century (pottery Fig. 7:2, 14:2, 42:8)
Grinding slab (?)	9003	90003	I4	14.9.11	Basalt; fragment; ring-shaped?	Non-descript sediment in area; modern contamination
Handstone	4507	40563	C12	12.6.11	Basalt; grinding stone?	Lower fill in structure
Handstone	surface	none	none	30.6.11	Basalt; polisher?	Area surface at start of dig
?	8102	80283	H21	17.7.11	Basalt; Polisher? Grinding slab?	Stone-lined cut feature, with pit within; rich in various finds; Abbasid/ Fatimid? (pottery: Fig. 10:17, 19 [11th]; 24:8 [11th]; 45:7 [8th-10th])
?	8002	80015	H3	6.6.11	Basalt	Non-descript sediment in area
Grinding stone (?)	9562	90580	I21	3.10.11	Limestone?	Plaster-lined basin. Possibly associated with cistern outside dig limit.
Polisher?	4025	40096	C8	25.5.11	Basalt	Small pit, rich in finds
?	none	none	E1/E2	?	Basalt; polisher? sharpener? amulet?	Area surface at beginning of dig
Polisher?	10114	100101	J9	13.2.12	Quartz-like stone?	General sediment near top of dig
Handstone	9026	90056	I2	6.10.11	Polisher? Grinding stone? Pestle?	Sediment filling against wall; Abbasid? (pottery: Fig. 1:3 [8th-9th]; 12:2 [9th-11th]; 12:10 [early 8th]; 41:4 [8th-9th])

REFERENCES

Chachy-Laureys, R. 2010. The Stone Artifacts. In: Gutfeld, O. (ed.) *Ramla: Excavations North of the White Mosque* (Qedem 51). Jerusalem. Pp. 303-324.

Kennet, D. 2013. The Soft Stone from Kadhima: Evidence for Trade Connections and Domestic Activities. In: Kennet, D. (ed.) *Kadhima: Kuwait in the Early Centuries of Islam*. Kuwait City/ Durham.

Kletter, R. 2009. Ramla, Ha-Palmah Street. Hadashot Arkheologiyot 121: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=1168

Messika, N. 2006. An Early Islamic Period Site at Kafr Jinnis Near Lod. *Salvage Excavation Reports* 3: 84-112.

Storchan, B. and Dolinka, B.J. 2014. Bayit Va-Gan. *Hadashot Arkheologiyot* 126: http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=11622

Tal, O. and Taxel, I. 2008. *Ramla (South): An Early Islamic Industrial Site and Remains of Previous Periods* (Salvage Excavation Reports 5). Tel Aviv.

Taxel, I. 2009. Late Byzantine/Early Islamic Stamped Jar Handles from Jerusalem and Tel Qatra. *Israel Exploration Journal* 59: 185-193.

CHAPTER 7
BONE OBJECTS

Nitzan Amitai-Preiss

Twenty bone objects were unearthed during the excavation. They can be divided into four categories of objects: spindle whorls/buttons, a handle, inlay pieces and possible inlay waste, and a doll.

Spindle Whorls / Buttons (Fig. 7.1:1-5)

Seven spindle whorls/buttons were unearthed in three loci: five in stone-lined feature L8102 (B80280 [n=2], B80289 [n=3]); one in L9507 (B90509) and one in L9510 (B90522). Their description here is organized according to locus and basket. According to ceramic and other finds, L8102 appears to be an installation of Umayyad/Abbasid date, while L9507 and 9510 most likely represent an Abbasid-Fatimid phase.

L8102, B80280

Fig. 7.1:1. A slightly concave whorl/button; 1.8 cm total diameter, 0.6 cm hole diameter. This piece bears three concentric circles, and is similar to one identified at Caesarea, dated to the Roman period (2nd-3rd century CE) (Ayalon 2005: Fig. 7, No. 62).

Fig. 7.1:2. A concave whorl/button; 1.7 cm total diameter, 0.4 cm hole diameter. On its surface there are four small circle-dot designs. Their positions were not well planned, as one circle is empty while another has two dots in it. Two somewhat similar whorls/buttons were found at Caesarea, where they were dated to the Roman-Byzantine and Byzantine periods (Ayalon 2005: Fig. 7, Nos. 64, 65).

L8102, B80289

Fig. 7.1:3. A round flattened whorl/button with two shallow engraved concentric circles around the hole. 2.9 cm total diameter; 0.5 cm hole diameter. This object is decorated with two alternating motifs: circle-dots and a design comprising six diagonal lines. Both motifs are very delicately engraved and all are colored red.

Fig. 7.1:4. A flat concave whorl/button; 3 cm total diameter, 0.4 cm hole diameter. Decoration comprises eight circle-dot designs, in an alternating pattern of two concentric circles around a dot, followed by one circle around a dot. For a parallel, see Ayalon (2005: Fig. 7, No. 64).

Non-illustrated: A concave whorl/button similar to Fig. 7.1:1, measuring 1.6 cm in diameter and with a 0.3 cm-diamter hole. The object was very delicately engraved with a pattern of three lines stretching to the right of the circles-dots, of which only four are seen today (originally there may have been more). The wearing away of some decoration may be a result of this button's use as part of a garment.

L9507, B90509

Fig. 7.1:5. This whorl/button (3 cm diameter, hole 0.5 cm) is quite shiny, and was probably affixed to a garment. It has a raised molding around the hole. Decoration comprises four double-circle-and-dot designs and between them triple-line V-shapes. There are traces of red color all over the button.

L9510, B90522

Non-illustrated: A concave whorl/button (2.4 cm diameter, hole 0.4 cm) decorated by five/six small and very shallow engraved single-circle-and-dot motifs. An unclear number of lines are barely visible between the circle-dot decorations.

Part of a Handle (Fig. 7.1:6)

Part of a handle of an unknown object was recovered in a general upper sediment (L9700; most likely Abbasid-Fatimid). It was made of concave-shaped

bone, and may have been part of a musical instrument or some other object. The handle bears eight horizontal grooves and measures 4.2 cm in length and 2.3 cm wide.

Inlay Pieces and Waste (Fig. 7.1:7)

Inlay pieces: These objects were found in the same locus (L8102, Umayyad-Abbasid) as several above-described whorls/buttons. Four teardrop-shaped inlay pieces (from B80280) could have been petals of a flower—or indeed two flowers, as three of the pieces are the same size (2.9 cm length) while one is larger (3.2 length).

Four triangular inlay pieces (also from B80280) were cut diagonally at one end. All are 1.2 cm wide and 2.5 cm long. One was cut diagonally in the opposite direction than the others.

In another basket (B80289) of the same locus were found three similar pieces, but longer. They were also 1.2 cm wide, and each is of different lengths (3-3.8 cm).

Three other inlay pieces of the same sort were found (B80280), also measuring 1.2 cm wide. These did not have a diagonal cut, but rather were fully rectangular in shape. Otherwise they are the same as the diagonal-cut pieces, measuring 1.2 cm wide also, and ranging in length from 4.1 to 4.9 cm.

Three broken inlay fragments were found (also 1.2 cm wide), which may have been from either rectangular inlay pieces or those with one diagonal side cut diagonally.

A small square-shaped inlay piece (B80280) was also found, measuring 1.1 cm on a side.

These items have no decoration or special cuts of any sort, and therefore may have been waste bone pieces. This would suggest that a bone industry existed at Ramla.[1] Similar elongated pieces have been found in Caesarea (Ayalon 2005:335, Ph. 3, No. 11). The possibility of a bone objects workshop in the site vicinity is supported by several animal bones which appears to have been discarded during preparation of raw material for such production (see Chapter 12, p. 197).

No lace-like luxury decorations of openwork (*ajouré*) were recovered in the current excavation. Such items have been found both at Caesarea (Ayalon 2005:335, Ph. 3, Nos. 1, 2 and 8) and Ashqelon (Wapnish 1991:55, upper photograph; Wapnish 2008:611, Fig. 34.24). In both of these urban excavations the inlay pieces dated to the Islamic period.

Doll (Fig. 7.1:8)

A simple, schematic and unarticulated doll (length 11.5 cm, maximum width 2.5 cm) with a squarish-shaped head was recovered from a nondescript sediment (L9702) which according to both stratigraphy and ceramic finds most likely dates to Abbasid-Fatimid times. Two dolls with similarly shaped heads to this were recovered at Caesarea (Ayalon 2005: Fig. 33, Nos. 326-327). The body of the current doll has a three-lined engraving from the neck to the end of the doll's dress. The extant bottom of the doll is narrower than the dress. One side of that narrower part is broken. The width of that lower part today is 1.4 cm. This narrow part could have represented lower legs, or to hold the doll or set it upright in sand or soft earth in order to show or play with it. A schematic doll with a similar lower section can be seen in one of the above-mentioned dolls from Caesarea (Ayalon 2005: Fig. 33, No. 327).

Unless this doll was made outside the region and local typological assignations do not hold, a 9-10th century date would seem to fit. However, it could have been made in Alexandria at the time that fertility figurines had already disappeared in Palestine (Ayalon 2005:80). A very similar doll to the current find was recovered elsewhere in Ramla, and was dated to the 8th century by its excavator (Toueg 2012).

Some scholars view such dolls as toys (Freidman 1989; Rutschowscaya and Bénazeth 2000:216 [both referenced in Ayalon 2005:80]).

[1] There are indications that dolls may have been made in Ramla, since some dolls unearthed there were unfinished (Ayalon 2005:80).

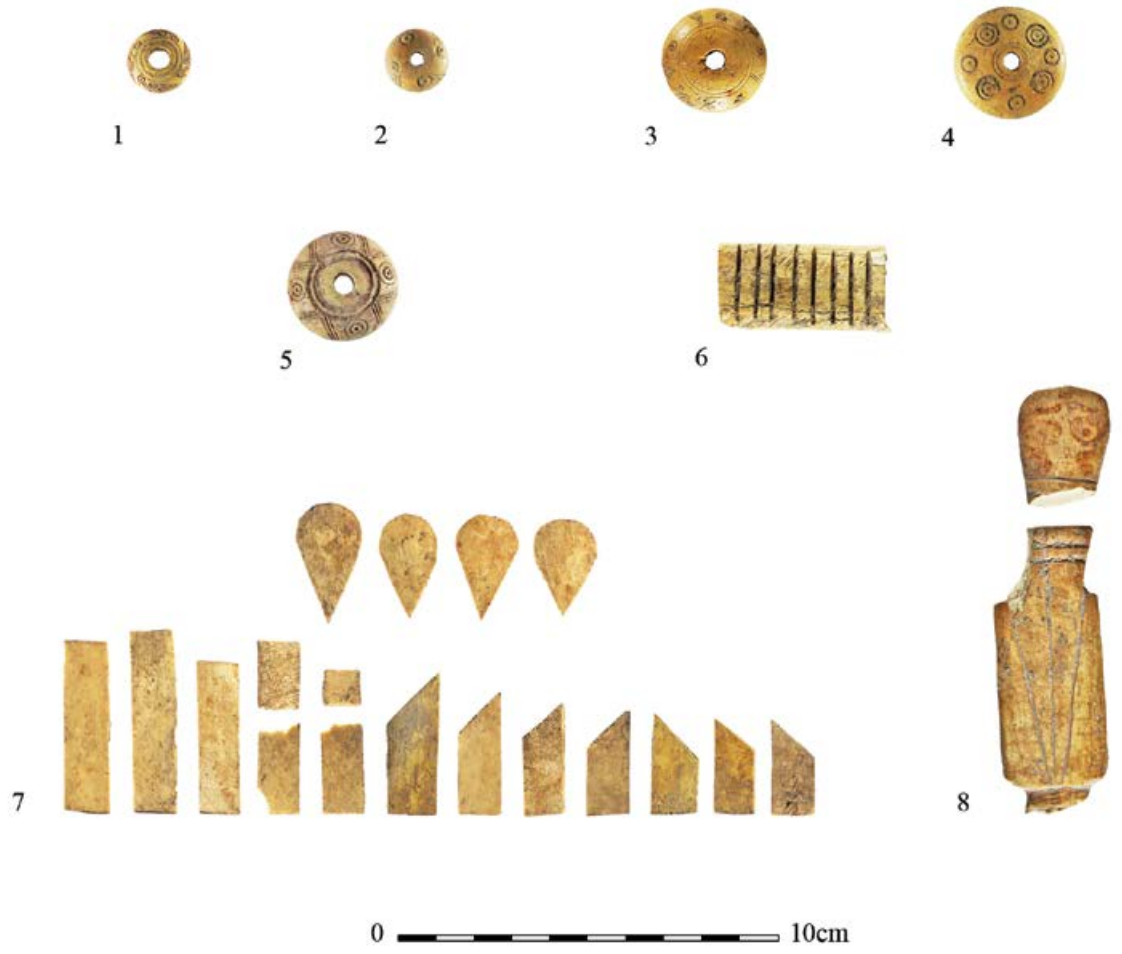


Figure 7.1. Bone artifacts.

No.	Object	Reg. no.	Locus
1	Whorl/button	80280/1	8102
2	Whorl/button	80280/2	8102
3	Whorl/button	80289/1	8102
4	Whorl/button	80289/2	8102
5	Whorl/button	90509	9507
6	Handle	90700	9700
7	Inlay pieces	80280, 80289	8102
8	Doll	90706	9702

REFERENCES

Ayalon, E. 2005. *The Assemblage of Bone and Ivory Artifacts from Caesarea Maritima, Israel 1st-13th Centuries CE* (British Archaeological Reports, International Series 1457). Oxford.

Freidman, F.D. 1989. *Beyond the Pharaohs. The Copts in the 2nd to 7th Centuries A. D*. Rhode Island.

Rutschowscaya, M.-H. and Bénazeth, D. 2000. Aspects de l'art copte. In: Rutschowscaya, M.-H. and Bénazeth, D.(eds.) *L'art copte en Égypte, 2000 ans de christianisme.* Paris. Pp. 146-227.

Toueg, R. 2012. Ramla, Ibn Sina School. *Hadashot Arkheologiyot* 124: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=2066&mag_id=119

Wapnish, P. 1991. Beauty and Utility in Bone, New Light on Bone Crafting. *Biblical Archaeology Review* 17: 54-57.

——— 2008. The Manufacture of Bone Artifacts. In: Stager, L.E., Schoel, J.D. and Master, D.M. (eds.) *Ashkelon 1, Introduction and Overview (1985-2006)*. Winona Lake. Pp.587-638.

CHAPTER 8
METAL OBJECTS

Nitzan Amitai-Preiss

During the current excavation in Ramla a substantial number of metal objects were found. However, only a relatively small number were well enough preserved to be identified.

Weighing equipment

Three types of weight-related objects were retrieved, including two probable weights and part of a scales.

Fig. 8.1:1. A lead weight in the shape of a horseshoe (diameter 4 cm; approx. 30g) was found in a sediment (L10142) between surfaces of probable Abbasid-Fatimid date, but this is unclear. In Ramla (South) two lead objects of a particular shape were defined as possible weights. These are each pear- and heart-shaped (Tal and Taxel 2008:208, Nos. 12 and 13).

Fig. 8.1:2. An ingot-shaped lead weight (4.5-5 x 7.2 cm; approx. 235g) was found in a non-sealed context, a nondescript sediment (L8024) of unclear date (based on stratigraphy, probably Abbasid-Fatimid). This may have been a weight, or alternatively an ingot for storage and transport of this metal which was needed to make not only weights but also seals.

Fig. 8.1:3. Also found was a scales bowl (diameter: 6 cm) with three very small holes, presumably for attachment of the bowl to the scale by means of thin metal (?) wire. This object was recovered from a general sediment (L9514) which probably dates to the Abbasid-Fatimid occupation period, but again this was not a sealed context. According to other finds from the same locus, this object dates to the Abbasid period. The rods of a few Umayyad scales[1] were unearthed in the center of antique and post-antique Beth Shean—in that case, scale balances which were originally Byzantine and continued in use during the Umayyad period, with Arabic inscribed explanations of weights (Khamis 1998:55-59).

Earring (Fig. 8.1:4)

A bronze earring—comprising a ring (diameter 1.5 cm) with an attachment—was found in a pit (L9542) which could be Umayyad or Abbasid, according to stratigraphy and other finds. The Figure 8.1:6 bronze ring (below) was found in the same pit.

Tools

Fig. 8.1:5. Part of a iron tool handle (length 4 cm, width 1.7 cm) was found in a pit of possible Umayyad date (L4064) according to stratigraphy and other finds.

Fig. 8.1:6. A bronze ring (diameter 2.5 cm) that was probably part of a tool was found in the same Umayyad/Abbasid pit (L9542) as the Figure 8.1:4 earring.

Fig. 8.1:7. A thin bronze sheet folded into a scroll-like cylinder (diameter 0.7 cm) was recovered from a finds-rich stone-lined installation of Umayyad/Abbasid date (L8102), which also yielded several bone objects (see Chapter 7).

Not photographed. Part of an elliptical iron tool without a handle (length 6.8 cm) was recovered from a well-made cut feature (L4522, B40584), which according to stratigraphy and finds could be Umayyad or Abbasid in date.

Horseshoe (Fig. 8.1:8)

Part of an iron horseshoe with three holes was recovered. The object is almost square in section, and one

1 The exact number of balances with two bowls for measuring the weights is not specified in the publication (Khamis 1998:55-59).

Figure 8.1. Metal objects from Ramla (White Mosque Street).

Figure 8.1.

No.	Object	Reg. no.	Locus
1	Weight	100144	10142
2	Weight	80098	8024
3	Scales bowl	90542	9514
4	Earring	90547	9542
5	Tool handle	40168	4064
6	Ring	90555	9542
7	Cylinder	80291	8102
8	Horseshoe	40001	4001
9	Inlay	80125	8044
10	Weapon?	50080	5028
11	Kuhl sticks	90710	9711
12	Nails	80125	8044
13	Nail	80091	8035
14	Nail	50114	5034
15	Nails	40030	4011

side is thickened. This object was found in a non-sealed and nondescript sediment (L4001) of probable Umayyad/Abbasid date. However, this horseshoe appears to be an intrusive modern artifact, dating to the Ottoman period or later. In nearby excavations north of the White Mosque two relatively modern horseshoes were found, one of which is from the British Mandate period at the earliest (Khamis 2010:283).

Mobiliary Decoration (Fig. 8.1:9)
An iron inlay for a wooden cabinet or a chest with three nails in its central axis (see below) was found in a (non-sealed) sediment (L8044) overlying the site's natural sand, and possibly Umayyad in date. This inlay piece was cut by scissors from a larger sheet of iron. A comparable bronze ornament (or button) was unearthed at Ramla (South) (Tal and Taxel 2008:197, No.6).

Weapon (?) (Fig. 8.1:10)
This iron object (length 24.5 cm) has an elongated triangular shape and a point at either end. It is not clear whether this was weapon of some sort, or a tool. A photograph of the object was examined by weapons expert David Nicolle, an honorary research fellow at the Institute of Medieval Studies at Nottingham University, U.K. The results of his and further examination of this object will be published in due course. The object was found in a non-sealed sediment context (L5028), but near a floor of possible Umayyad date.

Cosmetics: Kuhl Sticks (Fig. 8.1:11)
Two kuhl sticks—used for applying women's make-up—were found on a surface (L9711) of unclear date, but probably Abbasid-Fatimid according to its stratigraphic location. One of the sticks measures 5.9 cm in length, the other 6.8 cm (cf. Khamis 1996:225, Fig. XVIII.6).

Nails

Eight iron nails were recovered in this excavation, as well as many more fragments which were too rusted or broken to be studied. These finds are associable with a variety of building or mobiliary fittings, or may be waste from building or production activity at the site. Many of these nails were found in the central area of the site, and date to the Umayyad/Abbasid phase.

Fig. 8.1:12 depicts three iron nails found driven through the Figure 8.1:9 chest/cabinet inlay. One nail is thick and long (9 cm of which survives), which is square in section for most of its shaft. The head of the nail is elliptical and was found incomplete (diameter 3.5 cm). These objects come from a non-sealed sediment (L8044) overlying the site's natural sand, and are therefore perhaps of Umayyad date.

Fig. 8.1:13. This very thick nail (head diameter: 4 cm) was found in an Umayyad/Abbasid sediment (L8035) overlying that in which the Figure 8.1:9 inlay and Figure 8.1:12 nails were found. Perhaps these objects were therefore originally related, and this group reflects a production area or wealthy courtyard residence.

Fig. 8.1:14 depicts an intact 6cm-long nail found in one of the many possible-Umayyad pits (L5034) at the site which were dug into the natural sand.

Fig. 8.1:15. Two iron nails were found in the fill of a cistern (L4011), which appears to date to Abbasid-Fatimid times. One is without its head, but its shaft was preserved entirely (length 10 cm). Another nail fragment is almost complete, with the beginning of its head extant.

REFERENCES

Khamis, E. 1996. The Metal Objects. In: Ben-Tor, A., Avissar, M. and Portugali, Y. (eds.) *Yoqne'am I, The Later Periods* (Qedem Reports). Jerusalem. Pp. 218-235.

———— 1998. *Weights and Scales from the Umayyad and the Byzantine Periods at Beth Sean, Decorations and Inscriptions as Reflectors for Administration and Culture* (MA thesis, Hebrew University of Jerusalem). Jerusalem.

———— 2010. The Metal Artifacts. In: Gutfeld, O. (ed.) *Ramla Excavations North of The White Mosque* (Qedem 51). Jerusalem. Pp. 279-285.

Tal, O. and Taxel, I. 2008. Early Islamic Weights. In: Tal, O. and Taxel, I. (eds.) *Ramla (South): An Early Islamic Industrial Site and Remains of Previous Periods* (Salvage Excavation Reports 5). Tel Aviv. Pp. 205-209.

CHAPTER 9
COINS

Nitzan Amitai-Preiss

Of a total of 29, only 13 coins in this assemblage are in an adequate state of preservation to be identified. All are made of bronze. Two of the coins (Fig. 9.1:5) pre-date the establishment of Ramla in 712-15 CE. Both are either Byzantine or Arab-Byzantine. One (Fig. 9.1:11) is minted on a third of a follis (a bronze Byzantine coin). These two coins could have arrived in Ramla before its establishment, because the land on which Ramla would be founded was open fields between Byzantine villages. Alternatively these coins could have arrived in Ramla by the hands of Lud inhabitants who were forced by the founder of Ramla—Sulyman b. 'Abd al- Malik—to move to the new city[1]. A nearby excavation in Ramla also unearthed coins minted prior to the establishment of Ramla, with coins of Roman, late Roman, Byzantine and Arab-Byzantine types (Amitai-Preiss 2010:269-270, Nos.1-9).

L5029, B50084 (Fig. 9.1:1)
Byzantine / Arab-Byzantine coin
Obv.: Trace of an emperor's figure.
Rev.: m
AE, 3.41 gr, 20 mm, 2.
A third of a follis in its shape

L4027, B40057 (Fig. 9.1:2)
Byzantine / Arab-Byzantine coin
Obv.: Small figure of an emperor holding a scepter in his right hand, and a globus cruciger in his left.
Rev.: m
AE, 1.8 gr, 15 mm, 5.

L8009, B80080 (Fig. 9.1:3)
Umayyad: Dimashq coin
Obv.:
Rev.:
AE, 4.65 gr, 16 mm.

L4500, B40502 (Fig. 9.1:4)
Umayyad: Tabariyya coin
Obv.:

لا اله الا
الله وحده
لا شريك له

Center: Rev.:

الله احد
الله الصمد
لم يلد
ولم يولد

Marginal inscription:

ضرب هذا الفلس [بطبر] ية

AE, 4.27 gr, 20 mm, 5.
Parallel: Ilisch 1993:32, Nos.339-344.

L4500, B40508
Obv.: Worn.
Rev.: A crescent in the center.
AE, 2.74 gr, 1.3 mm.
For a similar coin of unclear mint location, see Ilisch 1993:46, Nos. 571-572.

1 This population transfer was described by Arab historians al-Balādhurī in his *Futūḥ* (de Goeje 1866:143), Yāqūt in the *Mu`jam al-buldān* (Wustenfeld 1868-1873: Vol.3, p.69) and al-Jahshayārī in *the Kitāb al-Wuzarā`* (al-Saqqā *et al.* 1938:48).

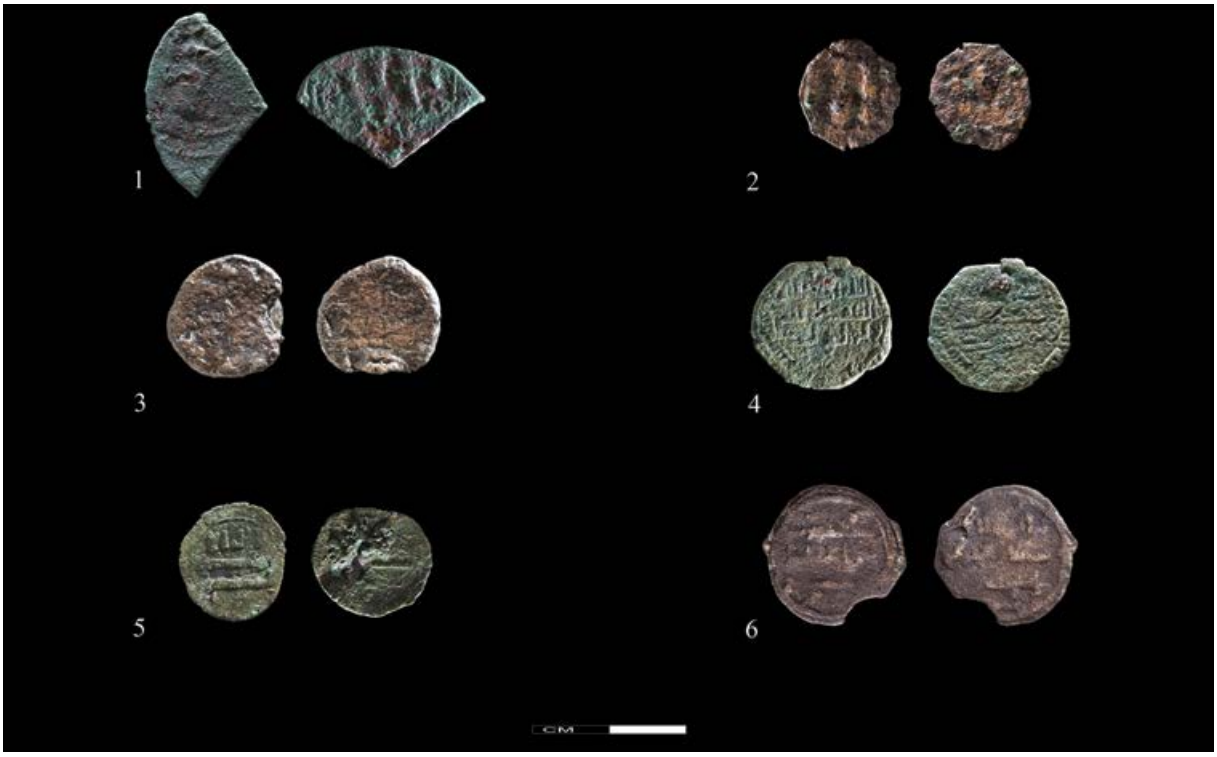


Figure 9.1. Coins from Ramla (White Mosque Street).

Figure 9.1.

No.	Reg. no.	Locus
1	50084/2	5029
2	40057	4027
3	80080	8009
4	40502	4500
5	40132	4048
6	50042	5016

L4048, B40132 (Fig. 9.1:5)

Abbasid coin

Obv.: A marginal circle within which are visible three lines of inscription, written in very small letters. Only the first two words can be read:

لا اله الا / الله / وحده

Rev.: A marginal circle within which three lines of inscription are seen. None are legible.

AE, 0.66 gr, 17 mm, 12.

Surface, Area A

Abbasid coin

Obv.: Nothing can be read.

Rev.: محمد رسول الله

AE, 0.94 gr, 14 mm.

A cast coin.

L5034, B50124

Abbasid coin

Nothing can be read.

A cast coin.

AE, 3.08 gr, 19 mm.

L10092, B100092

Obv.: Nothing can be read.

Rev.: جعفر ؟

A cast coin.

AE , 0.70 gr, 18 mm.

L5016, B50042 (Fig. 9.1:6)

Obv.: Traces of unclear legend written in three rows

Rev.: Traces of unclear legend written in three rows

A cast coin.

AE, 1.59 gr, 19 mm, 12.

L8009, B80080

Ayyubid coin
Al-Kāmil 622-623 H/1225 -1227 C.E.
Obv.:

[بن ايوب]
[الملك الكا] مل
[بن ابي بكر]

Rev.: Worn.
AE, 3.83 gr, 16 mm.
Parallel: Balog 1980:159, No. 416.

L4506, B40529

Mamluk
Faraj 1399-1405
Obv.: everything is worn away except for an inner circle: center علي
Rev.: Worn.
AE, 1.97 gr, 16 mm.
Parallel: Balog 1964:290, No. 658.

L5017, B50049

Byzantine / Mamluk
Worn on both sides but—according to its flan—the coin is either Byzantine or Mamluk. Another coin from the same locus and basket cannot be identified at all.

REFERENCES

Amitai-Preiss, N. 2010. The Coins. In: Gutfeld, O. (ed.) *Ramla Excavations North of The White Mosque* (Qedem 51). Jerusalem. Pp. 265-278.

Al-Balādhurī, Ahmad b. Yahyā (d. 279/892), *Kitāb futūh al-Buldān*. De Goeje, M.J. (ed.) 1866. Leiden.

Balog, P. 1964. *The Coinage of the Mamluk Sultans.* New York.

——— 1980. *The Coinage of the Ayyūbids.* London.

Ilisch, L. 1993. *Sylloge Numorum Arabicorum Tübingen*, I. *Palästina, IVa: Bilād aš-Šām.* Tübingen.

Al-Saqqā, M, al- Abyārī, I., and al-Hāfiz Shalabī, 'A. (eds.) 1938. *Jahshyārī, Muhammad ibn Abdūs, Kitāb al-Wuzarā' wa-l-Kutāb.* Cairo.

Wustenfeld, F. (ed.) 1868-1873. *Yāqūt al-Hamawī, Mu'jam al-buldān.* Leipzig.

CHAPTER 10

ARABIC INSCRIPTIONS AND A STAMPED DESIGN

Nitzan Amitai-Preiss

Six stamps were found on ceramic vessel sherds in the current excavation. Five contain Arabic inscriptions and one comprises a design. Three inscriptions (Fig. 10.1:1, 3, 4) and the design (Fig. 10.1:2) were stamped in high relief. In the case of the Barbotine jugs (Figs. 10.1:3, 4) the inscriptions were part of the original mold from which these vessels were made. One inscription was engraved when the vessel was still wet (Fig. 10.1:5) and another was made when the vessel was already dry (Fig. 10.1:6).

The Figure 10.1:1 and 2 inscriptions and designs—each on a vessel handle—may belong to Nabi Samuel jars. However, no parallel or similar items were recovered at that jar type's eponymous production site itself, where four Umayyad kilns were excavated, yielding about seventy stamped jar handles (see below; Magen 2008:330-331).

Figure 10.1:1

This stamped jar handle contains an inscription written in three rows: عملي / بنك / من

Transliteration: *min* / *bunk* / *ʿamalī*

Translation: "from my finest work"

A similar stamp was found at Caesarea, where it was dated to the 8th century CE according to its script (Sharon 1999:292).

Figure 10.1:2

This jar handle stamp depicts a six-pointed star with a thick dot in its center. In Arabic this star shape is called *khatim Sulayman* ("Solomon's seal"). Compared with the many stamp handles from Nabi Samuel—representing stars with six or more rounded points and other designs (see Sharon 2004:132, Pl. 45, first on right; Magen 2008:334, Pl. 3:1-3)—the current stamps have no known parallels from that important production site. Other kinds of flower shapes and five- and six-pointed stars were recovered at Ashdod Yam (Raphael 2014:33; 96, Fig. 17:5-7).

Figure 10.1:3

On this jug sherd is preserved an unclear inscription fragment: يهودا الا Or: يهودا الا

The current author suggests that the original full text read as follows: يهواد الا

The transliteration of this proposed reconstruction would be: *Yahudān ilā*

Translation: "for Jews, but" / "for Jews only"

It is unfortunate that we do not have the full text, but apparently this particular vessel was meant to be used by Jews only or was for a certain Jewish ceremony. The latter could be for *havdala*, a Jewish ceremony that involves the use of spices and herbs in order to celebrate the separation between the Jewish sabbath and the beginning of a new week.

It is very rare for the name of religious group to be found on such an object. The only other known coeval mention of Jews or Jewry is on an Arabic-inscribed lead seal, referring to the Jews of Tabariyya (Tiberias) (*Yahūd Tabariyyah*). That type of seal was a receipt for payment of taxes by the Jewish community of that city, which was the capital of *Jund al-Urdunn* and served as a center for the surrounding villages and towns (*kura*). These taxes would have entered the coffers of the Muslim authorities either following 'Abd al-Malik's administrative reform in the latter half of the Umayyad period (i.e. after 696-7 CE) or in the early Abbasid era (Amitai-Preiss 2000:104-5; 2010:19-20; 2015:78). Jews, Christians and Samaritans were the three *Ahl a-Dimma* groups in Palestine at that time, meaning that these communities paid different kinds of taxes than Muslim subjects under the same regime. A square lead pendant with an inscription mentioning

Figure 10.1. The Arabic inscriptions and stamped design.

No.	Object	Reg. no.	Locus
1	Jar handle	40578/1	4512
2	Jar handle	50113/1	5022
3	Jug	50033	5011
4	Jug	100074	10076
5	Juglet	40029	4013
6	Jar	80100/1	8016

the leader of either a Christian or Samaritan community was also found at Tabariyya, bearing the city's name and the date AH 155 (771-2 CE) (Amitai-Preiss 2015:75-78).

Figure 10.1:4

This jug body sherd preserves part of an inscription: الوثيق نال له احد

Transliteration: *al-wathīqa nāla lahu ahadun*

Translation: "anybody will follow the trustworthy"

The root *w.th.q.* in first form is translated as "to trust". It is often found on discs and seals, as for example on a disc from Egypt: "In Allāh Ja'afar ibn Sulymman trusts" (Morton 1985:133, No. 384), on seals with a name/phrase combination (Porter 2011:50-55) and on rock inscriptions of the Syrian Hajj route (al-Kilabi 2009).

Figure 10.1:5

This body sherd of a sphero-conical 'grenade' vessel bears an inscription fragment: احمد مح [مد]

Transliteration: *ahmada Muh* [*mmad*]

Translation: "he made Muhammad praiseworthy"

An inscribed vessel of a different type but similar ware was unearthed at Tiberias. That find will be published fully by the current author (Amitai-Preiss, forthcoming a: Inscription 3), but for the purposes of this report suffice it to quote the inscription: بركة عدل

Translation: "blessing justice"

A third word may begin with a *lam*.

'Grenade' vessels are found in many sites of the Early Islamic period, including at Ramla (Cytryn-Silverman 2010: Pls. 9.5:21; 9.13:6), Tiberias (Stacey 2004:138), Hammat Gader (Ben Arieh 1997:380) Caesarea (Arnon 2008:160, Type 824a) and also at the rural site of Khirbet al-Khurrumiya (Yehuda 2007: Fig. 10:13). They appear from the second half of the 8th century until at least the 11th century.[1] Their function is unknown but several possibilities as to their contents have been suggested by scholars: "Greek fire" (Ettinghausen 1965:219), beer (Ghouchani and Adle 1992:78), ointments or perfumes (Ettinghausen 1965:218-229), mercury (Sharvit 2008:101-112) or a substance which catalyzed fire (Brosh 1980:114-115) (see also Kohn-Tavor, this volume, p. 42).

Three grenade vessels which were not found in Palestine—one from Azerbaijan, two from Rayy, Iran—bear inscriptions. That from Azaybyjan reads as follows: "drink to your good health", while those from Iran declare "drink to your good health, divining grace, made by Hamshād" (Ghouchani and Adle 1992:74). These Iranian finds date to the Buyid period (10-11th centuries).

Figure 10.1:6

This jar shoulder fragment bears part of an Arabic inscription which was engraved after the jar was dried. Parts of two lines are legible:

مطر عشرة اقساط م [ن] سنة احدى و.....

Transliteration*: Matar 'asharah aqsāt min* / *sanat ihda wa-* …

Translation: "Matar ten [olive oil] units of / the year XXI…"

This inscription refers to the fact that the contents of this jar were designated with a date, engraved on the vessel at some point after it was produced. As to what those contents were, although the term *qist* (pl. *aqsāt*) was a unit of measurement for both olive oil and wine (equal to either a pint or liter [Morton 1985:32]), the opinion of the current author is that olive oil is referred to in this case. In Egypt *qist* measurements are known only from the Umayyad period (Morton 1985:32). In the subsequent Abbasid caliphate the term is found on glass stamps from Egypt, but only for measurements of less than one *qist* (a quarter or half) (Morton 1985:92, Nos. 200-205; 99, Nos. 231-232).

Only one other instance of the use of this unit for olive oil measurement is known to the current author from *Ajnad Filastin* and *al-Urdunn*, the two military districts that comprised Palestine. This find comprises several stamped jar handles—with a typographical error in the order of letters—from Khirbet al-Biryar, a site excavated by Benny Har-Even of the Judea and Samaria civil administration's archaeological unit. These inscriptions will be published by the current author (Amitai-Preiss, forthcoming b).

1 The author would like to thank Hagit Torgë of the Israel Antiquities Authority for providing information regarding these vessels.

REFERENCES

Amitai-Preiss, N. 2000. A Poll Tax Seal of Tiberias. In: Dothan, M. (ed.) *Hammath Tiberias, Vol. II*. Jerusalem. Pp. 104-105.

——— 2010. Umayyad Sealings. In: Callegher, B. and D'ottone, A. (eds.) *The 2nd Simone Assemani Symposium on Islamic Coins*. Trieste. Pp. 18-21.

——— 2015. What Happened in 155/771-2? The Testimony of Lead Seals. In: Talmon-Heller, D. and Cytryn-Silverman, K. (eds.) *Material Evidence and Narrative Sources Interdisciplinary Studies of the History of the Muslim Middle East*. Leiden. Pp. 69-86.

——— forthcoming 1. Tiberias Arabic Inscribed Objects. In: Miller, S. and de Vincenz, A. (eds.) *The Tiberias Excavations, directed by Yizhar Hirschfeld—Final Report (2004-2008)* (Qedem). Jerusalem.

——— forthcoming 2. Arabic Inscribed Jar Handles from Khirbat Biyar. In: Har-Even, B. (ed.) *Judea and Samaria Researches and Discoveries* (Qedem). Jerusalem.

Arnon, Y. 2008. *Caesarea Maritima: The Late Periods* (700-1291 CE) (British Archaeological Reports, International Series 1771). Oxford. Pp. 14-16; 59-389.

Ben-Arieh, R. 1997. The Roman, Byzantine and Umayyad Pottery. In Hirschfeld, Y. (ed) *The Roman Bath of Hammat Gader, Final Report:*347-381. Jerusalem. Pp. 347-381.

Brosh, N. 1980. A Reexamination of Islamic Ceramic Grenades. *'Atiqot* 14: 114-115.

Cytryn-Silverman, K. 2010. The Ceramic Evidence. In: Gutfeld, O. (ed.) *Ramla: Final Report on the Excavations North of the White Mosque* (Qedem 51). Jerusalem. Pp. 97-211.

al-Kilabi, M. 2009. *Al-Nuqūsh al- islāmiyyah 'ala tarīq al-hajj al-shāmī bi-shimāl gharb al-mamlakah al-'arabiyyah al-su'udiyyah*. Riyadh. (Arabic)

Ettinghausen, R. 1965. The Use of the Sphero-Conical Vessels in the Muslim East. *Journal of Near East Studies* 24: 218-229.

Ghouchani, A. and Adle, C. 1992. A Sphero-Conical Vessel at Fuqqaa, or a Gourd for "Beer". *Muqarnas* 9: 72-92.

Magen, Y. 2008. Oil production in the Early Islamic Period. *Judea and Samaria Researches and Discoveries* 6: 257-344.

Morton, A.H. 1985. *A Catalogue of Early Islamic Glass Stamps in the British Museum*. London.

Porter, V. 2011. *Arabic and Persian Seals and Amulets in the British Museum*. London.

Raphael, K. 2014. Umayyad Stamped Handles. In: Raphael, S.K. (ed.) *Azdud* (*Ashdod-Yam*)*: An Early Islamic Fortress on the Mediterranean Coast* (*British Archaeological Reports, International Series* 2673). London. Pp. 32-33.

Sharon, M. 1999. *Corpus Inscriptionum Arabicarum Palaestinae (CIAP)*, *Vol.3, D-F, stamps of Dir Samuil*. Leiden. Pp.122-134.

——— 2004. *Corpus Inscriptionum Arabicarum Palaestinae (CIAP), Vol.2, -C-, 'Caesarea'*. Leiden.

Sharvit, D. 2008. The Sphero-Conical Vessels. In: Tzaferis, V. and Israeli, S. (eds.) *Paneas Vol. II* (Israel Antiquities Authority Reports 38). Jerusalem. Pp. 101-112.

Stacey, D. 2004. *Excavations at Tiberias, 1973-1974 The Early Islamic Period* (Israel Antiquities Authority Reports 21). Jerusalem. Pp. 89-148.

Yehuda, E. 2007. Khirbet al-Khurrumiya—a Fatimid Farmhouse in Northern Israel. *Salvage Excavation Reports* 4: 139-154.

CHAPTER 11

A FATIMID GLASS WEIGHT

Nitzan Amitai-Preiss

Figure 11.1. Fatimid glass weight (reg. no. 80506/1).

A glass weight (Fig. 11.1) dating to the Fatimid period was unearthed in a nondescript unsealed context (L8500). The weight has two colors, dark green and near it yellow or paler green. It seems that the glass is a blend of these two colors, at least on the edges. The patina is silver-gray and thick in places. The weight is imprinted with a stamp bearing an Arabic inscription. The inscription is divided into two areas: a marginal round inscription and an inner inscription written horizontally.

The weight and its inscription

Weight: 8.14g

The marginal inscription reads as follows:

الامام معد ابو تميم المستنصر بالله

Translation: "al-Imām Ma'ad Abū Tamīm al-Mustanṣir bi-llah"

The central inscription is less clear, but may possibly be:

امير المؤمنين

Translation: "the caliph"

This reading of the central text is likely, by comparison with inscriptions on coeval weights (e.g. Launois 1959: Nos. 81-86, Pl. V, Nos.81-83). However, the writing on the current weight is not clear enough to be read with certainty.

This weight may also have originally had a date stamped on it (as in Launois 1969:107, No.157): the year 428 AH / 1036-37 CE. However, it is also possible that no date was included (as in Launois 1959: Nos. 81-86, Pl. V, Nos. 81-83).

The name Tamīm is mentioned, indicating that this weight dates to the reign of the eighth Fatimid caliph, Ma'ad Abū Tamīm al-Mustanṣir bi-llāh ("The one who asks for Victory From God")— the longest ruling leader of any Early Islamic state (1036-1094 CE). He ascended to the caliphate on 15th Shaban, 427 / June 13, 1036, at the age of six. During the early years of his caliphate, state affairs were administered by his mother. However, throughout his rule Fatimid power was confined to Egypt, due to Seljuk conquests in the Levant and Yemen, and those of the Normans in Sicily and Malta.

REFERENCES

Launois, A. 1959. *Estampilles et poids musulmans en verre du cabinet des médailles.* Cairo.

———— 1969. *Estampilles, poids, etalons, monétaires et autres disques musulmans en verre.* Damascus.

CHAPTER 12

ARCHAEOZOOLOGICAL REMAINS

Ron Kehati

The current excavation uncovered a residential area, according to the architectural remains and other findings (see Chapters 1-11, this volume). This archaeozoological analysis aims to help clarify that picture. There are some impediments to the extent and interpretive value of our results. Unfortunately the bones recovered from most of the site were subsequently lost. Only those from Area J survived. Furthermore, as explained in Chapter 1, the structural remains in this area had been damaged by the removal of stones soon after their abandonment in antiquity, and also by heavy machinery works in modern times. And finally, some areas opened at the site were very narrow, allowing for only limited excavation. Nonetheless, the excavation recovered a bone assemblage comprising 192 bones from Area J (as well as 20 bone-made artifacts from Areas H and I [see Chapter 7]). These provide some information and make it possible to draw certain tentative conclusions about animal butchering and consumption practices in this quarter of Early Islamic Ramla.

Table 12.1. Representation of animal species (Area J).

Species	**Common Name**		
		NISP*	%
Capra hircus	Goat	1	0.5%
Ovis aries	Sheep	3	1.6%
Ovis/Capra	Sheep/goat	91	47.4%
Bos taurus	Cattle	11	5.7%
Camelus cf. bactrianus	Camel	2	1.0%
Equus caballus	Horse	1	0.5%
	Medium mammal	47	24.5%
	Large mammal	32	16.7%
Galliformes		1	0.5%
Galus galus	Chicken	3	1.6%
NISP TOTAL		192	100.0%

*NISP = number of identified specimens, whereby each bone and fragment is counted as a unit.

Animal bones from Area J

As shown in Table 12.1, most of the bones found here were of sheep/goats (49.48%). If we assume that the other bones which are identifiable as belonging to medium-sized mammals were probably also from sheep/goats, then this flock (as it were) comprised 73.96% of the assemblage. The sheep/goat bones represent all skeletal parts (Table 12.2), indicating that slaughter, butchering and consumption of the animals took place in this area, and most likely there were places in the immediate vicinity for meat processing and waste disposal. Cut marks (Table 12.3) are visible on a range of bones: pelvis, humerus, femur, lower jaw, radius and one vertebra. In all cases the blade impressions were relatively light, comprising familiar and typical cut marks.

Cattle are represented by 11 bones (5.7% of the assemblage) but it is to be supposed that a significant portion of the 32 bones attributed to large mammals also belong to this species, such that it most likely made up at least 10-15% of the total assemblage. Most common among the cattle remains are skulls and lower limb bones, by and large representing butchery waste. Worthy of note are a skull bearing very rough marks from the (postmortem) cutting off of the animal's horns and removal of the skull parietal (in order to extract the brain), and a domesticated cow (*Bos taurus*) metacarpal leg bone which was sawn in preparation for use as raw material in the making of bone objects (Fig. 12.1)—perhaps such as those

presented in Chapter 7. A striking and characteristic example of that practice, the bone was found in L10101 (reg. no. 100093/1) and was sawn about 5cm from its proximal end. The central cylindrical part of the bone (the shaft) was kept and the piece we have was discarded. Bones of this type—massive and with relatively straight, robust walls—have been used to make bone objects for thousands of years. The bone shaft is sought after as raw material, while the ends of the bone are generally not used or serve as tool handles. In conclusion, this piece points toward a local industry in bone objects and represents production waste from that activity.

Figure 12.1. Sawn metacarpal of a cow (reg. no. 100093/1).

Two camel bones and one of a horse were recovered, and therefore one may wonder how many of the non-diagnostic large mammal bones belonged to these species. The camel bones included a lower jaw bone with teeth in articulation, and a toe bone. Neither bore cut marks. Likewise for the single horse bone recovered (axis vertebra). These valuable beasts of burden may have simply died and been buried in this area, but alternatively the non-articulated bones could reflect dismemberment. Camels are eaten in Arab/Muslim culture and therefore it is possible that these bones represent food waste.

Four fowl bones were found, three of which were positively identified as belonging to domesticated chicken. Three bones belong to edible body parts and one to a leg part which is not generally eaten, but rather is used in soups or other dishes. One of these chicken bones bears a clear cutmark, indicating preparation for this animal to be eaten.

Table 12.2. Body parts represented (for cattle and sheep/goat).

	Sheep/goat		**Cattle**	
	NISP	**%**	**NISP**	**%**
Cranial	26	27.4%	5	45.5%
Feet	3	3.2%	0	0.0%
Lower hind limbs	2	2.1%	4	36.4%
Lower limbs	2	2.1%	1	9.1%
Middle forelimbs	8	8.4%	0	0.0%
Middle hind limbs	6	6.3%	0	0.0%
Trunk	6	6.3%	0	0.0%
Upper forelimbs	22	23.2%	1	9.1%
Upper hind limbs	20	21.1%	0	0.0%
Total	95	100.0%	11	100.0%

Table 12.3. Cut marks.

Animals/element	**Cut marks**
Aves	
Gallus	
Tibiofibula	1
Mammalia	
Long bone	5
Rib	3
Vertebrae cervical	3
Bos	
Cranium	1
Ovis	
Mandibula with teeth	1
Ovis/Capra	
Femur	2
Humerus	4
Pelvic, Actabulum + Ischium	1
Pelvic, Actabulum + Ischium & Puvis	1
Pelvic, Actabulum + Ilium	1
Radioulna	1
Radius	2
Vertebrae, sacral	1
TOTAL	27

CONCLUSIONS

This bone assemblage is small and only reflects a picture of animals and activities in Area J. The variety of species represented here is indicative of domestic livestock which would have been common in Early Islamic Palestine. The assemblage does not point to the presence of wild animals. Many of the bones indicate that the slaughter, butchering and consumption of animals took place in this area.

The craft items are in keeping with the Islamic character of the local inhabitants during the period in question and are similar to finds which have been recovered from Early Islamic strata at other sites in Ramla and other locations. The pieces which served as raw material point to the local production of bone items, which were indeed recovered at the current site (see Chapter 7) and are similar to finds which have been recovered from Early Islamic strata at other sites in Ramla and other locations.

CHAPTER 13

MOLLUSK SHELLS

Conn Herriott

The remains of 13-17[1] shells were found at the current site (Fig. 13.1). Most were retrieved from Area J, due to more thorough artifact collection in that phase of the excavation. Therefore this assemblage is not representative of the original full complement. However, it gives some sense of the shell types and their find contexts.

Shell types

Conus mediterraneus (Fig. 13.1:1; n=1)
This single mollusk type is common in the east Mediterranean. It has no known use or value for humans. Given these facts and because the single specimen here was found immediately over the natural sand of the site, this was probably a non-archaeological inclusion mixed into the site sediment.

Glycymeris violacescens (Fig. 13.1:2-6; n=5)
This is the most common shell on east Mediterranean shores. Therefore its presence at Ramla is unsurprising. However, as Bar-Yosef Mayer (2004:2500) has noted, the wear patterns on many of these shells—both at this site and across the region—suggest that the mollusks were not harvested from the sea itself but were taken from ancient geological outcrops. Also, there is precious little evidence from all periods in the southern Levant that *Glycymeris violacescens* shells were worked. However, as Bar-Yosef Mayer (2004:2500) asks, if they were not harvested for food and were not decorated, what then might the function of such shells have been? 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 (Bar-Yosef Mayer 2004:2500, quoting Loud 1948:25, Figs. 50, 52) and Tell Kazel, where mudbrick walls were also covered in sea shell (Bar-Yosef Mayer 2004:2500, quoting Chiodo 1999). Bar-Yosef Mayer (2004:2500) notes that shell was also used as a pottery temper. However, at the current site the proximity of marine-origin sand—with moderate amounts of non-archaeological shell inclusions—immediately under the archaeological remains suggests that these shells may have been naturally mixed with the settlement fill.

Heraplex trunculus (Fig. 13.1:7, 8; n=2)
Also known as *Murex trunculus* or banded dye-murex, this sea snail was the source of the famous—and in ancient times prohibitively expensive—purple/blue murex dye. However, given that only two specimens were found at this site, that few have been found at another immediately adjacent sites (Avni *et al.* 2008), that this is one of the three most common Mediterranean muricids, and that in any case a very large number are required for dye production—in these circumstance we cannot interpret these finds as evidence for even a modest dyeing industry. Rather, they should be considered random natural inclusions in the site fill.

Mother-of-pearl (Aspatharia rubens / Unio terminalis) (Fig. 13.1:9; n=4)
The fragmentary state of the four mother-of-pearl shell finds precluded the identification of its specific family. *Unio terminalis* is a freshwater mollusk, which at EB III Tell Handaquq South (in Jordan) was perhaps used for burnishing pottery (Bar-Yosef Mayer 2004). *Aspatharia rubens* is a mother-of-pearl species from the River Nile, which was exported to regions

1 Five were fragments.

Figure 13.1. Mollusk shells from the site.

No.	Basket	Locus	Find Context	Species	(N=)
1	100075	10060	Lenses of sandy sediment overlying natural	*Conus mediterraneus*	1
2	100156	10148	Sediment overlying natural	*Glycmeris violacescens*	5
3	100157	10154	Sediment overlying natural		
4	100155	10152	Sediment under floor level		
5	100166				
6	100096	10092	Upper fill of cess pit		
7	90039	9024	Fill between walls; ashy soil, burnt pottery; immediately overlying natural	*Heraplex trunculus*	2
8	90020				
-	80276	8102	Stone-lined installation	Mother-of-pearl (*Pinctada margaritifera* / *Aspatharia rubens* / *Unio terminalis*)	1 (broken)
9	90038	9024	Fill between walls; ashy soil, burnt pottery; immediately overlying natural		3 (broken)
-	100120	10129	Lower fill of cess pit	*Etheria elliptica*	5 fragments

including the Levant (e.g. LB Lachish [Bar-Yosef Mayer 2004]). Scholars have proposed medicinal/magical ancient functions for this mollusk (Bar-Yosef Mayer 2004). In Early Islamic archaeology it has been noted that mother-of-pearl was also used for decoration (Walmsley 2007:120).

Etheria elliptica (n=5 [fragments])

This River Nile bivalve, rare in the southern Levant's archaeological record (Bar-Yosef Mayer 2004:2494), attests to lines of communication between this region and Egypt. Their function is unclear. *Etheria elliptica* from graves at Adindan in Nubia mostly held traces of eye paint (Williams 1983:75). Examples in Egypt—also from mortuary contexts—have been interpreted as spoons (Bard 2005:128). No such evidence was found in the specimens from the current site, or anywhere in the southern Levant.

The *etheria elliptica* found at the current site were recovered from the lower fill of a cess pit, with mortar attached to them. It seems, therefore, that prior to discarding they had been used as bonding temper in a construction.

CONCLUSIONS

The shell finds do not provide conclusive evidence for any particular activity in this area of Umayyad/Abbasid Ramla. Indeed, there is a strong likelihood that all except the Egyptian-sourced *Etheria elliptica* were simply natural inclusions, mixed in from the underlying marine-origin sand. It is of course also possible that some of these shells were collected on the seashore and kept for their aesthetic value.

REFERENCES

Bard, K. (ed.) 2005. *Encyclopaedia of the Archaeology of Ancient Egypt.* London.

Bar-Yosef Mayer, D.E. 2004. The Mollusk 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.

Walmsley, A. 2007. *Early Islamic Syria. An Archaeological Assessment*. London.

Williams, B. 1983. *The University of Chicago Oriental Institute Nubian Expedition: C-Group, Pan Grave, and Kerma remains at Adindan cemeteries T, K, U, and J* (The University of Chicago Oriental Institute Nubian Expedition. Excavations between Abu Simbel and the Sudan frontier. Vol. 5). Chicago.

CHAPTER 14

DISCUSSION

Conn Herriott

Continuity and change

The material culture presented in this report testifies to considerable continuity in local culture and probably population makeup from Byzantine times (see also Morony 1995; Walmsley 2007), with cosmopolitan elements increasing as the empire settled and as a shared material culture diffused throughout the wider region. Walmsley (2007:83) sees pre-Islamic urban planning traditions from the Arabian peninsula behind many Umayyad town layouts. Those imperial builders also took something from pre-Islamic towns in Syria-Palestine. Thus, the early imperial *amsar* were hybrids. The details of this are unclear in the current site's architectural remains, but certainly its features have broad regional parallels.

At the same time, as Kohn-Tavor (Chapter 2) and Gat (Chapter 3) frequently point out, it is clear that there were also some substantial changes in pottery and glass from the early 8th century (when Ramla was founded), coinciding with the economic and cultural reforms which began under the Umayyad caliph Abd al-Malik (685-705 CE; Walmsley 2007:57). But the pottery remained local until that time, showing little interruption in style or technique from the 6th century. Ramla was one of the main regional centers for pottery production (Walmsley 2007:54). The significant change in pottery took place at the end of the 8th or beginning of the 9th century (i.e. over a century after the Islamic conquest). After this point, as Kohn-Tavor (this volume, Chapter 2) has shown, the ceramic repertoire was generally consistent.

There were many regional pottery traditions in the Early Islamic period, our grasp of which require good sites with clear stratigraphy. This report may help to clarify and expand upon this region's typological sequence.

According the Walmsley (2007:55), there has been a longstanding problem in early Islamic archaeology—especially in Israel—of assigning too much to the Umayyad and not enough to the Abbasid and Fatimid periods. This is apparently due to mis-dating Khirbat Mafjar and Cream wares, and to early Ramla excavators assuming basal strata there were Umayyad. This seems a point worthy of consideration. However, as Kohn-Tavor shows, there is substantial evidence for an Abbasid-Tulunid-Fatimid date for these wares, and the post-Umayyad corpus at the current site is substantial. In fact, both in terms of finds and stratigraphy very little in Ramla has been identified which is clearly Umayyad. However, in dating mostly to the 8-9th centuries, the glass assemblage would seem to push back the dating of much of the site to the Umayyad period, if not before. It is hoped that the current excavation contributes to a growing but still limited picture of the earliest phase of the city.

The archaeozoological evidence from the current site is not only in keeping with wider regional patterns (contingent on environmental differences), but also supports the impression of continuity from the pre-Islamic era reliance on goat, sheep, cattle, chicken and camel (Walmsley 2007:115).

In conclusion, our findings appear to be in keeping with Walmsley's (2007) trajectory, whereby the glass, bone, ivory, metal, stone and other finds point to modest developments from pre-Islamic traditions during the 7th century, accelerated change from the end of that century (in coins particularly) and into the first half of the 8th (ceramics), continuing development into the mid-8th and then through the 9th century a period of rapid systemic change, involving elements of cultural discontinuity. Many material culture types

and technologies were overhauled; some were kept and others modified or abandoned, and completely new methods and styles were introduced from afar. As we see at this and other sites in Ramla and beyond, it was the Abbasid period—helped by the 749 CE earthquake—which in many aspects of society and material culture marked the eclipse of Byzantine culture and the dawn of the Islamic middle ages in Syria-Palestine.

Cultural contacts

As would befit a central neighborhood of a district capital, there is much evidence at Ramla (White Mosque Street) to suggest that its affluent residents were part of a wide regional trade network. The coin assemblage—which gives us firm *terminus post quem* dates, as well as information on politics and the economy (see also Walmsley 2007:59)—demonstrates something of this active environment. That said, the state of preservation in the current numismatic assemblage does not allow for any larger conclusions than to bolster established impressions of Ramla: the range of coins here reflects continued use of Byzantine denominations, as well as economic contact with the wider empire. The site's glass types also indicate something about contacts, as well as dates and technology (see Pollak 1999; O'Hea 2007). The description of the entire glass assemblage will be important in this regard. The softstone vessels at this site (Chapter 5) demonstrate clear contacts with Hijaz, if not also other regions of the empire.

The use of ivory and bone inlays (Chapter 7) followed a long regional tradition. One example of this delicate and therefore rarely-found object type comes from south Jordan (Foote and Oleson 1996). This particular case indicates a connection with Persia, which makes sense as the Abbasid dynasty hailed from there. What contacts might the bone inlays at the current site point to? This also relates to the question of early Ramla's ethnic composition, given that a bone workshop appears to have existed at or near the site.

The 'grenade' vessel question

Some thoughts are offered here about 'grenade' vessel function, discussed by many researchers and in this report by Kohn-Tavor (p. 42), and Amitai-Preiss (p. 194). Mineralogical and chemical analysis of the melted contents of a vessel in the current assemblage may offer some tentative support for the "Greek fire" hypothesis. However, the find contexts of such vessels elsewhere do not seem to fit an explosive function: large numbers of these vessels were found in a commercial area of Tiberias (Stacey 1995:166), and in a bathhouse at Hammat Gader (Ben Arieh 1997:380). Furthermore, the inscriptions on such vessels from Azerbaijan and Iran mentioned by Amitai-Preiss (Chapter 10, p. 194) provide direct support for their use in drinking. Nevertheless, the analysis in the current report raises questions, and a liquid consumption use seems odd given the thickness of these vessels.

Final remarks

What do our findings at White Mosque Street tell us about the character of this area in Early Islamic Ramla? As most of the previous chapters have made clear, the overall impression is one of a well-to-do residential area in Areas A-I, with a somewhat distinct use of space in Area J. Across the northern two thirds of the site architectural remains mostly reflect courtyard houses of a known Early Islamic type. This is evinced most clearly in the sophisticated water drainage systems which survived subsequent site damage, and which reflect substantial investments. Other features—the L8014 fountain, L7001 mosaic, L8028 subterranean construction and the rare intact walls of well-dressed blocks—also bear this out. Nearby findings corroborate the impression of a wealthy residential and mixed activity area (e.g. Avni *et al.* 2008; Torgë 2013; Toueg and Torgë 2014). With a considerable variety of high-status serving dishes, decorative items and other valuables, the artifact assemblages from these sites complement our similar repertoires. The glass, bone, metal and stone small finds at the current site probably denote a cultural elite (even if this point can be overstated [Walmsley 2007:64]). And finally, although imposing our culturally defined logic on archaeological evidence is methodologically problematic, from a geographical and urban planning perspective it is likely that this property near the Early Islamic city center was of considerable value.

Within this overall residential character it is likely that some light industry or craft activity took place here.

A possible workshop for making objects with bone inlays is reflected in L8102. This locus was also rich in other finds (see Chapter 7, p. 181-182). As R. Kehati discusses (Chapter 12, p. 197), a sawn cow metacarpal may have been prepared for making bone objects. The lead and glass weights presented in Chapters 8 and 11 could also reflect commercial activity. The L9530 red-plastered surface may have been related to dyeing activity, and the basins of L9562, 9569 and 9582 do not appear to be related to usual water drainage. In some places it is clear that pits—some very rich in fine object—pre-date the main phase of building activity. Other pits may have been used to store waste from normal domestic and other activities. As discussed in Chapter 1, all of this is in keeping with the character of many Early Islamic urban environments, which came to include rural-style courtyard houses for extended families who might be involved in a variety of economic activities within their relatively open plots of land (Avni 2011). While urban centers like Ramla were important, we should keep in mind that probably more than 80% of the population lived rural lives (Walmsley 2007: 72). That said, much like its Byzantine predecessor, life in the Early Islamic empire involved considerable emphasis on urban activities and institutions (Avni 2011:324-325).

Animals were also butchered, at least in Area J which seems to have been less affluent or perhaps not residential at all, given that its features mostly comprise simple surfaces, modest pits, septic installations, and few structures. Being somewhat further removed from the city center, perhaps this area saw fewer residences in an open, semi-urban setting. Area J appears to have been in use at about the same time as the rest of the site. Its modestly decorated buff ware fits the late Umayyad period, but there is also much in this assemblage that is Abbasid-Fatimid (i.e. 9-11th centuries). Area J's relative humility and function is hinted at by fewer numbers of glazed ware, glass and other more expensive goods, as well as relatively few cooking vessels. However, the area yielded many of the pithoi, jars, juglets and basins which are typical across the site, and the fine buff ware, bowls and basins here point to non-industrial quotidian activity.

Despite clouding of our stratigraphic picture caused by subsequent damage to the site, it appears that this largely opulent part of Ramla was abandoned after the earthquakes of the mid-eleventh century CE, as almost no later finds or associated architecture were found. Some possible Mamluk or Ottoman features may have been detected at the northernmost extreme of the site. Until then, from the 8th through 11th centuries this part of Ramla appears to have been largely a well-to-do semi-urban area, which was rich in material culture and in the domestic-economic range of its inhabitants' lifeways.

REFERENCES

Avni, G. 2011. "From Polis to Madina" Revisited—Urban Change in Byzantine and Early Islamic Palestine. *Journal of the Royal Asiatic Society* 21: 301-329.

Avni, G., Avissar, M. Baruch, Y. and Torgë, H. 2008. Ramla Excavations South of the White Mosque. *Hadashot Arkheologiyot* 120: http://hadashot-esi.org.il/report_detail_eng.asp?id=788&mag_id=114

Ben Arieh, R. 1997. The Roman, Byzantine and Umayyad Pottery. In: Hirschfeld, Y. (ed.) *The Roman Bath of Hammat Gader, Final Report.* Jerusalem. Pp. 347-381.

Morony, M.G. 1995. *Identity and Material Culture in the Early Islamic World.* Los Angeles.

Stacey, D.A. 1995. *The Archaeology of Early Islamic Tiberias* (PhD dissertation, University of London). London.

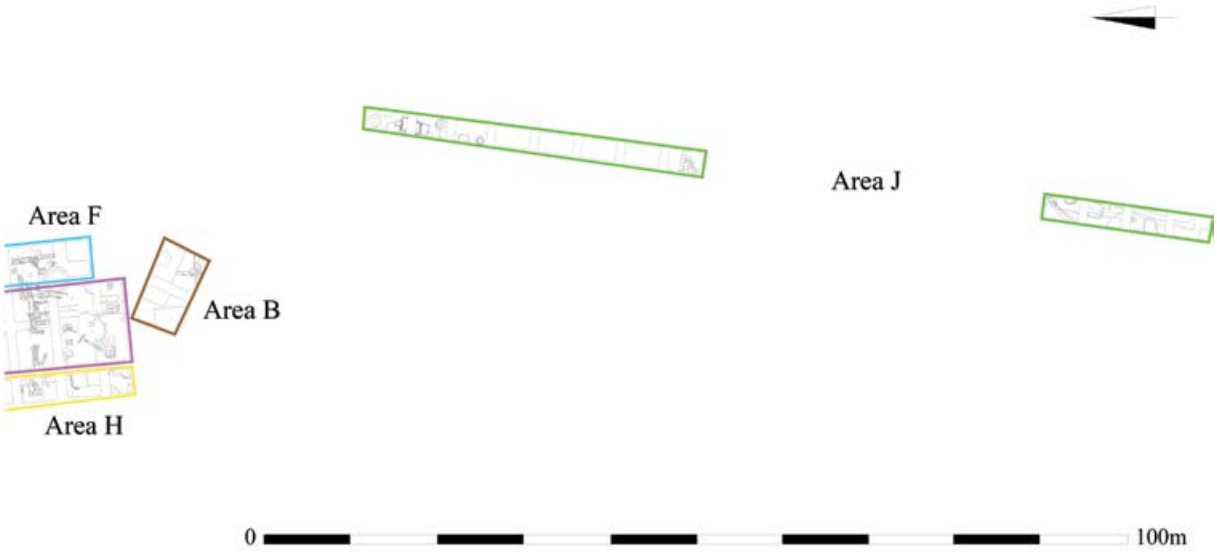
Torgë, H. 2013. Ramla, David Razi'el Boulevard. *Hadashot Arkheologiyot* 125.http://hadashot-esi.org.il/report_detail_eng.aspx?id=5386&mag_id=120

Toueg, R. and Torgë, H. 2014. Ramla. *Hadashot Arkheologiyot* 126. http://hadashot-esi.org.il/report_detail_eng.aspx?id=13661&mag_id=121

Walmsley, A. 2007. *Early Islamic Syria. An Archaeological Assessment*. London.

APPENDIX 1
SITE PLANS

Ramla schematic plan.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82.82
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I7
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83.16
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I7
I8
I9
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I11
I12
I13
I14
I15
I16
I17
I18
9010
9509
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9525
9524
9558
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9543
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9517
9550
9554
9721
9720
9723
9724
9714
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METALLED
SURFACE
ASHLARS?
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CHANNEL
PLASTER
9709
PLASTER

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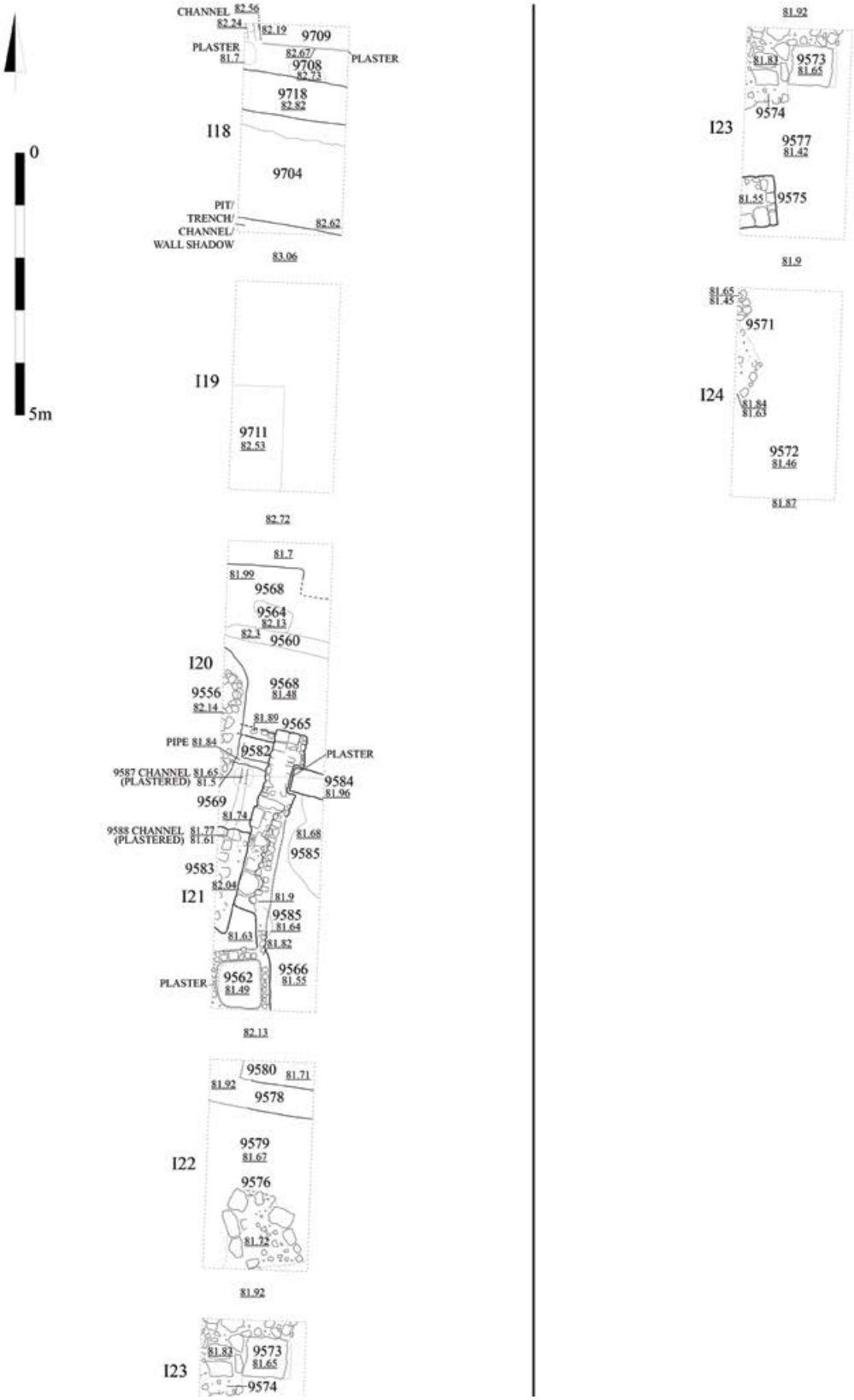
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I18
9704
PIT/
TRENCH/
CHANNEL/
WALL SHADOW
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83.06
I19
9711
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(82.26)
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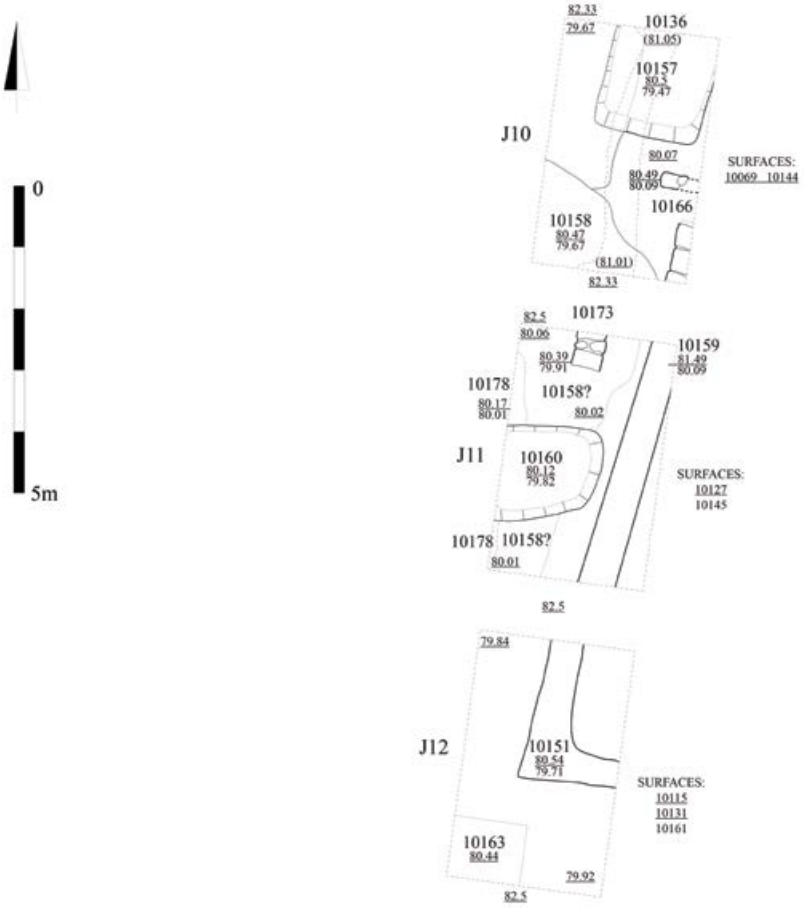
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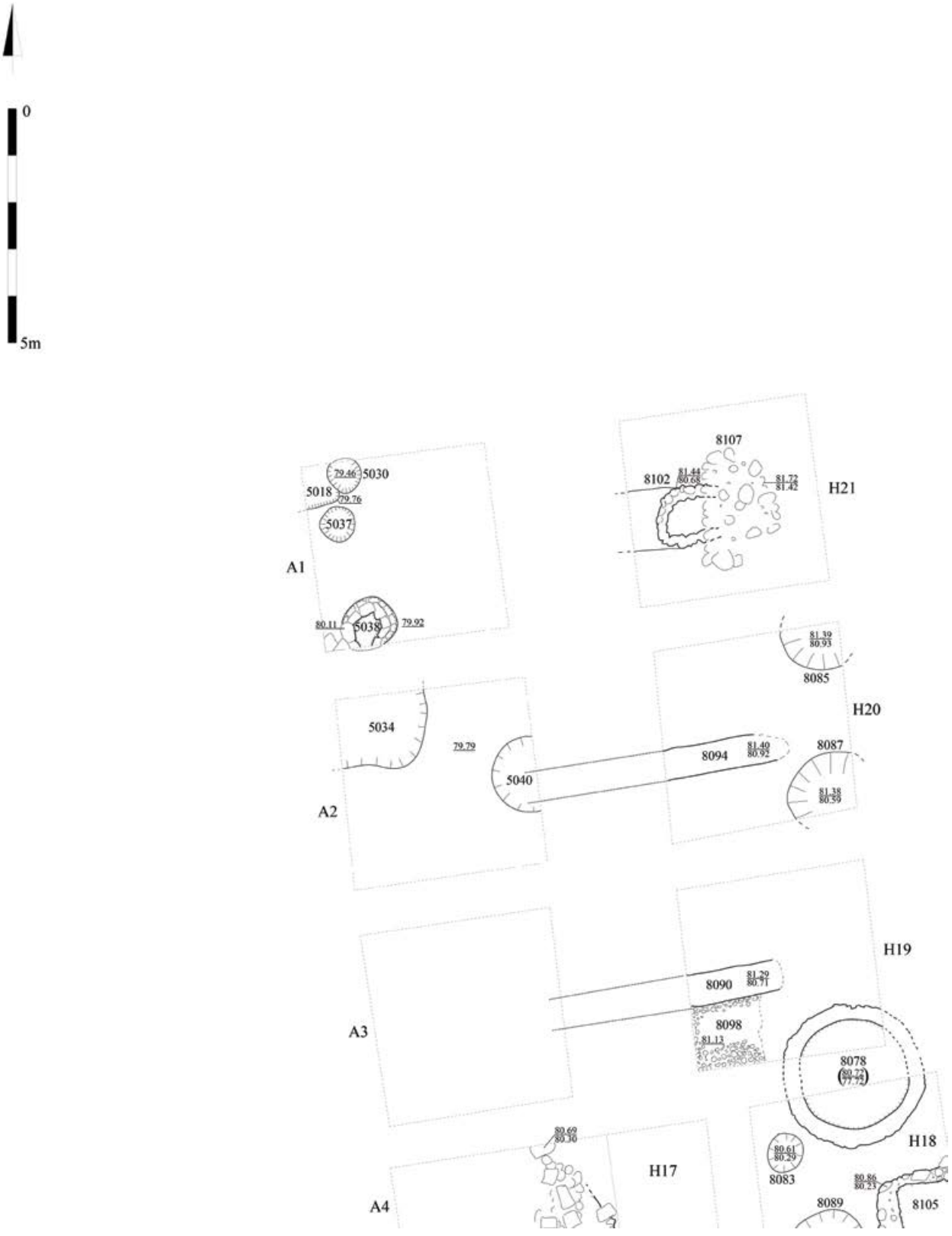
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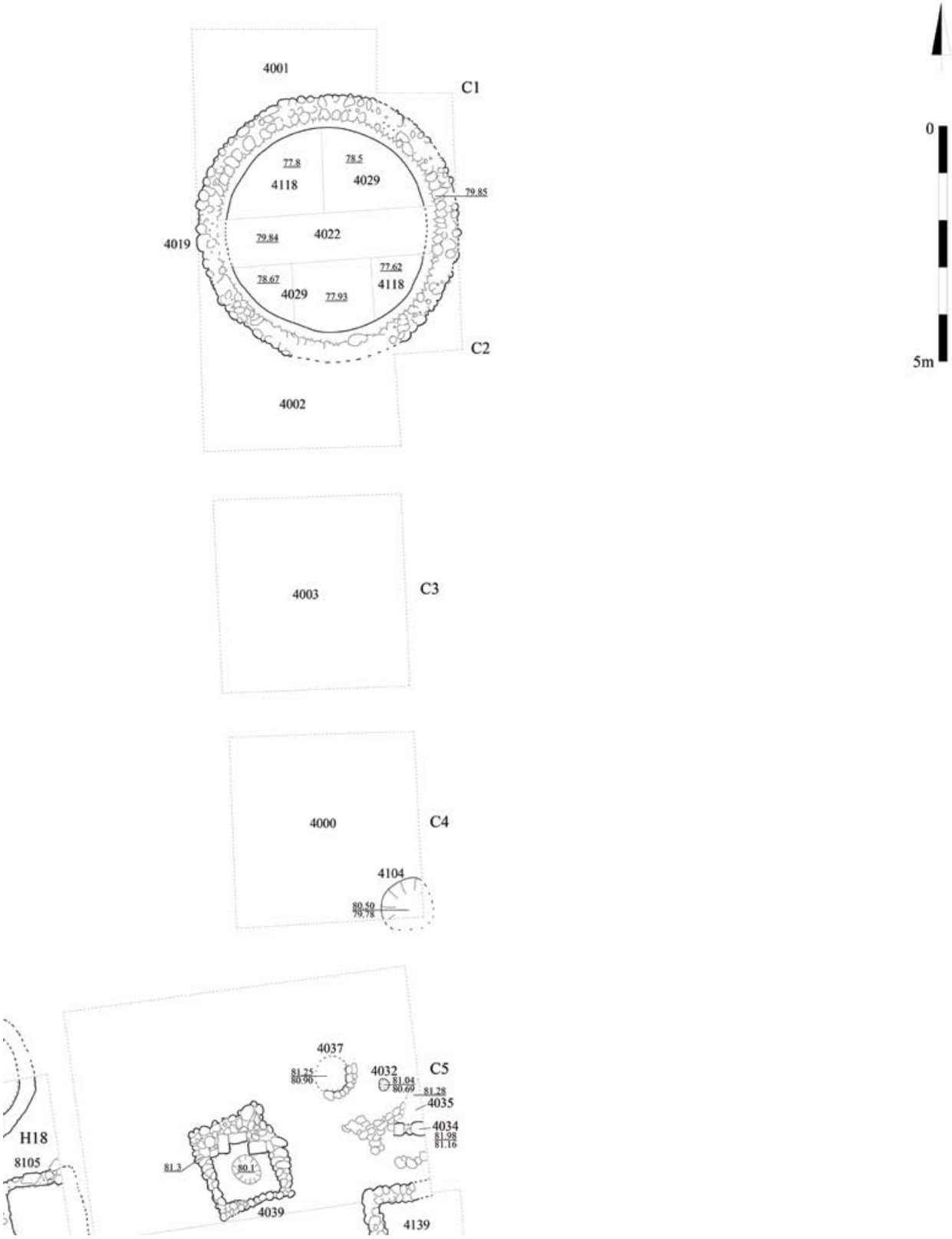
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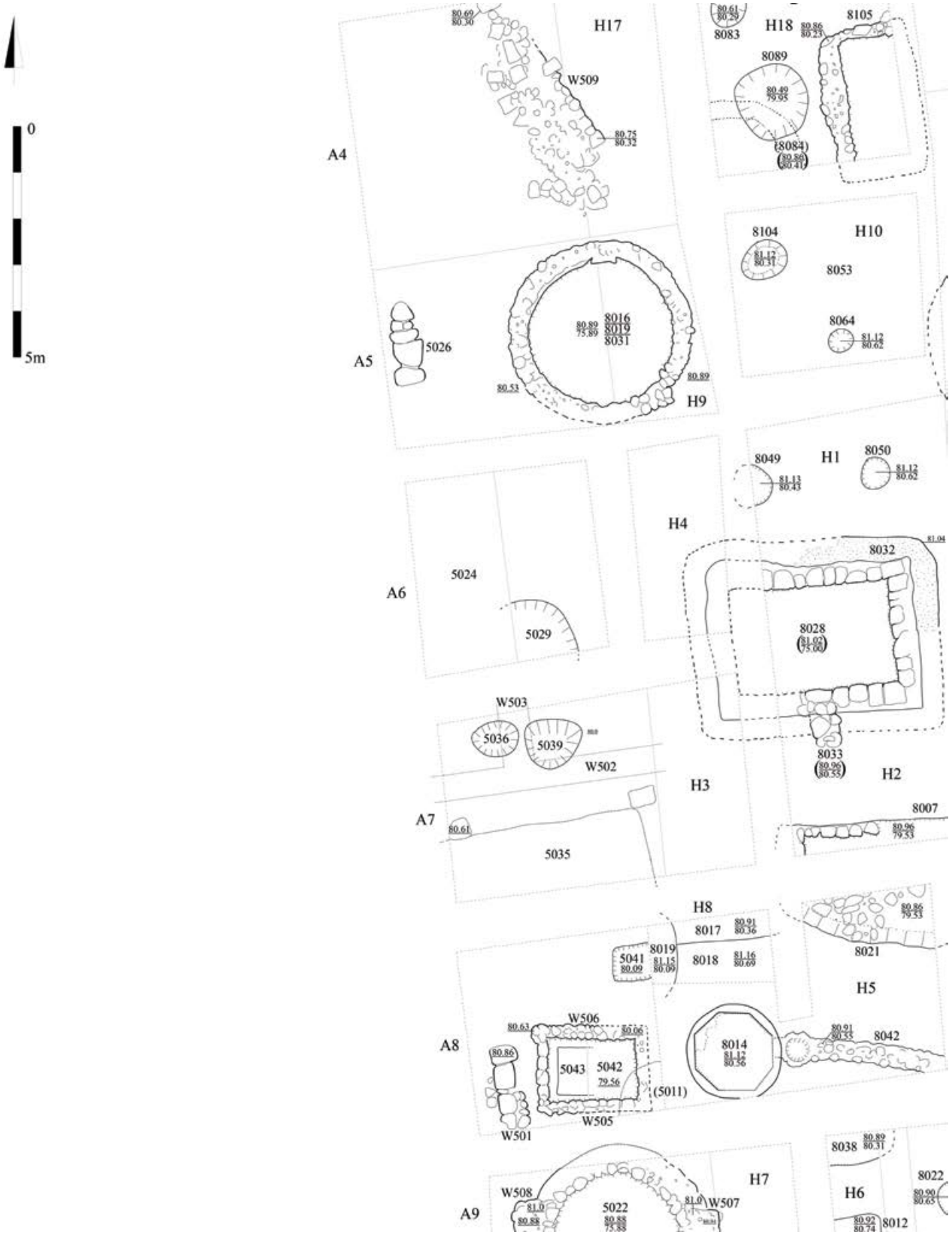
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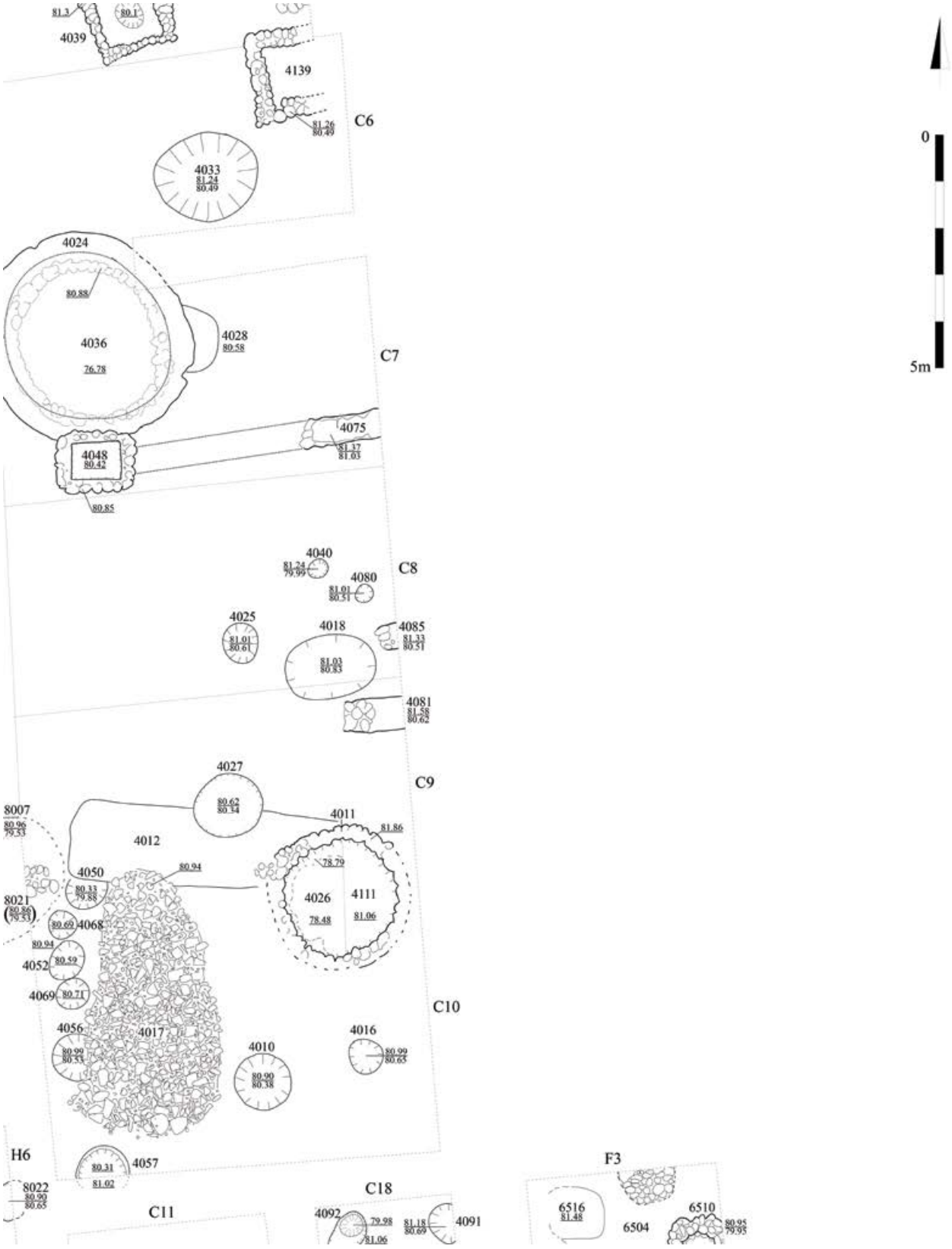
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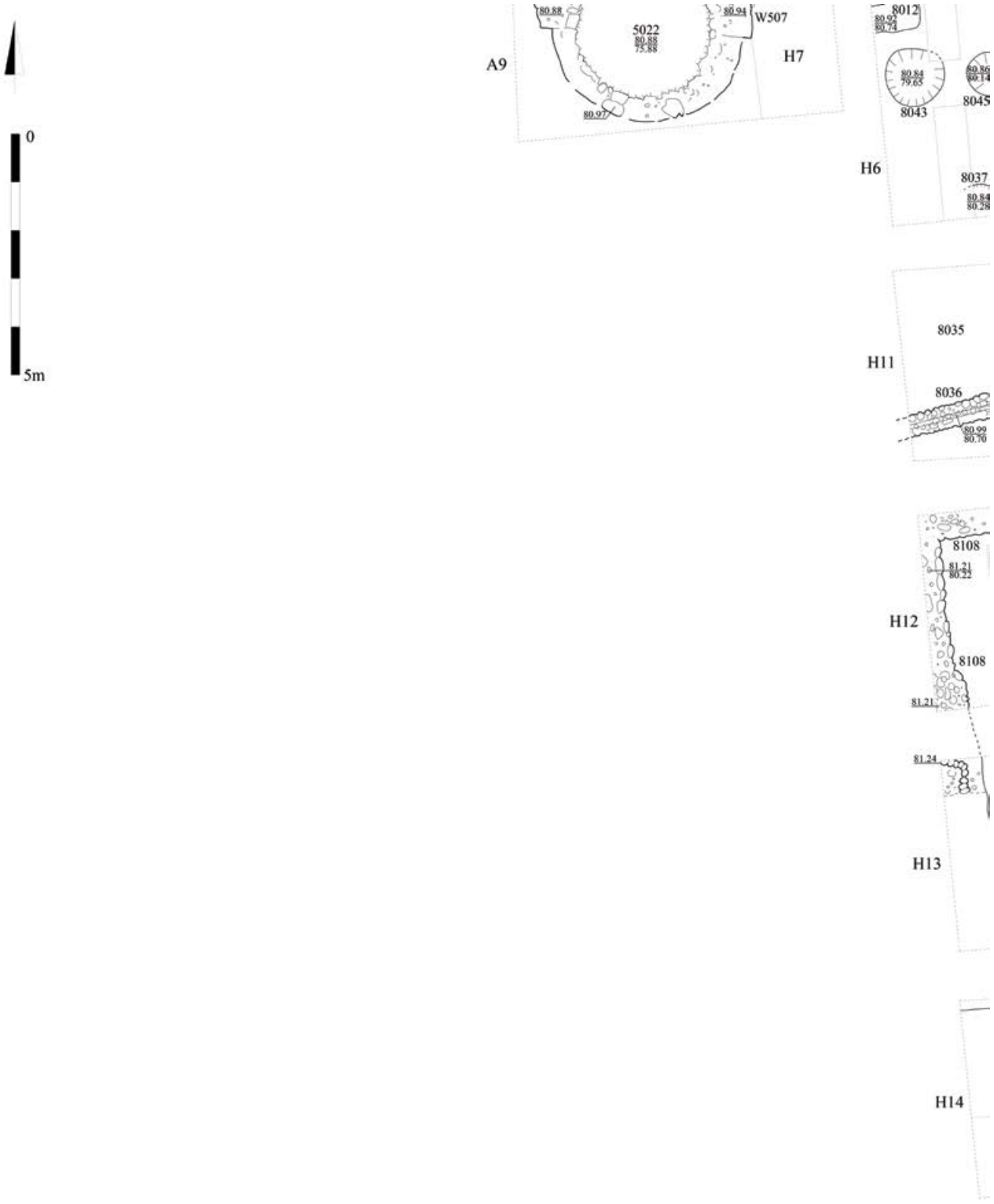
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H14

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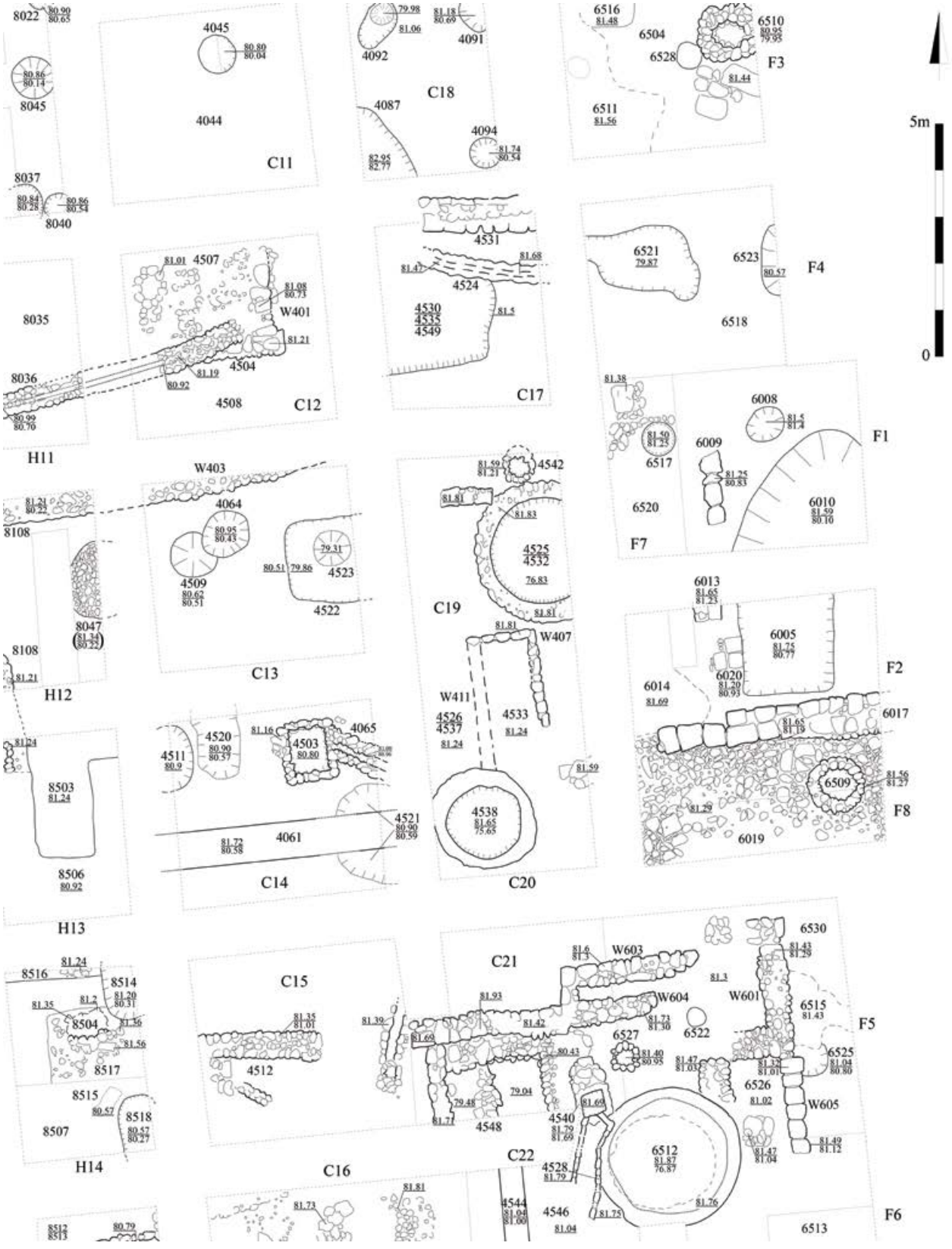
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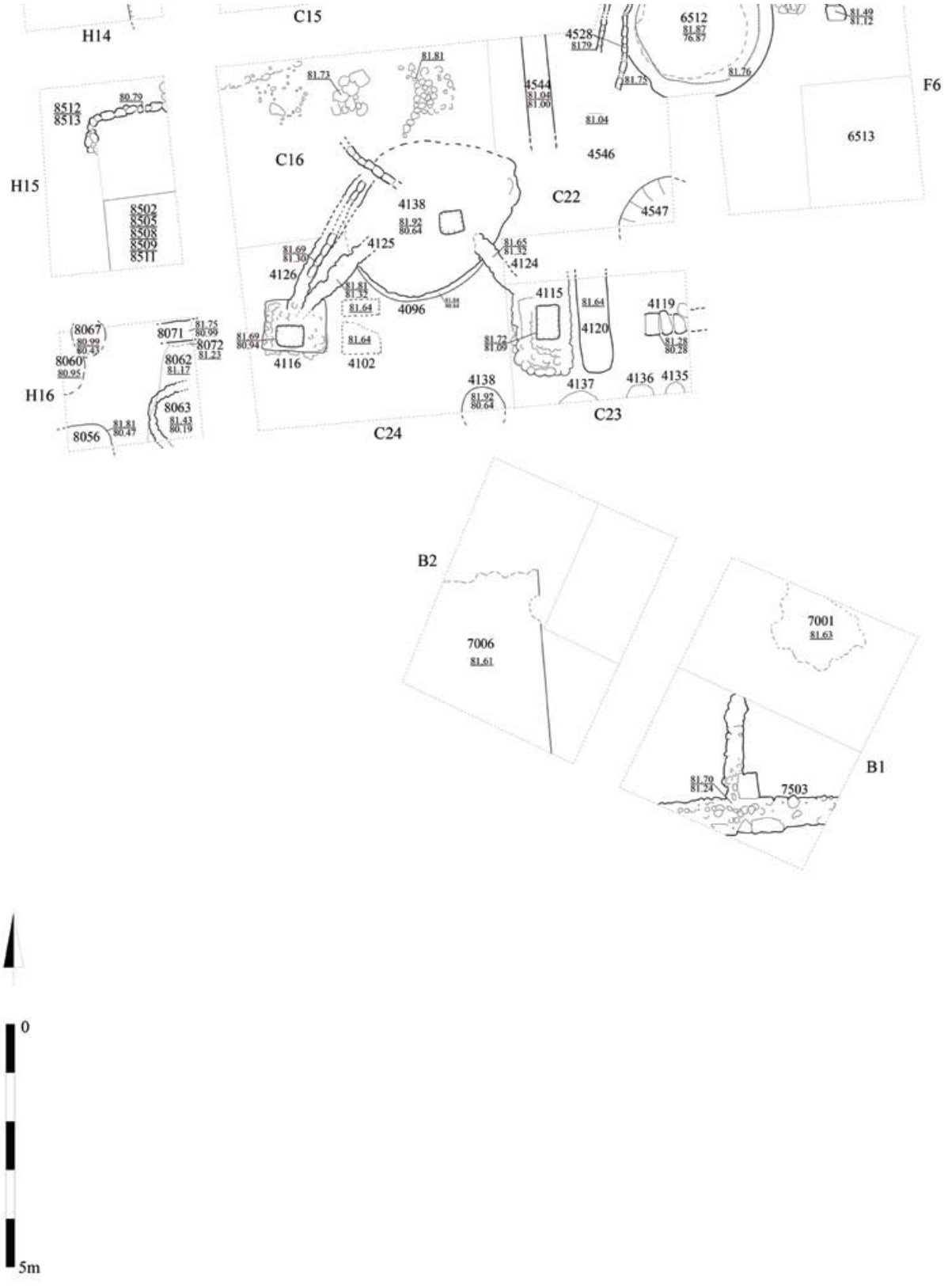
Area A-H (6)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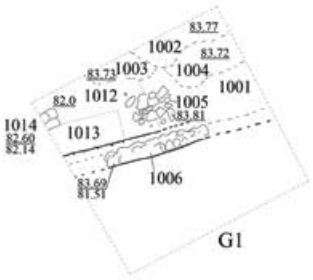
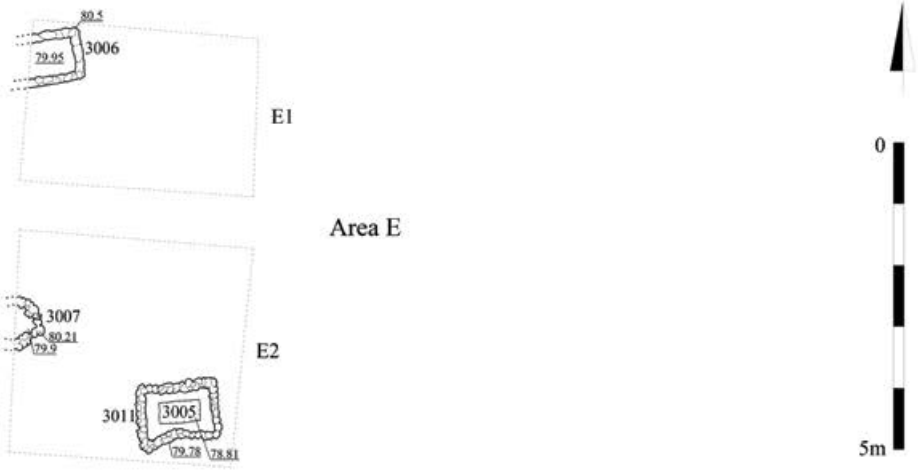
Area A-H (7)



Area G



Area E, G (1)

APPENDIX 2

LOCUS LIST

Locus	Square	Description	Locus	Square	Description
1000	G1	Sediment	4005	C8	Sediment
1001	G1	Pit	4006	C10	Sediment
1002	G1	Surface	4007	C9	Sediment
1003	G1	Sediment	4008	C9	Pit
1004	G1	Sediment	4009	C9	Sediment
1005	G1	Stone concentration	4010	C10	Pit
1006	G1	Wall	4011	C9-10	Cistern
1007	G1	Sediment	4012	C9	Pit
1008	G1	Surface	4013	C7	Sediment
1009	G1	Sediment	4014	C8	Sediment
1010	G1	Sediment	4015	C9	Sediment
1011	G1	Surface	4016	C10	Pit
1012	G1	Surface	4017	C9-10	Surface (courtyard?)
1013	G1	Sediment	4018	C8	Pit
1014	G1	Wall (possible)	4019	C1-2	Cistern
3002	E1	Sediment	4020	C6	Sediment
3003	E2	Sediment	4021	C4	Sediment
3004	E2	Fill	4022	C1-2	Cistern fill
3005	E2	Pit	4023	C9-10	Cistern fill
3006	E1	Stone-lined installation	4024	C7	Cistern
3007	E2	Stone-lined installation	4025	C8	Pit
3008	E1	Wall	4026	C9-10	Sediment under Cistern 4011
3009	E1	Wall	4027	C9	Pit
3010	E1	Fill	4028	C7	Pit
3011	E2	Stone-lined installation	4029	C1-2	Cistern fill
4000	C4	Sediment	4030	C8	Sediment
4001	C1	Sediment	4031	C5	Sediment
4002	C2	Sediment	4032	C5	Pit
4003	C3	Sediment	4033	C6	Pit
4004	C6	Sediment	4034	C5	Wall
4035	C5	Surface	4067	C10	Sediment
4036	C7	Cistern fill	4068	C10	Pit
4037	C5	Pit	4069	C10	Pit

Locus	Square	Description	Locus	Square	Description
4038	C5	Sediment	4070	C7	Sediment
4039	C5	Installation	4071	C5	Sediment
4040	C8	Pit	4072	C7	Sediment
4041	C8	Sediment	4073	C8-9	Sediment
4042	C6	Sediment	4074	C8	Sediment
4043	C9	Pit	4075	C7	Drainage pipe
4044	C11	Sediment	4076	C9	Sediment (= L4132)
4045	C11	Pit	4077	C10	Sediment (= L4078)
4046	C9	Sediment	4078	C18	Sediment
4047	C12	Sediment	4079	C5	Sediment
4048	C7	Installation	4080	C8	Pit
4049	C6	Sediment	4081	C9	Wall
4050	C9	Pit	4082	C10	Sediment (= L4078)
4051	C11	Sediment	4083	C18	Sediment (= L4088)
4052	C10	Pit	4084	C7	Pit
4053	C16	Sediment	4085	C8	Wall
4054	C13-14	Sediment	4086	C10	Pit
4055	-	Stray find	4087	C18	Pit
4056	C10	Pit	4088	C18	Sediment
4057	C10	Pit	4089	C23	Sediment
4058	C13	Sediment	4090	C24	Sediment
4059	C14	Sediment	4091	C18	Pit
4060	C15	Sediment	4092	C18	Pit
4061	C14	Wall	4093	C18	Pit (= L4087)
4062	C12	Sediment	4094	C18	Pit
4063	C14	Sediment	4095	C23	Sediment
4064	C13	Pit	4096	C24	Sediment
4065	C14	Drainage channel	4097	C24	Sediment
4066	C15	Sediment	4098	C24	Sediment
4099	C24	Sediment	4131	C8-9	Surface
4100	C24	Sediment	4132	C9	Sediment
4101	C24	Sediment	4133	C10-18	Sediment
4102	C24	Surface	4134	C18	Surface
4103	C24	Surface	4135	C23	Wall
4104	C4	Pit	4136	C23	Wall
4105	C24	Surface	4137	C23	Wall
4106	C1-2	Sediment	4138	C24	Pit
4107	C3	Sediment	4139	C6	Structure
4108	C10	Sediment	4140	C24	Cistern
4109	C7	Sediment	4500	C13	Sediment

Locus	Square	Description	Locus	Square	Description
4110	C10	Sediment (= L4078)	4501	C14	Sediment
4111	C9-10	Cistern fill	4502	C15	Sediment
4112	C7-10	Sediment	4503	C14	Plastered installation
4113	C5-6	Sediment	4504	C12	Pit and surface
4114	C11	Sediment	4505	C15	Surface
4115	C23	Holding basin	4506	C14	Pits
4116	C24	Holding basin	4507	C12	Structure (possible)
4117	C18	Sediment	4508	C12	Structure
4118	C1-2	Cistern fill	4509	C13	Pit (possible)
4119	C23	Wall	4510	C13	Sediment
4120	C23	Wall	4520	C13	Pit
4121	-	Cancelled	4521	C13	Pit
4122	C24	Surface	4522	C13	Pit
4123	C23-24	Sediment	4523	C13	Pit
4124	C23	Drainage channel	4524	C13	Water pipe
4125	C24	Drainage channel	4525	C13	Pit
4126	C24	Drainage channel	4526	C13	Surface
4127	C7	Pit	4527	C13	Structure
4128	C8	Sediment	4528	C13	Water pipes
4129	C8-9	Surface	4529	C13	Pit
4130	C9	Sediment	4530	C13	Pit
4531	C13	Pit	5013	A1	Rubble deposit
4532	C13	Pit fill	5014	A3	Rubble deposit
4533	C17	Surface	5015	A2	Sediment
4534	C19	Sediment	5016	A5	Sediment
4535	C20	Cistern	5017	A7	Sediment
4536	C21	Structure	5018	A1	Pit
4537	C22	Structure fill	5019	A5	Installation
4538	C17	Pit fill	5020	A8	Sediment
4539	C17	Sediment	5021	A7	Pit
4540	C17	Plastered installation	5022	A3	Installation
4541	C19	Sediment under plaster surface	5023	A8	Pit fill
4542	C20	Plastered pit	5024	A6	Sediment
4543	C21	Structure	5025	A8	Installation
4544	C17	Wall	5026	A5	Sediment
4545	C21	Structure fill	5027	A4	Sediment
4546	C20	Sediment	5028	A7	Sediment
4547	C20	Pit	5029	A6	Pit
4548	C22	Surface	5030	A1	Pit
4549	C21-22	Pit	5031	A5	Installation

Locus	Square	Description	Locus	Square	Description
4550	C21	Sediment	5032	A4	Pit
5001	A1	Sediment	5033	A8	Pit
5002	A2	Sediment	5034	A8	Pit
5003	A3	Sediment	5035	A7	Plastered surface
5004	A4	Sediment	5036	A7	Pit
5005	A5	Sediment	5037	A1	Pit
5006	A6	Sediment	5038	A1	Pit
5007	A7	Sediment	5039	A7	Pit
5008	A8	Sediment	5040	A2	Pit
5009	A9	Sediment	5041	A8	Pit
5010	A6	Cistern	5042	A8	Installation
5011	A8	Pit	5043	A8	Installation
5012	A5	Pit	5044	A8	Sediment
5045	A8	Installation fill	6508	F7	Sediment
5046	A10	Sediment	6509	F8	Installation
5047	A11	Sediment	6510	F3	Pit
6000	-	Cancelled	6511	F3	Sediment
6001	F1	Pit fill	6512	F6	Cistern
6002	F2	Sediment	6513	F6	Sediment
6003	F1	Sediment	6514	F4	Pit fill (= L6505)
6004	F2	Sediment	6515	F5	Sediment
6005	F2	Pit	6516	F3	Installation
6006	F2	Sediment	6517	F7	Tabun
6007	F2	Sediment	6518	F4	Sediment
6008	F1	Pit	6519	F5	Surface
6009	F1	Wall	6520	F7	Sediment
6010	F1	Pit	6521	F4	Pit
6011	F1	Sediment	6522	F6	Sediment
6012	F1-2	Sediment	6523	F4	Pit
6013	F2	Wall	6524	F7	Sediment
6014	F2	Surface	6525	F5	Pit
6015	F2	Surface	6526	F5	Structure room
6016	F2	Sediment	6527	F5	?
6017	F2	Wall	6528	F3	*Hamra* concentration
6018	F2	Installation	6529	F4	Sediment
6019	F2	Surface	6530	F5	Sediment
6020	F2	Surface/wall	7000	B1	Sediment
6500	F3	Sediment	7001	B1	Mosaic floor
6501	F4	Sediment	7002	B1	Plastered surface
6502	F5	Sediment	7003	-	Cancelled

Locus	Square	Description	Locus	Square	Description
6503	F6	Sediment	7004	B1	Sediment
6504	F3	Surface	7005	B1	Structure
6505	F4	Pit fill	7006	B2	Plastered surface
6506	F5	Structure	7007	B2	Sediment
6507	F6	Sediment	7008	B1	?
7009	B1	Sediment	8027	H2	Pit
7500	B2	Sediment	8028	H2	Structure
7501	B1	Sediment	8029	H1	Fill of L8028
7502	B1	Sediment	8030	H4	Fill of L8028
7503	B1	Wall	8031	H3	Fill of L8028
8000	H1	Sediment	8032	H1	Wall (possibly of mudbrick)
8001	H2	Sediment	8033	H2	Wall
8002	H3	Sediment	8034	H12	Sediment
8003	H1	Sediment	8035	H11	Sediment
8004	H4	Sediment	8036	H11	Drainage pipe
8005	H3	Sediment	8037	H6	Pit
8006	H2	Sediment	8038	H6	Pit
8007	H2	Pit	8039	H5	Sediment
8008	H5	Sediment	8040	H6	Pit
8009	H6	Sediment	8041	H6	Sediment
8010	H7	Sediment	8042	H5	Drainage pipe
8011	H7	Jar within L8010	8043	H6	Pit
8012	H6	Sediment	8044	H11	Sediment
8013	H8	Fill of Fountain 8014	8045	H6	Pit
8014	H8	Hexagonal fountain	8046	H12	Sediment
8015	H8	Sediment	8047	H12	Pit
8016	H9	Sediment	8048	H16	Sediment
8017	H8	Pit	8049	H1	Pit
8018	H8	Sediment	8050	H1	Pit
8019	H8	Pit	8051	H17	Sediment
8020	H4	Sediment	8052	H18	Sediment
8021	H5	Pit	8053	H10	Sediment
8022	H6	Pit	8054	H19	Sediment
8023	H9	Sediment	8055	H16	Sediment
8024	H10	Sediment	8056	H16	Pit
8025	H11	Sediment	8057	H16	Sediment
8026	H12	Sediment	8058	H16	Sediment
8059	H17	Sediment	8091	H19	Sediment
8060	H16	Plastered surface	8092	H19	Sediment
8061	H16	Sediment	8093	H20	Sediment

Locus	Square	Description	Locus	Square	Description
8062	H16	Plastered surface	8094	H20	Wall
8063	H16	Structure	8095	H19	Sediment
8064	H10	Pit	8096	H16	Sediment (= L8061)
8065	H16	Pit	8097	H19	Sediment
8066	H16	Sediment	8098	H19	Surface (cobbled)
8067	H16	Wall	8099	H20	Sediment
8068	H19	Sediment	8100	H20	Sediment (= L8106)
8069	H20	Sediment	8101	H19	Sediment (= L8077)
8070	H21	Sediment	8102	H21	Installation
8071	H16	Wall	8103	H21	Sediment
8072	H16	Wall	8104	H10	Pit
8073	H16	Fill of Feature 8063	8105	H18	Installation
8074	H16	Sediment	8106	H20	Sediment
8075	H16	Plastered surface	8107	H21	Surface (stone and mortar)
8076	H18	Sediment	8108	H12	Wall
8077	H19	Sediment	8500	H13	Sediment
8078	H18	Cistern	8501	H14	Sediment
8079	H18	Fill of Cistern 8078	8502	H15	Sediment
8080	H19	Cistern (= L8078)	8503	H13	*Hamra* concentration
8081	H19	Fill of Cistern 8078	8504	H14	Plastered surface
8082	H18	Fill of Installation 8105	8505	H15	Plastered surface
8083	H18	Pit	8506	H13	*Hamra* concentration
8084	H18	Wall	8507	H14	Sediment
8085	H20	Pit	8508	H15	Plastered surface
8086	H18	Fill of Installation 8105	8509	H15	Surface
8087	H20	Pit	8510	H1	Animal skeleton
8088	H21	Sediment	8511	H15	Plastered surface
8089	H18	Pit	8512	H15	Surface
8090	H19	Wall	8513	H15	Sediment
8514	H14	Pit	9027	I2	Sediment
8515	H14	Sediment	9028	I3	Wall
8516	H14	Sediment	9029	I4	Sediment over Surface 9033
8517	H14	Plastered surface	9030	I4	Pit
8518	H14	?	9031	I4	Wall (mudbrick?)
9000	I1	Sediment	9032	I2	Pit
9001	I2	Sediment	9033	I4	Surface (cobbled)
9002	I3	Sediment	9500	I7	Sediment
9003	I4	Sediment	9501	I8	Sediment
9004	I5	Sediment	9502	I9	Sediment
9005	I6	Sediment	9503	I10	Sediment

Locus	Square	Description	Locus	Square	Description
9006	I5	Cistern aperture	9504	I11	Sediment
9007	I6	Wall	9505	I12	Sediment
9008	I4	Sediment	9506	I13	Sediment
9009	I6	Plastered surface	9507	I7	Sediment
9010	I6	Sediment	9508	I7	Linear cut
9011	I4	Sediment	9509	I7	Wall/structure
9012	I5	Sediment	9510	I12	Sediment
9013	I5	Drainage channel	9511	I8	Sediment
9014	I4	Basin	9512	I8	Wall
9015	I5	Fill of Channel 9013	9513	I7	Surface
9016	I5	Sediment	9514	I11	Sediment
9017	I4	Plastered surface	9515	I11	Surface
9018	I4	Wall	9516	I12	Surface
9019	I3	Sediment	9517	I11	Wall
9020	I6	Sediment	9518	I7	Sediment
9021	I1	Wall	9519	I12	Sediment
9022	I2	Sediment	9520	I9	?
9023	I1	Sediment	9521	I9	Wall/structure
9024	I3	Sediment	9522	I7	Tabun
9025	I2	Wall	9523	I9	Surface
9026	I2	Sediment	9524	I7	Mortar fragment
9525	I7	Sediment	9557	I24	Sediment
9526	I9	Surface	9558	I23	Sediment
9527	I9	Surface	9559	I22	Sediment
9528	I10	Sediment	9560	I20	Line of plaster
9529	I9	Wall/surface	9561	I20	Sediment
9530	I8	Wall/surface	9562	I21	Basin
9531	I8	Pit	9563	I20	Sediment
9532	I8	Cancelled	9564	I20	Surface
9533	I8	Surface	9565	I21	Linear stone feature
9534	I8	Surface	9566	I21	Sediment
9535	I8	Sediment	9567	I20	Linear cut
9536	I10	Sediment	9568	I20	Sediment
9537	I10	Surface	9569	I21	Basin/pit
9538	I7	Surface	9570	I12	Cancelled
9539	I7	Sediment	9571	I24	Masonry fragment
9540	I7	Wall	9572	I24	Sediment
9541	I9	Sediment	9573	I23	Surface
9542	I11	Pit	9574	I23	Masonry fragment
9543	I11	Sediment	9575	I23	Masonry fragment

Locus	Square	Description	Locus	Square	Description
9544	I9	Sediment	9576	I22	Masonry fragment
9545	I9	Stone feature	9577	I23	Sediment
9546	I9	Pit	9578	I22	Wall
9547	I9	Wall	9579	I22	Sediment
9548	I9	Pit	9580	I22	Surface
9549	I12	Sediment	9581	I7	Pit/deposit
9550	I12	Wall	9582	I21	Basin
9551	I10	Sediment	9583	I21	Drain/channel
9552	I10	Wall	9584	I21	Structure
9553	I11	Wall?	9585	I21	Surface
9554	I12	Sediment	9586	I8	Sediment
9555	I20	Sediment	9587	I20-21	Drainage channel
9556	I21	Sediment	9588	I21	Drainage channel
9700	I14	Sediment	10007	J4	Sediment
9701	I15	Sediment	10008	J3	Sediment
9702	I16	Sediment	10009	J3	Surface (possible)
9703	I17	Sediment	10010	J3	Sediment
9704	I18	Surface (mosaic)	10011	J2	Sediment
9705	I19	Sediment	10012	J3	Sediment
9706	I18	Sediment under Surface 9704	10013	J2	Surface
9707	I13	Sediment	10014	J1	Surface
9708	I18	Plastered surface	10015	J1	Sediment
9709	I18	*Hamra* concentration	10016	J2	Sediment
9710	I18	Wall	10017	J2	Sediment
9711	I19	Plastered surface	10018	J3	Surface
9712	I18	Drainage channel	10019	J2	Surface
9713	I13	Sediment	10020	J3	Sediment
9714	I15	Pit	10021	J7	Sediment
9715	I16	Sediment	10022	J8	Sediment
9716	I17	Wall (possible)	10023	J1	Surface
9717	I18	Sediment	10024	J1	Sediment
9718	I14	Sediment	10025	J2	Surface
9719	I19	Sediment	10026	J2	Pit
9720	I13	Sediment	10027	J2	Surface
9721	I13	Pit	10028	J6	Sediment
9722	I16	Basin	10029	J7	Pit
9723	I14	Pit	10030	J8	Pit
9724	I14	Wall	10031	J7	Sediment
10000	J6	Sediment	10032	J1	Sediment
10001	J6	Sediment	10033	J5	Surface

Locus	Square	Description	Locus	Square	Description
10002	J5	Sediment	10034	J5	Sediment
10003	J5	Sediment	10035	J6	Surface
10004	J1	Sediment	10036	J6	Sediment
10005	J2	Sediment	10037	J1	Surface
10006	J3	Sediment	10038	J1	Pit
10039	J6	Surface (possible)	10071	J3	Fill of L10070
10040	J3	Surface	10072	J8	Sediment
10041	J2	Sediment	10073	J5	Surface (possible)
10042	J6	Sediment	10074	J5	Sediment
10043	J7	Sediment	10075	-	Cancelled
10044	J7	Surface	10076	J3	Top fill of Pit 10079
10045	J7	Sediment	10077	J4	Sediment
10046	J5	Surface	10078	J4	Surface
10047	J5	Surface	10079	J3	Pit
10048	J7	Surface	10080	J3	Lower fill of Pit 10079
10049	J7	Sediment	10081	J4	Surface
10050	J7	Surface	10082	J4	Sediment
10051	J7	Surface (possible)	10083	J2	Fill of L10084
10052	J7	Sediment	10084	J2	Cut feature
10053	J1	Sediment	10085	J4	Sediment
10054	J2	Sediment	10086	J1	Cess pit
10055	J3	Sediment	10087	J2	Cess pit
10056	J2	Surface	10088	J1	Sediment
10057	J1	Surface	10089	J2	Stone installation
10058	J1	Sediment	10090	J2	Fill of L10089
10059	J2	Sediment	10091	J1	Sediment
10060	J5	Sediment	10092	J1	Fill of L10119
10061	J8	Sediment	10093	J2	Surface
10062	J8	Surface	10094	J2	Sediment
10063	J8	Sediment	10095	J2	Sediment/deposit
10064	J2	Surface	10096	J2	Deposit/pit
10065	J2	Sediment	10097	J2	Pit
10066	J1	Surface	10098	J2	Fill of L10084
10067	J1	Sediment	10099	J2	Fill of L10084
10068	J8	Surface (possible)	10100	J2	Fill of L10084
10069	J4	Surface	10101	J10	Sediment
10070	J3	Stone-lined installation	10102	J11	Sediment
10103	J12	Sediment	10135	J12	Sediment
10104	J8	Sediment	10136	J10	Surface
10105	-	Cancelled	10137	J10	Sediment

Locus	Square	Description	Locus	Square	Description
10106	-	Cancelled	10138	J9	Surface
10107	-	Cancelled	10139	J9	Drainage pipe
10108	-	Cancelled	10140	J9	Pit
10109	-	Cancelled	10141	J12	Surface
10110	-	Cancelled	10142	J9	Sediment
10111	-	Cancelled	10143	J12	Sediment
10112	-	Cancelled	10144	J10	Surface
10113	J1	Fill of L10086	10145	J11	Surface
10114	J9	Sediment	10146	J9	Surface
10115	J12	Surface	10147	J9	Tabun
10116	J12	Sediment	10148	J10	Sediment
10117	J10	Sediment	10149	J12	Sediment
10118	J9	Sediment	10150	J12	Sediment
10119	J1	Cut feature	10151	J12	Wall
10120	J1	Fill of L10121	10152	J11	Sediment
10121	J1	Stone feature	10153	-	Cancelled
10122	J5	Sediment	10154	J9	Sediment
10123	-	Cancelled	10155	J9	Pit
10124	J1	Fill of L10121	10156	J9	Cut feature
10125	J1	Pit (possible)	10157	J10	Cut feature
10126	J1	Pit	10158	J10	Pit
10127	J11	Surface	10159	J11	Wall
10128	J11	Sediment	10160	J11	Pit (possible)
10129	J2	Fill of L10089	10161	J12	Surface
10130	J2	Sediment (sterile)	10162	J12	Sediment
10131	J12	Surface	10163	J12	Sediment
10132	J9	Surface	10164	J9	Wall
10133	J12	Sediment	10165	J10	Wall
10134	J12	Surface	10166	J10	Wall
10167	J12	Sediment			
10168	J11	Sediment			
10169	J10	Surface			
10170	J10	Sediment			
10171	J10	Sediment			
10172	J11	Sediment			
10173	J11	Wall			
10174	J1	Sediment			
10175	J1	Cut feature/pit			
10176	J1	Cut feature/pit			
10177	J1	Fill of L10121			
10178	J11	Sediment			

WALL LIST

Wall	Square	Orientation; comments	Wall	Square	Orientation; comments
401	C12	North-south	506	A8	East-west
402	C14	East-west	507	A9	East-west
403	C13	East-west	508	A9	East-west
404	C15	East-west	509	A4	Northwest-southeast
405	C19	East-west	510	A5	North-south
406	C17	East-west	601	F5	North-south
407	C10	North-south	602	F5	East-west
408	C19	East-west	603	F5	East-west
409	C21	East-west	604	F5	East-west
410	C21	North-south	605	F5	North-south
411	C20	North-south			
412	C21	North-south			
413	C19	East-west			
501	A8	North-south			
502	A7	East-west			
503	A7	North-south			
504	A5	North-south			
505	A8	East-west			

APPENDIX 3

SITE FEATURES BY TYPE

Cisterns

These were circular in plan and vertical-sided in section; all probably had dome-shaped roofs. Eleven such cisterns were found, two of which—4138 (C16) (Chapter 1, p. X, Fig. 1.6) and 9006 (I5)—were found completely intact and four retained at least part of their tops. Dimensions ranged between 2.15—4.0m diameter and 3.0—6.0m+ depth, and with wall thicknesses of 0.2—0.8m. Walls were built of semi-dressed limestone blocks and fieldstones, bonded with high-quality mortar and sealed with robust waterproof plaster. One—4019 (C1-C2)—had a step just above its interior base (not documented due to cistern depth and safety issues, but identified during site destruction). Of the openings in the tops, both round and square shapes were in evidence. In several cases the cisterns were associated with holding basins (e.g. 4048 [C7] and see below), ceramic pipes (4126 [C24]) and/or stone-lined channels (e.g. 4075 [C7]).

Cisterns.

Locus	Square	Dimensions (interior diameter x extant depth, wall width)	Shape in section	Aperture shape
5022	A9	2.8 x ca. 5.0m (did not reach bottom), 0.4-0.8m	Bell-shaped (probably)	
4019	C1-C2	4.0 x ca. 6.0m, 0.6-0.8m	Bell-shaped (probably)	
4024	C6-C7	3.0 x 4.1m, 0.5-0.6m		
4011	C9	2.3 x 3.07m, 0.3-0.35m	Bell-shaped (probably)	
4138	C16-C24	2.3 x ca. 5.0m (did not reach bottom), 0.35-0.4m		Square-shaped
4525	C19	2.2 x ca. 5.0m (did not reach bottom), 0.3-0.5m	Bell-shaped (probably)	
4538	C20	1.75 x ca. 6.0m(did not reach bottom), 0.2-0.35m		
6512	F5-F6	2.35 x ca. 5.0m(did not reach bottom), 0.2-0.35m		
8016	H9-A5	3.0 x ca. 5.0m (did not reach bottom), 0.4m	Bell-shaped (probably)	
8078	H18-H19	2.15 x ca. 3.0m (did not reach bottom), 0.25-0.35m		
9006	I5	unknown (not opened or excavated)		Round

Drainage channels

Two means of drainage were identified at the site: ceramic pipes and stone-lined channels.

Ceramic pipes (n=7): These were made of male and female ceramic segments which fitted neatly into each other by means of rabbets. There was some variety in segment sizes: 8-12cm in diameter and 16-27cm in length (this seems to reflect a non-centralised segment manufacturing industry). Several of these pipes were encased in stone and mortar (e.g. 4524

[C17]). One—8042 (H5)—had a jar inserted along its length (basket 80282), creating a 'mini-holding basin' within which heavy materials could sink before they reached the adjoining fountain 8014 (H8). Other than this case, half of these pipes were linked to cisterns. We could not identify the destinations of the remaining two pipes.

Ceramic pipes.

Locus	Square
?	C16
4524	C17
4528	C22
4124-6	C24/C16
8042	H5
8036	H11/C12
10139	J9

Stone-lined channels (n=7): Seven channels of this type were found (interior: 0.15-0.45 x 0.04 x 0.3m; exterior width: 0.25-0.63m). These were made from stone blocks, bonded by mortar and often plastered on their interiors. Two led to cisterns (e.g. 9013 [I5]), two to basins (e.g. 4065 [C14]) and three had no identifiable destination. Some of these channels were capped (e.g. 4075 [C7]). Others appear to have been uncovered (e.g. 4065 [C14]). A subtype of channels were made from stone-cut and plastered slabs (e.g. 9587 [I20-I21]).

Stone-lined channels.

Locus	Square	Description
4075	C7	interior: 0.15 x 0.15— exterior: 0.6 wide
4065	C14	interior: 0.15 x 0.04— exterior: 0.63 wide
?	C15	interior: 0.2 x 0.1— exterior: 0.6 wide
9013	I5	interior: 0.45 x 0.3— exterior: 0.7 wide
?	I17	interior: 0.15 x 0.04— exterior: 0.25 wide
?	I18	interior: 0.15— exterior: 0.4 wide
?	I20/I21	

Holding basins

Several liquid containment features were found around the site. Most seemed associated with cisterns and made up a part of the water collection system. Others clearly were not.

Type 1: associated with pipes and cisterns (n=6): These stone-and-mortar basins measuring 0.56-1.05 x 0.43-0.8 x 0.1-0.75m, were found associated with cisterns and pipes or channels. These basins were plastered on their interiors. A further basin, 9722 (I16), appears to have been a cistern-related basin, judging by its form and dimensions (0.65 [surviving] x 0.52 x 0.69m). But this basin had been truncated by previous tractor work in the area. We interpreted these features as functioning to allow water flowing from pipes and channels into cisterns to slow down, letting any heavy particles in the water sink and therefore not make their way into the cistern.

Type 2: other basins (n=4): These basins had no clear water-collection associations. One, 4057 (C10)—1.13m diameter, 0.71m depth—was unique in being circular in plan and unassociated with any water collection system (i.e. cisterns, pipes or channels). Two or three others—9562, 9569 and 9582 (I20-I21)—appear to have been part of another complex without parallel at the site, involving channels and pipes but in an arrangement unlike those found including cisterns. Therefore questions remain as to the function of these basins.

Holding basins, Type 1: associated with pipes and cisterns.

Locus	Square	Description
4048	C7	1.05 x 0.8 x 0.43
4503	C14	1 x 0.8 x 0.36
4540	C21	0.5 x 0.5 x 0.1
4115	C23	0.72 x 0.48 x 0.63
4116	C24	0.56 x 0.43 x 0.75
9014	I4	(may have channel running off it, and is near cistern)— 0.56 x 0.56 x 0.13
9722	I16	0.65 (extant) x 0.52

Holding basins, Type 2.

Locus	Square	Description
4057?	C10	(plaster-lined round pit)—1.13 x 0.71—different (circular)
9562	I21	0.82 x 0.82 x 0.33
9582	I20	(connecting pipe but no cistern nearby in dig limit)—0.75 x 0.42 x 0.17—different
9569?	I20/I21	(not clear that this is basin or just gap)—1.25 x 0.8 x 0.45—different

Installations

Small round stone installations (n=5): These were small, roughly circular built features (0.56-1.25m diameter, +0.77m depth [only one fully excavated], walls 0.1-1.0m). The rough fieldstones used for these features were not bonded, nor particularly well laid. The fill of these features did not point to any specific function. It is suggested that they were cess or waste pits of some kind, although differing from more convincing examples found in Area J (see below).

Small round stone installations.

Locus	Square	Description
3007	E2	
6509	F2-F8	
6510	F3	
10070	J3	
?	?	?

Straight-sided stone-lined installations (n=9): There were some overlapping characteristics distinguishing the installations of this varied group from each other (Chapter 1, p. X, Figs. 1.11, 1.12). Many exhibited two or more of these characteristics, with little patterning.

- Variety of construction qualities, with fieldstones (3006 [E1]) and dressed blocks (5043 [A8]) being incorporated.
- Significant size variation (1.3-3.2 x 0.7-1.95 x 0.43-1.2m); the smaller of these straight-sided installations tended to be built of rougher and smaller fieldstones.
- Differences in form, from almost square-shaped (5043 [A8]) to rectangular (3005 [E2]) to somewhat T-shaped (4039 [C5]), and from squared (3006 [E1]) to rounded corners (9721 [I13]).
- One-leveled (8105 [H18]) and two-leveled (3005 [E2]) installations; the inner cut of two (3005-3011 [E2] and 5043 [A8]) were quadrilateral while another (4039 [C5]) was bowl-shaped (like Type 5 pits below).
- Fill differences, with common mid-brown sandy silt (9721 [I13]), carbon-rich (4038 [C5]) and green-stained fills (3005 [E2], 8105 [H18]). The latter was unique on the site to these features and seems to have been the result of some chemical reaction. It therefore seems likely that a specific waste or substance was deposited or accumulated in these installations.

Straight-sided stone-lined installations.

Locus	Square	Description
5042/3	A8	2.5 x 1.95 x 1.07
4039	C5	2.15 x 1.6 x 1.2
4139	C6	2.1 x 1.5 x?
3006	E1	1.0 x 0.8 x 0.55
3005/ 3011	E2	1.3 x 1.15 x 0.97
-	H13	0.7 x 0.3 x?
-	H15	1.75 x 0.7 x?
8105	H18	3.2 x 1.9 x 0.43
9721	I13	1.2 x 1.2 x 0.97

Stone-lined and -covered installations (n=3): Three of these features were discovered (with a fourth identified after the area had been released for construction, in the unexcavated space between squares C3-4 and H20). All were constructed of fieldstones bonded by mortar. All had vertical or near-vertical walls and flat ceilings. We do not know their form in plan, as we did not excavate any to their full extent. One (8102 [H21]) appears to have been linear. Another (9723 [I14]) incorporated at least one corner. Of the interiors we excavated all were lightly compacted, dark—possibly carbon-stained—and relatively ceramics-rich sandy silt.

The function of these features is unclear. Some form of waste disposal role seems likely.

Stone-lined and -covered installations.

Locus	Square	Description
8063	H16	
8102	H21	
9723	I14	

Cesspits

Two variants of these features were found:

Type 1: well-like cest pits (n=2): 1.15-1.5m diameter, 0.35-0.42m wall width and 1.38-2.76m depth. These were built of fieldstones bonded by mortar, constructed in a cylinder form.

Cesspits, Type 1.

Locus	Square	Description
10086	J1	
10087	J2	

Type 2: constructions set within cut features (n=2): First of all, for safety reasons we could not excavate either of these features fully. However, of what we uncovered we could see these features comprised deep and large quadrilateral cuts (at least 2.8-3.3 x 1.65-1.9 x 0.96-2.76m). One example (10084-10119 [J1-J2]) had a small cut annex on its north side.

Within these cuts were found stone constructions, one (10089-10121 [J1-J2]) four-sided, roofed and built of coursed and mortared fieldstones and dressed stones, and the other (10164 [J9]) circular and built of unbonded fieldstones.

Cesspits, Type 2.

Locus	Square	Description
10119-10084	J1-J2	
10164	J9	

We interpret both feature types as cesspits, by means of which human waste was disposed of and could bio-degrade, dry or drain away into the area subsoil deep below the surface.

Tabun 6517 (F7)

This feature was found in one of the few well-exposed, and well-preserved parts of the site (Areas F and C17-24). 0.75m in diameter and with walls 0.04m thick.

Fountain 8014 (H8)

This feature was octagonal in plan, and built of stone and mortar walls lined with plaster. The floor was laid with stone slabs. Several small colored mosaic *tesserae* found in the fill (8013) may have been remains of some floor decoration. However, most of the fountain base—as well as the south and east walls—had been damaged prior to excavation.

The aforementioned Pipe 8042 led to this octagonal feature—hence our interpretation of it as a fountain. We note again that the pipe incorporated a jar, which would have served to collect heavier particles in the water and allow a cleaner flow into the fountain.

A parallel for this fountain was found in another excavation nearby, some 500m to the northwest (Avni *et al*. 2008: Fig. 5).

Feature 8028 (H1-4)

This feature comprised:

- A massive rectangular, vertical-sided cut measuring 4.5 x 3.2m, and 6.02m deep. The walls of this uniquely large cut were lined with large dressed blocks (0.15-0.6 x 0.3-0.5 x 0.2-0.5) set in neat courses. The base was laid with fine square-shaped white stone tiles (which we could not record before the machine-dug fill collapsed).
- Around at least part of this cut was a 0.5m-wide lining of red clay (8032), which may have been the remains of mudbrick walls.
- Abutting the south side of the feature was a 0.7m-wide pier or wall remnant (8033).

The fill of this feature was a homogeneous, loosely compacted grey sandy silt, rich in small stones and occasional large blocks. This homogeneity of fill may have been the result if a single mortar- and rubble-rich collapse or in-fill episode.

The function of this feature is unclear. Its great depth, high-quality interior façades and stone slab floor were testaments to the amount of work and

cost invested in its construction. No parallel feature was found at the site. Its only association was with large cut feature 8007-8021 to the south, which was on a parallel east-west orientation. It may be worth noting that this was aligned with the general site wall orientation. This fact and the 8032 possible mudbrick wall may be taken as indications that the unique 8028 feature also incorporated a superstructure at street level. We can only suggest that it was a high-value storage facility of some kind. Perhaps it had a parallel in a nearby arch-vaulted feature—albeit smaller—found in an adjacent excavation site, which was interpreted by its finders as a possible palatial or villa cellar or cesspit (Avni *et al*. 2008: Area B3).

Pits

This was almost the most common feature at the site: indeed, there were more pits (n=98) than walls (n=61), and almost as many as there were surfaces (n=99). Most were concave in profile, while a few were flat-based. In terms of fill, by and large this was mid-brown, loosely compacted sandy silt with few inclusions. Certain pits, however, would have clayish fills—red (4045 [C11]) or grey/brown (4104 [C4])—while others had sandier fills (4052 [C9]) or were rich in stone (8047 [H12]), mortar (8038 [H6]) or carbon (4038 [C5]).

In terms of artifactual contents, the great majority of pits yielded only the common assortment of modest ceramic sherds, the occasional glass fragment and perhaps some animal bone. But there were pits in which we found remarkable objects; for example: a beautiful comb (L8104 [H10], misplaced); a zoomorphic vessel (L4104 [C4]) and a surprising array of rare high-status pottery (L4092 [C18]).

At the risk of warping our view of these cut features—because it is by no means objectively clear whether they should they be discussed in terms of form, fill, contents or likely function—we will follow convention and describe the pits under the headings of their six distinctive but somewhat-overlapping shapes:

Type 1: plain ovoid pits (n=73): By far the most common pit shape, these ranged in size from 0.2-2.25m in diameter and 0.11-1.2m in depth, with an average of ca. 1.1 x 0.45m and no dimension clusters. Most were concave in profile, while a few were flat-based.

Type 2: plain quadrilateral pits (n=8): These varied in size from 0.75m to a side and 0.3m deep up to at least 2.15m long and over 1.0m deep. Again, these pits tended to be gently concave in section but flat bases were also in evidence. The function of these pits remains unclear, although we can at least point out that the cutting of such a shape was less convenient than simply digging an ovoid or amorphous pit.

Type 3: linear cut features (n=6): These linear cut features showed considerable variety, from small and shallow (8012 [H6]:1.0 [within dig limit] x 0.6 x 0.18m) to very large (15.0? x 2.62 [within dig limit] x 1.42 deep), although none were very deep. It is likely that some were small drainage ditches, others were appreciable area limits, and still others may have been mis-identified wall shadows. Most of these features ran beyond site limits or baulks, hampering interpretation. What is likely at least is that these features represented an intentional effort to achieve a linear shape—rather than merely to dig a hole in which to dispose of material.

Type 4: plain amorphous pits (n=6): As their name suggests, this loose category represents all the oddly-shaped 'left-over' cut features we came across. Some may have been deposits rather than pits, so meandering is their form. Again, many ran under baulks so we could not fully investigate them. But it is unlikely that they served any particular or important function, with little effort having been put into their form.

Type 5: plain two-leveled pits (n=2): One of these was a square-shaped pit with a bowl-shaped cut in its base (4522-4523 [C13]). The other was an elongated oval shape, again with a bowl-shaped concavity on its floor (4092 [C18]). As mentioned above, the latter yielded some beautiful and rare ceramics. Speculating on their function, perhaps these features served to separate liquid from solids suspended in it, the latter floating down and collecting inside the feature's bowl-shaped lower cut.

Type 6: stone-lined pits (n=3): These pits were lined with stones. In two cases these were laid quite carelessly within the cut (5038 [A1] and 4037 [C5]). The third pit, which was larger and more elongated, was lined in part with regular dressed blocks (8007 [H2-H5]).

Pits.

Locus	Square	Dimensions (diameter x depth)	Locus	Square	Dimensions (diameter x depth)
5030	A1	0.75 x 0.3m	8050	H1	
5037	A1	0.77 x 0.4m	8022	H6	
5040	A2	1.65 x?	8043	H6	
5029	A6	1.3 (exposed) x?	8045	H6	
5036	A7	1 x?	8037	H6	
5039	A7	1.1-1.25 x	8040	H6	
4104	C4	1.06? x 0.72	8019	H8	
4032	C5	0.2-0.25 x 0.35	8064	H10	
4033	C6	1.94-2.2 x 0.73	8104	H10	
4028	C7	1.5 x?	8047	H12	
4018	C8	1.33-1.9 x 0.2	8514	H14	
4025	C8	0.75-0.85 x 0.4	8518	H14	
4040	C8	0.42 x 0.25	8056	H16	
4080	C8	0.36 x 0.5	8065	H16	
4027	C9	1.35-1.5 x 0.28	8083	H18	
4050	C9	0.86 x 0.45	8089	H18	
4068	C9	0.64 x 0.25	8085	H20	
4052	C10	0.65-0.9 x 0.35	8087	H20	
4069	C10	0.58 x 0.26	9032	I2	
4056	C10	1.06 x 0.46		I2	
4010	C10	1.2 x 0.52	9030	I4	
4016	C10	0.68-0.72 x 0.34	9031	I4	
4045	C11	0.8 x 0.76	9018	I4	
4064	C13	0.95-1.15 x 0.52	9531	I8	
4509	C13	1.04 x 0.11		I8	
4511	C14	1.42 x?	9546	I9	
4521	C14	2.25 x 0.31	9548	I9	
4091	C18	0.75-0.88 x 0.49	9542	I11	
4094	C18	0.75 x 1.2	9714	I15	
4547	C22	?	9556	I20	
4135	C23		10038	J1	
4136	C23		10088	J1	
4137	C23		10125	J1	
4138	C24		10026	J2	
6008	F1		10079	J3	
6525	F5		10155	J9	
8049	H1				

Walls

All walls at the site were built of limestone, except two which appear to have been of mudbrick. All mortar was quite strong and gray/white. Plaster was very rare and varied in preservation state and composition; this may have been because some was hydraulic.

In terms of favored construction methods, the vast majority of walls stood somewhere along the dressed-block/fieldstone spectrum. This reinforces the impression of a city quarter that was of neither the wealthiest nor the poorest. Bearing in mind that the stones of many walls and features were later removed, most preserved walls were built without façades but a minority did incorporate these; of these latter, some had fieldstone rubble fills behind or between the façade(s). The walls which likely were load-bearing structure elements generally followed a standard width of between 0.65m and 0.9m, with more variety among the smaller walls. The wider walls could well have supported a second storey.

The many wall shadows indicate a subsequent demand for stone, probably during city reconstruction after the 1033 and 1068 CE earthquakes. We can assume that such salvaging favored the dressed blocks over rough fieldstones, which skews our high-quality: low-quality wall ratios among the surviving walls. It is also likely that had the site been excavated in non-rescue conditions more such wall shadows would have been found (and perhaps also more walls of mudbrick too). This would have given us a better idea of the area's architectural layout. As it is, the wall shadows followed the site's general orientation according to the cardinal compass points.

Below are various overlapping wall types, with substantial overlap between them—to the point that one might suspect that this is a case of giving in to that very human temptation for making categories where perhaps none exist (Foucalt 1985). However, although some unruly walls run across these categorisations, nevertheless there do seem to be types among this array of walls.

Ashlar walls (n=5): These are all built of limestone cut into well-dressed blocks, which measure on average 0.4 x 0.31 x 0.34m. Of the five such high-quality walls which survive, two types can be identified:

Type 1: one row wide, no bonding (n=1): Only one example of this type was recovered but its characteristics of construction are distinctive: one row wide, made from slightly larger blocks than the other ashlar walls at the site, and without bonding between blocks.

Type 2: two rows wide, bonded blocks (n=4): The four surviving examples of this type were built of slightly smaller blocks, in one case (L9007) forming façades behind which were set smaller fieldstone fills. In some cases the mortar which bonded the blocks appears to have covered at least one façade.

Ashlar walls.

Locus	Square	Block dimensions (length x width x height)	Courses	Rows	Bonding	Type
W605	F5	0.5 x 0.45 x 0.37	1	1	-	1
9028	I3-I4	0.4 x 0.3 x 0.4	2	2	+	2
9007	I6	0.3 x 0.25 x 0.25	6	2	+	2
9517	I11	0.48 x 0.3 x 0.36	3	2	+	2
10166	J10	0.4 x 0.31 x 0.37	2	2	+	2

Roughly dressed block walls: These walls range from incorporating quite well-dressed blocks to large fieldstones which were hardly shaped at all. There is also some variety in the amounts of smaller fieldstones built into these walls. Mortar was rare across all types. The only distinction that we might reasonably draw along this spectrum is between those walls with large and small blocks, and between those walls with and without block façades.

Type 1: large blocks (n=16): These walls were built either one or two rows wide, of blocks measuring on average 0.5 x 0.35 x 0.3m, mostly quite well dressed but often not well dressed or shaped at all. Mostly the blocks were not bonded. Fieldstones were also used.

Roughly dressed block walls, Type 1.

Locus	Square	Block dimensions (length x width x height)	Courses	Rows	Bonding	Type
W510	A5	0.58 x 0.49 x 0.3	1	1	-	1
W501	A8	0.55 x 0.55 x 0.3	1	2	-	1
W507	A9	0.55 x 0.5 x 0.31	1	2	+	1
W508	A9	0.4 x 0.36 x 0.29	1	2	+	1
W413	C19	0.45 x 0.39 x 0.3	1	1	-	1
4119	C23	0.48 x 0.3 x 0.2	1	1	-	1
6009	F1	0.5 x 0.4 x 0.4	1	1	-	1
6013	F2					
6017	F2					
W603	F5-C1					
9025	I2					
9020	I6					
9552	I10					
9565	I20-I21					
9584	I20-I21					
10173	J11					

Roughly dressed block walls, Type 2.

Locus	Square	Block dimensions (length x width x height)	Courses	Rows	Bonding	Type
W505	A8	0.25 x 0.2 x 0.15				
4034	C4	0.35 x 0.26 x 0.22				
W407	C19-C20	0.25 x 0.2 x 0.18				

Roughly dressed block walls, Type 3.

Locus	Square	Block dimensions (length x width x height)	Courses	Rows	Bonding	Type
W505	B1					
4034	C12					
W407	C17					
1006	G1					
9575	I23					

Type 2: walls of smaller dressed blocks (n=3): These averaged 0.26 x 0.21 x 0.19m, set one row wide and were mostly not bonded. Again, small and unshaped fieldstones were also incorporated.

Type 3: fieldstone walls with block façades, either on one or both sides (n=5): The blocks were mostly large and in one case the façade (1006, G1) was plastered. Behind the façade was a fill of fieldstones.

Three observations can be made about these rough dressed-block walls. Block sizes seem determined by weights one or two builders could carry. Also, it seems these walls were load-bearing. Finally, the lack of care and effort exhibited in most of these walls suggests a lower status or importance attached to them than to the ashlar walls.

Fieldstone walls (n=16): These walls were simply made of rough fieldstones, measuring on average 0.2 x 0.15 x 0.15m. By and large they were not bonded or set in clear courses or rows.

Fieldstone walls.

Locus	Square	Locus	Square
W509	A4-H17	-	H13
4081	C9	8516	H14
4085	C8	-	H15
4512	C15	9509	I7
4548	C21	9540	I7
W601	F5	9512	I8
W604	F5	9550	I12
8108/W403	H12-C13	-	H14

Clay walls (n=2): These walls were identified by their linear appearance and very compact clay material (with small amounts of stone and mortar inclusions). We suspect that they were mudbrick walls. Only two were identified.

Mudbrick walls from the Early Islamic period have been found in nearby excavations (Avni *et al*. 2008: Areas A2 and A3).

Clay walls.

Locus	Square
9547	I9
9578	I22

Wall shadows (n=14)*:* We identified walls shadows by their material, linearity and width. A rubble- and mortar-rich material consistently filled these trenches, which was all we found of the robbed-out walls. Their widths (0.8m average) and orientations (more or less north/south-east/west) were in accordance with those of walls which did survive. Indeed, some of the latter—and we probably found relatively few of the original walls[1]—were the lower courses of walls which the salvagers could not entirely dug up due to their depth (e.g. 10166 [J10]). As said, it is likely that we would have found many more wall shadows, and thus more of the site layout had the people doing the actual physical work of digging been more expert and motivated (a major problem in the Israeli and wider Middle Eastern culture of rescue digs). At the same time, the very low start depth of manual digging meant that we had already lost the opportunity to catch many wall shadows. Thus, beyond giving us the orientation of the buildings and streets, the few walls we found did not reveal more than a very small number of rooms and building fragments.

Wall shadows.

Locus	Square	Locus	Square
W502	A7	8094	H20
W503	A7	-	I2
4061	C14	-	I3
4544	C22	9718	I18
4120	C23	-	I18
8067	H16	-	I20
8071-8072	H16		
8090	H19		

Surfaces (n=99)

This was almost the most common feature type we found at the site. We may have found even more, had the site not been overcut by machines prior to excavation. Also, we mostly only caught surfaces in sections, due to the constraints of rescue digging. The great majority of surfaces were made of plaster (n=90). A few were metalled (n=8), and two incorporated mosaics of stone *tesserae* (see Chapters 1, 4).

Plastered surfaces (n=90): These were mostly thin and easily broken, and generally made of white plaster—although a patch on one plaster surface appeared to have been partly colored red (L9530 [I8]; see

1 We found far fewer walls (n=61) than surfaces (n=99).

Chapters 1, 4). Occasionally these surfaces revealed architectural information, such as a straight edge indicating orientation (e.g. 7006 [B2]) or perhaps the limits of a specific work area (4102 [C24], 9527 [I9]) or the stratigraphic association of a particular feature (10013 was the surface contemporary with cess pit 10087 [J2]). This latter was also in a much better state of preservation, most likely due to a waterproofing ingredient added to the plaster—as was found to be the case with the plaster on the cisterns' interior walls. Several cases involved multiple phases of surfacing overlaid by fill (e.g. 3010 [E1] and Area J). In a rare few cases the plaster was laid on a stone-and-mortar base for added strength (e.g. 8062 [H16]).

Metalled surfaces (n=8): *Type 1: larger stones included (work area?)* (n=6): These surfaces were laid with a mix of small but also large undressed fieldstones, measuring from 0.05 x 0.05 0.05m up to 0.25 x 0.25 x 0.2m. In several cases mortar bonded the surfaces. There is some doubt as to whether all were actually surfaces and not compacted collapse (e.g. 8107 [H21]) or sub-surface leveling material (e.g. 4507 [C12]). But others (e.g. 4017 [C9-C10]) very likely seem to have been robust work surfaces.

Metalled surfaces, Type 1.

Locus	Square	Locus	Square
4017	C9-C10	8107?	H21
4507	C12	-	I17
-	C16	9576? (=9574?)	I22

Type 2: made from smaller stones (n=3): Built of better sorted, more rounded and smaller stones averaging 0.1 x 0.1 x 0.05m, the few identified examples of this type seem more delicate than the surfaces of Type 1. All metalled and cobbled surfaces are robust enough, of course, and are meant to remain functional even when wet, but Type 2 surfaces were perhaps meant for less rigorous use than Type 1.

Metalled surfaces, Type 2.

Locus	Square
4103	C24
8098	H19
9033	I3

Mosaic 7001: Some 2.0 x 1.6m of this mosaic was extant (see Chapter 4, p.). This sole surviving fragment from the site was made from bonded marble-like hard stone *tesserae*. Mostly these followed a single rough orientation and measured an average of 2cm^3. Toward the southeast edge of the mosaic, its makers formed a clear edge to this mosaic and reduced *tesserae* size. Beyond this firm line the pieces were smaller (averaging 1cm^3) and ran in loose lines following a different orientation. Within this distinctive segment of the mosaic one more line of larger *tesserae* was inserted, after which we see the beginnings of the pieces being set in curved lines. The craftsmen chose darker *tesserae* for several of these curved lines.

Structures

As mentioned, because much of the ancient surface had been removed by machines before excavation, there was little direct evidence for structures. However, clearly the general site orientation followed the cardinal compass points. Any features following this alignment could be expected to be part of or associated with structures in this central urban area of the Early Islamic city. Thus, structures could be inferred—at least in part—by:

- Walls and surfaces (e.g. 8090-8098 [H19]).
- Cisterns, wells and cesspits (e.g. C24).
- Other features (e.g. 8028 [H1-4]).

Sediment types

Whilst most of the site was covered by standard sandy silt accumulations, several fills were rich in ceramics (e.g. 4092 [C18]), carbon 4032 [C5]) or plaster fragments (4099 [C24]), or were greenish in color (3005 fill [E2]). Notable by their absence were ash-rich sediments—although in a rescue excavation such as this it is possible that these and other subtleties of sediments were simply dug out before they could be recorded.

Excavation and Survey of Archaeological Remains at Nahal Hava—2009

Yehuda Govrin

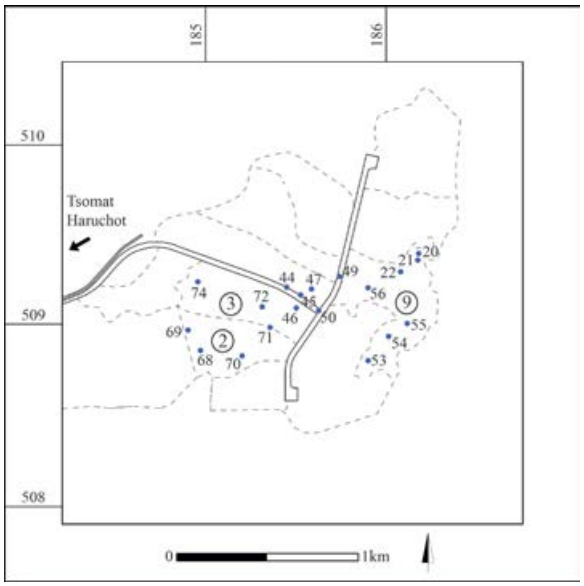


Figure 1. Location of the Nahal Hava sites investigated by Y.G. Contract Archaeology Ltd. (NIG 185500/509000).

INTRODUCTION

The following is a preliminary report of salvage excavations conducted at Nahal Hava (plan no. 59/101/02/20) in the central Negev, carried out in order to protect the cultural heritage whilst accommodating the development of a quarry (Ehud Tayar Company). The site was surveyed for archaeological remains on 1 February 2009, and excavations began on 6 April 2009, after coordination with and approval from the Israel Antiquities Authority, the Israel Nature and Parks Authority, the Israeli Ministry of Defense and the Israel Defense Forces. The excavations were completed on 30 December 2009.

The area is a high region (ca.750m above sea level), on the eastern fringes of the Mishor Haruhot. The area is cut by watercourses draining into Nahal Hava. The slopes are very steep and dotted with rock shelters. The area's surface is rocky and has little vegetation, which is only in stream beds.

Well-known remains of agricultural terraces are found in the area's wider dry watercourse beds. These are most probably from the Byzantine period. By contrast, the sites dealt with in the current project vary in nature and indicate the existence of a nomadic and semi-nomadic population in this area during different periods. The dating of the sites is problematic since in most cases no indicative artifacts were found. Nevertheless the existence of sites from prehistoric periods (Neolithic) to modern times (Bedouin) is clear.

Below is a list of the areas and sites investigated on this Nahal Hava project, along with the IAA-approved course of action taken at each site. Below this list is an account of the project findings, area by area.

Plot 2
Site 68 (4)—survey, fencing and signposting
Site 69 (5)—survey, fencing and signposting
Site 70 (6)—salvage excavation (52m^2)
Site 71 (7)—salvage excavation (52m^2)

Plot 3
Site 46—salvage excavation (8m^2)
Site 47 (67)—salvage excavation (3m^2)
Site 72 (8)—salvage excavation (106m^2)
Site 74 (10)—survey, fencing and signposting

Plot 9
Site 20—survey, fencing and signposting

Site 21—survey, fencing and signposting
Site 22—survey, fencing and signposting
Site 53—survey, fencing and signposting
Site 54—salvage excavation (10m^2)
Site 55—salvage excavation (15m^2)
Site 56—salvage excavation (2m^2)

Access road

Site 44—salvage excavation (6m^2)
Site 45—salvage excavation (1m^2)
Site 49—salvage excavation (6m^2)
Site 50—salvage excavation (90m^2)

Plot 2

Site 68 (4): Circular structure (NIG 184970/508860)

These are the remains of a circular structure, diameter ca.4m and built of large and medium-sized fieldstones (Fig. 2). One course of stones was extant, without surviving mortar. No associated finds were recovered. It is possible that this round structure was part of a stopping point for the convoys that in former times passed through this area. In any case the feature is not a tumulus or burial structure.

Site 69 (5): Piles of rocks and stone lines (NIG 184900/508980)

This site is scattered over an area of ca.50 x 40m on an exposed slope of moderate gradient. Groups of stone piles (1m^2) can be identified (Fig. 3). These are made from small and medium-size stones with no signs of actual architecture. No associated finds were recovered either. Also in the area are a number of linear stone features, again constructed from small and medium-sized stones built to a height of one course

Figure 2. Site 68 (4), general view.

Figure 3. Site 69 (5) pile of stones.

Figure 4. Site 69 (5) Line of stones.

Figure 5. Site 70 (6): westernmost pile of stones before excavation.

Figure 7. Site 70 (6): Second-westernmost pile of stones before excavation

Figure 6. After excavation.

Figure 8. After excavation.v

on a general north-south axis (Fig. 4). There was no further data available to aid in interpreting or dating these features.

Site 70 (6): Cluster of shiniyot (NIG 185200/508835)

This is a cluster of about six piles of medium-sized stones, found along a small dry watercourse close to a dirt road. This cluster was most likely a set of *shiniyot* (rock pile navigation aids), marking the ancient road that passed along this ravine. Between each pile of stones there was an irregular gap of a few meters and the entire length of the site was 60m. Excavation squares were opened (3 x 4m) around four of the western piles (the eastern piles were destroyed due to their proximity to the dirt road). The excavation reached subsoil at a depth of ca.0.3m. The clusters were usually built to a height of 0.4m and were preserved to a height of approximately 0.4m, in 2-3 courses without mortar. On the surface were collected pottery sherds from the Roman Period, as well as other small sherds of finely-decorated Nabataean bowls.

Site 71 (7): Open water reservoirs (NIG 185355/508990)

This site was first reported in the IAA's survey as agricultural terraces in a dry watercourse. In the salvage excavation that was subsequently required for this area of 50m^2, we found a unique system for storing water. This was based on networks of stone and clayish soil dams which stored run-off from the wide upstream area. The IAA's decision following this discovery was to excavate an additional 150m^2 of this system, with the objectives of obtaining a full architectural plan, its

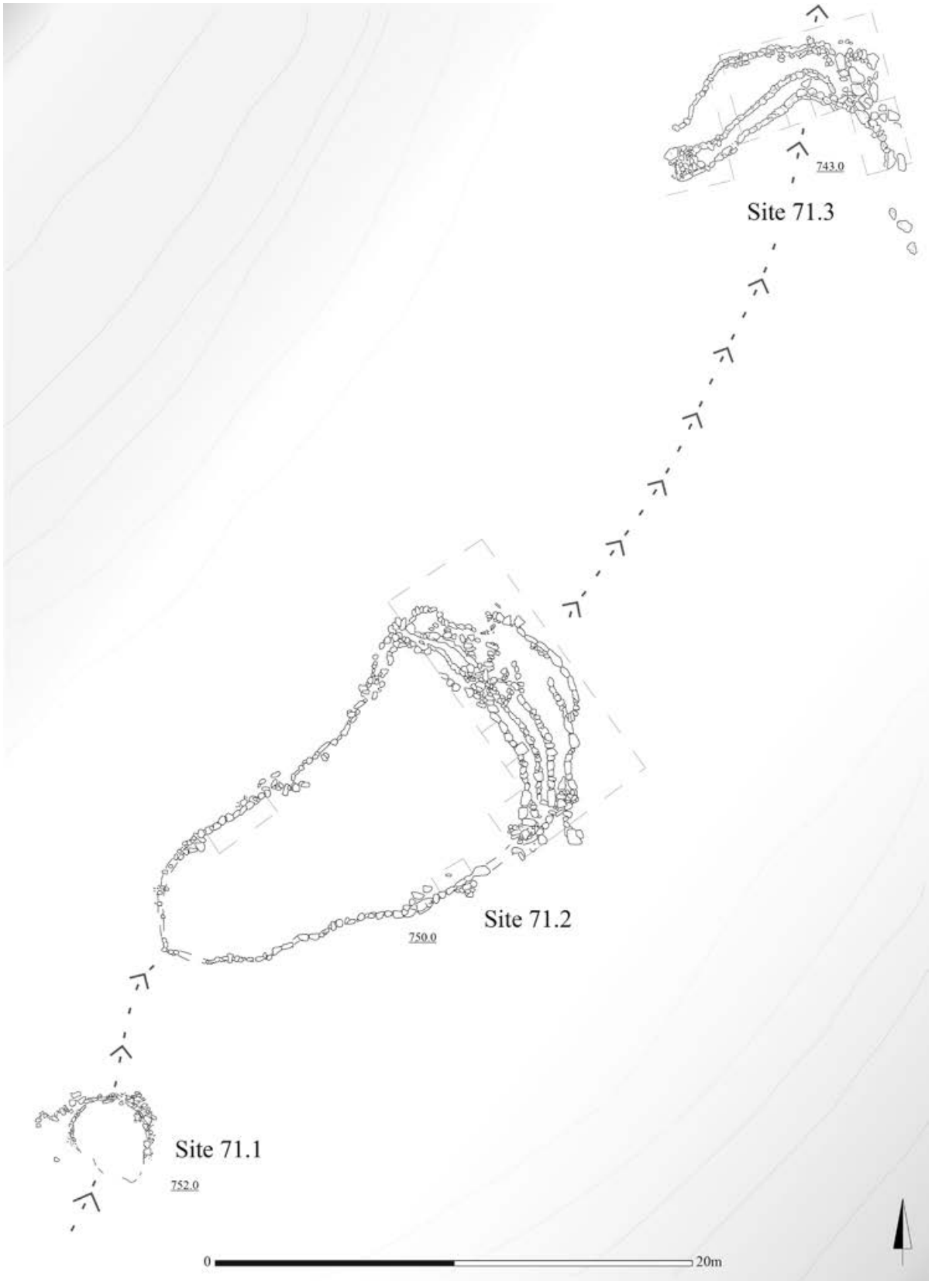


Figure 9. General plan of Site 71, with 71.1-3 marked.

Figure 10. General view of the dammed stream, with the alluvium-siphoning pool in the foreground (Site 71.1).

Figure 11. Site 71.1 (looking south).

date and a better understanding of how this system worked. During December 2009 a number of excavation outings were conducted. In these excavations archaeology students and volunteers participated. The area was surveyed by a team under Dov Porotsky. The renewed excavation focused on the exposure of the dams' walls by digging sections down to bedrock. The site included a system of two open reservoirs that were built in the center of a shallow dry watercourse (71.2-3), as well as a pool for siphoning alluvium (71.1). Three further constructions associated with this water-collecting system were also identified.

Site 71.1: Alluvium-siphoning pool (Figs. 10-12)
This circle of stones was found at the western extremity of Site 71. Altogether 10m² were excavated here, encompassing the entire feature. It was founded

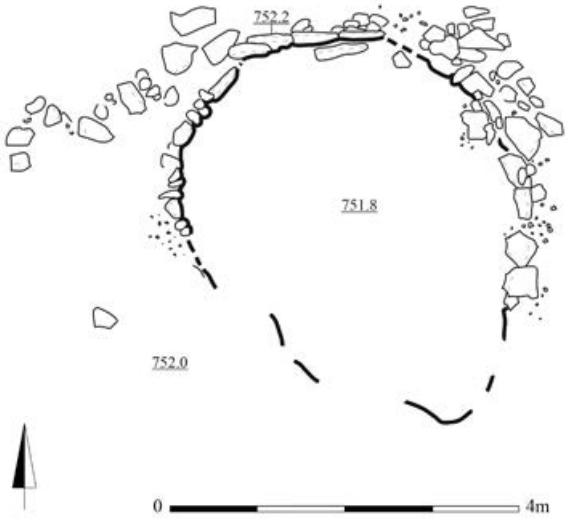


Figure 12. Plan of Site 71.1.

on bedrock, with a diameter of ca.3m. The purpose of this feature was most probably to direct run-off, collecting it over an impermeable rock surface whilst also stopping alluvium and dirt from flowing into the adjacent open reservoir (71.2). The water was hemmed in by natural slabs of medium- and small-sized stones set on their edges. These were supported externally by smaller stones (Fig. 11). The eastern side of the pool collapsed and was probably carried away by the nearby stream.

Site 71.2: Central reservoir (Figs. 13-22)
Some 10m east and downstream of the Site 71.1 alluvium-siphoning installation was built an elliptical water storage pool or open reservoir. This measured 25m in length and ca.10m in width. Over the two excavation phases an area of 135m² was dug here, out of a total of 250m². The pool was bordered by large upright fieldstones set on bedrock and stabilized by small stone wedges (Figs. 19, 20).

At the eastern edge of the pool (i.e. facing the current), five stone walls were uncovered. These were built at intervals of 1-2m, the gaps between them filled with artifactually-sterile clayish soil (perhaps sediment from Site 71.1). This series of walls formed a composite dam, a reinforcing design founded on bedrock in order to minimize reservoir leaking and erosion by the adjacent stream. A section dug to

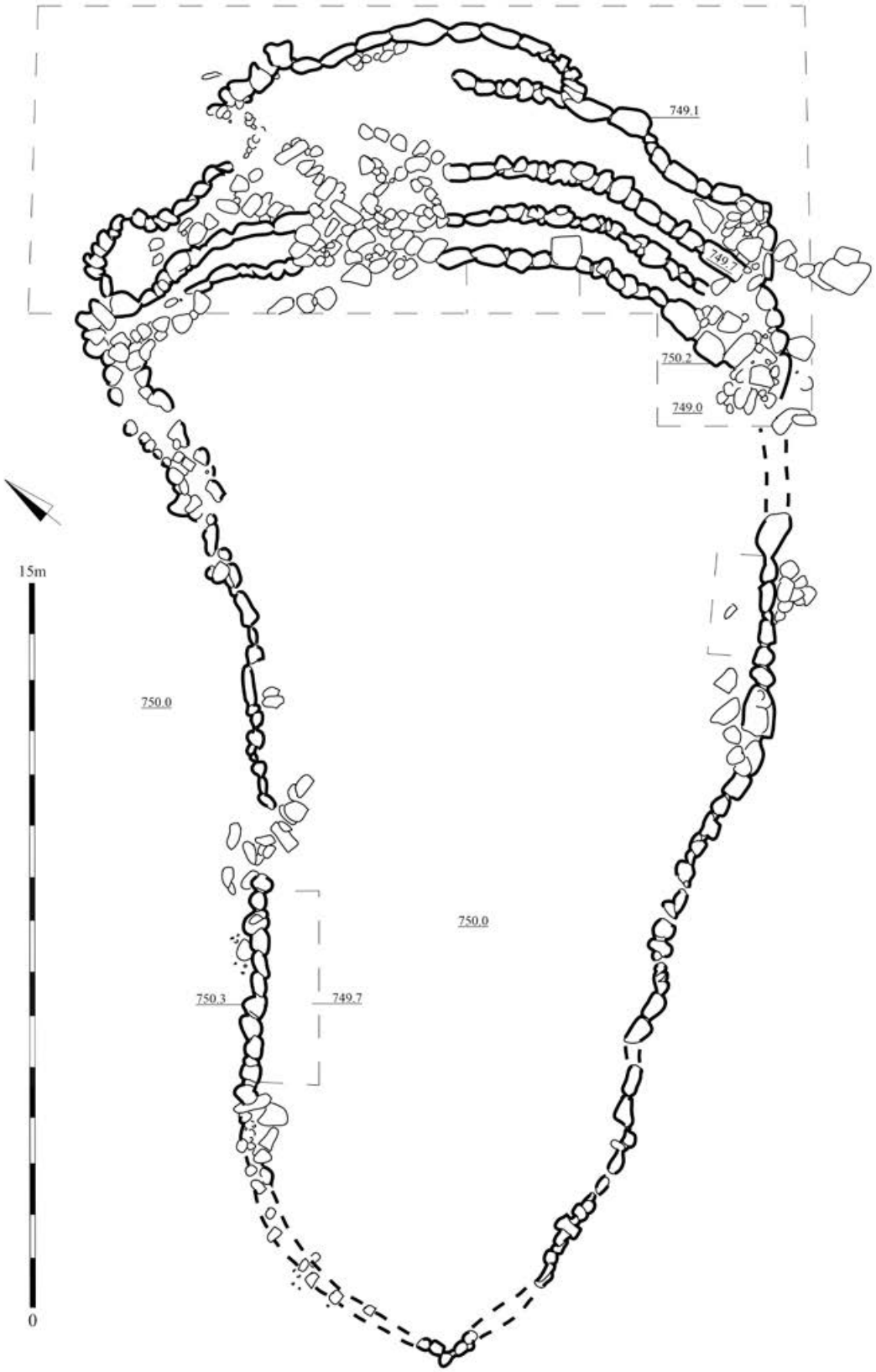


Figure 13. General plan of the Site 71.2 central reservoir after excavation.

Figure 14. The west side of the Site 71.2 dam's west wall, preserved to a height of 1.2m above bedrock.

Figure 16. The south end of the dam's west wall (test section filled with run-off).

Figure 15. The dam's western wall holding water.

Figure 17. The dam's eastern courses resting on bedrock.

bedrock on the west side of this dam revealed that its west wall was preserved to a height of ca.1.2m above bedrock (Fig. 14). This was built from large and medium-sized stones placed one on top of the other without mortar. Most of the stones were set on their edges, except for the first course which were placed flat on the bedrock. The dam walls were lower towards the east, in accordance with the area's topography. The eastern walls were also built with larger, more rectangular stones stood upright.

In the northeastern corner of the reservoir the sloping bedrock floor on top of which the walls of the dam were built was uncovered. Approximately 5m of the walls were excavated. Here the dam is comprised of two parallel walls built directly on bedrock. The gap between the walls is ca.0.5m, widening gradually towards the center of the dam (Fig. 18).

Site 71.3: Eastern reservoir (Figs. 23-29)

An additional water storage pool was found downstream and northeast of the 71.2 central reservoir, the overflow from which this second pool served to catch. Like 71.2, it was also built directly on the hard, seamless limestone rock which constitutes the watercourse floor. In this eastern reservoir a total of 80m^2 were opened. The dam of this pool was built of three supporting walls, the gaps between which were filled with a clayish alluvial soil (Figs. 24, 28, 29). Two of the walls were parallel (Fig. 26) and found 1m apart, and the third was a further 3m to the east. On the east side of the dam, the wall was preserved to a

Figure 18. The north end of the dam.

Figure 19. The southern end of the dam wall, a single course of large stones.

Figure 20. Test section at the dam's south end, filled with run-off.

Figure 21. Site 71.2 reservoir's north wall resting on bedrock.

height of 1.2m above bedrock. As with the other Site 71 features, this reservoir's walls were built of large upright stones standing on the bedrock. The upper courses were laid with stones set horizontally.

On the west side of the dam was situated a 1 x 1m compartment filled with a number of large stones standing upright (Figs. 25-27). This compartment does not have any functional need and may therefore be of a symbolic or ritual nature, with the upright stones tentatively thought of as stelae of a sort.

Site 71: Summary and conclusions

Altogether 215m^2 of the Site 71 features were excavated, mainly in the areas of the dams. A number of sections were dug down to bedrock against the pool and dam walls. This system of reservoirs at Nahal Hava is unknown to date from any other site, its

Figure 22. Section against 71.2's north wall, filled with run-off.

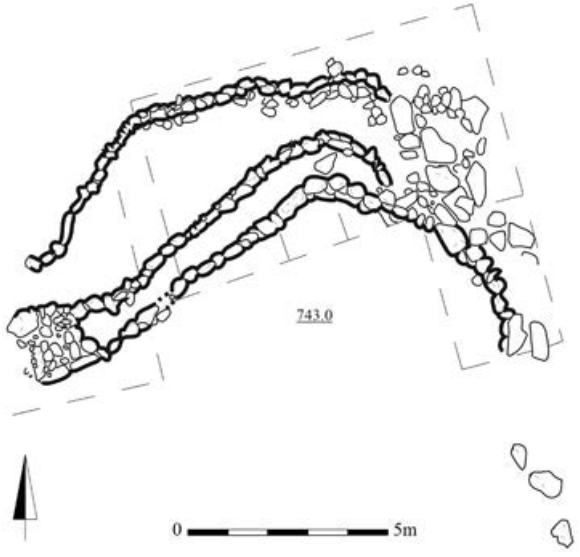


Figure 23. Plan of the dam wall system of the Site 71.3 eastern reservoir, with the compartment of upright stones on the west side.

Figure 24. General view of the three supporting walls of the Site 71.3 dam. In the right foreground is the possible ritual compartment.

Figure 25. Possible ritual compartment with stelae at the west end of the 71.3 dam.

uniqueness being in architectural features based on two elementary components designed to capture and retain run-off water. The builders of this system identified the hard quality of the limestone rock over which ran the stream. This seamless surface allowed the construction of the water storage pools, which concentrated the weak and diffuse flow of the water-course. These pools were reinforced by sturdy and wide dams.

These dams were built by a particular and original method. Large fieldstones were set at intervals of 1-3m, and interlocked by dry-stone walling—i.e. without mortar or any bonding material—of a quality that prevented water seepage through the dam. The final dam sealing was achieved by building parallel

Figure 26. General view of the 71.3 dam's parallel walls (looking south).

Figure 27. View of the 71.3 dam's compartment (looking south).

Figure 28. General view of the 71.3 reservoir's dam walls after the flow of run-off in the stream. In the foreground is the stelae compartment at the end of the dam walls.

Figure 29. General view of the wall system of Site 71.3's dam (looking southwest).

series of these walls, and filling the gaps between with a clayish alluvial soil, most likely taken from the pool bottoms. This was a self-reinforcing method: the dam's volume and weight increased to balance the lateral pressure of the pool water, and the alluvial soil swelled from contact with the water, making it more impermeable. Such composite walls probably completely prevented water seepage, all without using any artificial sealing material.

Similarly, the construction of a frame of upright stones and dry-stone walling on bedrock around the pools sealed them, as wells as increasing their storage capacity and preventing penetration of foreign matter into the pool.

The capacity of the Site 71.2 pool was approximately 250m^3 of water. When this primary pool was filled, surplus water spilled over the dam and was captured in the second, eastern pool (71.3). This pool was capable of holding only 150m^3 of water, and therefore its dam did not need to be so strong.

The possible ritual compartment that was discovered close to the west end of the dam would reflect the characteristic beliefs of these water systems' nomadic builders, and the importance they gave to such desert facilities.

Finally, the dating of the Site 71 system is problematic since, except for a number of unidentified flints, there were no finds in these systems or in their

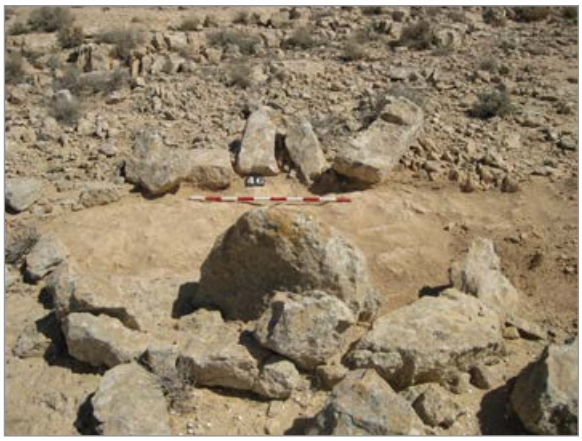


Figure 30. Site 46 (looking south).

Figure 31. Site 46 (looking north).

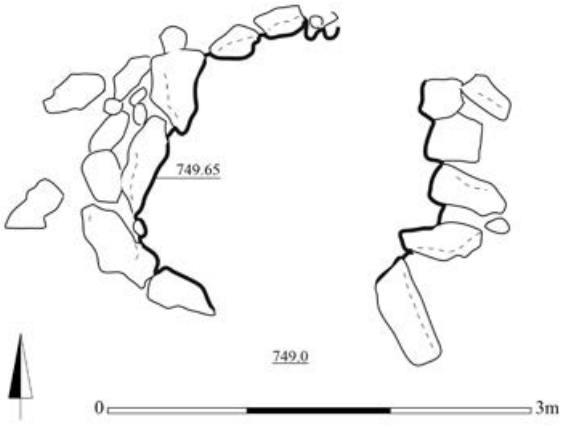


Figure 32. Plan of the Site 46 stone circle ('stelae').

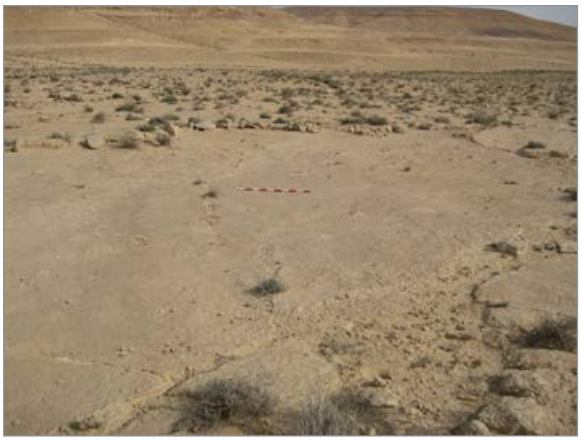


Figure 33. Site 67 (3) north granary (looking north).

Figure 34. South granary (looking north).

surroundings. It can be assumed that these simple but unique water systems were built by nomadic or semi-nomadic populations that existed in the area. With a high probability, in the author's opinion, these pools can be associated with a seasonal site 500m northeast of Site 71, a site which incorporates Early Bronze Age (3500-2300 BCE) and Early Islamic (750-900 CE) phases. This site was not excavated by YG Archaeology, and details of its investigation were not available at the time of writing.

Plot 3

Site 46: Stone circle (NIG 185501/509097)

This is a circle of stones, some of which are upright and standing directly on bedrock high on a rocky slope over a stream running through a gorge. The

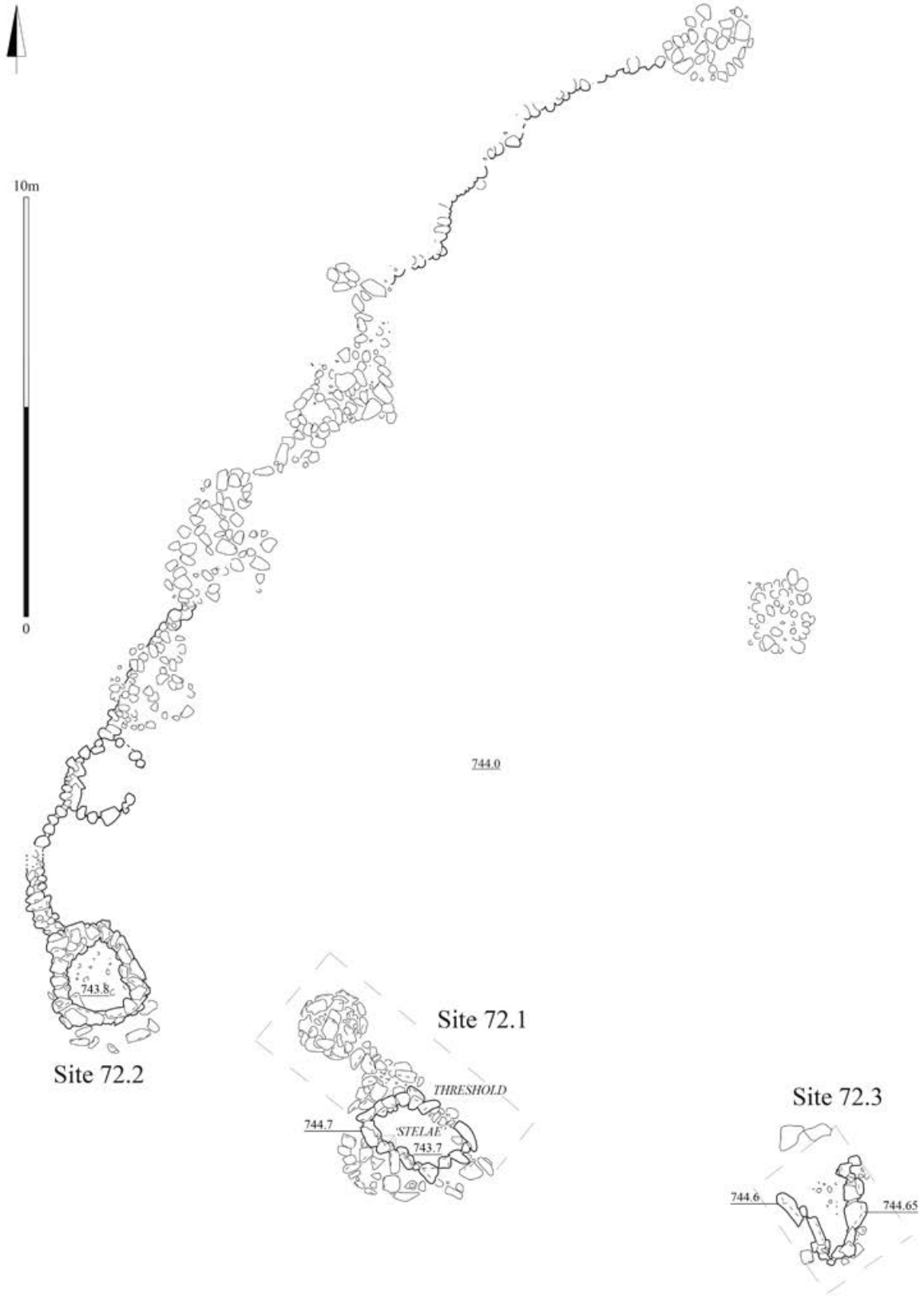


Figure 35. General plan of Site 72.

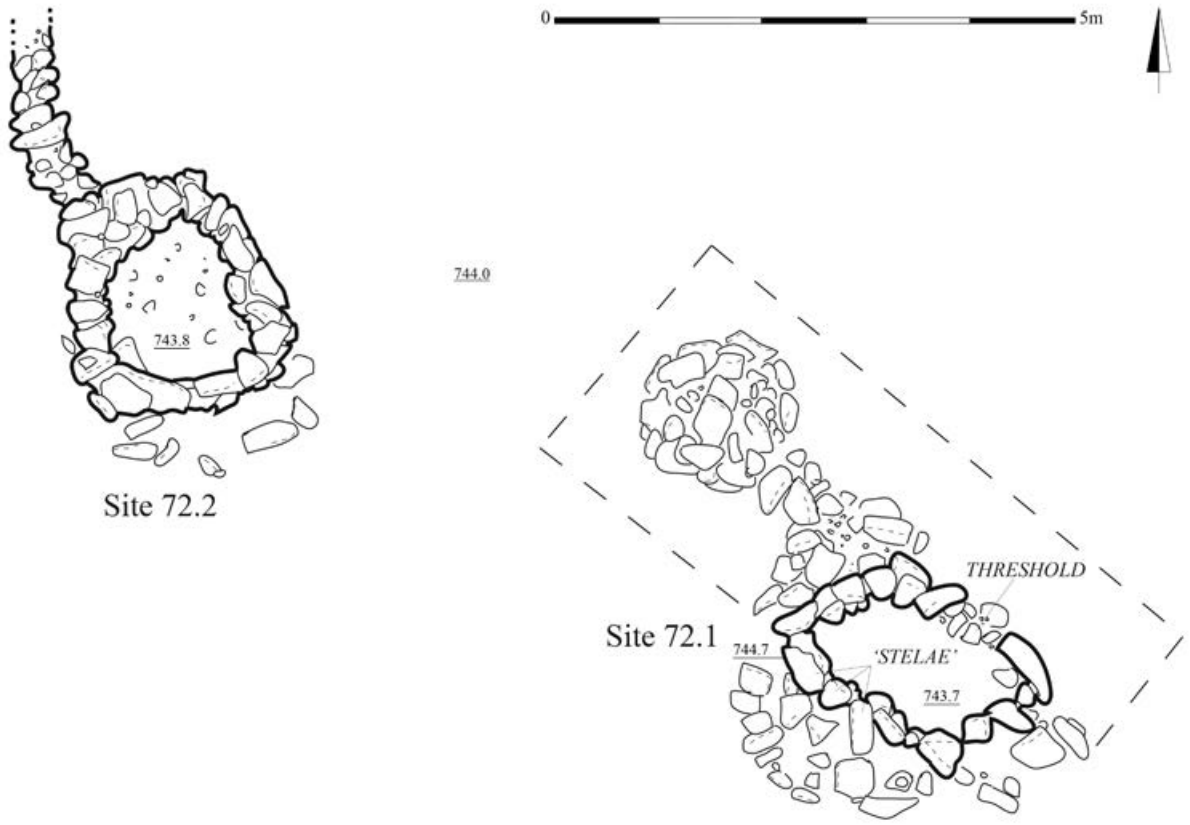


Figure 36. General plan of Site 72.1 (right) and 72.2 (left).

diameter of the stone circle is ca.3m. At the north end of the stone circle is a broad stone (width ca. 0.6m, height ca. 0.5m) set on edge. On either side of this upright stone were placed two medium-sized stones, also upright. This deliberate configuration of three 'stelae' was supported by additional stones along the perimeter of the circle. On the opposite side of the circle, a number of additional thin and elongated stelae were found fallen backwards. The excavation in this site was carried out down to bedrock, and no finds were recovered.

Site 67 (3): Two adjacent granaries (NIG 185130/509305)

Here two large flat rock surfaces were found, each one with a diameter of ca. 10m. These surfaces had been cleared of stones, which were transferred to the edges. These surfaces were most probably used as granaries for threshing crops. However, they cannot be dated due to the likelihood of their use of very long periods, as well as the lack of any datable finds. On the eastern side of the granaries were found two piles of stones with no defined architecture.

Site 72 (8): Structures and piles of stones (NIG 185310/509110)

A concentration of about ten structures was found here, in a wide wadi bed close to the dirt road. We excavated five of the features that looked like piles of stones with no relative order.

Site 72.1: Elliptical structure.

This cluster of stones measured ca. 3m in diameter. From it three large upright stones protruded. An elliptical structure was uncovered beneath the cluster. This was built of flat fieldstone slabs placed one on top of the other without any bonding material (Figs. 36, 37). The upright stones ('stelae') were placed on a long side of the elliptical structure's perimeter (west side). Opposite the upright stelae was a small opening in the perimeter, of which the threshold survived. The excavation of the structure's interior revealed many

Figure 37. General view of Site 72.1 (looking west).

Figure 39. General view of Site 72.2.

Figure 38. General view of the excavated features north of Site 72.1.

Figure 40. Site 72.3 (looking west).

fieldstones but no finds. The structure was preserved to a height of 0.5m and was comprised of 3-4 courses. The height of preservation of the larger stela was 0.8m. A few meters north of this structure were excavated a number of additional piles of stones but no such clear architecture was found in them.

Site 72.2: Elliptical structure.

A concentration of stones was found about 20m north of 72.1. When excavated, this was also revealed to be an elliptical structure (2.2 x 1.5m), the stone courses of which were laid without bonding material. Slabs of medium-sized stones were preferred, and laid flat. The walls survived to a height of preservation up to 0.6m, in 4-5 courses. As with 72.1, upon clearing the structure's interior of stone collapse no finds were retrieved, which precludes any dating of the feature. No opening in the structure was found.

72.3: Stone slab rows.

A number of large upright stones were found standing on a slope at the south end of the Site 72 area. Here a 3 x 4m square was excavated to a maximum depth of ca.0.2m. No finds were retrieved. The feature was comprised of two rows of large stone slabs, three of which were found standing erect. The central stela in the eastern row of stones stood to a height of 0.7m (Fig.40). Site 72.3 has a V-shaped form, its apex pointing south. It is possible that this feature was used as an open ritual facility.

Figure 41. Site 72.3 (looking north).

Figure 43. Site 74: the remains of the enclosure (looking west).

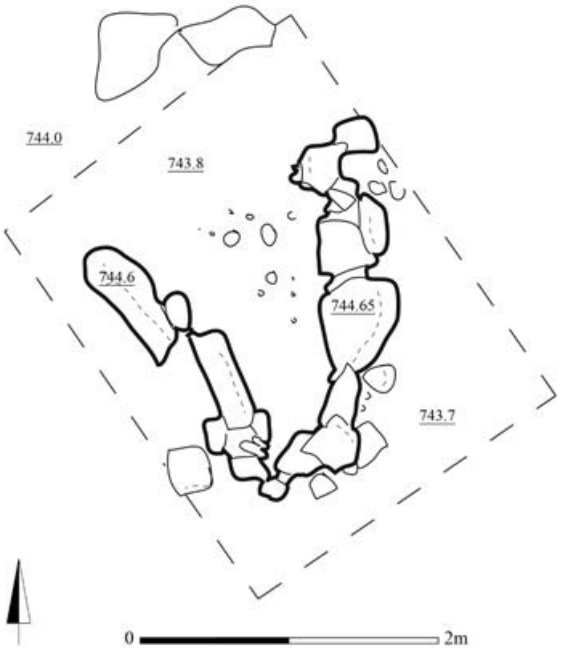


Figure 42. General plan of Site 72.3.

Figure 44. Site 74: the remains of a rounded structure west of the enclosure.

Site 74 (10): Enclosure and stone clusters (NIG 184950/509240)

This was a campsite found in a stream bed, incorporating a circular enclosure and a number of stone clusters. The main structure, the circular enclosure, is a rounded enclosure built from small stones piled one on top of the other. The enclosure's south side is open, probably due to erosion from the adjacent stream. Further west along this watercourse a number of additional round built features were identified. To the east of the enclosure were two graves. Nearby, on the south side of the watercourse a small ritual compound was found, in which was situated an upright, south-facing stela. In a survey of Site 74's surface a number of potsherds were found, not clearly indicative but probably from the Byzantine Period (330-638 CE).

Plot 9

Site 20: Modern cache (NIG 186187/509401)

This site was a modern cache in a gorge rock shelter beside a stream. The cache's opening was blocked with a number of flat stones in order to hide and seal the

Figure 45. General view of the Site 20 cache.

Figure 47. General view of the Site 22 cache.

Figure 46: Site 21 cache, general view.

Figure 48. Site 53, general view of the enclosure remains.

cache. Close to the opening of the cache were remains of modern equipment belonging to the Bedouins who stashed their belongings there. The cache's inner space was natural and not large. It was not in use.

Site 21: Modern cache (NIG 186181/509366)

This site is a cache in a cave with a double opening. The interior of the cave is divided by a wall built from large stones. Dressed stones—found at an entrance, having presumably collapsed—were probably used as a closing wall for the northeastern opening. In front of the cache's opening is a rock step and built terrace. The cache was probably used for storing the belongings of modern nomads.

Site 22: Modern cache (NIG 186084/509300)

This site is a modern cache in a rock shelter on the north slope of a water-cut gorge. The cache screening wall was built to a height of 1m, from floor to ceiling at the shelter's mouth. The wall was built of undressed local stone slabs bonded with mud mixed with lime. At some point a small opening was breached in the eastern side of the wall. It is possible that the cache was used for storing nomadic equipment from season to season.

Site 53: Wall in wadi bank (NIG 185905/508804)

This site consisted of a small enclosure in a stream bed. The structure was built from local fieldstones piled up to form a circular wall to a height of ca.0.4m. The eastern side of the enclosure was washed down the slope. The interior of the enclosure was excavated

Figure 49. General view of Site 54 (looking north).

Figure 51. General view of the Site 55 enclosure (looking north).

Figure 50: Site 54: Part of the northern wall with the 'stela' in the center.

Figure 52. The Site 56 possible grave.

down to the subsoil but no finds were recovered. In modern times the remains of the enclosure's wall were used for camel recumbence.

Site 54: Piles of stones in wadi (NIG 186021/508941)
Two piles of stones were found in the center of a stream. In order to investigate these features, an area of ca. 4 x 5m was opened. The stone clusters were probably the remains of a circular compound, sections of the northern and southern sides of which had survived. Within the extant 2m section of the north side was incorporated an upright stone supported by smaller stones. This may have been a ritual stela. No datable artifacts were found at this site.

Site 55: Enclosure (NIG 186122/509011)
This site is an enclosure on the northern bank of a stream, close to a rock shelter. The enclosure is elliptical in shape and adjacent to an exposed rock cliff, with a diameter of ca.20m and was built from large and medium-sized stones. This enclosure was in use up until recently, as shown by the presence of camel dung and modern objects scattered nearby.

Site 56: 'Stela' on wadi bank (NIG 185902/509209)
This upright stone was found on a slope above a seasonal stream bank. This may be a grave, and the upright stone ('stela') a grave marker at its north end. No finds were recovered and excavation was deemed inappropriate; if a grave, this was probably a recent Bedouin interment.

Figure 53. General view of the recent piles of stones placed on top of Site 44 (looking west).

Figure 55. General view of the Site 45 enclosure, with its north wall in the foreground.

Figure 54. General view of the Site 44 coursed walls after excavation (looking south).

Figure 56. General view of Site 49 before excavation (looking west).

The Access Road

Site 44: Possible mortuary structure (NIG 185450/509210)

These are the remains of a small structure on a ridge. Over this structure were found two piles of elongated stones (probably placed there by the IDF as firing cover). Beneath these, on the north and west sides of the structure a number of building courses of square stones were visible. After clearing the recent piles of stones from the site, the original structure was revealed. The structure was rectangular, measuring 1.5 x 2m and built of large and medium-sized stones. The structure was preserved to a height of 0.6m in 2-3 courses. At the centre of the structure an elongated compartment was found. This was devoid of finds. Our interpretation was that this structure was probably used in antiquity for burial.

Site 45: Elliptical structure (NIG 185528/509172)

This was a small enclosure on an east-facing slope, elliptical in shape and measuring 6 x 3m. The structure was built from large stones set against a nearby cliff. However, due to the steepness of the cliff most of the walls collapsed; only a 2m section of the north wall was preserved, to a height of 0.6m in three courses at most. No indicative finds were retrieved.

Site 49: Circular structure (NIG 185742/509271)

At this site a concentration of large stones was found (average measurement 1.1 x 0.5m). One (northwest)

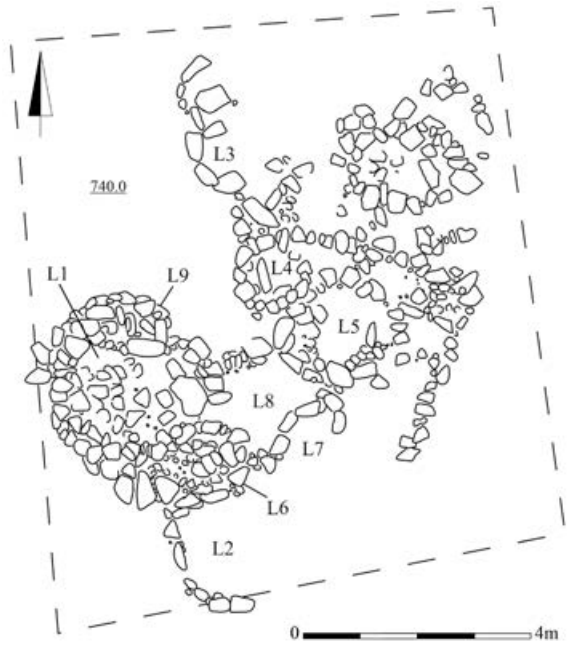


Figure 57. Plan of the Site 50 main structure and excavation area.

was found half-fallen from a standing position, originally on end with a number of small wedge stones stabilizing it on the sloping surface. The other stones of the cluster were found close to this 'stela'. They were also large and elongated, and probably originally set standing upright, which would have created a stone circle of ca.2.5m diameter. The stelae on the south side of this circle were erected directly on bedrock, which gave them reduced stability so that eventually they fell backward down the slope. The whole area was cleaned down to bedrock but no finds were recovered.

Site 50: Structures on a slope (NIG 185628/509080)

This site was comprised of the remains of structures at the center of a sloping, at the seasonal watercourse of Nahal Hava. In the area of the site were found many flint flakes and blades (Fig. 57) and also two arrow heads (Fig. 58). The finds were collected from a large excavation square (10 x 10m) which encompassed the site and its fringes. After clearing topsoil, debris and collapse we identified the main structure. This had a rounded shape, measuring 3m across and built from large and medium-sized stones. Some of these stones were set upright in the wall. The structure's entrance

Figure 58. Flint blades from Site 50.

Figure 59. Points from Site 50.

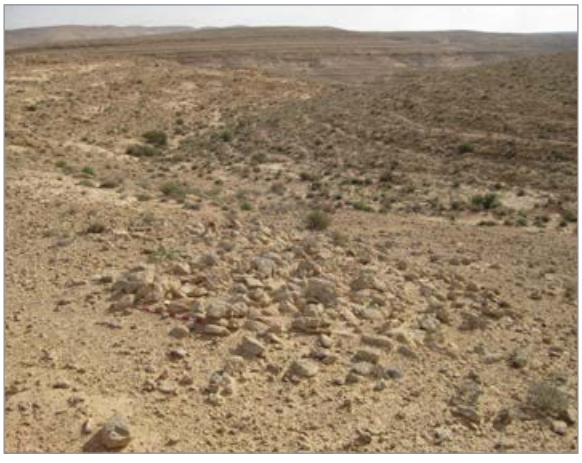


Figure 60. Site 50 before excavation (looking west).

Figure 61. Main structure at Site 50 (looking east).

Figure 63. Remains of L2 at Site 50.

Figure 62. Remains of L3 at Site 50.

Figure 64. General view of Site 50 after excavation (looking east).

faced east, away from the watercourse. North and south of this central structure were discovered two more built features (L2 and L3, Figs. 62-3), also round in shape with diameters of ca. 1.2m. They were built of upright stones placed side by side. Within these built features and close to the main structure a large number of flint blades and flakes were found. On the slope going down from the structure to the stream our excavation exposed the remains of about five additional round features. The diameter of these features was similar to the first, averaging 1.35m, and they were also built from upright stones. Approximately fifty meters east of the site, an additional feature was found on the stream bank. This was a concentration of flint flakes and blades close to an exposed rock, which probably covered a blocked or collapsed cave.

This site was most probably from the Pre-Pottery Neolithic Period (ca. 8300-5500 BCE). The excavation was not completed. It is necessary to continue, with the cooperation of a specialist team.

SUMMARY

This project added to the corpus of knowledge about Nahal Hava's archaeology, far beyond the Byzantine agricultural terraces mentioned in the introduction. We uncovered cultural remains dating from the Pre-Pottery Neolithic through modern times, including settlements (Sites 50, 74), enclosures (Sites

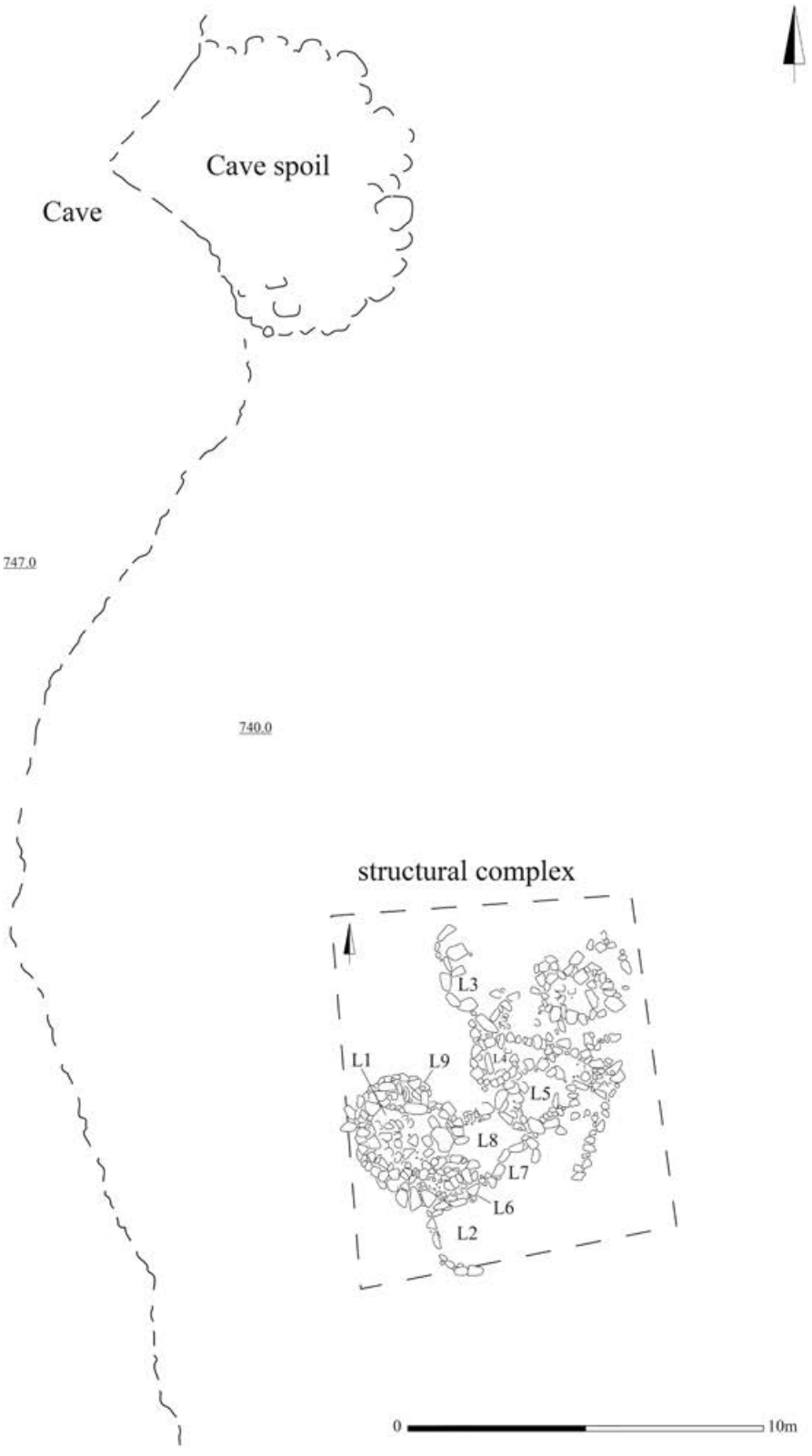


Figure 65. General plan of Site 50.

45, 53, 55), an encampment (Site 72), a very impressive water-cleaning and storage system (Site 71), and possible ritual (46, 49, 54, 72) and specifically mortuary sites (44, 56). A variety of other site types were also found, such as caches (Sites 20-22), granaries (Site 67), stone clusters (Sites 69, 70) and *shiniyot* navigaton aids.

REFERENCES AND FURTHER READING

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. Pp. 166-181.

Bar-Yosef, O. and Khazanov, A.M. (eds.) 1992. *Pastoralism in the Levant*. Ann Madison.

Barker, G. and Gilbertson, D.D. (eds.) 2000. *The Archaeology of Drylands: Living at the Margin* (One World Archaeology 39). London.

Danin, A. 1983. *Desert Vegetation of Israel and Sinai*. Jerusalem.

Everani, M., Shanan, L., and Tadmor, N. 1982. *The Negev: The Challenge of a Desert.* Cambridge.

Finkelstein, I. 1995. *Living on the Fringe*. Sheffield.

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.

Goring-Morris, A.N. 1987. *At the Edge: Terminal Pleistocene Hunter-Gatherers in the Negev and Sinai* (British Archaeological Reports, International Series 361). Oxford.

Lender, Y. 2007. Nahal Hava. *Hadashot Arkeheologiyot 119:* http://www.hadashot-esi.org.il/report_detail_eng.asp?id=1221&mag_id=115

Marks, A.E. (ed.) 1977. *Prehistory and Paleoenvironments in the Central Negev, Israel*. Dallas.

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.

———— 1987b. Byzantine Nomadism in the Negev: Results from the Emergency Survey. *Journal of Field Archaeology* 14: 29-42.

———— 1988. Notes on the Origins of Pastoral Nomadism: A Case Study from the Negev and Sinai. *Current Anthropology* 29: 498-506.

———— 2002. The Evolution of Pastoral Nomadic Systems in the Southern Levantine Periphery. In: van den Brink, E. and Yannai, E. (eds.) *In Quest of Ancient Settlements and Landscapes: Archaeological Studies in Honour of Ram Gophna*. Tel Aviv. Pp. 23-44.

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.

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