

TWO ROMAN–BYZANTINE SUBSURFACE FEATURES AT ḤORBAT QAṢṬRA (CASTRA), AT THE FOOT OF MOUNT CARMEL

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INTRODUCTION

The archaeological site of Ḥorbat Qaṣṭra (ancient Porphyreon)² is located in the precincts of Kefar Shamir, on the southern outskirts of Haifa. It lies at the foot of the Carmel's western spurs, about 1.5 km east of the Mediterranean seashore (Fig. 1). Several salvage excavations were conducted at the site from 1993–1998, in preparation for the construction of the entrance into the Carmel Tunnel. The excavations revealed remains of a large Roman and Christian-Byzantine settlement with residential quarters, dwellings arranged in well-defined blocks, remains of two basilical churches, part of an extensive cemetery, portions of the city's water supply system (including several water reservoirs) and numerous installations, such as wine- and oil presses and pottery kilns and limekilns.³ Most of the finds—pottery and glass vessels, oil lamps, figurines, ceramic masks and thousands of metal objects—date from the fourth to the end of the sixth centuries CE. The large number of wine- and oil presses discovered at the site demonstrates that the city's economy was based on the production of olive oil and wine, both for local consumption and export (Yeivin and Finkielsztejn 1999:26*).

In 1996, after completion of the salvage excavations in the northeastern part of Ḥorbat Qaṣṭra, the stone foundations of several Byzantine buildings (Castra 10/98; map ref. NIG 1971–8/7437–46; OIG 1471–8/2437–46) were dismantled and mechanically removed, in order to expose the underlying limestone bedrock, in search of potential subsurface

archaeological features (e.g., natural or man-made caves or cavities used for burials or storage). During the clearing of the bedrock, eleven cavities (numbered 1070–1080) were identified as potential archaeological loci (Fig. 2). Subsequent trial excavations—the focus of the present report—were conducted to examine their nature.⁴

THE EXCAVATIONS

Soon after the commencement of the excavations, it became clear that seven of the initial eleven locales were merely shallow, natural depressions or karstic sinkholes in the bedrock's surface, filled with earth, not leading into any cave or cavity (Plan 1; Fig. 3). A

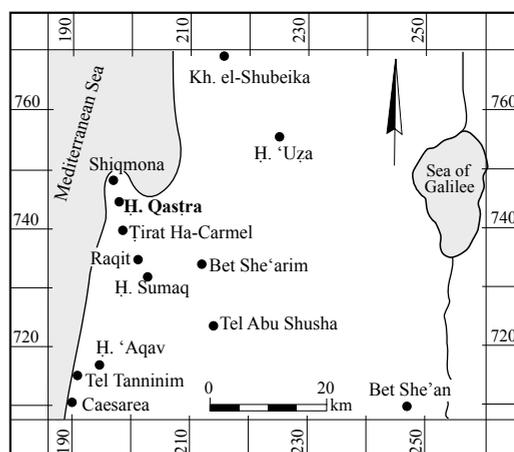


Fig. 1. Location map.

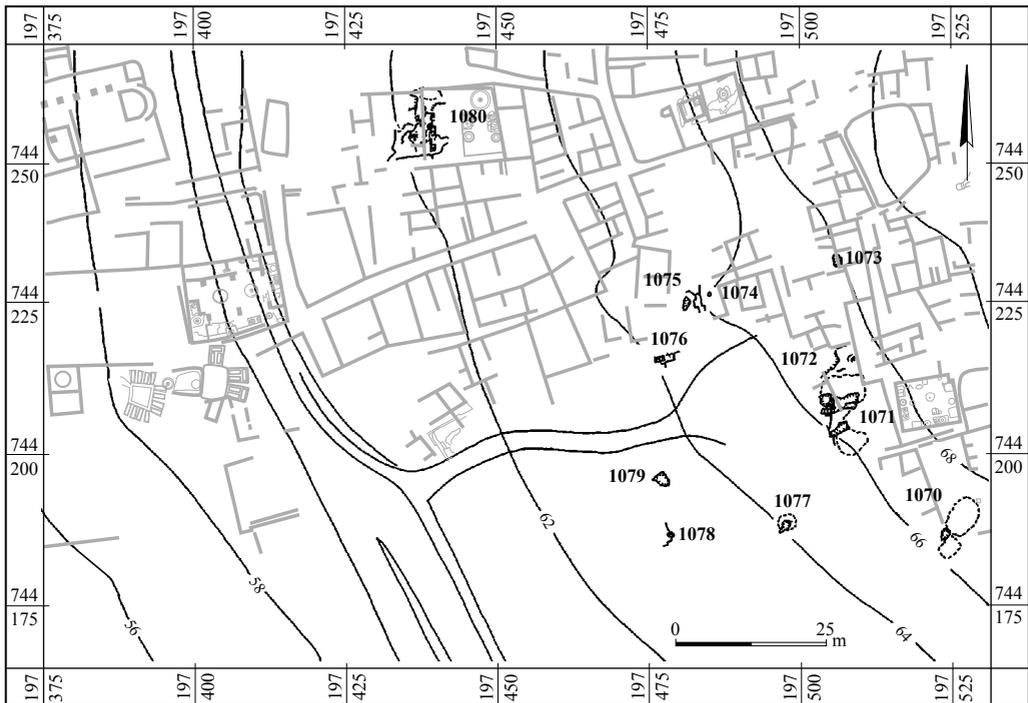


Fig. 2. Location of Excavation Points 1070–1080.

Byzantine coin was found in the fill of one such locale, Point 1079.⁵ An Umayyad coin was collected from the surface in the same area.⁶

1. Reg. No. 7550, L750, Point 1079. IAA 80390.

Justin II, Constantinople, 572/73 CE.

Obv.: dN IV[STI-NVS PP AVC] Emperor and Empress seated facing on thrones.

Rev.: **M** Above, cross; to l.: Δ NNO; to r.: $\text{C} / | |$; beneath: Δ ; in ex.: CON.

Æ Follis, \surd , 14.71 g, 30 mm.

DOC 1:203, No. 34a.

2. No Reg. No., Surface, IAA 80391.

Post-Reform Umayyad (697–750 CE).

Obv.: Outer circle; in field: لا اله الا الله وحده.

Rev.: Outer circle; in field: محمد رسول الله.

Æ Fals, 2.63 g, 12 × 14 mm.



Fig. 3. Point 1078, after clearance.



Plan 1. Points 1072–1076, 1078 and 1079, plans and sections.

ARCHAEOLOGICAL REMAINS

Only four points yielded archaeological remains (Points 1070, 1071, 1077 and 1080; Fig. 2). Of them, Points 1070 and 1071 are subsurface features associated with above-ground domestic remains, which were uncovered and later dismantled by Ze'ev Yeivin and Gerald Finkielsztein prior to our excavation. A description of these two subterranean features and the finds associated with them form the main focus of this report.

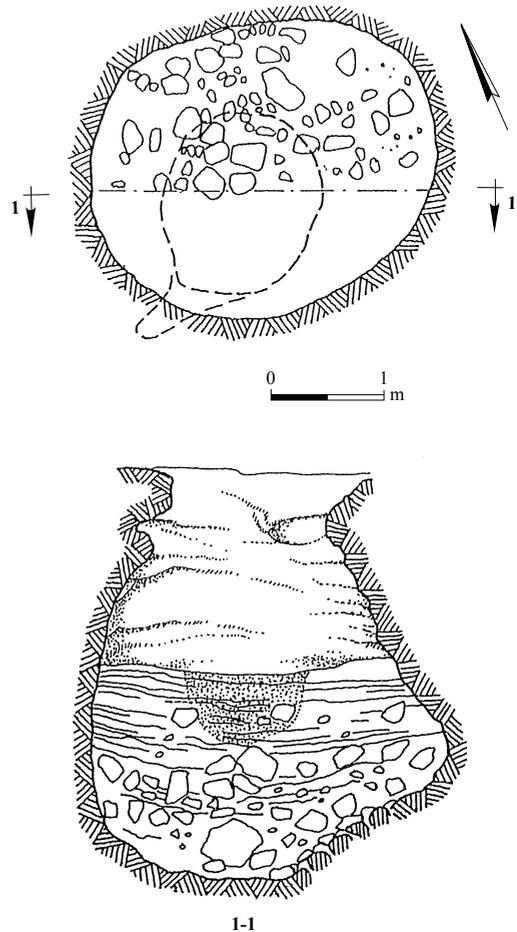
Point 1080

During the clearing operations⁷ prior to the excavations presented here, several large fragments of ceramic ossuaries, as well as other types of pottery, a tabular flint scraper and a rectangular stone palette were collected from below the stone foundations (W800) of a Byzantine building, situated in the northwestern part of the site (Fig. 2). The finds, rather unexpectedly, indicated the presence of a Chalcolithic dwelling and burial cave. Subsequent excavations of the cave and its finds have been discussed in detail elsewhere (van den Brink et al. 2004).

Cave 1077 (Plan 2; Figs. 4, 5)

Cave 1077, situated in the southeastern part of the area, consists of a pit (depth c. 3.5 m) with a narrow opening (diam. 1.3 m), which widens

toward the bottom (max. width 3.1 m).⁸ No primary, *in situ* finds were uncovered in this pit. The fill contained many flints, both tools and



Plan 2. Cave 1077, plan and section.



Fig. 4. Cave 1077, L650.

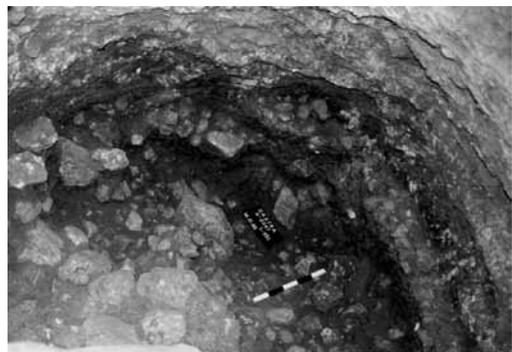
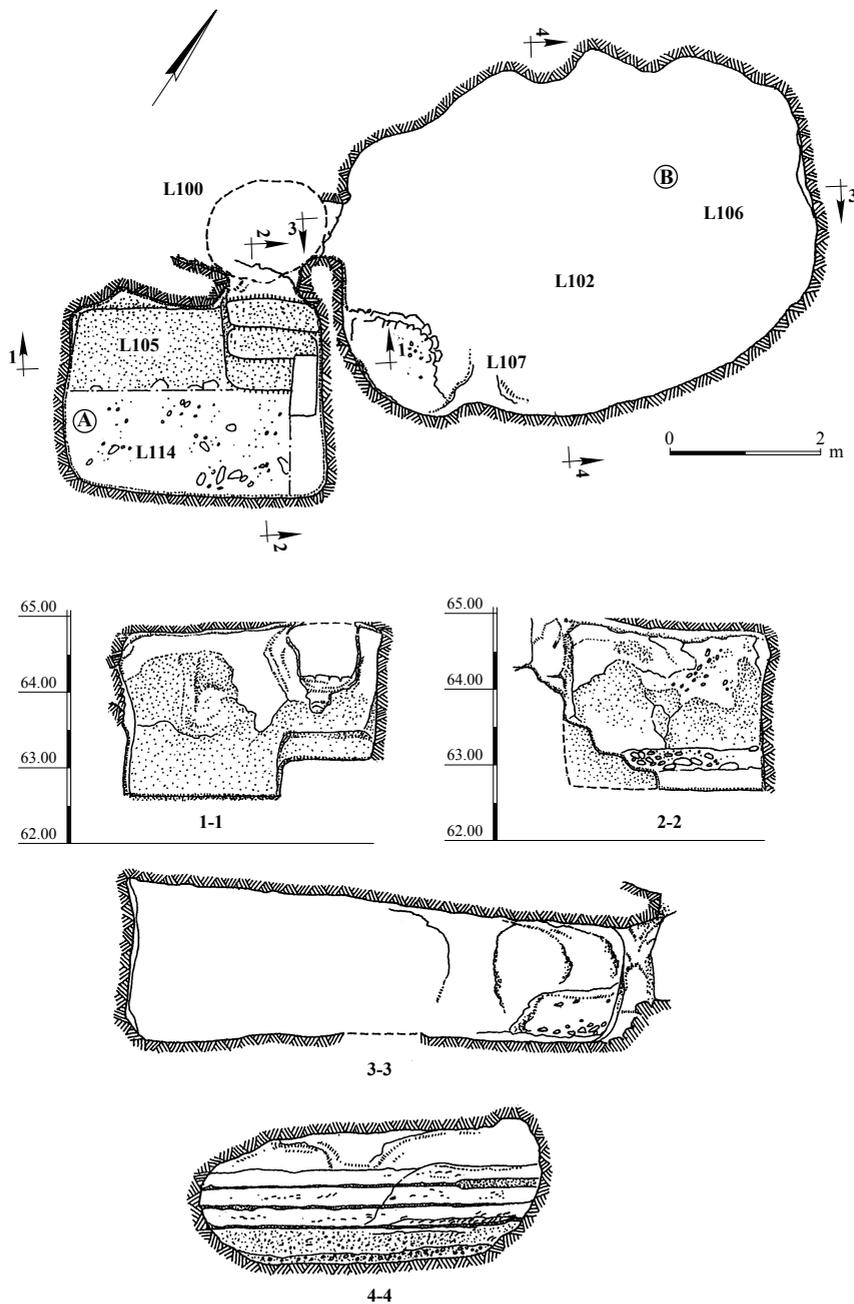


Fig. 5. Cave 1077, L651.

debitage, a few shells (see below) and very few pottery sherds dating to Middle Bronze Age II and earlier. Nothing can be said with certainty about the original function of the pit.

Cave 1070 (Plan 3; Figs. 6–10)

Two adjoining subterranean chambers were exposed under the supervision of Marwan Masrawa. Cave A, the smaller of the two,



Plan 3. Cave 1070, plan and sections.

is almost rectangular in plan (c. 2.5 × 3.5 m, height 2.5 m). A plastered staircase with three steps leads into it (Fig. 7). The stairs, walls and floor were all plastered (Figs. 7, 8). All four walls are marked with straight, horizontal red lines on the plaster, midway between the floor



Fig. 6. Cave 1070: entrance to Caves A (right) and B (left), looking east.

and ceiling. These lines probably indicate the original water level in the cave, which must have served as a reservoir. The cave's possible function as a ritual bath (*miqveh*) cannot be excluded *a priori*. The complete understanding of the cave's function, however, will have to await the publication of the architectural remains excavated on the surface above it.

The chamber was two-thirds filled with loose soil containing pottery sherds and glass fragments. Some date to the Late Roman–early Byzantine periods, but most date to the late Byzantine–Umayyad periods (see below). Since no apparent *in situ* material was found on the floor of this subterranean chamber, and all artifacts collected derive from secondary fills, nothing specific can be said about its original date of construction. The bulk of the pottery and glass retrieved from the lowest levels of the cave's fill (L105 and L106) date to the fourth century CE. That said, sporadic earlier sherds from the same levels may indicate a possible first use of the cave as early as the first–second centuries CE (see below).



Fig. 7. Cave 1070: Cave A, the staircase after final excavation of chamber, looking east.



Fig. 8. Cave 1070: Cave A, the plastered floor and walls after final excavation, looking northwest.



Fig. 9. Cave 1070: Cave B, looking northwest.

Adjoining Cave B has a more irregular, semiovoid shape (c. 4.5×6.5 m, height 1.8 m). Neither its bedrock floor nor the walls were plastered (Figs. 9, 10). The fill is similar to

that of the eastern cave. Its construction date is equally indeterminable at present. It may have served as a storeroom.



Fig. 10. Cave 1070: Cave B, looking northeast.

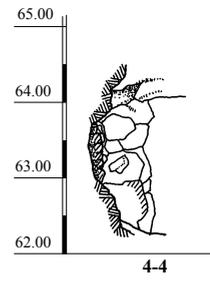
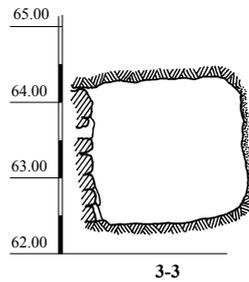
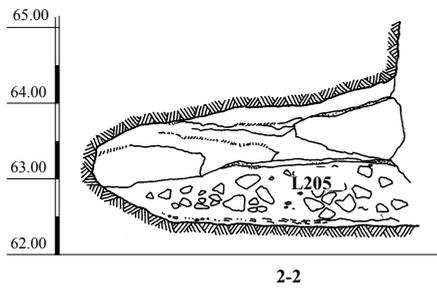
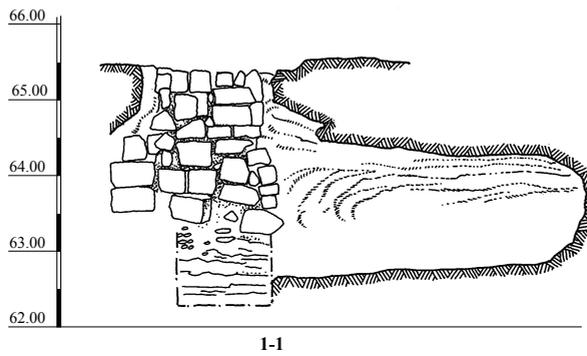
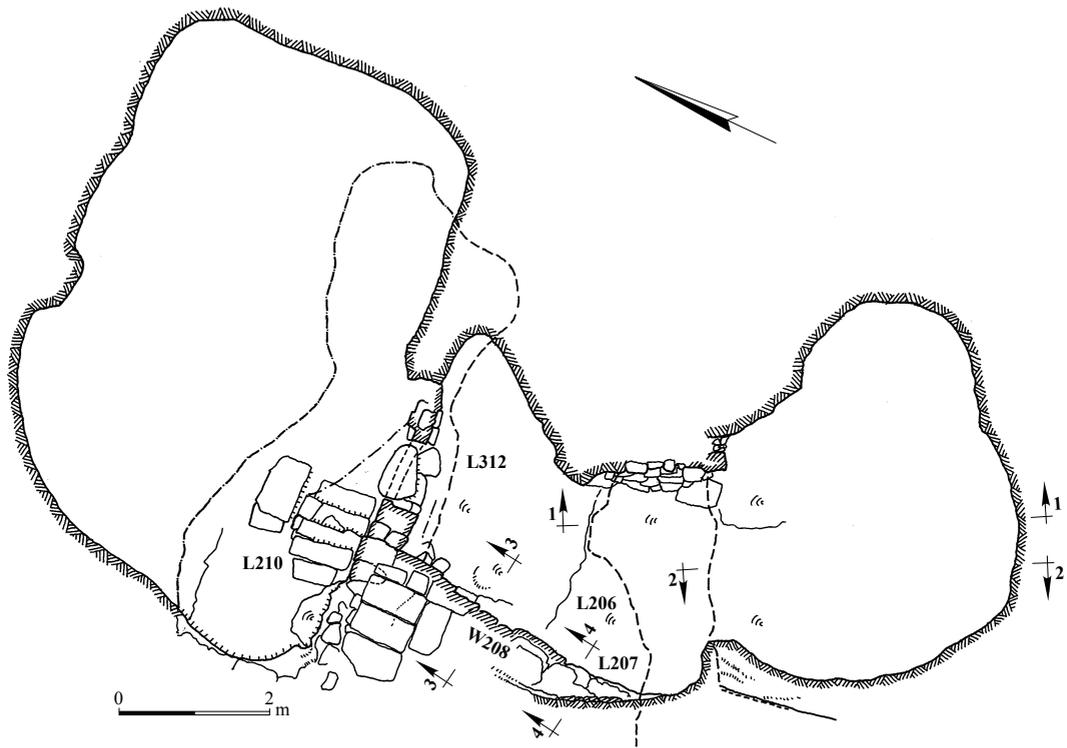


Fig. 11. Cave 1071: the stairs leading into the chamber.

Point 1071 (Plan 4; Figs. 11–14)

This locale consists of two chambers of a karstic cave (c. 4.0 × 7.8 m, height 3 m), altered by human activity (Plan 4).⁹ The

northern room was previously excavated by Ze'ev Yeivin and Gerald Finkielsztejn. A stone staircase, consisting of four dressed limestone steps (0.9 × 0.3 m each; Fig. 11), leads into



Plan 4. Cave 1071, plan and sections.



Fig. 12. Cave 1071: W203.



Fig. 13. Cave 1071: W203.

the southern chamber via a doorway (width 0.9 m) consisting of two doorjamb and a door sill. The western doorjamb abuts a stone wall (see below), and consists of a single, re-used ashlar stone, set vertically. The eastern doorjamb rests against the eastern wall of the cave, and was built of several courses of roughly dressed stones. Part of the cave's roof collapsed in antiquity. A supporting stone wall, nine courses high (W203; width c. 1.5 m, height 2 m), was erected to prevent further collapse of the roof (Figs. 12, 13). Another wall segment (W208; length c. 3.5 m, height 1.8 m) was constructed between the roof and the bedrock in the western part of the cave to protect the roof there from possible collapse (Fig. 14).

Although the subterranean chamber must have originally been intended for dwelling, part of the cave was later used as a limekiln, as evidenced by a deposit of ashy soil (thickness c. 1 m), containing large quantities of charcoal, covering the southern part of the chamber



Fig. 14. Cave 1071: W208.

and spilling over onto the stairs. Based on the pottery and glass remains from this particular ashy fill (L207; see Appendix 2), this event most likely dates to the late Byzantine–Umayyad periods. In the final stage of use, the staircase was blocked by large fieldstones, effectively sealing the cave's entrance. The cave yielded many restorable glass vessels, as well as pottery, including c. 25 oil lamps and fragments of many more, dating from the fourth–seventh/eight centuries CE (see below).

THE POTTERY ASSEMBLAGES FROM CAVES 1070 AND 1071

The pottery finds recorded during the excavation of Caves 1070 and 1071 were restored and sorted upon conclusion of the fieldwork. A ceramic corpus was compiled from a sampling of vessels selected, with the aim of presenting pottery groups and vessel types used in the caves during the various periods. Some of the vessels, specifically the lamps, were actually used in the caves. Others were uncovered in the

alluvium fill blocking the caves and originated from the settlement to which the caves were linked.

The corpus is presented in plates, each of which portrays a typological and chronological cross-section of groups of vessels: (1) domestic wares: bowls, cooking pots, jugs and juglets; (2) storage vessels: amphorae, jars and dolia; and (3) lamps. Vessels from Loci 100–199 originated from Cave 1070, and vessels from Loci 200–299—from Cave 1071.

The relatively large quantity of lamps (N = 52) made it possible to incorporate some of them into the corpus, and to enable statistical analysis of the lamps according to period, for each of the caves separately, and for both caves.

Bowls and Kraters (Fig. 15)

Local Bowls (Fig. 15:1, 2)

The most common Late Hellenistic and Early Roman fine ware found at Ḥorbat Qaṣṭra is Eastern Sigillata A, as is the case in most sites in

Israel. It seems that this ware was produced in the region of Syro-Palestine (Johnson 2008:35). This is the prevailing type in Samaria (Kenyon 1957:283–284), where it is characterized by light material, a wide variety of slip hues, ranging from red to reddish brown paint, runs and sundry spots.

Bowl (Fig. 15:1).— This is a shallow vessel with an incurved rim and curved walls. A similar bowl was found at Shiqmona, where it dates to the second century CE (Elgavish 1977:15–16, Pl. VIII:55). At Caesarea, similar bowls also date to the second century CE (Johnson 2008:260, 263).

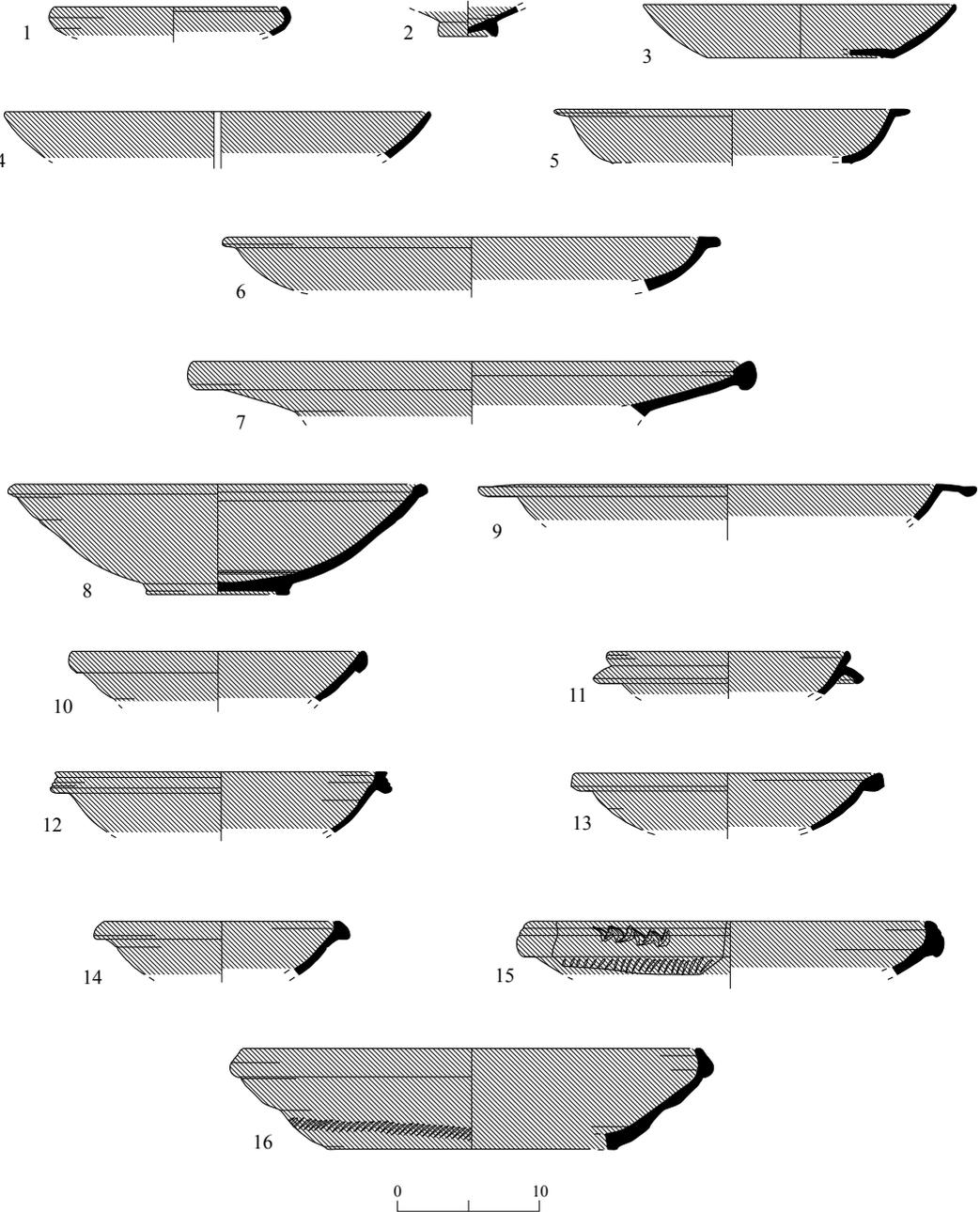


Fig. 15. Caves 1070 and 1071: bowls and kraters.

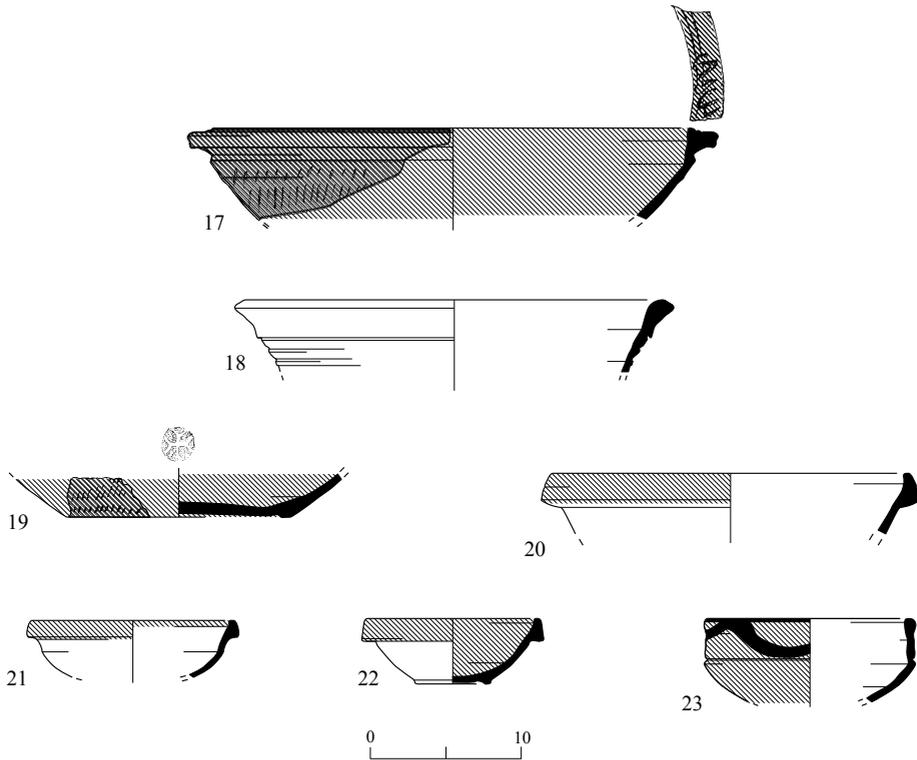


Fig. 15. (cont.)

No.	Type	Locus	Basket	Description	Parallels	Date (CE)
1	Bowl, Terra Sigillata	106	1053/5	Pink clay, levigated, high firing temperature, red–brown slip on int. and ext.	Avissar 1996: Fig. X.1:8	75 BCE– beginning of 1st c.
2	Bowl, Terra Sigillata	102	1034/5	Buff clay, levigated, well-fired, red–brown slip on int. and ext.		
3	Bowl	106	1059/1	Orange clay, levigated, high firing temperature, burnished on int. and ext.	Hayes 1972: Fig. 9:3, Form 32	Beginning of mid–3rd c.
4	Bowl	102	1013/8	Pinkish red clay, levigated, high firing temperature, reddish slip on int. and ext., burnished	Hayes 1972: Fig. 9:4, Form 32	Beginning of mid–3rd c.
5	Bowl	106	1068/6	Orange clay, levigated, very high firing temperature, dark orange slip on int. and ext., burnished	Hayes 1972: Fig. 12:56, 60, Form 50B	350–400
6	Bowl	106	1041/6	Orange clay, levigated, very high firing temperature, dark orange slip on int. and ext., burnished	As No. 5	350–400
7	Plate	209	-	Dark orange clay, white inclusions, mica, high firing temperature, orange slip on int. and ext., burnished	Hayes 1972: Fig. 31:7, Form 105	End of 6th c.
8	Bowl	102	1038/1–8	Orange clay, few inclusions, well-fired, traces of orange slip on int. and ext., burnished	Hayes 1972: Fig. 30:23, 29, Form 104C	550–625
9	Bowl	207	2063/14	Orange clay, white inclusions, high firing temperature, red–orange slip on int. and ext., burnished	Hayes 1972: Fig. 33:1, 2, Form 107	600–650

◀ Fig. 15 (cont.)

No.	Type	Locus	Basket	Description	Parallels	Date (CE)
10	Bowl	207	2063/6	Orange clay, levigated, high firing temperature, traces of orange slip on int. and ext., burnished	Hayes 1972: Fig. 28:22, Form 99C	560–620
11	Bowl	102	1010/12	Orange–red clay, several inclusions, high firing temperature, reddish slip on int. and ext., burnished	Hayes 1972: Fig. 26:23, Form 91C	530–600
12	Bowl	102	1010/3	Brown clay, levigated, high firing temperature, orange slip on int. and ext.	Hayes 1972: Fig. 69:23, Form 3F	6th c.
13	Bowl	206	2047/3	Orange–brown clay, white inclusions, very high firing temperature, traces of orange slip on int.	Hayes 1972: Fig. 71:11–13, Form 10C	Beginning in mid-7th c.
14	Bowl	102	1028/19	Brown clay, levigated, high firing temperature, traces of dark orange slip on int. and ext.	Hayes 1972: Fig. 80:2, Form 3	Third quarter of 5th c.–second quarter of 6th c.
15	Krater	209	2082	Orange clay, levigated, high firing temperature, orange–brown slip on int. and ext., no slip on rim	Hayes 1972: Fig. 82:13, Form 9C	580/600–end of 7th c.
16	Krater	206	2040/3	Light brown clay, levigated, high firing temperature, brown–orange slip on int. and ext.	Hayes 1972: Fig. 82:10, 11, Form 9B	580/600–end of 7th c.
17	Krater	102	1024/1	Orange–brown clay, levigated, high firing temperature, dark orange slip on int. and ext.	Hayes 1972: Fig. 81:1, Form 7	Second half of 6th c.–beginning of 7th c.
18	Krater	102	1016/9	Brown clay, levigated, high firing temperature, reddish slip on int., traces of orange slip on ext.	Hayes 1972: Fig. 83:2, Form 11	550–650
19	Krater	207	2068/8	Light brown clay, levigated, high firing temperature, brown–orange slip on int. and ext., stamped cross	Hayes 1972: Fig. 84:k–m	Second half of 7th c.
20	Bowl	209	2079	Buff–pink clay, numerous inclusions, mica, high firing temperature, pink slip on int. and ext., rim painted reddish brown	Hayes 1972: Fig. 86, Form J Rosenthal–Heginbottom 1988: Pl. I:20	End of 6th–7th c.
21	Small bowl	204	2015/7	Light pink clay, numerous inclusions, mica, well-fired, orange–pink slip on int. and ext., rim painted red–brown	Hayes 1972: Fig. 85:F, Form J, Type 3 Egloff 1977: Pl. 40:3, Type 34	End of 6th–7th c.
22	Small bowl	202	2010/12	Pink–light orange clay, numerous inclusions, mica, well-fired, traces of orange–pink slip on int. and ext., rim painted red–brown	Hayes 1972: Fig. 86, Form J, Type 3	End of 6th–7th c.
23	Bowl	204	2030/4	Dark brown clay, sandy, numerous inclusions, mica, well-fired, buff slip on int. and ext., dark brown drawing on orange background on ext. of vessel	Arnon 1996: Pl. 3:9 Vogt 1997: Pl. 3:5	Byzantine–Early Islamic

Base of Bowl (Fig. 15:2).— No exact parallels were found for this vessel; however, it can be reasonably ascribed to the second–third centuries CE.

Imported Bowls and Kraters

A large quantity of imported bowls was exposed at the site. These vessels were common in the Late Roman and Byzantine periods, with some types continuing into the Early Islamic period. The bowls are classified according to region of origin.

African Red Slip Ware (Fig. 15:3–11).— The African Red Slip Ware (Hayes 1972:13) includes bowls imported from North Africa. Similar types were found at Caesarea (Johnson 2008:58). Several forms of this ware were found:

Open Bowls with a Ledge Rim and Curved Walls (Fig. 15:3, 4): Hayes dates similar vessels to the first half of the third century CE (Hayes 1972:55).

Open Bowls with a Tapered Rim, Flaring Walls and a Flat Base (Fig. 15:5, 6): Hayes dates similar vessels to 350–400 CE and even later (Hayes 1972:69–73).

Large Plate with a Button Rim, Slanted Walls and a Medium-Sized Ring Base (Fig. 15:7): Similar vessels appear in Hayes (1972:166–169), dating to 580/600–660 CE and later. The rim shape of this example, however, suggests that it should be ascribed to an earlier variant of the type and dated to the end of the sixth century CE.

Deep Bowl with a Curved and Thickened Rim (Fig. 15:8): This type has curved walls with grooves on the upper portion and a low ring base that is decorated with grooves. Hayes dates similar vessels to 550–625 CE (Hayes 1972:160–166).

Deep Bowl with a Broad Ledge Rim and Curved Walls (Fig. 15:9): Hayes dates this type to 600–650 CE (Hayes 1972:171).

Bowl with a Triangular Rim and Curved Walls (Fig. 15:10): Hayes dates a similar type to 560–620 CE (Hayes 1972:152–155).

Bowl with a Broad, Convex Ledge Rim and Curved Walls (Fig. 15:11): The ledge is located below the rim. Hayes dates this type to 530–600 CE and later (Hayes 1972:141).

Phocaeen Red Slip (Fig. 15:12, 13).— This group is typologically more homogeneous. It is referred to as Phocaeen Red Slip after one of the leading production centers located in Phocaea, Western Turkey (Hayes 1980:525–527). Two types of bowls belong to this group. The first has curved walls and a relatively broad, vertical rim, which tapers on the bottom (Fig. 15:12). The outside of the rim is grooved. Based on the shape of the rim, the bowl should be ascribed to a variant that evolved during the sixth century CE (Hayes 1972:338). The second is a bowl with a thickened, rectangular rim and curved walls (Fig. 15:13). Hayes dates this type to the first half of the seventh century CE (Hayes 1972:343–346).

Cypriot Red Slip Ware (Fig. 15:14–19).— The Cypriot Red Slip Ware (Hayes 1972:371–386) includes a bowl and kraters. The bowl belonging to this group (Fig. 15:14) has a triangular, incurved rim and curved walls. Hayes ascribes this type from the third quarter of the fifth century to the second quarter of the sixth century CE (Hayes 1972:376).

Several kraters of this group were found. Two (Fig. 15:15, 16) have a thickened rim tapering inward and are grooved on the rim's exterior. One (Fig. 15:15) is decorated with a stamped zigzag pattern. The walls are slanted and decorated on their exterior with a roulette pattern, and the base is flat. Hayes (1972:379–382) dates an identical type from 580/600 to the end of the seventh century CE.

Another krater (Fig. 15:17) has a broad grooved rim that is decorated on the outside with a stamped zigzag pattern. The upper part of the wall is carinated and adorned with a roulette pattern. According to Hayes, this type dates mainly from the second half of the sixth century to the beginning of the seventh century CE (Hayes 1972:377–379).

An additional krater (Fig. 15:18) has a trapezoid rim and slanted walls. In most instances, kraters of this type have two horizontal handles located below the rim and a flat base. Hayes dates this type to 550–650 CE and later (Hayes 1972:383).

The base of a krater was found (Fig. 15:19), which was decorated with a stamped cross on the interior. The cross is in Greek style, with arms of equal length that widen at their ends in the form of a ‘fish tail’. The base probably belonged to a Hayes Type 9 krater, and dates to the end of the seventh century CE (Hayes 1972:381–382).

Coptic Red Slip Ware (Fig. 15:20–23).— This group consists of a variety of imported bowls referred to as Coptic Red Slip Ware or Egyptian Red Slip Ware (Hayes 1972:387–401). The vessels originate from the vicinity of Egypt, mainly imitating the forms of the North African and Phocaean Ware vessels described above. One bowl (Fig. 15:20) has an inverted, triangular rim and curved walls. Similar vessels were found at Rehovot-in-the-Negev (Rosenthal-Heginbottom 1988:79–80), where they date to the end of the sixth–seventh centuries CE. Hayes assigned similar dates to this vessel type (Hayes 1972:389–391).

Other bowls in this group (Fig. 15:21, 22) have a triangular rim and walls that are either slightly carinated toward the top (Fig. 15:21) or curved (Fig. 15:22). This type is a smaller version of the aforementioned type (Fig. 15:20), dating to the same time frame (Hayes 1972:389–391). Identical bowls were found at Kellia and date to the seventh–beginning of the eighth centuries CE (Egloff 1977:80–81, Pl. 40:3, Type 34).

A deep bowl (Fig. 15:23), with a painted decoration, rounded rim and straight walls that are carinated toward the bottom, was found. The exterior of the walls is decorated with a geometric pattern. Similar vessels were found at Caesarea and date from the Byzantine to the Early Islamic periods (Arnon 1996:35). Similar vessels first appear at Elephantine and Fustat in Egypt at the beginning of the seventh

century CE and disappear during the course of the Umayyad and Abbasid periods (Vogt 1997:248).

Cooking Vessels (Fig. 16)

Open Cooking Vessels (Fig. 16:1–3).— This group is composed of kraters and casseroles used for cooking. The vessels usually have a flat, slanted rim and two horizontal loop handles attached to the upper part of the vessel’s wall. The walls are generally curved, with ribbing on the exterior. The rim’s slanted edge was designed to secure the lid to the vessel. This type of cooking pot was used for a long period of time, without any serious modifications, from the Late Roman until the Early Islamic period (Magness 1993:211–212).

One casserole (Fig. 16:1) has a flat, slightly slanted rim, curved walls with external ribbing and two horizontal loop handles. The context of the locus indicates a sixth–seventh century CE date for this vessel type.

A second casserole (Fig. 16:2) has a slanted rim, carinated walls and two slightly raised horizontal handles. A similar vessel was found at Capernaum and dates to the Byzantine period (Loffreda 1974:48).

A cooking-pan handle (Fig. 16:3) probably belongs to a frying pan with a slightly slanted, flat rim and broad inner ribbing. The handle is a hollow wishbone that was affixed to the vessel at a later stage. This type of frying pan is common at numerous Byzantine sites, such as Ḥorbat ‘Aqav (Calderon 2000:142–143), where they were found in a sixth–beginning of the seventh centuries CE sherd-filled pit (Pit 285 henceforth). Magness dates similar vessels to the same time frame (Magness 1993:213, Form 2).

Open Cooking Vessel Lids (Fig. 16:4–6).— Magness dates the various types of lids to an extremely long timespan, extending from the end of the third century CE to the tenth century CE. She notes that during this period, these vessels did not undergo any morphological changes whatsoever (Magness 1993:215).

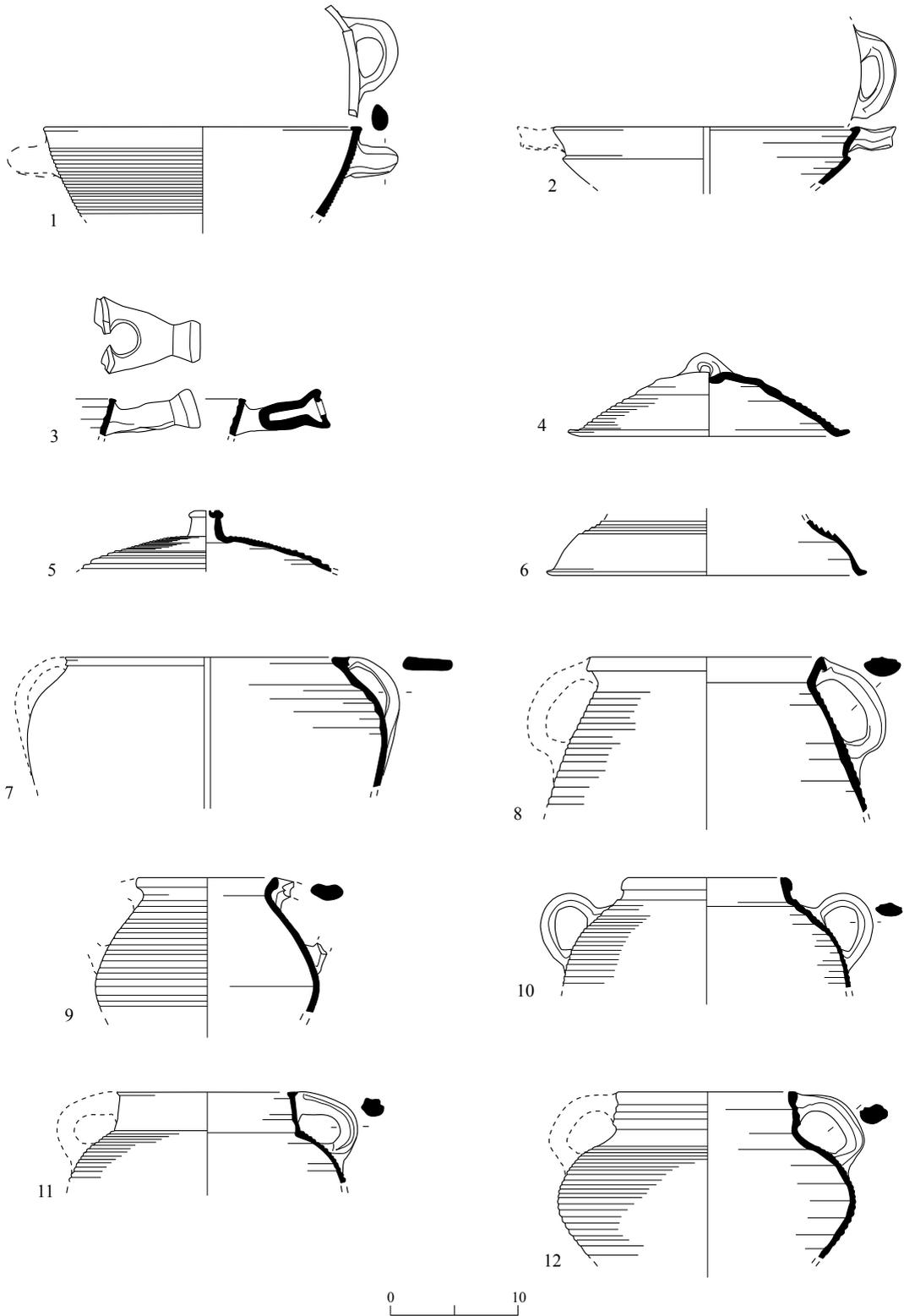


Fig. 16. Caves 1070 and 1071: cooking vessels.

◀ Fig. 16

No.	Type	Locus	Basket	Description	Parallels	Date
1	Cooking krater	204	2023/2	Dark brown clay, sandy, white inclusions, quartz, well-fired, ext. color: reddish dark brown, burnt traces		
2	Cooking krater	102	1016/11	Brown clay, sandy, well-fired, ext. color: dark brown, burnt traces	Loffreda 1974: Pl. 21:2	Byzantine
3	Frying pan	102	1031/20	Brown clay, sandy, well-fired	Calderon 2000: Pl. XXIII:58	6th–beginning of 7th c.
4	Lid	206	2045/3	Brown clay, numerous inclusions, well-fired	Calderon 2000: Pl. XXIII:53, 54	6th–beginning of 7th c.
5	Lid	207	2055/5	Brown–orange clay, numerous inclusions, quartz, high firing temperature, ext. color: reddish brown		
6	Lid	207	2057/8	Brown–orange clay, numerous inclusions, fired at a high temperature, ext. color: reddish brown	Reynolds and Waksman 2007: Fig. 53	c. 410
7	Cooking pot	102	1024/4	Brown clay, black core, very sandy, black and brown inclusions, poorly fired	Johnson 1988: Figs. 585–586	
8	Cooking pot	209	2082	Dark brown clay, burnt core, sandy, numerous inclusions, quartz, well-fired	Adan–Bayewitz 1986: Fig. 3:24, Type 2A	7th c.
9	Cooking pot	207	2056/15	Orange–brown clay, burnt core, sandy, numerous inclusions, well-fired	Meyers et al. 1981: Pl. 8. 14:5	4th c.
10	Cooking pot	102	1033/5	Orange–brown clay, white inclusions, high firing temperature, ext. color: reddish brown	Calderon 2000: Pl. XXII:41, Type 2	6th–beginning of 7th c.
11	Cooking pot	102	1013/6	Orange–brown clay, white inclusions, high firing temperature, ext. color: gray–brown	Meyers et al. 1981: Pl. 6.5:7 Reynolds and Waksman 2007: Fig. 22	Early 3rd c.–Late Roman
12	Cooking pot	207	2064/1	Orange clay, burnt core, sandy, numerous inclusions, quartz, well-fired, ext. color: brown	Loffreda 1974: Fig. 10:5, Type C3	Peaked in Byzantine period

One casserole lid (Fig. 16:4) has a flat rim, ribbing on the exterior and a loop handle in the center. Similar lids were found in Beirut, dating to the late sixth century CE (Reynolds and Waksman 2007:64, Fig. 57), and at Kellia, where they date prior to 450 CE (Egloff 1977:180, Pl. 55:7, Type 350). This lid type was also found in Ḥorbat ‘Aqav Pit 285 (Calderon 2000:140–142).

A second casserole lid (Fig. 16:5) has a flat rim, hollow knob handle and a ribbed exterior. A similar lid was found at Kellia, in a context

postdating the first half of the fifth century CE (Egloff 1977:179, Pl. 55:5, Type 348). A third lid (Fig. 16:6) has a flat rim and partial ribbing on the exterior. A similar type of lid was found at Beirut (Reynolds and Waksman 2007:64, Fig. 53), and dated to c. 410 CE.

Closed Cooking Pots (Fig. 16:7–12).— Several types of closed cooking pots were found at Ḥorbat Qaṣṭra. One (Fig. 16:7) has a very short neck, a broad grooved rim and very wide

vertical handles extending from the rim to the body. A similar type was found at Jalame (Johnson 1988:194, Figs. 585–586).

One cooking pot (Fig. 16:8) has a tall, funnel-shaped neck, triangular rim, two vertical handles that extend from the rim to the body and ribbing on the exterior. Similar vessels were found at Caesarea, where they date to the late Byzantine period (Adan-Bayewitz 1986:107–108). In Jerusalem, this type of pot dates to the end of the sixth–seventh centuries CE (Tushingham 1985:95, Fig. 32:3); Magness (1993:219–220) dated a similar type from the fifth–sixth centuries to the late seventh–early eighth centuries CE.

An additional cooking pot (Fig. 16:9) has a short neck, everted and rounded rim, two vertical handles drawn from the rim to the body and ribbing on the vessel's exterior. Vessels of a similar type were found in Stratum V at Meron (Meyers, Strange and Meyers 1981:126–127), where they date to the fourth century CE (Meyers, Strange and Meyers 1981:54–55). Magness (1993:219) dated a similar type (4A) from the fifth–sixth centuries to the late seventh–early eighth centuries CE. A cooking pot (Fig. 16:10) with a short inverted neck and a thickened rim was also found. The shoulder is slightly carinated where it connects to the neck of the vessel. Two vertical handles extend from the shoulder to the body and there is external ribbing. A similar vessel was found in Ḥorbat 'Aqav Pit 285 (Calderon 2000:138). In Beirut (Reynolds and Waksman 2007:62, Fig. 22), a similar vessel was dated to the fifth–sixth centuries CE.

An additional cooking pot (Fig. 16:11) has a tall, straight neck, flat grooved rim, two vertical handles drawn from the rim to the shoulder and ribbing on the exterior. Similar vessels found at Meron were dated to the Late Roman period based on numismatic evidence (Meyers, Strange and Meyers 1981:98–99). In Beirut, similar pots date to the early third century CE (Reynolds and Waksman 2007:62, Fig. 22).

Another cooking pot has a tall, ridged neck, a rounded rim, two vertical handles extending from the rim to the shoulder and external

ribbing (Fig. 16:12). Similar vessels were found at Capernaum (Loffreda 1974:46), where they make their first appearance in the Roman period and reach their peak in the Byzantine period.

Jars (Fig. 17)

Baggy-Shaped Jars (Fig. 17:1–3).— The first example of a Palestinian baggy-shaped jar (Fig. 17:1) has a tall straight neck with a ridge at its base, a rounded rim and ribbing on the shoulder. Riley (1975:26) classified this type as Type 1A, dating to 135–450 CE. The first appearance of this jar in a sealed layer at Caesarea dates, at the very latest, to the first half of the second century CE. In other sites, the type continues at least until the fourth century CE (Johnson 2008:87, Figs. 1013–1023), and possibly into the fifth century CE.

Another type of this jar (Fig. 17:2) has a tall straight neck, slanted rim and ribbing on the outside of the shoulder, which is decorated with abstract or geometric motifs, such as horizontal and vertical lines, spirals, and a menorah-like design. Such jars have been classified as both “Gray Jars”, based on the color of the clay (Landgraf 1980:69) and “Black Baggy Jars” (Johnson 2008:91). They were probably manufactured in Bet She'an. While they were found in numerous sites throughout Israel, their relatively widespread distribution in the north is conspicuous. Despite Landgraf's dating to the fifth–eighth centuries CE (Landgraf 1980:80), identical jars were found at Ḥorbat 'Aqav, Pit 285 (Calderon 2000:129–130, Pl. XVIII:16–18). The similar Caesarea Type 3 jars date from the second century CE to the Early Islamic period (at least the eighth century CE; Johnson 2008:91).

The third Palestinian baggy jar (Fig. 17:3; Caesarea Type 1C; Johnson 2008:88) is ascribed to Class 46 (Peacock and Williams 1986:191–192), which was common in Israel during the fifth–sixth centuries CE. The jar has a short neck, thickened rim and two vertical loop handles drawn from the upper part of

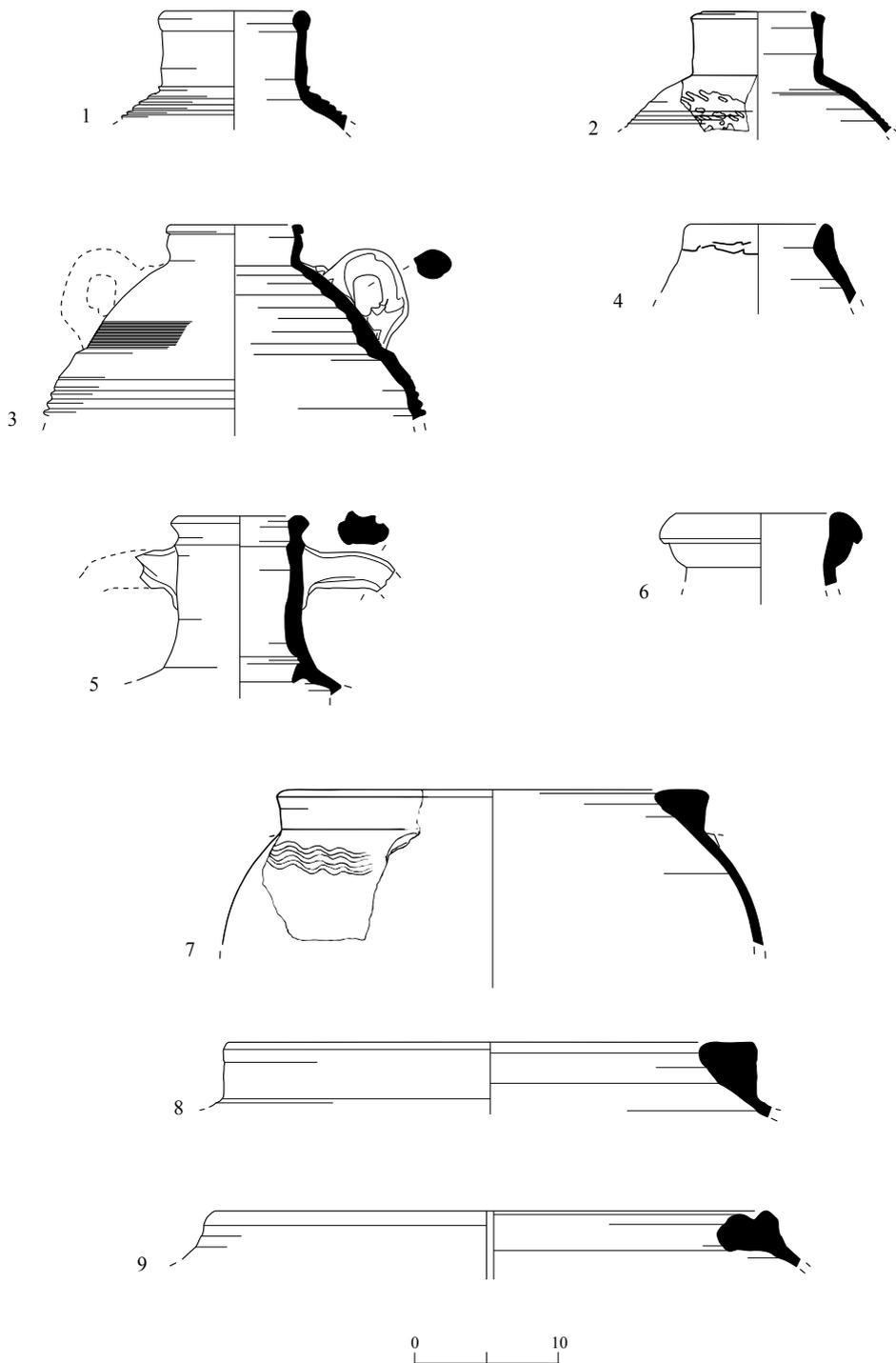


Fig. 17. Caves 1070 and 1071: jars, amphorae and dolia.

◀ Fig. 17

No.	Type	Locus	Basket	Description	Parallels	Date
1	Baggy-shaped jar	102	1028/22	Orange clay, sandy, white inclusions, well-fired, ext. color: orange, red stripe on neck	Riley 1975: Nos. 8, 9, Type 1A Johnson 2008: Figs. 1013–1023	First half of 2nd–4th c.
2	Baggy-shaped jar	102	1028/9	Gray clay, orange core, white inclusions, very high firing temperature, int. color: gray–brown, white ext. decoration	Landgraf 1980: Fig. 21 Calderon 2000: Pl. XVIII:16–18	6th–beginning of 7th c.
3	Baggy-shaped jar	204	2023/19	Light brown clay, sandy, black and white inclusions, well-fired	Adan–Bayewitz 1986: Fig. 1:4, 6, Type 1B Calderon 2000: Pl. XVII:11–15	6th–beginning of 7th c.
4	Gaza jar	202	2002/11	Brown clay, numerous inclusions, well-fired, ext. color: light brown	Adan–Bayewitz 1986: Fig. 1:9, 14, Type 2 Calderon 2000: Pl. XV:6, Fig. 12	6th–7th c. 7th c.
5	Amphora	102	1010/6	Brown clay, black and brown inclusions, well-fired, outer color: orange–brown	Calderon 2000: Pl. XIX:20–22	6th–beginning of 7th c.
6	Amphora	207	2077/9	Red–orange clay, numerous inclusions, quartz, high firing temperature, ext. color: buff	Freed 1995: Fig. 3:3	450/475–end of 6th c.
7	Dolium	207	2077/13	Dark brown clay, black, brown and red inclusions, high firing temperature, ext. color: orange–light brown	Calderon 2000: Pl. XXI:31, Fig. 31	6th–beginning of 7th c.
8	Dolium	102	1004/14	Dark brown clay, black and brown inclusions, high firing temperature, ext. color: orange–brown	As No. 7	6th–beginning of 7th c.
9	Dolium	202	2010/31	Orange clay, light brown core, brown and black inclusions, high firing temperature, ext. color: light brown		

the shoulders to the body. The walls are ribbed both internally and externally. Similar jars were found in Stratum IV at Caesarea, where they date to the seventh century CE (Adan-Bayewitz 1986:91–97) and in Ḥorbat ‘Aqav, Pit 285, (Calderon 2000:127–129, Pl. XVII:11–15).

Gaza Jars (Fig. 17:4).— Jars of this type were discovered throughout Israel; however, they

are most common in the south, in the region of the western Negev along the Gaza Strip, where they were produced, and to its north. Peacock and Williams note that these jars are common in the fourth–sixth centuries CE in the southern part of the Eastern Mediterranean basin, North Africa, Western Europe and the Black Sea (Peacock and Williams 1986:198–199).

The example from Ḥorbat Qaṣtra (Fig. 17:4) has a short neck and tapered rim. The

clay remnants adhering around the neck of the jar are a prominent characteristic of these vessels. This is the most common type found in Ḥorbat 'Aqav, Pit 285 (Calderon 2000:119–127). These jars were found in Stratum IV at Caesarea (seventh century CE; Adan-Bayewitz 1986:97–99). Its popularity and distribution reach a peak between the fourth and sixth centuries CE (Johnson 2008:97, Fig. 1177).

Amphorae (Fig. 17:5, 6).— Two types of amphora were found. The first (Fig. 17:5) has a long neck with a prominent ridge at its top and a rounded rim. Two vertical handles extend from the upper part of the neck to the shoulders. This type of amphora, probably produced in Egypt, is very common from the beginning of the fifth century until the middle of the seventh century CE. Such vessels have been found in Egypt, Cyrenaica, Israel, the Aegean, Tunisia, Italy, Spain, Britain, Turkey and the Black Sea region (Peacock and Williams 1986:185–187, Fig. 105). They appear at Kellia from the beginning of the sixth until the end of the seventh century CE (Rosenthal-Heginbottom 1988:87, Ill. 131), and in Ḥorbat 'Aqav Pit 285 (Calderon 2000:132–133).

The second type of amphora (Fig. 17:6) has a long neck and a thickened, everted rim. This type originated in Tunisia. Many such vessels were found at Carthage (Freed 1995:168), where they date from 450/475 to the end of the sixth century CE. This type belongs to Class 35, which dates to the end of the fourth–sixth centuries CE (Peacock and Williams 1986:158).

Dolia (Fig. 17:7–9).— These quite massive vessels have a round body and combed decoration. The rim is very thick and has a triangular cross-section, which is sometimes grooved (Fig. 17:9). Similar vessels were found at Ḥorbat 'Ovesh (Aviam and Getzov 1998:70, Fig. 1:10), where they date from the end of the Byzantine period to the beginning of the Early Islamic period. Fragments of such vessels were also found in Ḥorbat 'Aqav Pit 285 (Calderon

2000:135–137) and at Caesarea, where they are dated to the fifth–seventh centuries CE (Johnson 2008: Fig. 555).

Jugs and Juglets (Fig. 18)

Six jugs and one juglet were found. The first (Fig. 18:1) has a long cylindrical neck, inverted triangular rim and a vertical handle extending from the rim to the shoulder. A similar jug was found in Ḥorbat 'Uza Stratum II, dating to the fourth–sixth centuries CE (Ben-Tor 1966:18).

Two jugs with spouts are illustrated (Fig. 18:2, 3). These vessels have a long neck with a ridge toward the top, a rounded, everted rim, a vertical handle drawn from the rim to the shoulder, and a round body with a spout affixed to the shoulder. Similar vessels were found at Capernaum (Loffreda 1974:34, Type A8) and elsewhere. They reached their peak of use in the Late Roman period. Similar vessels with strainers were found at Jalame, where a date from approximately the second half of the fourth century CE is suggested (Johnson 1988:205, Fig. 7-45:670). They were also found in Ḥorbat 'Aqav Pit 285 (Calderon 2000:144–146, Pl. XXIV:63, 64; Fig. 41).

An additional jug (Fig. 18:4) has a rounded rim, long cylindrical neck and a vertical handle that extends from the rim to the shoulder. An identical jug was found at Caesarea (Johnson 2008:50, Fig. 480). The jug shown in Fig. 18:5 has a trefoil rim. No exact parallels for this vessel were found.

The neck of a vessel (Fig. 18:6) that appears to be a jug was found. It has a tapered rim and a long, very narrow neck with a pronounced ridge. The neck widens toward the bottom. Based on the quality of the ware, this vessel is probably of Egyptian origin. Similar vessels were found at Kellia where they date to the end of the fourth–middle of the fifth centuries CE (Egloff 1977:124, Pl. 63:5, Type 201; 127, Pl. 67:2, 5, Type 211). Hayes dates an identical vessel, also of Egyptian origin, to the seventh century CE (Hayes 1972:395, Fig. 87b).

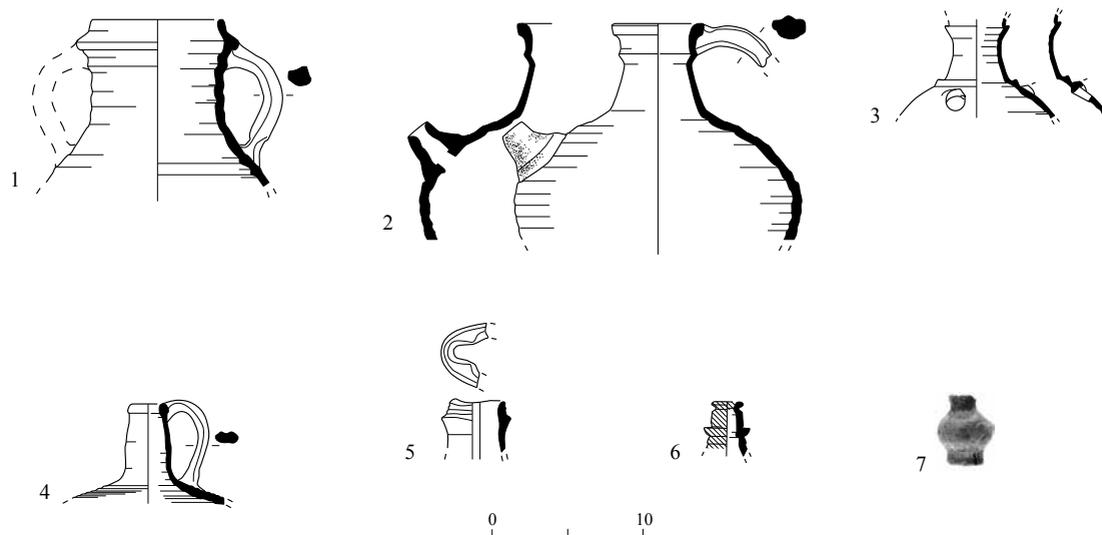


Fig. 18. Caves 1070 and 1071: jugs and juglet.

No.	Type	Locus	Basket	Description	Parallels	Date
1	Jug	106	1054/3	Pinkish orange clay, levigated, high firing temperature, int. color: red	Ben-Tor 1966: Ill. 1:11	4th–6th c.
2	Jug	106	1064/10	Brown clay, white inclusions, mica, well-fired, ext. color: dark brown, burnt traces	Loffreda 1974: Fig. 3:14, 15	Peaked in Late Roman period
3	Jug	102	1021/5	Orange clay, white inclusions, high firing temperature, ext. color: orange–brown, pale gray decoration		
4	Jug	106	1047/2	Orange–brown clay, levigated, high firing temperature, int. color: dark brown, ext. color: gray–brown	Johnson 2008: Fig. 480	
5	Jug	106	1069/8	Brown clay, sandy, white inclusions, well-fired		
6	Jug(?)	204	2014/33	Pink clay, brown inclusions, mica, well-fired, ext. color: red–brown		
7	Juglet	204	2028	Light brown clay, levigated, high firing temperature	Magness 1993:239–240, Form 2A	Mid-6th–beginning of 8th c.

The single juglet found (Fig. 18:7) has a short neck, which widens toward the top, a round body and a stump base. The juglet originally had a vertical handle that extended from the rim to the body. Similar vessels, known as Fine Byzantine Ware, were found at Caesarea (Johnson 2008:51, Fig. 501), and in Jerusalem, where they date to the mid sixth–beginning of the eighth century CE (Magness 1993:239–240, Form 2A).

Lamps (Figs. 19–22)

Lamps dating from the Late Roman through the Umayyad period were discovered at Ḥorbat Qaštra.

Late Roman Period (Fig. 19)

One lamp from the Late Roman period was found. The lamp has a piriform body and a broad nozzle separated from the body by straight and

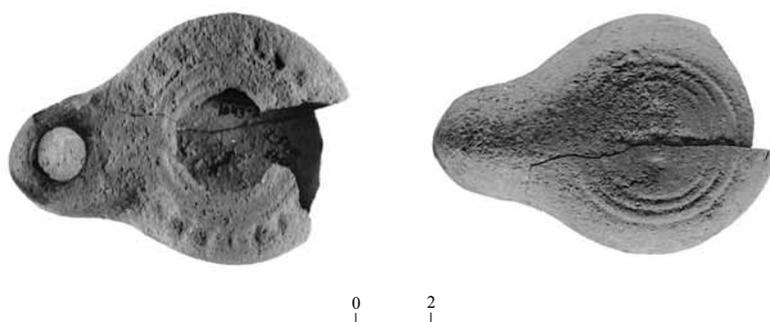


Fig. 19. Cave 1070: Late Roman lamp.

Locus	Basket	Description	Parallels	Date (CE)
106	1043	Light brown clay, white inclusions, high firing temperature	Sussman 1989: Fig. 5, Type 1 Sussman 2008: Figs. 118–120	Late 2nd–4th c. Mid–3rd c.

twisting lines amid tiny, stamped circles. The discus is sunken and decorated with concentric grooves around the filling hole. The decoration on the shoulder of the lamp is a floral pattern, probably of stylized palm fronds. The base is also adorned with four stamped stylized palm fronds.

This type of lamp is referred to as “Northern Group, Type 1”, and is common throughout the northern part of the country from the Late Roman period (Sussman 1989:25–26). Such lamps were found at Bet She‘arim (Avigad 1976:138–139), where they date to the mid-third century CE, Jalame (Manzoni-MacDonell 1988:119, Fig. 6-4:40–44) and Shiqmona (Elgavish 1977: Pl. XXIV:196–199). At Caesarea they were dated to the late second–fourth centuries CE (Sussman 2008:236–237, Figs. 118–120).

Byzantine Period (Figs. 20–22)

“*Caesarea 1*” Lamps (Fig. 20:1–3).— These lamps have a round body, a short wide nozzle, a triangular handle and a broad ring base. The discus is sunken and the filling hole is small, leaving a large surface for decorative reliefs, depicting a wide variety of faunal and floral patterns, as well as Christian symbols, such

as crosses. The shoulders of the lamps are mostly decorated with radial lines. Molds for such lamps were found at Caesarea (Sussman 1980:76–78).

The lamp shown in Fig. 20:4 has a different shape than that of the aforementioned lamps. It has a long nozzle with a channel running the length of it, a narrow discus, a large filling hole, triangular handle and broad ring base. The shoulders and nozzle are adorned in free style with radial line patterns. A mold for similar lamps was found at Caesarea (Sussman 1980:77–78). Both the decorative form and the quality of the ware indicate that this lamp should be ascribed to the “Caesarea 1” lamps.

Caesarea 1 lamps were found at Jalame (Manzoni-MacDonell 1988:133, Fig. 6-6:86, Pl. 6-4) in a ceramic context dating to the second half of the fourth century CE. Similar lamps from the synagogue at ‘En Gedi are dated to the end of the Byzantine period (Barag and Porath 1970).

Late Byzantine Period (Fig. 21).— Five lamps (Fig. 21:1–5) have an ovoid body, short conical handle and a flat ovoid base. The filling hole is small, centered, and in most instances, intentionally broken. Between the discus and

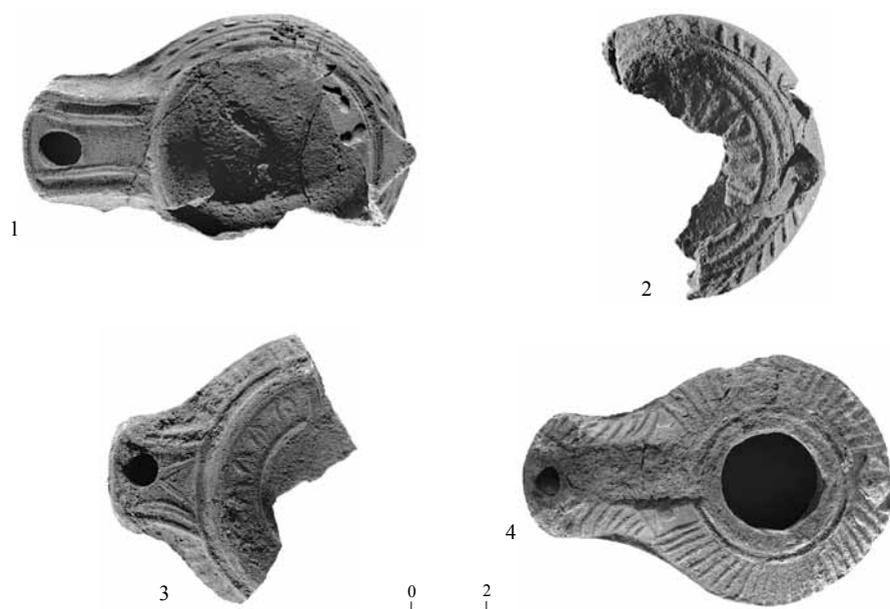


Fig. 20. Cave 1071: Byzantine lamps.

No.	Locus	Basket	Description	Parallels	Date (CE)
1	207	2078/2, 6	Brown clay, white inclusions, well-fired	Sussman 1980: Pl. XV:1–10, Type 1	Mid-4h–5th c.
2	207	2078/5	Light brown clay, sandy, white inclusions, poorly fired	As No. 1	Mid-4h–5th c.
3	207	2058	Brown clay, sandy, white inclusions, well-fired	As No. 1	Mid-4h–5th c.
4	209	2084	Brown clay, sandy, numerous white inclusions, well-fired	Sussman 1980: Pl. XV:13, Type 1a	

the wick hole is a shallow channel, adorned with a single floral or geometric pattern. The lamps are decorated in relief, with a wide variety of floral and geometric motifs, faunal scenes and Christian symbols.

This type of lamp is common in northern Israel in the late Byzantine period. They were found at Ḥammāt Gader (Coen-Uzzielli 1997:326, Pl. VII:1–4) and Caesarea (Adan-Bayewitz 1986:113–114), where they date, based on numismatic evidence, to 610–650 CE. At Bet She‘arim, they date to the end of the sixth–beginning of the seventh centuries CE (Avigad 1976:143–144, Pl. LXXI:42,

43), while at Pella identical lamps found in Tomb 7 were dated to 521/522–650 CE (Smith 1973:219–220, Pls. 67:190; 84:190).

Two other lamps (Fig. 21:6, 7) have an ovoid body, a short conical handle and a flat ovoid base. The filling hole is large and surrounded by a ridge. There is a channel between the discus and the wick hole that is decorated along its entire length with geometric patterns. The lamps are adorned in relief with plain geometric patterns. Lamps of this type were found at Bet She‘arim and date to the end of the sixth–beginning of the seventh centuries CE (Avigad 1976:143–144).

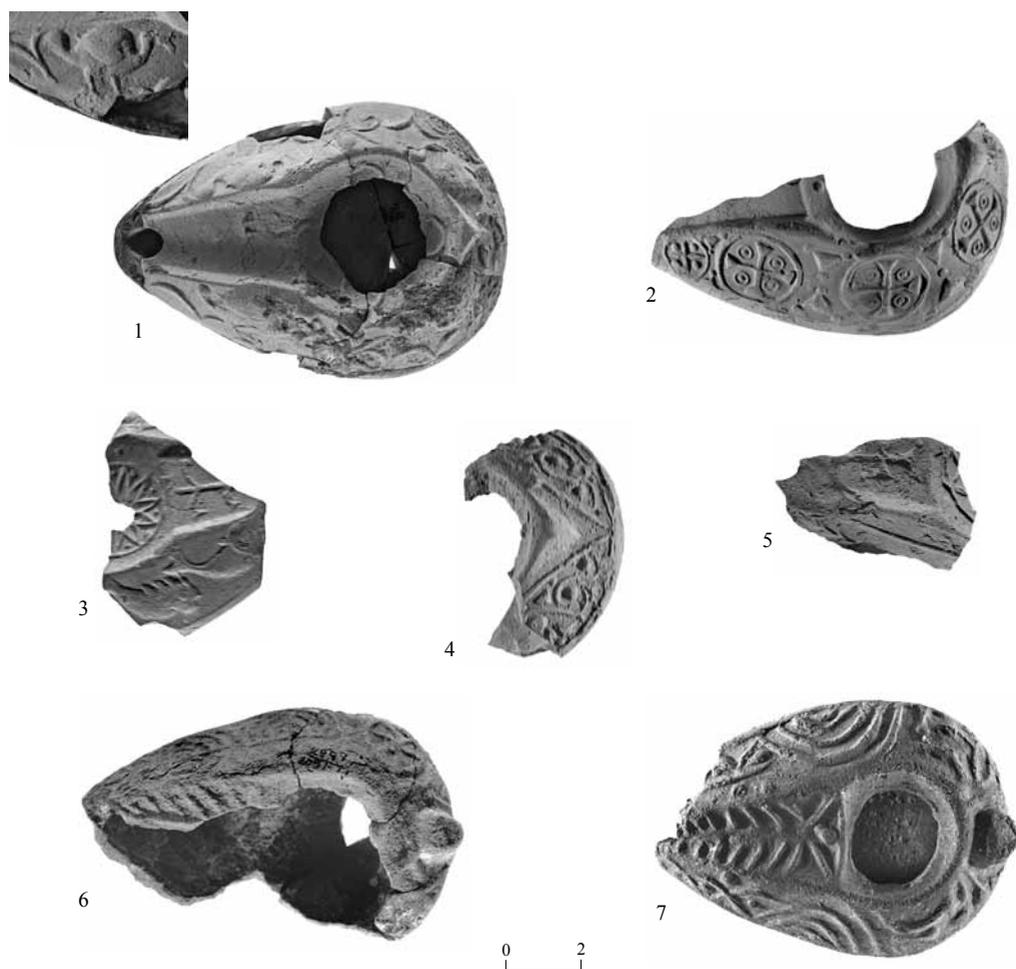


Fig. 21. Cave 1071: Late Byzantine lamps.

No.	Locus	Basket	Description	Parallels	Date
1	209	2086	Pinkish orange clay, levigated, very high firing temperature	Adan-Bayewitz 1986: Type 1, Ill. 123–125 Coen-Uzzielli 1997: Pl. VII:1–4	610–650
2	207	2059	Light brown clay, levigated, very high firing temperature	Adan-Bayewitz 1986: Type 1	610–650
3	207	2077	Brown clay, levigated, very high firing temperature	As No. 2	610–650
4	209	2083	Orange clay, levigated, high firing temperature	As No. 2	610–650
5	207	2071/3	Light brown clay, brown inclusions, high firing temperature	As No. 2	610–650
6	206	2051	Brown clay, burnt core, sandy, well-fired	Avigad 1976: Pl. 71:38, 39	End of 6th–beginning of 7th c.
7	206	2042	Orange–brown clay, white inclusions, high firing temperature, ext. color: light brown	As No. 6	End of 6th–beginning of 7th c.

Byzantine–Umayyad Period (Fig. 22:1)

The lamp in Fig. 22:1 has an elongated body, a tongue-handle and a flat base. The filling hole is large and surrounded by a ridge. There is a channel between the discus and the wick hole that is partially decorated with a geometric pattern. The lamps are decorated in relief with complex geometric patterns.

Lamps of this type, common at many sites in Israel, are sometimes referred to as Samaritan lamps (Sussman 1978:238–250). Such lamps were found at Bet She’an, and dated according to numismatic finds to the Byzantine–Umayyad transition period (Hadad 1997:166–168, Type 1). At Ḥammāt Gader, lamps of this type appear together with Early Islamic lamps, and date to the seventh–eighth centuries CE (Coen-Uzzielli 1997:326, Pl. VI:1, 2). At Apollonia-Arsuf, they date to the fifth–seventh centuries CE, and continue into the Early Islamic period (Sussman 1983:74, Nos. 90–93, Type 4).

At Geva (Tell Abu Shusha), they date to the seventh–eighth centuries CE (Sussman 1988:102, Nos. 43, 62). Sussman (1976:98–99, Pl. XXVII:11; Fig. 3:2, 3, 5, Group D) dates the examples from Kafr ‘Ara to the seventh century CE. At Pella, a similar lamp was the latest lamp discovered in Tomb 7, which was in use from 521/522 to the end of the seventh century CE. There, the excavator believes that this type of lamp continued to exist for another 50 years following the Muslim conquest (Smith 1973:219–220, Pl. 67:191).

Umayyad Period (Fig. 22:2)

One Umayyad lamp was found, with an almond-shaped body, conical handle and ring base that is partially decorated. The filling hole is large, encircled by a thick ring. There is a deep channel between the discus and the wick hole, mostly decorated with geometric patterns. Lamps of this type are decorated

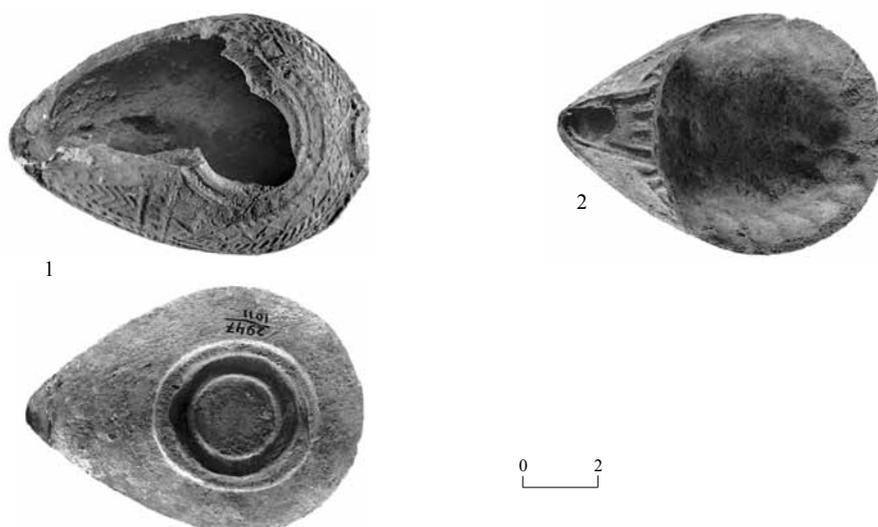


Fig. 22. Caves 1070 and 1071: Late Byzantine–Umayyad lamps.

No.	Locus	Basket	Description	Parallels	Date
1	209	2085	Reddish brown clay, white and black inclusions, high firing temperature, burnt traces	Coen-Uzzielli 1997: Pl. VI:1, 2 Hadad 1997: Fig. 31, Type 1	7th–8th c.
2	102	1011	Buff clay, sandy, high firing temperature	Avigad 1976: Pl. LXXI:48	7th–8th c.

in high relief with geometric, floral and zoomorphic patterns.

These lamps appear throughout the country in the Umayyad period. They were dated at Bet She'an to the Umayyad stratum (Hadad 1998:66). At Bet She'arim and Geva' (Tell Abu-Shusha), they date to the seventh–eighth centuries CE (Avigad 1976:145, Pl. LXXI:48; Sussman 1988:103, No. 61).

Discussion of the Ceramic Assemblage

It should be noted that most of the finds derived from secondary fills. That said, based on the ceramic corpus and the statistical analysis of the quantities of lamps per period (Fig. 23), it seems that the two caves—although functionally very different—were used contemporaneously during the fourth century CE (see Figs. 15:5, 6; 18:1, 2, 4; 20:1, 2). It seems, however, that Cave 1070 was probably already in use sometime in the third century CE (see Figs. 15:3, 5).

Later use is apparent in both caves during the course of the sixth–seventh, and perhaps even

the eighth, centuries CE (see Figs. 15:8, 14, 19; 16:3, 10; 17:2, 6, 7; 21:2, 3, 5).

The bowls, storage vessels and lamps suggest that a settlement existed in the vicinity of the caves in the first–second centuries CE that moderately increased in size until the fifth century CE (Figs. 15:1–6; 17:1, 2; 19; 20). The settlement reached its peak during the late Byzantine and Umayyad periods in the sixth and seventh centuries, and then waned toward the eighth century CE (Figs. 15:7–23; 17:3–9; 21, 22).

THE GLASS ASSEMBLAGE FROM CAVE 1071

The glass vessels presented here derive from dwelling Cave 1071. Most of the caves uncovered at Ḥ. Qaṣṭra were used as burial caves and were quarried for this purpose. The cemetery was in use from the first century CE until the Byzantine period (Yeivin and Finkielsztejn 1999:26*). The late Byzantine and Umayyad glass remains were primarily found in the settlement, and only in a few

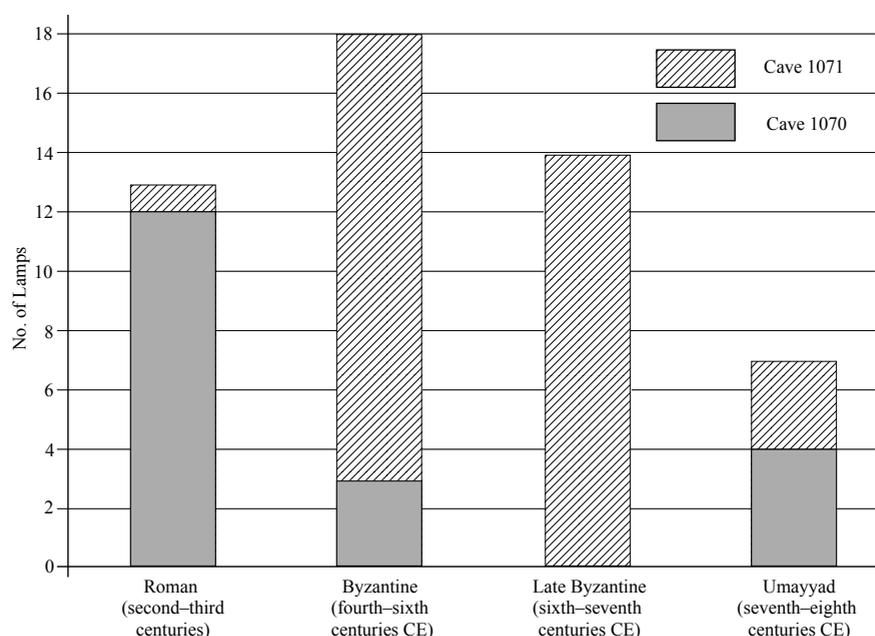


Fig. 23. Chronological distribution of lamps.

points in the cemetery (Gorin-Rosen and Katsnelson 1999:27*). The glass finds from the present excavation area, similar to the coins and pottery, mostly date to the late Byzantine–Umayyad periods (late sixth–seventh centuries CE).

The glass assemblage is characterized by its homogeneous fabric, workmanship and forms. The homogeneity of the vessels, along with similarities to other vessels found at the site and in the region, indicate the existence of a local production center. Most of the vessels are common and well-known types. The other vessels belong to the same period and were probably produced in the same local workshop. The typology and chronology of the vessels will be discussed below.

Bowls

Only two fragments (Fig. 24:1, 2) were identified as bowls. The small amount of bowls in comparison to bottles and wineglasses seems to indicate a late date for the assemblage, since during the Byzantine period, the percentage of glass bowls declines. This phenomenon appears in settlements, public buildings and burials (Gorin-Rosen and Winter 2010:166–167).

Bowl with Out-Folded Rim (Fig. 24:1).—Bowl No. 1 is characterized by its delicate curving wall and out-folded rim. Bowls of this type were very common during the Late Roman period, later becoming less prevalent. This bowl, along with a base of another bowl (No. 2), may represent the earliest vessels in the cave, or a rather rare appearance of these types during the late Byzantine period.

Examples of such bowls were found in early contexts in the western Galilee, e.g., in Burial Cave 1 at Khirbat el-Shubeika (Gorin-Rosen 2002:290–291, Fig. 2:8, 9). A few bowls with incurving, out-folded rims were found in Umayyad contexts at Bet She'an (Hadad 2005: Pl. 3:60–62). However, they are slightly different, with an angle between the wall and the thick fold.

Bowl with Tooled-Out Ring Base (Fig. 24:2).—This type of base is found on bowls and at times, on jugs of the Late Roman period. It appears in smaller quantities during the Byzantine and Umayyad periods. The later vessels are frequently characterized by their fabric and workmanship. A base of this type was found, e.g., in the Byzantine Church at Shave Ziyon (Barag 1967: Fig. 16:14). An Umayyad example was uncovered at Bet She'an (Hadad 2005: Pl. 3:74, and further references therein).

Wineglasses

Wineglasses with Slightly Flaring Rounded Rims (Fig. 24:3–6).—These wineglasses usually have a solid or ring base. Wineglass rims of this type are quite common, e.g., a group of wineglasses found at Khirbat el-Baṭiyya, dating to the late Byzantine–early Umayyad periods (Gorin-Rosen 2006:29*–31*, Fig. 1:3–5). A group of such rims was found in the excavations at Tel Tannim (Pollak 2006:172–173, Fig. 136:95–103, with further references therein). Examples dating to the late Byzantine and Umayyad periods were also found at Jerash (Meyer 1988:211–212, Fig. 11:X–Z).¹⁰

Wineglass or Beaker with Flaring Rounded Rim (Fig. 24:7).—The flaring rim of this vessel is not so common amongst wineglass rims. The general shape, however, could be that of a wineglass, as seen in the slight curve at the lower part of the fragment. Rims of this shape were found at various sites in Jordan, including Jerash and 'Amman, where they were identified as goblets and dated to the Byzantine period (Dussart 1998:114, Pl. 26:BVIII.3321:27–33).

Wineglass with Ring Base (Fig. 24:8).—This is the most common type of wineglass throughout the Byzantine period, continuing into the Umayyad period, although the solid base (see below) is more common in later assemblages. This type's distribution is very wide, with examples found, e.g., at Shiqmona (Gorin-Rosen 2010:213, Fig. 2:6, with parallels

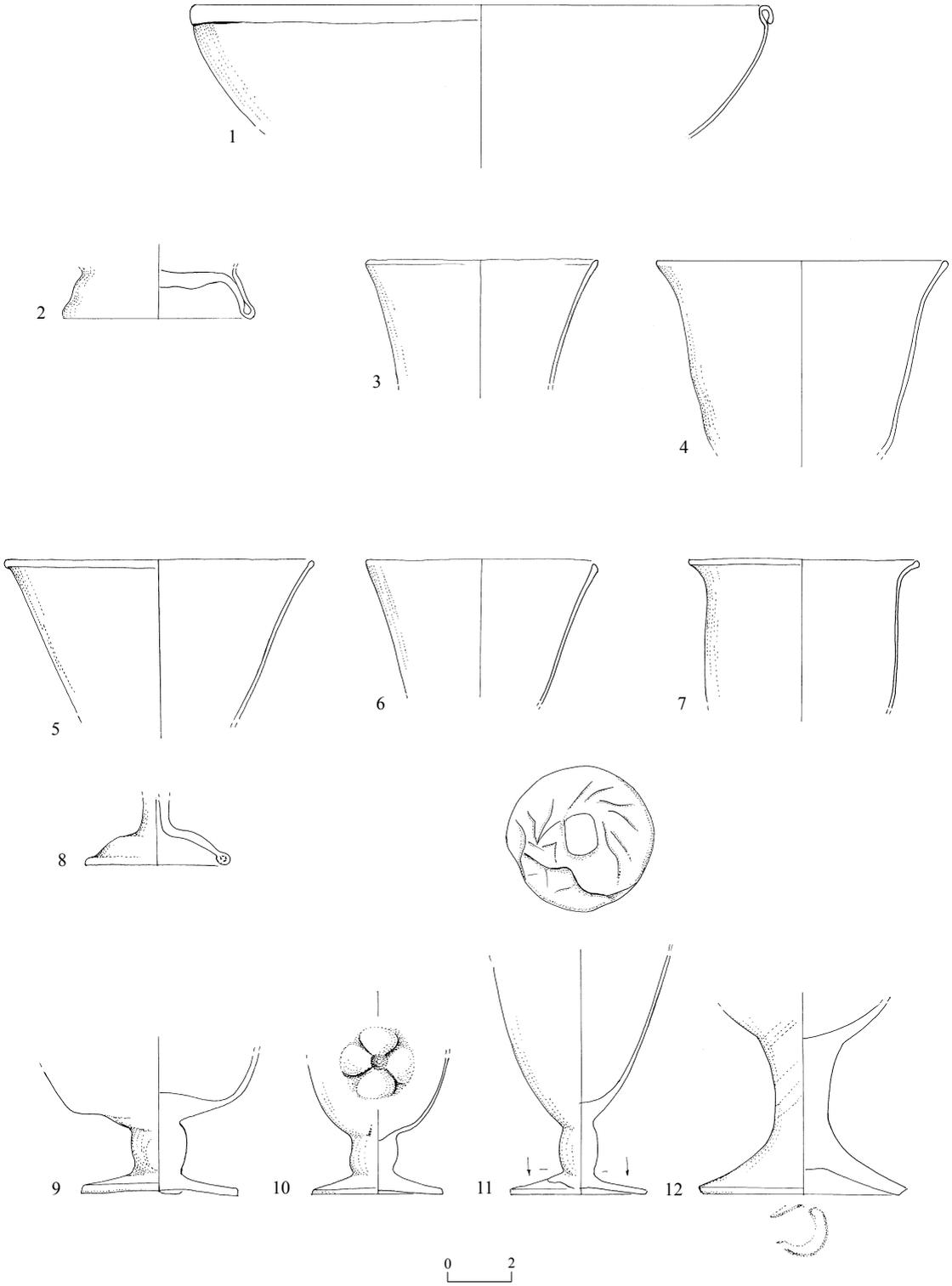


Fig. 24. Cave 1071: glass bowls and wineglasses.

◀ Fig. 24

No.	Vessel	Loc.	Basket	Color	Weathering	Dimensions (cm)	Notes
1	Bowl	206	2040	Light greenish blue	Silver weathering and iridescence	R 17.8	Good quality
2	Bowl	207	2062	Bluish green	Gold and silver layers of weathering and pitting	B 5.8	Small pontil mark 0.8 cm
3	Wine-glass	207	2062	Very light yellowish green	Enamel weathering, iridescence and severe pitting	R 7.2	Uneven rim; thin wall
4	Wine-glass	204	2021	Bluish green	Sand deposits	R 9.0	Bubbly glass; fairly good quality
5	Wine-glass or bottle	204	2020	Green glass		R 9.5	Infolded tooled rim; bubbly glass with blowing spirals and black impurities
6	Wine-glass	206	2040	Light greenish blue	Iridescence	R 7.2	Rounded rim; small bubbles and blowing spirals
7	Wine-glass	206	2040	Bluish green	Sand deposits	R 7.1	Rounded rim; small bubbles and blowing spirals
8	Wine-glass	207	2067	Light green	Silver iridescence and sand deposits	B 4.5	Uneven ring base; hollow foot; remains of the pontil
9	Wine-glass	204	2023	Bluish glass	Sand deposits	B 4.8	Flat solid base with solid wide foot; pontil mark with traces of greenish glass from the pontil; tooling marks on the base; good quality of the glass with some bubbles
10	Wine-glass	209	2079	Light yellowish green	Silver iridescence and slight pitting	B 4.0	Flat solid base with short solid foot; the connection between body and foot is delicately tooled like a flower on the inside
11	Wine-glass	207	2067	Green glass	Silver weathering, iridescence, slight pitting and sand deposits	B 4.2	Delicate wineglass with thin flat solid base with solid foot; small pontil scar and tooling marks; very thin wall
12	Wine-glass or jug	207	2068	Bluish green	Silver weathering, iridescence	B 6.4	Massive, solid base and foot; big pontil scar with traces of glass 1.7 cm; tooling marks on the base

therein to Kh. Tinani, Shave Ziyyon, Nazareth and Jerusalem), Tīrat Ha-Karmel (Pollak 2005:15*–16*, Fig. 4:36–38), Tel Tanninim (Pollak 2006:171–172, Fig. 135:88, 89,) and Caesarea (Israeli 2008:385, 412, Nos. 184–189, with references to Beirut).

Wineglasses with Solid Base and Solid Foot (Fig. 24:9–12).— Vessel No. 9 presents the most common subtype, with a thick foot and solid base. Bases of this type appeared during the Byzantine period, becoming very popular during the late Byzantine and Umayyad

periods. Complete examples with such a base were found at Ḥorbat Qaṣṭra, dated to the fifth–seventh centuries (Zemer 1999:21, left), and in Burial Cave 2 at Khirbat el-Shubeika (Gorin-Rosen 2002:314, 316, Fig. 7:36, and further discussion therein). A base of this type was found at Shiqmona (Gorin-Rosen 2010:213, Fig. 2:8, with references to Kh. Tinani).

Vessel No. 10 is decorated with a four-petaled flower on the interior of the vessel, at the point where the foot and bowl connect. This pattern was created by delicate tooling, a rather rare and unusual treatment, which may indicate a very high level of craftsmanship.

Number 11 is characterized by a delicate tall shape, with a rather thin foot and an uneven base, with tooling marks on the upper part. The cup of this wineglass is tall and oval.

Number 12 is a rather rare type, with a tall solid foot and solid tapered base. Such bases could either belong to a large wineglass (also known as a goblet), e.g., Caesarea (Israeli 2008:386, 413, No. 200), or to a very elegant jug, similar to the one found in a burial cave at Ḥorbat Qaṣṭra (Gorin-Rosen and Katsnelson 1999:38, Color Plate iii:7).

Bottles

Bottles form the majority of the glass assemblage from the cave. This is characteristic of Byzantine and Umayyad funerary assemblages, in contrast to the Late Roman period, where bowls and beakers are the most common forms. The bottles are mostly well-known types, which seem to be locally produced.

Bottle with In-Folded, Flattened Rim, Short Neck and Globular or Squat Body (Fig. 25:13).— This is the most diagnostic type of the Umayyad period in Israel (Hadad 2005:23–24, Pl. 10:187–190, and references therein). It appears in various sizes, and with slight variations in the rim and the body. The main characteristics, however, remain the same. Similar bottles appear at Ḥammāt Gader (Cohen 1997:427–428, Pl. IX:1–5) and Kursi, where they date to the seventh century CE

(Barag 1983:37–38, Fig. 9:5, 6, and references therein).

Bottle with Flaring Rim (Fig. 25:14).— Number 14 is characterized by an uneven, flaring rounded rim and a long cylindrical neck. The fabric and workmanship are similar to other vessels in the assemblage (and see below the discussion on No. 15).

Bottle with Flaring, In-Folded Rim (Fig. 25:15).— The rim on this bottle is unevenly flaring and in-folded. Such bottles of simple shape (such as Nos. 14, 15) appeared during the Roman period, continuing to be produced later. The early examples can usually be distinguished from the later ones according to fabric. This has already been discussed in the study of bottles from Burial Cave 1 at Khirbat el-Shubeika, where it was impossible to date such types, as the glass in the cave included Late Roman, Byzantine and Umayyad vessels (Gorin-Rosen 2002:296–298, Fig. 6:32–35, and further discussion and references therein).

Bottle with Upright In-Folded Rim (Fig. 25:16).— Number 16 is characterized by its in-folded, tubular/hollow rim. Similar bottles were found in Burial Caves 1 and 2 at Khirbat el-Shubeika (Gorin-Rosen 2002:297–298, Fig. 6:43; 306–307, Fig. 2:9, and references therein). Another bottle with a cylindrical neck and upright in-folded rim was found at Caesarea amongst a group of bottles dated to the sixth century CE (Israeli 2008:387, 414, No. 216).

Bottle with Cylindrical Mouth and Rounded Rim (Fig. 25:17).— The mouth of this type is sometimes slightly tapered, creating a tall funnel shape. This type appeared during the Late Roman period; however, it became very common and widely distributed during the Byzantine period (see, for example, Burial Caves 1 and 2 at Khirbat el-Shubeika; Gorin-Rosen 2002:297–298, Fig. 6:39, 40; 306–307, Fig. 2:7, 8, and further references therein to

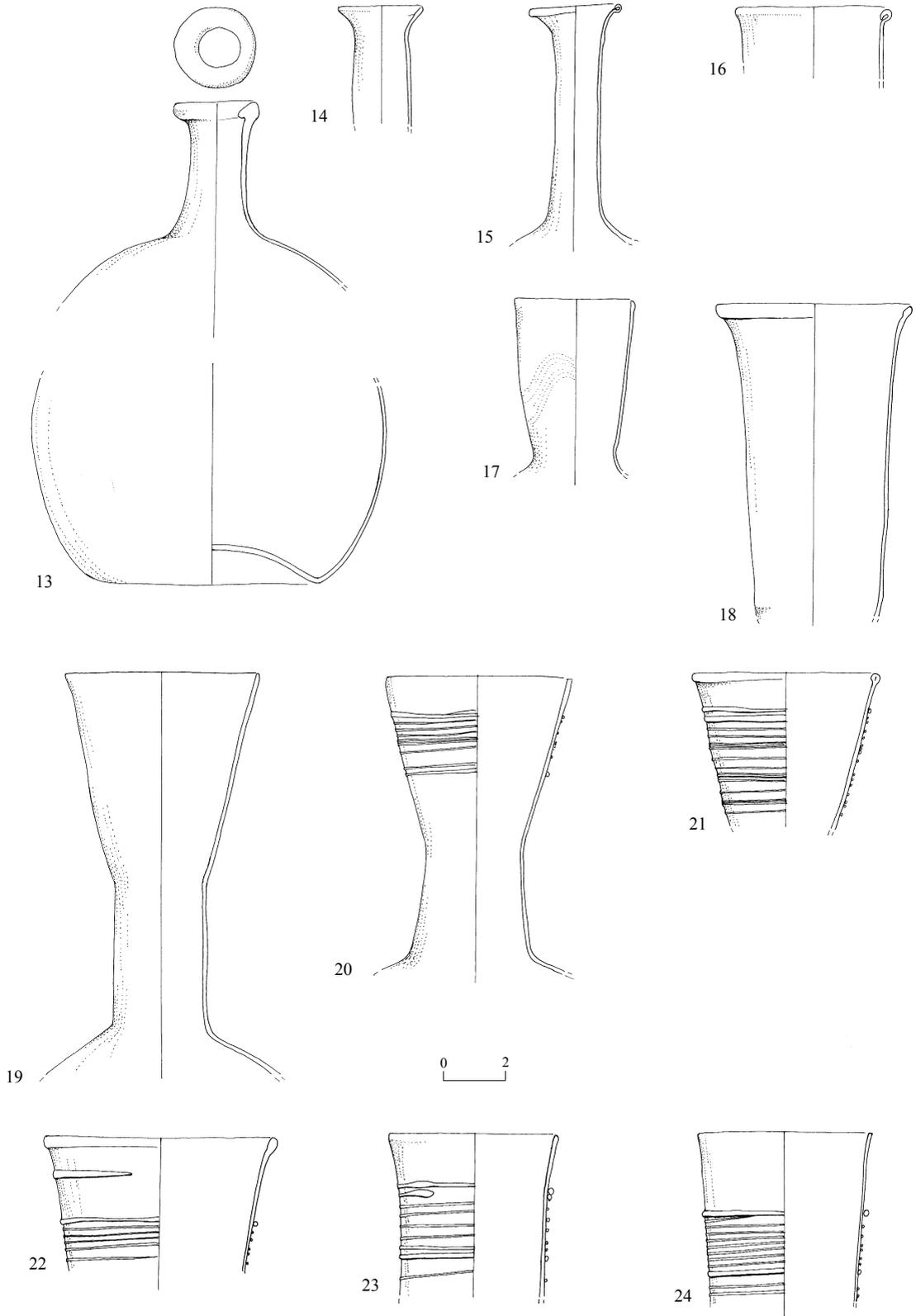


Fig. 25. Cave 1071: glass bottles.

◀ Fig. 25

No.	Locus	Basket	Color	Weathering	Dimensions (cm)	Notes
13	204	2021	Bluish green	Sand deposits	R 2.5 B 7.0	Two separate fragments: almost complete neck and shoulder, and almost complete base with part of the wall; very bubbly glass; uneven in-folded rim, short neck, globular body and concave base without any pontil
14	209	2082	Light bluish green	Silver weathering, iridescence and sand deposits	R 2.6	Uneven, flaring rounded rim
15	207	2074	Light greenish blue	Silver weathering, iridescence and sand deposits	R 2.8	Uneven, flaring in-folded rim; bubbly glass
16	204	2029	Dark bluish green	Sand deposits	R 4.8	Uneven, upright in-folded rim; very bubbly glass; low-quality glass
17	207	2068	Light yellowish green	Silver weathering, iridescence and sand deposits	R 3.8	Upright rounded rim; bubbly glass with blowing spirals
18	206	2040	Greenish blue	Iridescence and sand deposits	R 6.2	Wide mouth and neck; slightly flaring infolded rim; very bubbly glass; low-quality fabric
19	209	2082	Light blue	Silver weathering, iridescence and dull pitting	R 6.0	Complete upper part of the bottle; funnel mouth with rounded rim; short neck; blowing spirals
20	204	2020	Dark bluish green		R 5.8	Funnel mouth with uneven rounded rim; mouth decorated with applied thin horizontal opaque red trails with black strikes inside; bubbly glass with blowing spirals
21	206	2040	Light bluish green	Sand deposits	R 5.8	Funnel mouth with uneven in-folded rim; mouth decorated with applied thin, horizontal, opaque red trails with turquoise strikes inside; bubbly glass
22	206	2040	Dark green	Sand deposits	R 7.3	Funnel mouth with in-folded rim; mouth decorated with applied horizontal trails of the same color as the vessel; bubbly glass and blowing spirals
23	207	2068	Light greenish blue	Sand deposits	R 5.5	Upright rounded rim with cylindrical neck, decorated with applied turquoise trails: the upper one is thicker and below 8 thin trails with another thick trail; blowing spirals
24	206	2040	Greenish blue	Sand deposits	R 5.4	Upright rounded rim with cylindrical neck decorated with applied, unevenly thin turquoise trails; bubbles and blowing spirals

earlier and later examples). Similar bottles were found at Caesarea amongst a group of bottles dated to the sixth century CE (Israeli 2008:387, 414, Nos. 211, 212).

Bottle with Wide Cylindrical Mouth or Neck and Slightly Flaring In-Folded Thickened Rim (Fig. 25:18).— Number 18 belongs to a rather large, simple bottle. A similar bottle was found in

the Byzantine Church at Shave Ziyon (Barag 1967: Fig. 16:1) and at Bet She'an, dating to the Umayyad period (Hadad 2005: Pl. 9:171).

Bottle with Funnel Mouth and Rounded Rim (Fig. 25:19).— Bottle No. 19 is also characterized by its long funnel mouth and short cylindrical neck. It belongs to a rather large group of bottles, varying in proportions, some with a trail decoration on the mouth. Bottle No. 19 is plain, while Bottle No. 20 (see below) represents the decorated version of this subtype. Plain and decorated versions of this Byzantine bottle type were found at Caesarea (Israeli 2008:387–388, 414–415, Nos. 217, 218, 221–223, 227, 229).

Bottles with Horizontal Trail Decoration (Fig. 25:20–24).— This group includes numerous subtypes, with varying mouths, rims, necks, trail thickness and color. This type of decorated bottle first appeared during the Byzantine period (for example in the Byzantine Church at Shave Ziyon; Barag 1967: Fig. 16:4, 5), and continued to be used in the late Byzantine and Umayyad periods (for later examples, see the Umayyad glass bottles from Bet She'an below).

Number 20 is a bottle with a decorated funnel mouth and a short wide neck. A bottle of this type was found at Bet She'an, dating to the Umayyad period (Hadad 2005: Pl. 12:223). Bottle Nos. 21 and 22 probably belong to bottles with funnel mouths, with in-folded thickened rims. A bottle of this type was found in Tomb 4 at Khirbat al-Karak (Delougaz and Haines 1960: Pl. 59:1), dated by Barag (1970:55) to the sixth–early seventh centuries CE. Bottles similar to Nos. 20–22 were found at Tel Tannim, dating to the Byzantine and Early Islamic periods (Pollak 2006:184–186, Fig. 143:179–181).

Bottle Nos. 23 and 24 have a cylindrical mouth and upright, rounded rims. This type of decorated bottle appeared during the Byzantine period, and was very common during the late Byzantine–Umayyad periods (see for example Burial Cave 2 at Khirbat el-Shubeika—Gorin-

Rosen 2002:316–317, Fig. 8:39; and Bet She'an, where they date to the Umayyad period—Hadad 2005: Pl. 12:223–231). Bottles of this type were found nearby in the excavations at Tīrat Ha-Karmel (Pollak 2005:20*–22*, Fig. 6:56, 58, 59, with further parallels therein).

Bottle with Upright Flaring Rim and Horizontal Trail Decoration (Fig. 26:25).— This rather rare subtype is characterized by its flaring rim and one thin horizontal trail wound around a short, wide cylindrical neck. However, the fabric is similar to that of other vessels in this assemblage and therefore, seems to have been made in a local workshop.

Bottles with Wavy Trail Decoration (Fig. 26:26–28).— The wavy trails on the bottles vary in thickness and workmanship. Number 26 is a medium-sized bottle with a cylindrical mouth, decorated with a thin horizontal trail above a thin wavy trail. Bottles of this type were found in Umayyad contexts at Bet She'an (Hadad 2005:25, Fig. 13:262–265).

Bottle Nos. 27 and 28 have thick crude trails, which usually decorate larger bottles, either around the mouth or neck. This type of decoration is very common during the late Byzantine–Umayyad periods, e.g., in Burial Cave 2 at Khirbat el-Shubeika (Gorin-Rosen 2002:300–301, Fig. 7:61, 62). Umayyad bottles of this type were found at Bet She'an (Hadad 2005:25, Fig. 14:270–277).

Bottles with Globular Bodies (Fig. 26:29–31).— It is likely that most of the bottle rims in the assemblage have globular bodies. Bottle No. 29 probably had a rim similar to No. 17, while the neck and rim of No. 30 was probably similar to No. 15 or 17, the only difference being its size.

Bottles with Mold-Blown Decoration (Fig. 26:32–34).— Shallow ribbed decoration was common during the Byzantine and Umayyad periods. The bottles are characterized by a thin wall and delicate ribs at mid-body (not at the base). Bottles of this type were found

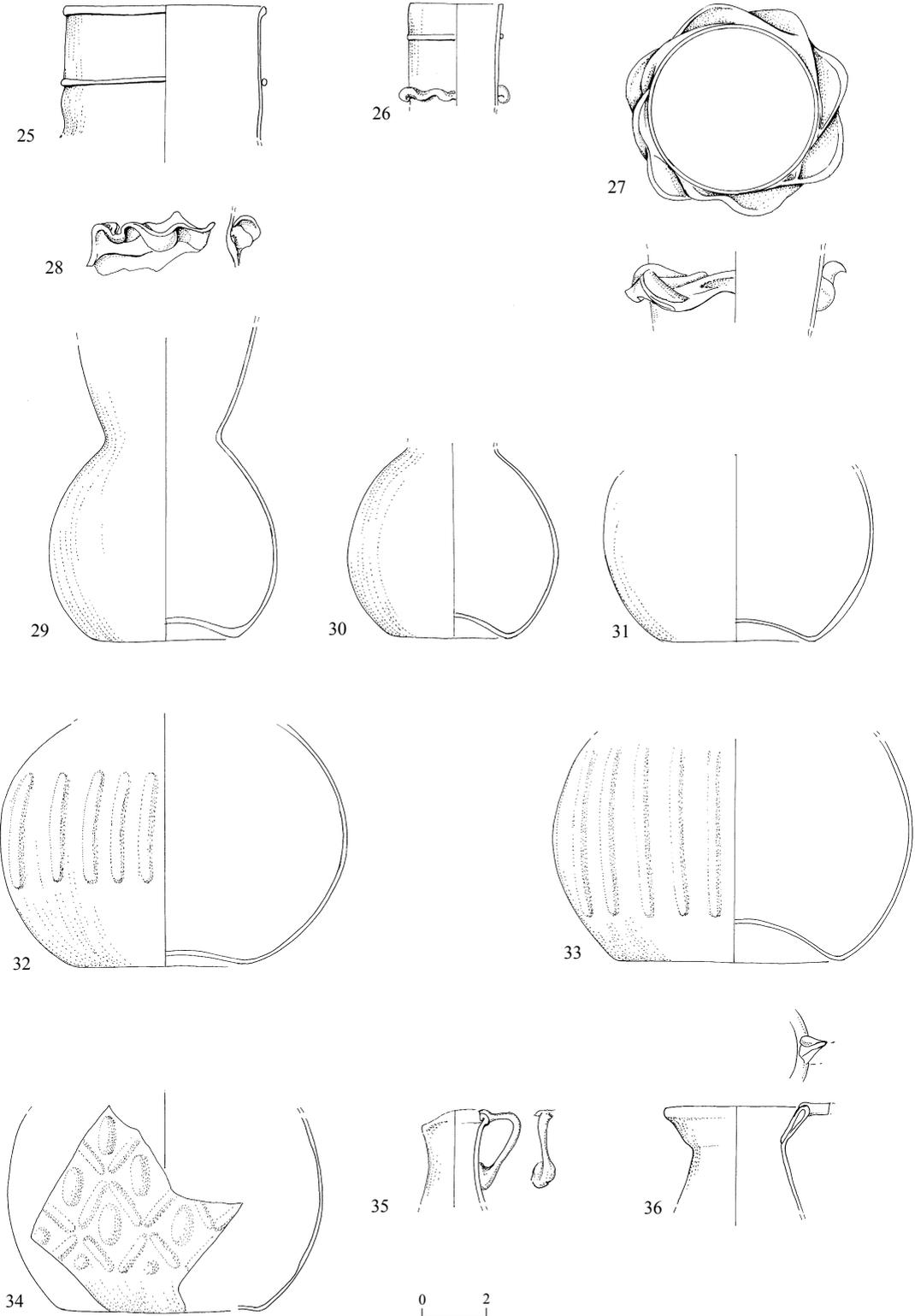


Fig. 26. Cave 1071: glass bottles and jugs.

◀ Fig. 26

No.	Vessel	Locus	Basket	Color	Weathering	Dimensions (cm)	Notes
25	Bottle	206	2040	Green	Sand deposits	R 6.1	Upright, folded and thickened rounded rim; wide cylindrical neck decorated with one thin trail of the same color; bubbly glass with blowing spirals
26	Bottle	202	2002	Light greenish blue	Sand deposits	R 2.8	Upright rounded rim; cylindrical neck decorated with horizontal trail below rim and wavy trail further down on the neck; both trails of the same color as the vessel
27	Bottle	204	2029	Dark bluish green	Slight iridescence and sand deposits		Neck fragment decorated with thick wavy trail, almost evenly tooled; low-quality fabric, with bubbles and black impurities
28	Bottle	204	2029	Dark green	Sand deposit		Neck fragment with remains of thick uneven wavy trail
29	Bottle	202	2007	Greenish blue	Slight iridescence and sand deposits	B 4.4	Almost complete bottle, missing rim; concave base without pontil mark; bubbly glass with blowing spirals; low-quality glass
30	Bottle	204	2029	Greenish blue	Sand deposits	B 3.8	Globular body and concave base without pontil mark; bubbly glass
31	Bottle	204	2021	Bluish green	Sand deposits	B 4.6	Globular body and concave base; bubbly glass
32	Bottle	204	2024	Greenish blue	Sand deposits	B 5.2	Globular body decorated with shallow, mold-blown vertical ribs on the body; concave base without pontil; very bubbly glass with impurities
33	Bottle	204	2024	Greenish blue	Sand deposits	B 6.8	Globular body decorated with shallow, mold-blown vertical ribs on the body; concave base without pontil; bubbly glass
34	Bottle	204	2014	Greenish blue	Sand deposits	B 7.0	Globular body decorated with shallow, mold-blown decoration in complicated pattern; concave base, broken; very thin wall; fine workmanship
35	Small jug	207	2068	Light blue	Silver weathering and sand deposits		Uneven in-folded rim with small thin handle applied from the neck upward to the rim's edge
36	Jug	209	2082	Light greenish blue	Silver weathering and sand deposits	R 4.5	Flaring in-folded rim with a wide hollow fold; remains of handle on the rim's edge; probably had a second handle on opposite side

at Caesarea (Israeli 2008:387, 414, Nos. 217, 218) and Ḥammāt Gader (Cohen 1997:429, Pl. IX:15). Other examples derive from the Byzantine fill of the Roman painted tomb at Ashqelon (Katsnelson 1999:77*–78*, Fig. 4:13, 14, and see references therein).

Bottle No. 34 displays a complicated pattern composed of diamond shapes, ovals and dots. This pattern is rather rare, with no exact parallel found. The thin wall, fabric and workmanship are similar to Nos. 32 and 33, indicating it was probably produced in the same glasshouse.

Jugs

Various jugs appear during the late Byzantine and Umayyad periods, and it seems that Nos. 35 and 36 are fragments of such vessels, although no exact parallels were found for either. The existence of new subtypes alongside common types may indicate the presence of a local glass house, where the glassmakers produced the common wares with some additional forms or decoration, representing a type of artistic fingerprint.

Small Jug with Thin Trail Handle (Fig. 26:35).— This small jug is characterized by its uneven shape and very thin handle drawn from the neck to the rim. The delicate handle is similar to the tiny handles of the bowl-shaped oil lamps with

three handles, common during the Byzantine and Umayyad periods (see below).

Jug with Wide Mouth and In-Folded Rim (Fig. 26:36).— The irregular shape of this vessel, with an in-folded rim and probably two handles, is not common. Small jars with similar rims were found in Umayyad contexts at Bet She'an (Hadad 2005:47, Fig. 20:376, 377).

Oil Lamps

Bowl-Shaped Oil Lamps with Three Handles (Fig. 27:37–39).— This type was very common throughout the Byzantine period, with some appearing in the Umayyad period as well (Hadad 1998: Type 1:64–65, 68, Fig. 1:2, 8, and references therein). This type is very

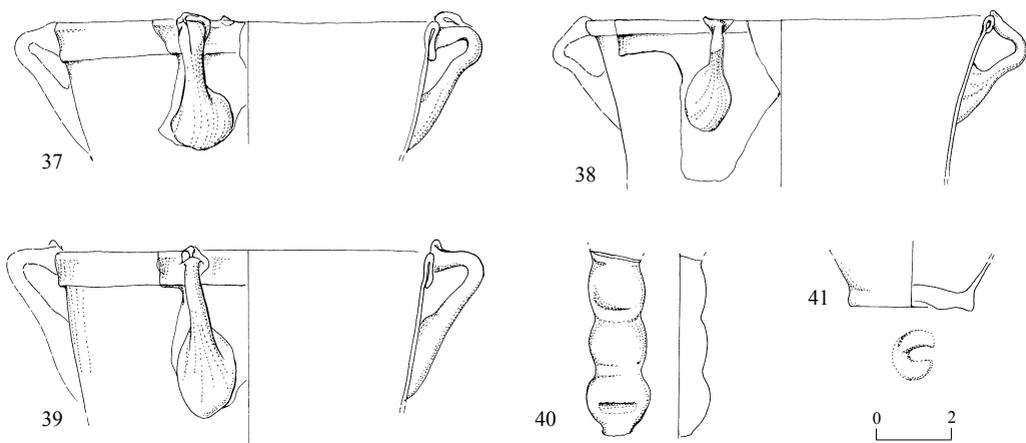


Fig. 27. Cave 1071: glass lamps and beaker(?).

No.	Vessel	Locus	Basket	Color	Weathering	Dimensions (cm)	Notes
37	Oil lamp	202	2002	Greenish blue	Sand deposits	R 10.0	Large bubbles; in the handle: black impurities
38	Oil lamp	209	2082	Light greenish blue	Silver weathering, iridescence and sand deposits	R 10.5	3 fragments; very thin wall; small bubbles
39	Oil lamp	204	2020	Greenish blue	Sand deposits	R 9.8	Low quality bubbly glass with black impurities
40	Oil lamp	207	2062	Greenish blue	Silver weathering, iridescence and sand deposits		Various tooling marks and pontil cracked-off
41	Beaker(?)	204	2013	Light yellowish green	Patches of black weathering, severe pitting	B 3.2	Big pontil scar 1.0–1.4 cm

widely distributed, spreading across Israel, Syria, Lebanon, Jordan and Egypt.

Oil Lamps with Beaded Stems (Fig. 27:40).— This type of stem became popular during the late Byzantine–Umayyad periods. As the former oil lamps, this type has a wide distribution, and is found in large quantities in Israel. This type of oil lamp was locally produced, as indicated by its discovery in several excavations in the region (see below).

Large quantities of such bases were found at Ḥorbat Qaṣṭra,¹¹ in various areas of the settlement, as well as at Shiqmona (Gorin-Rosen 2010:213–215, Figs. 2:11; 3:15, with further references therein), Ṭirat Ha-Karmel (Pollak 2005:17*, Fig. 4:42) and Bat-Gallim, Haifa (Pollak 2008:55*, 57*, Fig. 2:8, 9 with further references therein).

Discussion of the Glass Assemblage

The glass assemblage found in Cave 1071 is very homogenous, as noted in the fabric and workmanship. The different vessels have similar characteristics, including the new subtypes, which were seemingly made by the same craftsman. None of the vessels exhibit any exceptional features that indicate the presence of imports.

The large quantities of glass uncovered at Ḥorbat Qaṣṭra, in all of the excavated areas, as well as at other sites in the region, enable us to reach conclusions regarding their origin, production and design. For example, as mentioned above, one of the characteristics of a local glass workshop is the existence of new subtypes, made from the same fabric as the common types. The presence of the new subtypes may point to the “free spirit” of the glassmakers, who were familiar with the contemporary styles, yet produced their own work at the same time. The same phenomenon was encountered when studying the Late Roman glass assemblage from Ḥorbat Qaṣṭra, where the typical repertoire of the period was found alongside additional decorations or slight

changes (e.g., the workmanship of the handles and bases or the combination of different decorative techniques).

According to the glass found in Cave 1071, as well as the glass finds in other caves, we suggest that a local glasshouse operated in the village during the Late Roman and early Byzantine periods, and subsequently during the late Byzantine–early Umayyad periods (Gorin-Rosen 2000:58–59). The glass vessels found in Cave 1071 most likely represent some of the products manufactured in this workshop.

ARCHAEOBOTANICAL FINDS FROM CAVE 1071

Ḥorbat Qaṣṭra is located 1.5 km east of the Mediterranean seashore, at an elevation of 62 m above sea level, in a typical Mediterranean climate. The mean annual precipitation in the vicinity is 600–650 mm (*Meteorological Notes* 1967). Present-day vegetation of Mount Carmel is maquis, characterized by the native climax association of *Quercus calliprinos* (Kermes oak), *Pistacia palaestina* (Terebinth), cultivated trees of *Olea europaea* (Olive) and recent manmade forests of *Pinus halepensis* (Aleppo pine).

Excavations at Ḥorbat Qaṣṭra revealed numerous wine- and olive presses from the Roman–Byzantine periods, an indication that the city’s economy was based on the production of olive oil and wine for local consumption and export (Yeivin and Finkelstejn 1999).

Charred pieces of wood and a few carbonized seeds found during the excavations in Cave 1071 were collected for botanical identification. Samples of 0.5–1.0 cu cm were taken from the charred pieces of wood. They were aspirated in absolute ethyl alcohol, dipped in a Celloidin-Clove oil solution for 24 hours, rinsed in absolute ethyl alcohol, and finally transferred to 50–55° C in an oven for 72 hours. Blocks were then made in paraffin. Cross sections and longitudinal, tangential and radial sections 12 millimicron thick were prepared with the microtome. The identification of the species of wood was made microscopically from

these sections, based on the three-dimensional structure of the wood. The remains were then compared to reference sections, prepared from systematically identified living trees and anatomical atlases (Fahn, Werker and Baas 1986; Schweingruber 1990). Seeds were identified based on their morphology, through comparison with recent seeds.

As can be seen from the results of the analysis (Table 1), five arboreal species of trees and shrubs were identified: *Olea europaea* (Olive), *Tamarix (X5)* (Tamarisk), *Pinus halepensis* (Aleppo pine), *Retama raetam* (White broom) and *Cistus salvifolius* (Sage-leaved cistus). Whereas *Olea europaea*, *Tamarix (X5)* and *Pinus halepensis* are trees, *Retama raetam* and *Cistus salvifolius* are shrubs. All five species grow today in close proximity to the site, and no doubt grew in the Roman–Byzantine periods near Ḥorbat Qaṣṭra. Cultivated olive orchards constituted part of the local economy of the period, as is evident from the oil-press installations in the area. Aleppo pine was very rare during antiquity (Liphschitz and

Biger 2001), and may have originated from a native specimen or from imported timber. *Olea europaea* wood remains were found in two other Roman–Byzantine sites on Mount Carmel: Ḥorbat Sumaq (Liphschitz 1999) and Ḥorbat Raqit (Liphschitz 2004). Wood remains of *Pinus halepensis* were found only at Ḥorbat Sumaq (Liphschitz 1999). *Retama raetam* and *Cistus salvifolius* were most probably used as firewood. The seeds identified were *Olea europaea* stones (Table 2).

THE ANIMAL REMAINS FROM CAVES 1070 AND 1071

A small faunal assemblage was recovered from three of the caves at Ḥorbat Qaṣṭra. Cave 1080, containing Chalcolithic deposits (NISP = 15; N unidentified = 4), has been reported on elsewhere (van den Brink et al. 2004). Caves 1070 and (NISP = 9; N unidentified = 0) and 1071 (NISP = 236; N unidentified = 52), dated to the Late Roman and Byzantine periods, are described here.

Methodology

All soil from within the caves was sieved through 3 mm screens, resulting in maximal bone recovery. The faunal data are presented in this report using two common archaeozoological methods. The total number of identifiable bones (NISP) was calculated for each species, and these were then converted into percentages. The Minimum Numbers of Individuals (MNI) was calculated based on the most frequently represented bone element, taking into account side and age. Sheep and goats were separated following the criteria given in Boessneck (1969) and Prummel and Frisch (1986). Bones that could not be distinguished were placed in a combined sheep/goat category. The domestic status of the pig remains was assessed following metrical criteria given in Payne and Bull (1988).

Whenever possible, animals were categorized according to general age classes (e.g., infant, juvenile, sub-adult and adult), using the state

Table 1. Tree and Shrub Remains from Cave 1071

Locus	Basket	Species
207	2054	<i>Olea europaea</i>
207	2068	<i>Olea europaea</i>
207	2074	<i>Olea europaea</i>
204	2024	<i>Pinus halepensis</i>
206	2049	<i>Pinus halepensis</i>
207	2062	<i>Pinus halepensis</i>
204	2024	<i>Tamarix (X5)</i>
205	2036	<i>Tamarix (X5)</i>
204	2014	<i>Retama raetam</i>
204	2011	<i>Cistus salvifolius</i>

Table 2. Location of Seeds in Cave 1071

Locus	Basket	Identification
204	2011	1 stone of <i>Olea europaea</i>
204	2014	1 stone of <i>Olea europaea</i>

of epiphyseal fusion (fused or unfused) and the dental eruption stage (Silver 1969). Survival profiles were calculated for the three main species based on the number of fused bone elements. An attempt was also made to divide adult sheep/goat by age using dental attrition stages, following Payne (1973). Despite sieving, the size of the faunal sample recovered from each cave was small. For this reason, the remains are described here by individual cave.

CAVE 1070 (Loci 102, 106)

Only nine bones, all identifiable to species and bone element, were found in mixed Late Roman and late Byzantine deposits near the floor of the cave. A small range of species were represented, i.e., cattle, pig, dog and chicken (Table 3). The two dog bones (paired proximal femora) belong to a small-sized, adult animal (see Table 7), while the pig represents an immature animal, possibly a neo-nate. The MNI count for chicken is two, representing at least one adult (paired carpometacarpus and a femur) and a chick, represented by a tarsometatarsus. Of the two cattle bones, one

(a distal humerus shaft fragment) had the distal epiphysis removed during butchery activities.

CAVE 1071 (Loci 202, 204, 206, 207)

It is unclear whether the animal bones recovered from late Byzantine deposits within this cave represent food debris directly associated with past human activities within this locality, or whether they represent refuse disposed of in the cave, once it had fallen into disuse. Regardless, these remains are described since they may offer some insights into the late Byzantine animal economy in the region, which is otherwise poorly known.

Species Represented

The total number of animal bones from late Byzantine deposits is 288 bones, of which the majority (NISP = 236 bone fragments) were identifiable to element and species. All but 16 belong to the same series of domestic taxa identified in Cave 1070: sheep, goat, cattle, pig and chicken (Table 3; Fig. 28).

While both sheep and goats are represented in this assemblage (Table 3), the relative proportions of these species may not be significant due to the small number of bones that could be assigned to each (NISP = 4 sheep and 8 goat). Taken together though, sheep and goat (42%) dominate the species list, followed by pig (16.5%; Table 3). Cattle remains comprise only 10% of the assemblage. The frequency of chicken remains (as shown by their NISP counts) is disproportionately high (24.5%) relative to their actual contribution to diet, as the larger bovids (sheep, goat, pig, cattle) provide far greater amounts of meat. An interesting find is the presence of a chicken ulna with a healed fracture, indicating that the animal was not killed immediately after suffering from this trauma.

Body Parts

The distribution of body parts is important, because it offers valuable insights into carcass processing and food preparation activities. This

Table 3. Species Representation at Horbat Qastra

Species	Cave 1070 (Late Roman–Late Byzantine)		Cave 1071 (Late Byzantine)	
	NISP	%	NISP	%
Sheep	-	-	4	2.0
Goat	-	-	8	3.0
Sheep/Goat	-	-	88	37.0
Cattle	2	22.5	23	10.0
Pig	1	11.0	39	16.5
Dog	2	22.5	-	-
Fox	-	-	4	2.0
Rodent	-	-	4	2.0
Chicken	4	44.0	58	24.5
Fish	-	-	3	1.0
Amphibian	-	-	3	1.0
Crab	-	-	2	1.0
<i>Total</i>	<i>9</i>	<i>100.0</i>	<i>236</i>	<i>100.0</i>

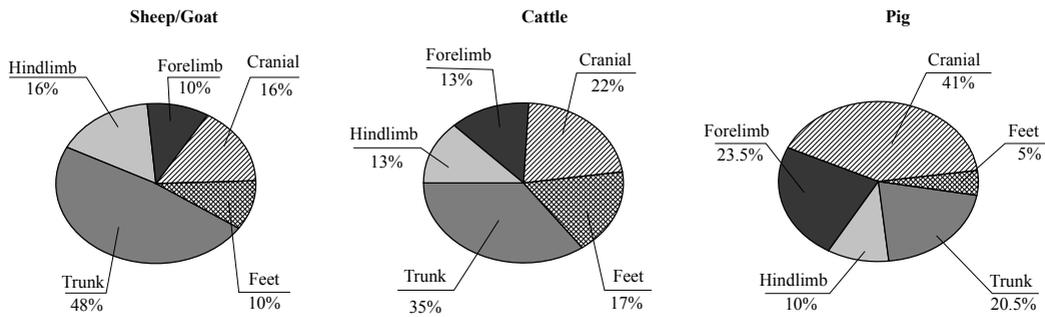


Fig. 28. Body-part breakdown for sheep/goat, cattle and pig: cranial (skull, maxilla, jaw, teeth); forelimb (scapula, humerus, radius, ulna); hindlimb (pelvis, femur, tibia, fibula, patella); trunk (vertebrae, ribs); and feet (metacarpals, carpals, metatarsals, tarsals, phalanges).

includes information on whether complete animals were slaughtered/consumed on-site, through to whether people selected specific cuts of meat for consumption. However, only the sheep/goat, cattle and pig samples were of sufficient size to enable the representation of body parts to be examined (Table 4; Fig. 28).

As illustrated in Fig. 28, trunk elements were the most common (48% and 35% respectively), for both sheep/goat and cattle. For sheep/goat, this was followed by cranial bones and hindlimbs (16% each). Cranial elements were also common in cattle (22%); however, hindlimbs were less common (13%). For pig, the most common elements were cranial bones, especially maxilla and mandibles (41%), followed by forelimbs (23.5%).

There does not appear to be a common pattern of body-part representation for any species, probably a reflection of the unequal sample sizes (Table 3). It is, however, important to note that all body parts are represented for all three species. This indicates that both primary butchery elements (such as the crania and feet, which are poor in meat) and the meat-rich elements favoured for consumption (limb bones) are represented. This pattern suggests that the assemblage represents general refuse disposal. If the bones were associated with some specialized task, such as burial offerings, it is expected that there would be some selection in

body parts and in the species represented (e.g., Horwitz 1999a). This does not appear to be the case at Horbat Qastra.

Age and Sex

There were not enough bone remains to calculate age of death profiles. However, as shown in Table 5, only 29% of sheep/goat bones were unfused (which represent immature animals), with the majority of bones belonging to adult animals. Similarly, only 33% of the cattle bones were unfused, indicating that most bones belong to adult animals. For pigs, an inverse picture was found, with the bulk of bones unfused (69%). This indicates that the greater part of animals in this sample was slaughtered when immature.

These findings are corroborated by the data on dental eruption and attrition, albeit the small sample sizes. Using the timing of dental eruption in pigs (Payne and Bull 1988), the Qastra pig assemblage contains one animal younger than 12–16 months, one animal aged less than 17–22 months and another, 17–22 months old. In addition, a fetal or neo-natal pig is present, based on a minute fragment of a scapula.

The two maxilla and single jaw with sheep/goat teeth represent adult animals, all with permanent teeth erupted and in wear. The wear stage on the jaw (H/I) indicates an age of 6–8

Table 4. Skeletal Element Representation in Late Byzantine Cave 1071 (NISP counts)

Skeletal Elements	Species	Sheep/Goat	Cattle	Pig
	Horn		4	1
Cranium			1	5
Maxilla		4	1	4
Mandible		4	2	5
Loose teeth		4		2
<i>Total Cranial</i>		<i>16</i>	<i>5</i>	<i>16</i>
Atlas		1		1
Axis				
Vertebrae – Thoracic		1		
Vertebrae – Lumbar		10	1	1
Vertebrae – Misc.		1	1	
Ribs		33	6	6
Sacrum		2		
<i>Total Trunk</i>		<i>48</i>	<i>8</i>	<i>8</i>
Scapula		4	1	5
Humerus		3	2	
Radius		3		2
Ulna				2
Carpals		4		
Metacarpal			1	
<i>Total Forelimb</i>		<i>14</i>	<i>4</i>	<i>9</i>
Pelvis		5	2	1
Femur		3		2
Tibia		7	1	1
Astragalus		1		
Tarsals				
Metatarsal		2	1	
<i>Total Hindlimb</i>		<i>18</i>	<i>4</i>	<i>4</i>
1st Phalange		2	2	
3rd Phalange		1		
<i>Total Feet</i>		<i>3</i>	<i>2</i>	
Metapodia		1		2
<i>Total NISP</i>		<i>100</i>	<i>23</i>	<i>39</i>

years old (Payne 1973). For cattle, there were insufficient dental remains with which to examine age profiles.

Table 5. Bone Fusion Data for the Late Byzantine Deposits (in numbers)

Age in Months	Sheep/Goat		Cattle		Pig	
	F	UF	F	UF	F	UF
0–12	6	-	1	-	2	5
12–24	4	-	1	-	-	3
24–36	-	1	2	-	-	-
36–42	1	4	-	-	2	1
42–48	-	-	-	2	-	-
<i>Total</i>	<i>11</i>	<i>5</i>	<i>4</i>	<i>2</i>	<i>4</i>	<i>9</i>

F = fused; UF = unfused

Unfortunately, too few cattle or sheep/goat bones could be measured to distinguish gender on the basis of bimodal size distributions. However, based on the morphology of horncores, at least one adult male sheep, one adult male goat, and one male cattle are represented.

Wild versus Domestic Species

The wild species are represented by red fox (*Vulpes vulpes*) remains, including a left jaw and a metatarsal; unidentified rodent(s), represented by post cranial remains; unidentified fish vertebrae (*Pisces sp.*); a claw of a freshwater crab (*Potamon potamios*); and three post cranial remains of an amphibian, probably the green toad (*Bufo viridis*).

The amphibian and crab remains reflect the damp, if not wet, environment that the cave offered at some point in the past. Their remains, as well as those of rodents, may represent natural mortalities of locally occurring taxa that died and were accidentally incorporated into the archaeological deposit. Even if these species are included, the proportion of bones of wild species (7%) to those of domesticates (93%) clearly illustrates the important role played by the latter in the economy and diet of this period. If the amphibian, freshwater crab and rodent are excluded, the proportion of wild species declines to 3%.

Bone Modifications

Burning.— A total of eight burnt bones were found within Cave 1071. Of these, three were unidentified fragments. The remaining five were a sheep/goat lower M2, a sheep/goat distal tibia, a sheep/goat vertebral body, a cattle lumbar vertebra and a cattle 1st phalange. The burnt bones were derived from several loci, such that they do not appear to have been burned in a single locale.

Butchery.— A total of 27 bones exhibited cut marks as a result of butchery activities. All were found on domestic ungulates. Most (N = 17) were found on bones of sheep/goat (63%), 6 were found on pig bones (22%) and the remaining 4 occurred on cattle bones (15%). As such, their frequency mirrors the taxonomic percentage within the overall assemblage; the most common taxa (sheep/goat) yielded the largest number of butchered bones. Second were pigs, while cattle bones exhibited the lowest number of butchered bones, also being the least common species represented in the assemblage.

The most commonly butchered bone element were sheep/goat lumbar vertebrae that had been halved through the centrum (N = 9). In addition, an atlas vertebra of both a pig and sheep/goat had been halved in the same fashion, suggesting that, for both species, the spinal column was divided during butchery. This probably occurred during the initial stages of carcass division, such as is still carried out by traditional butchers in Israel today (Klenck 1995). Two sheep/goat ribs that had both ends removed probably represent butchery damage resulting from the same activity, as the rib rack is removed following the division of the spinal column.

Another common pattern of damage is the removal of the distal scapula from the blade, at the neck. Three examples of this are found for pig, and one each for cattle and sheep/goat, suggesting that, irrespective of size, a similar pattern of carcass division was followed for all species. Likewise, both a cattle and sheep/

goat pelvis had been halved vertical to the long axis of the bone. In both pig and sheep/goat, the proximal end of the radius had been removed. Other butchery damage observed was the removal of the distal femur of a pig and the removal of the distal end of a cattle humerus. The latter bone recalls the damage observed on a distal humerus shaft from the Roman/late Byzantine sample.

In addition, a cattle horn core was butchered at its base, in a position indicative of its removal from the skull that is usually associated with skinning. In all the cases noted here (except for skinning), the butchery damage is gross and involves the removal of a section of bone together with the associated meat. This was probably intended to create a “parcel” of meat which was sold by weight rather than by cut.

DISCUSSION OF THE LATE BYZANTINE FAUNAL ASSEMBLAGE

The late Byzantine sample is comparable to material derived from other roughly contemporaneous sites in the Carmel region: Ḥorbat Sumaq, Ḥorbat Raqit and Tel Ḥorshan (Table 6; Horwitz 1999b; 2004). The comparison is limited by the unequal size of the bone samples. Despite this constraint, it is evident that all sites are dominated by remains of domestic animals. Some inter-site differences may, however, be noted, such as taxonomic frequency. Ḥorbat Qaştra contains the highest frequency of pig and chicken remains, while Ḥorbat Raqit has the highest frequency of cattle. Ḥorbat Sumaq exhibits the widest diversity of species of all the sites. Some species are not present at all in certain sites: Ḥ. Qaştra and Ḥ. Raqit do not contain remains of equids, camels, deer, gazelle or birds other than chicken. Whether these differences are the outcome of unequal sample sizes, or whether they reflect the specific habitats of the individual sites or their function in the local economy is difficult to assess at this stage.

The late Byzantine assemblage from Ḥorbat Qaştra contains many of the elements typical

Table 6. Percentage of Species Represented in the Late Byzantine Deposits at Ḥorbat Qaṣṭra Compared to Other Roman–Byzantine Assemblages in the Mount Carmel Region: Ḥ. Sumaq (Horwitz 1999b); Ḥ. Raqit (Horwitz 2004); and Tel Ḥorshan (Marder, pers. comm.)

Species	H. Qaṣṭra (N = 236)	H. Raqit (N = 167)	H. Sumaq (N = 295)	Tel Ḥorshan (N = 882)
	%	%	%	%
<i>Dietary Taxa</i>				
Sheep/Goat (<i>Ovis aries/Capra hircus</i>)	42.0	28.5	43.0	39.0
Cattle (<i>Bos taurus</i>)	10.0	48.0	29.0	49.0
Pig (<i>Sus scrofa</i>)	16.5		1.0	0.7
Camel (<i>Camelus sp.</i>)			1.0	0.2
Equid (<i>Equus sp.</i>)			1.0	1.0
Gazelle (<i>Gazella sp.</i>)		0.5		2.2
Deer (<i>Cervidae</i>)			1.0	0.1
Chicken (<i>Gallus domesticus</i>)	24.5	3.0	13.0	6.1
Fish (<i>Pisces</i>)	1.0			0.3
<i>Probably Non-Dietary Taxa</i>				
Hare/Hyrax (<i>Lepus capensis/Procavia capensis</i>)			1.5	
Carnivores (Carnivora)	2.0	1.0	4.0	1.0
Birds (Aves)		0.5	1.5	0.3
Rodents/Bats (Rodentia/Chiroptera)	2.0	0.5	3.5	
Reptiles (Reptilia)		19.0		
Amphibians/Crabs (Amphibia/Crustacea)	2.0		0.5	

of faunal assemblages from this period. The low proportion of hunted fauna indicates that the animal economy of the site was based on herding, with little or no hunting. The small frequency of fish and the high proportion of chicken are similar to that found at other contemporaneous sites in the region (Dar 1995). These two faunal elements appear to have served important sources of animal protein, with chickens providing both eggs and meat, and fish serving as a meat source. Together with milk and milk products, these formed the basis of animal products consumed in Roman–Byzantine Palestine (Dar 1995). The majority of sheep/goat at Ḥorbat Qaṣṭra

are adult animals, indicating that they were primarily kept for milking. Likewise, the low numbers of cattle at the site and the fact that the majority of bones belong to adult animals would suggest that they were primarily kept as a source of milk and labor rather than for meat. The combination of the use of ungulates for milk and labor, and fowl and fish for protein, provided a diversified base to the animal economy. Thus, despite its small size, the faunal assemblage recovered from Caves 1070 and 1071 at Ḥorbat Qaṣṭra offers important information concerning animal exploitation during the Late Roman–late Byzantine periods in the Mount Carmel area.

Table 7. Bone Measurements in mm (after von den Driesch 1976). Individual Bones are Numbered 1–4

<i>Goat Metacarpal</i>	(L. Byz)	<i>Pig Radius</i>	(L. Byz)			<i>Chicken Femur</i>	(Rom-L. Byz)	(L. Byz)			
GL	120.9	Bp	29.0					#1	#2	#3	#4
Bp	28.1	Dp	19.9			GL	68.9	92.1	72.6	73.1	71.8
Dp	20.6					Bd	13.2	17.0	13.8	14.1	14.0
		<i>Pig Mandible</i>	(L. Byz)			Bp	13.6	18.7	15.1	14.5	14.8
<i>Goat Astragalus</i>	(L. Byz)		#1	#2		<i>Chicken Humerus</i>	(L. Byz)				
GLI	31.1	decid m3 L	17.4	-			#1	#2			
Bd	20.6	decid m3 B	7.1	-		GL	72.4	70.1			
Dm	16.3	M1 L	14.3	17.0		Bd	14.2	14.1			
		M1 B	8.8	11.7		Bp	18.5	18.7			
<i>Goat Ist phalanx</i>	(L. Byz)	M2 L	-	23.3							
GLpe	37.3	M2 B	-	14.8		<i>Chicken Radius</i>	(L. Byz)				
Bd	12.3	M3 L	-	38.3		GL	75.4				
Bp	13.4	M3 B	-	15.7		Bp	6.1				
						Bd	7.6				
<i>Sheep Metacarpal</i>	(L. Byz)	<i>Pig Maxilla</i>	(L. Byz)			<i>Chicken Ulna</i>	(L. Byz)				
Width of Trochlea	11.4		#1	#2	#3	GL	64.6				
Height of Condyles	15.8	M1 L	17.0	16.6	13.2						
		M1 B	14.9	14.3	10.8	<i>Dog Femur</i>	(Rom-L. Byz)				
<i>Cattle Metacarpal</i>	(L. Byz)	M2 L	21.9	21.6	17.0	Bp	16.4				
GLI	214.7	M2 B	16.3	17.4	12.8	DC	13.6				
SD	33.5										
Bp	59.5	<i>Cattle Metatarsal</i>	(L. Byz)								
Dp	35.5	GLI	261.5								
Bd	60.1	SD	30.5								
Width of Condyle	27.8	Bp	52.2								
Width of Trochlea	24.4	Dp	54.0								
Height of Condyles	32.5	Bd	60.8								
		Width of Condyle	27.8								
<i>Cattle Ist phalanx</i>	(L. Byz)	Width of Trochlea	25.0								
GLpe	67.1	Height of Condyle	35.8								
Bd	33.0										
Bp	35.4										

Rom = Roman; L. Byz = Late Byzantine

THE SHELL REMAINS

The excavation of Caves 1070 and 1071 yielded a large number of shells dating to the Roman–Byzantine periods. In Cave 1077, several additional archaeomalacological remains were discovered, dating back to Middle Bronze Age II or even earlier. They are dealt with separately (see Appendix 1).

The archaeomalacological material consisted of 2 samples collected in Cave 1070 and 16, in Cave 1071, containing 3 complete shells and 397 shell fragments (Table 8). Most of the material could be identified on site. Several fragments were compared with recent material from the National Mollusc Collection of the Hebrew University. All 400 items could be identified at the (sub)species level.

The 400 specimens belong to 17 (sub)species: 11 different gastropods and 6 bivalve species. The material is enumerated in systematic order in Table 8.

MOLLUSC REMAINS

Origin of the Material

The shell material recovered during the excavations of Caves 1070 and 1071 originated from three different areas: the Carmel Mountains (N = 5), the Mediterranean Sea (N = 383) and the Nile River in Africa (N = 12).

Pomatias, *Calaxis* and *Helix* are terrestrial snails still commonly living in the Carmel mountain range. *Pomatias olivieri* (1) is a typical leaf litter species, while *Calaxis hierosolymarum* (1) is a subterranean species often encountered in caves and karstic fissures. The Levantine field snail *Helix engaddensis* (3) digs considerably deep into the ground at the end of the rainy season in order to estivate. In this way, recent specimens may contaminate earlier remains, as they fail to survive the long hot summers in the Levant. Therefore, the presence of *Calaxis* and *Helix* in the cavities may in part be due to recent intrusions.

Chambardia rubens arcuata (12), better known as *Aspatharia rubens* (for a review of the problem concerning the nomenclature, see Daget 1998), is a large freshwater mussel from the Nile River in Africa. It is regularly encountered during archaeological excavations in the Middle East, from the Natufian through the Early Islamic periods (Reese, Mienis and Woodward 1986).

As expected, most of the shell material originated in the nearby Mediterranean Sea, in terms of both diversity (13 species) and number (383 specimens). The Limpet *Patella caerulea* was by far the most common species encountered at the site.

Distribution

The distribution of the shells in Caves 1070 and 1071 shows a remarkable difference: only three shells were encountered in Cave 1070, with all the rest (N = 397) found in Cave 1071 (see Table 9).

Exploitation of the Molluscs

The inhabitants of Ḥorbat Qaṣṭra exploited most of the molluscs recovered at the site as food, ornaments (beads, pendants) or decorations and building material. Only the terrestrial snails (*Pomatias*, *Calaxis* and *Helix*) are likely natural intrusions.

Food

All specimens (N = 235) belonging to the Limpet *Patella caerulea* were collected alive. Quite a number show some damage to the margin of the shell, a sign that they had been removed with a sharp object from the rocks in the littoral zone along the Mediterranean coast. *Osilinus turbinatus* lives in the same area, and like *Patella*, is an edible species. Although represented by only three specimens, the latter had most probably been collected together with the Limpets for culinary purposes. While the *Patella* and *Osilinus* shells are considered part of kitchen refuse, they are too few to form a

Table 8. The Archaeomalacological Material from Caves 1070 and 1071

Family	Genus species	Description	Cave	Locus	Basket
<i>Gastropoda</i>					
Patellidae	<i>Patella caerulea</i> Linnaeus, 1758	1 shell	1070	102	104
		21 shells; 4 have a central hole	1071	202	2002
		1 shell with a hole near the apex	1071	202	2010
		13 shells; 2 have a central hole, 1 with a slit, and 1 fragment of the basal rim	1071	204	2011
		87 shells; 19 have a hole in the apex	1071	204	2013
		1 damaged shell with a large central hole	1071	204	2014
		49 shells; 9 have a hole near the apex	1071	204	2018
		54 shells; 5 have a hole	1071	204	2024
		7 damaged valves; 2 have a hole near the apex	1071	204	2029
Trochidae	<i>Osilinus turbinatus</i> (von Born, 1778)	3 shells	1071	204	2024
Pomatiasidae	<i>Pomatias olivieri</i> (de Charpentier, 1847)	1 shell with two holes in the body whorl	1071	204	2011
Naticidae	<i>Neverita josephinia</i> (Risso, 1826)	1 shell, damaged near the aperture	1071	204	2029
Cassidae	<i>Phalium granulatum undulatum</i> (Gmelin, 1791)	1 shell, missing the labial lip	1070	106	1057
		1 shell	1071	202	2002
		1 large fragment of the body whorl, including the lip of the aperture	1071	204	2011
		1 small part of the labial lip	1071	204	2018
		2 shells; 1 with a hole behind the lip, 1 large part of the body-whorl and adhering labial lip, 1 "Cassid"-lip and 1 aperture consisting of the columella-area and the labial lip	1071	204	2024
		1 shell 2 labial lips	1071	204	2029
		1 shell damaged toward the aperture	1071	207	2056
		1 shell	1071	207	2074
Ranellidae	<i>Charonia tritonis variegata</i> (Lamarck, 1816)	1 small shell with a broken apex, a hole in the penultimate whorl and a large hole in the body whorl	1071	206	2040
Muricidae	<i>Bolinus brandaris</i> (Linnaeus, 1758)	1 damaged shell, missing the anal canal, with a hole in body whorl about 2 cm behind the lip of the aperture	1070	106	1057
	<i>Hexaplex trunculus</i> (Linnaeus, 1758)	1 shell	1071	204	2013
		1 shell with a small hole behind the lip	1071	206	2040
		1 shell	1071	207	2054
	<i>Stramonita haemastoma</i> (Linnaeus, 1767)	Body whorl of a juvenile specimen, filled with cemented shell debris	1071	204	2013
		Fragment of internal columella	1071	204	2018
1 complete shell		1071	206	2040	
Ferrussaciidae	<i>Calaxis hierosolymarum</i> (Roth, 1855)	1 shell	1071	207	2029
Helicidae	<i>Helix engaddensis</i> Bourguignat, 1852	1 damaged shell 1 fragment of a shell	1071	204	2011
		1 shell, missing a large part of the body whorl	1071	204	2035

Table 8. (cont.)

Family	Genus species	Description	Cave	Locus	Basket
<i>Bivalvia</i>					
Glycymeridae	<i>Glycymeris bimaculata</i> (Poli, 1795)	1 umbonal fragment	1071	204	2011
	<i>Glycymeris insubrica</i> (Brocchi, 1841)	2 valves	1071	204	2002
		15 valves, most of them slightly damaged near the ventral margin; 4 umbonal fragments, of which 1 with a large hole near the umbo and 6 fragments of the ventral margin	1071	204	2011
		17 valves; 2 with a hole in the umbo, 7 umbonal fragments and 14 small fragments of the ventral margin	1071	204	2013
		13 valves; 2 with a hole near the umbo and seven umbonal fragments, 1 with a large hole near the umbo	1071	204	2018
		7 valves; 2 with a human-made hole in the umbo, 1 umbonal and 1 ventral fragment	1071	204	2024
		7 valves; 3 with a human-made hole in the umbo	1071	204	2029
		1 damaged valve, with a human-made hole in the umbo	1071	204	2062
Mytilidae	<i>Mytilus galloprovincialis</i> Lamarck, 1819	Small fragment of a huge specimen (c. 10 cm)	1071	204	2011
Mutelidae	<i>Chambardia rubens arcuata</i> (Cailliaud, 1823) Synonym: <i>Aspatharia rubens auct</i>	1 large umbonal fragment	1071	202	2002
		4 fragments	1071	204	2013
		1 tiny fragment of the ventral margin	1071	204	2018
		2 umbonal fragments 1 fragment of the posterior	1071	204	2024
		1 heavily damaged valve	1071	204	2029
		1 large umbonal fragment 1 large fragment of the ventral margin belonging to two different specimens	1071	207	2054
		1 valve, damaged near the anterior	1071	207	2074
Cardiidae	<i>Acanthocardia tuberculata</i> (Linnaeus, 1758)	2 valves; 1 with a human-made hole in the umbo	1071	202	2002
		1 complete valve 2 damaged valves, with a hole near the umbo	1071	204	2013
		4 valves of with three with a hole near the center	1071	204	2018
		1 valve	1071	204	2023
		2 valves; 1 with a human-made umbonal hole and 1 with a large hole near the umbo 1 half valve, of which the umbo had been perforated	1071	204	2024
		2 valves; 1 with a human-made hole in the umbo and 1 with a large central hole	1071	204	2029
		1 valve, with a damaged ventral margin	1071	207	2054
		1 valve	1071	207	2055
		<i>Cerastoderma glaucum</i> (Poiret, 1789)	1 valve, with a damaged ventral margin	1071	204

Table 9. Distribution of the Archaeomalacological Material in Caves 1070 and 1071

	Roman–Late Byzantine	Late Byzantine/Umayyad
Species	Cave 1070 Loci 102, 106	Cave 1071 Loci 202, 204, 206, 207
<i>Patella caerulea</i>	1	234
<i>Osilinus turbinatus</i>	-	3
<i>Pomatias olivieri</i>	-	1
<i>Neverita josephina</i>	-	1
<i>Phalium granulatum undulatum</i>	1	13
<i>Charonia tritonis variegata</i>	-	1
<i>Bolinus brandaris</i>	1	-
<i>Hexaplex trunculus</i>	-	3
<i>Stramonita haemastoma</i>	-	3
<i>Calaxis hierosolymarum</i>	-	1
<i>Helix engaddensis</i>	-	3
<i>Glycymeris bimaculata</i>	-	1
<i>Glycymeris insubrica</i>	-	102
<i>Mytilus galloprovincialis</i>	-	1
<i>Chambardia rubens arcuata</i>	-	12
<i>Acanthocardia tuberculata</i>	-	17
<i>Cerastoderma glaucum</i>	-	1

kitchen midden. Classical kitchen middens, consisting of large piles of shells (as reported from Europe, North and South America, Australia and South-East Asia; Claassen 1998) have thus far never been reported from Israel or elsewhere in the Levant.

Ornamental and Decorative Use of Shells

A number of shells show clear signs of manipulation. One *Bolinus brandaris* and one *Hexaplex trunculus* show a human-made hole in the body-whorl behind the lip of the aperture. This is one of the customary ways to turn a gastropod shell into a shell bead or pendant. At Ḥorbat Qasra, the size of the shells indicates that they were more likely used as pendants.

Eight valves of *Glycymeris insubrica* and four valves of *Acanthocardia tuberculata* show a human-made perforation in the umbo. Such manipulations show that these shells were most probably also used as pendants. These umbonal holes are usually produced by grinding the shells on a stone or another firm object. In

addition, four *Glycymeris insubrica* valves and six *Acanthocardia tuberculata* valves show an irregular hole toward the center of the shells. All these holes were made inside out—an unusual method for perforating a shell. Although all of the perforated shells were probably intended for use as corporal ornaments, it is possible that they were also exploited for other, non-human decorative purposes.

'Cassid' Lips

Among the remnants of *Phalium granulatum undulatum* found at the site are several so-called 'Cassid lips', which consist of the heavy toothed labial lip of the aperture. They are regularly encountered in archaeological contexts, although their exact purpose has thus far remained an enigma (Reese 1989). They most likely also served as an ornamental item.

Shell Trumpet

In Cave 1071, a small specimen of a Triton shell (*Charonia tritonis variegata*) was

encountered. It has a broken apex and holes in the penultimate whorl and body whorl. The latter hole is probably of recent origin caused by damage inflicted during the excavation. In principle, this shell may have functioned as a small shell trumpet.

Pearly Freshwater Mussels

The pearly freshwater mussel *Chambardia rubens arcuata* is represented by twelve valves or fragments. This Nilotic species was probably much sought after for the beautiful, rose-colored inner layer of mother-of-pearl. On the other hand, there are firm indications that specimens still containing the animals were shipped in jars from Egypt to the Levantine coast (Reese, Mienis and Woodward 1986; Mienis, personal observations) and most probably also served a culinary purpose. The valves found at Ḥorbāt Qaṣtra show no signs of manipulation, making it difficult to explain their presence at the site. However, they do point to trade connections with Egypt.

Building Material

Some of the Mediterranean shells collected on the beach by the inhabitants of the site were specimens that were already dead. Several items—one shell of *Stramonita haemastoma* and several valves of *Glycymeris insubrica*—are filled with a plaster-like substance. These shells were most probably used as building material in the floors of several buildings from the Byzantine period, which covered the site. Mediterranean shells are known to have been used for the production of cement and plaster quite intensively, especially at coastal sites (Tsatskin 2004).

MARINE CRAB REMAINS

Six fragments belonging to Crustacea were among the archaeomalacological remains recovered from Cave 1071 (L204, B2013). They include three parts of a carapace and three claw fragments. A study of the literature (Holthuis and Gottlieb 1958), and comparison

with preserved specimens in the Invertebrate Collection of the Tel Aviv University, left no doubt that all the parts belonged to *Eriphia verrucosa* (Forsskål 1775 [syn.: *spinifrons* (Herbst 1785)], Fam. Xanthidae). The three carapace fragments belonged to a single specimen; however, two similar parts of a lower immobile left hand claw were present, indicating the presence of at least two different crabs.

Eriphia verrucosa is a large marine crab, which can grow a carapace with a width of more than 10 cm. It usually lives in rock pools or among boulders covered with algae in the littoral zone (Holthuis and Gottlieb 1958; Riedl 1963; Lewinsohn 1983). It is by far the fiercest crab living in the Mediterranean Sea (Riedl 1963). Although the consumption of this crab has been warned against (Riedl 1963), it is considered a highly commercial species in many Mediterranean countries, where they are usually offered for sale alive. During the Byzantine period, the inhabitants of Ḥorbāt Qaṣtra most probably exploited this marine crab as a food item, in the same way that they used the Mediterranean Sea snails *Patella caerulea* and *Osilinus turbinatus* found in the same habitat.

SUMMARY OF THE SHELL REMAINS

The molluscs encountered during the excavation of Caves 1070 and 1071 at Ḥorbāt Qaṣtra originated from three different areas: the Carmel Mountains, the Mediterranean Sea and the Nile River. The three species of land snail (*Pomatias*, *Calaxis* and *Helix*) are still common today in the Carmel range, suggesting that either the climate has hardly changed or that the snails are recent intrusions in the archaeological contexts.

The 13 species of marine molluscs from the Mediterranean Sea (*Patella*, *Osilinus*, *Neverita*, *Phalium*, *Charonia*, *Bolinus*, *Hexaplex*, *Stramonita*, *Glycymeris* [two species], *Mytilus*, *Acanthocardia* and *Cerastoderma*) were exploited for various reasons. Limpets

(*Patella*), and possibly *Osilinus*, were most probably collected for food from rocks in the shallow littoral waters. The single Triton shell (*Charonia*) may have served as a trumpet, while most of the other shells served for either ornamental (beads and pendants) or decorative purposes, or as basic ingredients for preparing building materials (plaster or mortar). The presence of valves of the freshwater mussel *Chambardia rubens arcuata* at Ḥorbat Qaṣṭra indicates trade connections with Egypt, since the species lives in the Nile or even deeper in southeast Africa.

CONCLUSIONS

A correct functional analysis of Caves 1070 and 1071 will, by necessity, have to be postponed until the final discussion of the architectural features uncovered *above* Cave 1070 and the northern subterranean chamber pertaining to Cave 1071 (both excavated by Ze'ev Yeivin and Gerald Finkielsztein). This analysis will be included in the aforementioned final site report, which is at present being prepared by the excavators.

The ceramic and glass assemblages presented in this report mainly derive from fills in Caves 1070 and 1071. Their analysis is therefore primarily informative for the post-constructional phases of use of both caves. Since both caves were located in, and formed an integral part of the ancient settlement(s), the retrieved materials reflect the ongoing settlement activities in this area.

Careful study of the assemblages shows that both cave fills must have accumulated over two separate episodes. The lower levels of the fills in both caves predominantly yielded materials dating from the fourth century CE (Late Roman–early Byzantine periods), while the upper fill primarily yielded finds from the (late) sixth–seventh centuries CE (late Byzantine–Umayyad periods). This is in full support of the chronological scheme of the site as presented in the past (Gerald Finkielsztein, pers. comm.). Based mainly on the pottery assemblage, it is

possible that the initial use of both caves falls within the Roman period, during the first–second centuries CE. Comparable pottery and glass materials for all periods represented in the two caves are to be found first and foremost amongst the on-surface settlement remains of Ḥorbat Qaṣṭra excavated over the years and, to a lesser extent, in the cemetery at the site. The composition of the floral, faunal and malacological remains reflect the inhabitant's known adeptness in fully exploiting the various natural resources located in the site's environs during the two main periods of settlement, as seen in the finds from Caves 1070 and 1071.

* * *

APPENDIX 1: A BRIEF NOTE CONCERNING SOME BIVALVES FROM A MIDDLE BRONZE AGE II(?) CAVE AT ḤORBAT QAṢṬRA

The excavation of Point 1077 (Fig. 2)—a pit in the southeastern area of Ḥorbat Qaṣṭra (Plan 2)—revealed a few shells. This pit dates to MB II or even earlier, according to the many flints and few pottery sherds recovered. The molluscs are of two bivalve species, both belonging to the family Glycymerididae.

1. *Glycymeris bimaculata* (Poli 1795)

P1077, L650, B6550: one valve, slightly damaged near ventral margin, manmade hole in umbo.

2. *Glycymeris insubrica* (Brocchi 1841)

L650, B6550: two umbonal fragments and two fragments of the ventral margin.

This material was brought to the site from the nearby Mediterranean Sea. The heavy valve of *Glycymeris bimaculata* shows a manmade perforation in the umbo. It therefore most probably served as a large, impressive pendant. The four fragments belonging to the second species—*Glycymeris insubrica*—are too poorly conserved to allow for a reliable interpretation concerning their possible use.

APPENDIX 2: LOCI AND BASKET LISTS

Locus	Description	Upper level	Lower level	Baskets
<i>Point 1970</i>				
100	Open space N of and in front of cave(s)			1000–2, 1005, 1007, 1008
101	Top of fill in W cave (A)			1003
102	Top of fill in E cave (B)			1004, 1006, 1009–14, 1016, 1018–21, 1024, 1025, 1028–40, 1070, 1073, 1079, 1080
103	Stairs in Cave A			1015, 1017, 1022
104	Probe through fill in SE of Cave A			1023, 1026, 1066
105	Probe through fill in NW of Cave A, down to bedrock			1027, 1062, 1081
106	Probe through fill in SW of Cave B			1041, 1043–60, 1063–65, 1067–69, 1071, 1072, 1074–76,
107	Probe through fill in NE of Cave B			1042, 1061, 1077, 1078
<i>Point 1071</i>				
200	Cleaning bedrock above cave		65.27	2000, 2008
201	Roof collapse on S side of cave		64.23	2001
202	Top of cave fill, S of L201; loose brown soil mixed with pottery, glass and metal fragments		63.40	2002–4, 2006, 2007, 2009, 2010
203	Cave fill below L201, W of W203	65.33	63.43	2005, 2012
204	Debris of roof collapse in S part of cave, below L202; hard packed, light brown soil mixed with pottery, glass, animal bones and shells	63.40	63.02	2011, 2013–35
205	Fill of brown soil mixed with pottery and glass, below collapse layer L204, deposited on bedrock floor	63.02	62.59	2036, 2037, 2039
206	Top of cave fill, N of Loci 201 and 203; brown soil		63.11	2038, 2040–53
207	Gray, burnt soil with abundance of charcoal, pottery, glass and metal fragments, below L206, deposited on cave's bedrock floor	63.11	62.47	2054–78
208	Support wall built against W bedrock of cave, W of Loci 206, 207		62.47	-
209	Clearance of fill in NE corner of cave to check whether another room exists	64.27	62.47	2079, 2082–88
210	Cleaning top of stairs in entrance to cave			-
211	Stone pavement above cave marking stairs/entrance			2080, 2081
212	Wall with door next to L209			-
<i>Point 1077</i>				
650	Modern intrusion (pit) through top of cave fill			6550, 6551
651	Fill of dark brown soil with many flints and some pottery sherds			6552–54
652	Fill of dark brown soil mixed with medium-sized fieldstones below layer of stones, down to bedrock			6555–57

NOTES

¹ Edwin C.M. van Den Brink is responsible for the excavation report, the stratigraphy description and the final conclusions; Orit Rutgaizer, for the pottery report; Yael Gorin-Rosen, for the glass report; Liora Kolska Horwitz, for the archaeozoology report; Nili Liphschitz, for the archaeobotany report; and Henk K. Mienis, for the molluscs report.

² For a recent (re)identification of Ḥorbat Qastra with ancient Porphyreon, see Finkielsztejn, forthcoming.

³ For preliminary accounts of these excavations, see Siegelmann 1990, 1996; Di Segni and Naveh 1996; Yeivin and Finkielsztejn 1999; van den Brink 2000; Nudel 2001; Finkielsztejn, forthcoming.

⁴ The excavations were conducted by Edwin C.M. van den Brink from June through October 1998, on behalf of the Israel Antiquities Authority, with the assistance of Amani Abu Hamid, Amir Gorzalczy, N. Habib Alla, Iskander Jabur, Yoav Lehrer, Marwan Masrawa, Martin Peilstöcker and Gregory Seriy, and with the participation of Dov Porotsky (plans and section drawings), Avraham Hadjian and Viatcheslav Pirsky (surveying), Shlomo Ya'akov-Jam (logistics), Ofer Marder (flints), Yossi Nagar (physical anthropology), Tsila Sagiv (photography), Marina Shuiskaya (pottery drawings), and Erella Tsarfati and Yosef Bukengolts (pottery restoration).

Dror Barshad and Zach Horowitz were also of kind assistance. Ram Gophna, Mordechai Haiman, Gerald Finkielsztejn and Ze'ev Yeivin visited us in the field. Human remains from a Late Chalcolithic burial cave were handed over at the end of the excavations to Mr. Shlomo Fried, representative of the Ministry of Religious Affairs. The excavations were funded by the Netive Carmel Company.

⁵ The coin was kindly identified by Helena Sokolov.

⁶ The coin was kindly identified by Ariel Berman.

⁷ The cleaning operations were conducted under the supervision of Yoav Lehrer.

⁸ Point 1077 was excavated under the supervision of Martin Peilstöcker.

⁹ Point 1071 was excavated under the supervision of Iskander Jabur.

¹⁰ There is an error in the Fig. Nos. in this part of Meyer's paper. Figure 11 is referred to as Fig. 10 in the text. The reference here follows the figures, not the error in the text.

¹¹ The excavations at Ḥorbat Qastra were conducted by Ze'ev Yeivin and Gerald Finkielsztejn (two seasons) and by Gerald Finkielsztejn and Hervé Barbé (third season). I wish to thank them for allowing me to mention this information.

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