

## THE GLASS VESSELS FROM THE POOLS OF 'EIN EL-JARAB, ḤAMMAT GADER

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### INTRODUCTION

The salvage excavations at Ḥammāt Gader (see Hartal, this volume) yielded large quantities of glass fragments<sup>1</sup> that included diagnostic, well-dated types, mainly from two periods. The early group, dating to the Late Roman/early Byzantine period (fourth–early fifth centuries CE),<sup>2</sup> includes vessels that were uncovered in Stratum 4 and in the lower loci of Strata 3–2 (Fig. 1). The larger, later group, derives from Strata 3–1 and dates to the late Byzantine and Umayyad periods (seventh–mid-eighth centuries; Figs. 2–5). However, very few glass fragments belonging to the early Abbasid period (second half of eighth–early ninth century) were found in Stratum 2; three of them were illustrated (Fig. 3:3, 6, 7) and two more, from L301 and L322, were not. The glass from the late Byzantine and Umayyad periods differs from that of the Abbasid period in both fabric and form.

Parallels were chosen mainly to confirm the shape and date of a vessel, as well as the distribution of the type. At the beginning of each type description examples are provided from the previous excavations at Ḥammāt Gader (Cohen 1997). Cohen's examples usually present complete shapes, or large fragments, but lack stratigraphic and chronological discussions and their dates are based mainly on parallels.

Parallels for the early group were chosen mainly from well-dated Galilean sites, like the glass factory dump at Jalame, dated to the second half of the fourth century (Weinberg and Goldstein 1988), glass vessels from the burned layers in the shops in Banias Area F, dated to the fourth–early fifth centuries (Gorin-Rosen and Jackson-Tal 2008:141), vessels from Bab el-Hawa in the northern Golan (Hartal 2005), as well as some burial assemblages from the western Galilee, such as Khirbat el-Shubeika (Gorin-Rosen 2002). Some contemporaneous

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<sup>2</sup> All the dates in this report are CE.

parallels are cited from other sites, for example Bet She'an (e.g., Katsnelson 2014b), Meẓad Tamar (Erdmann 1977) and 'Iraq Al-Amir (Dussart 1991).

Parallels for the later group from the region include late Byzantine and Umayyad contexts from sites around the Sea of Galilee, e.g., Bet Yerah (Khirbat al-Karak; Delougaz and Haines 1960), Hippos-Sussita (Burdajewicz 2006; 2011), Kursi (Barag 1983; Katsnelson 2014a), Migdal (Gorin-Rosen 2001), Tiberias (Amitai-Preiss 2004; Lester 2004a; 2004b) and other cities of the Decapolis, such as Bet She'an (Fitzgerald 1931; Peleg 1994; Hadad 2005; Winter 2011; Katsnelson 2014b), Pella (O'Hea 1992; 1993) and Jerash (Meyer 1988), and additional Jordanian and Syrian sites (Dussart 1998), including Busra (Wilson and Sa'd 1984). A few sites from Upper and western Galilee with late Byzantine and Umayyad vessels, for example El-Jish (Makhoully 1939) and Khirbat el-Shubeika (Gorin-Rosen 2002), are also included.

Parallels from sites further afield were chosen only if they supplied more information about typology, dating or distribution, e.g., Caesarea-Maritima (Pollak 2003), Ramla (Gorin-Rosen 1999; 2008; 2010; 2016; Pollak 2007), Khirbat el-Ni'ana (Gorin-Rosen and Katsnelson 2007) and Jerusalem (Gorin-Rosen 2000).

## THE LATE ROMAN PERIOD

### Stratum 4; Strata 3 and 2 Lower Loci

The glass vessels presented below include bowls and beakers, mainly of very common types, all dated to the fourth and early fifth centuries CE. A few vessels were retrieved from L309 on a floor with pottery dated to the fourth and fifth centuries (see Hartal, this volume: Fig. 32) and a coin attributed to the fourth century (Berman and Bijovsky, this volume: Cat. No. 8). Hartal dated Stratum 4 to the Late Roman or the beginning of the Byzantine period.

*Bowl with Infolded Rim* (Fig. 1:1).— Only one fragment of this type was found. It is not mentioned in the previous excavations at Ḥammāt Gader (Cohen 1997). The shape is common during the fourth century, although it usually has an outfolded rim. Bowls with infolded rims are rare; few were found in the glass factory dump at Jalame (Weinberg and Goldstein 1988:50–51, Fig. 4-11). A similar bowl with an infolded rim was unearthed at 'Iraq al-Amir within a fourth century glass assemblage (Dussart 1991:299, Fig. 36:4).

*Bowls with Knocked-Off Rim* (Fig. 1:2–7).— Presented are six different subtypes with flaring, knocked-off rims, most of them decorated with bands of horizontal incised lines. This is a well-known fourth-century type. Many bowls of similar subtypes were found in the glass factory dump at Jalame (Weinberg and Goldstein 1988:94–98), dated to the second half of the fourth century.

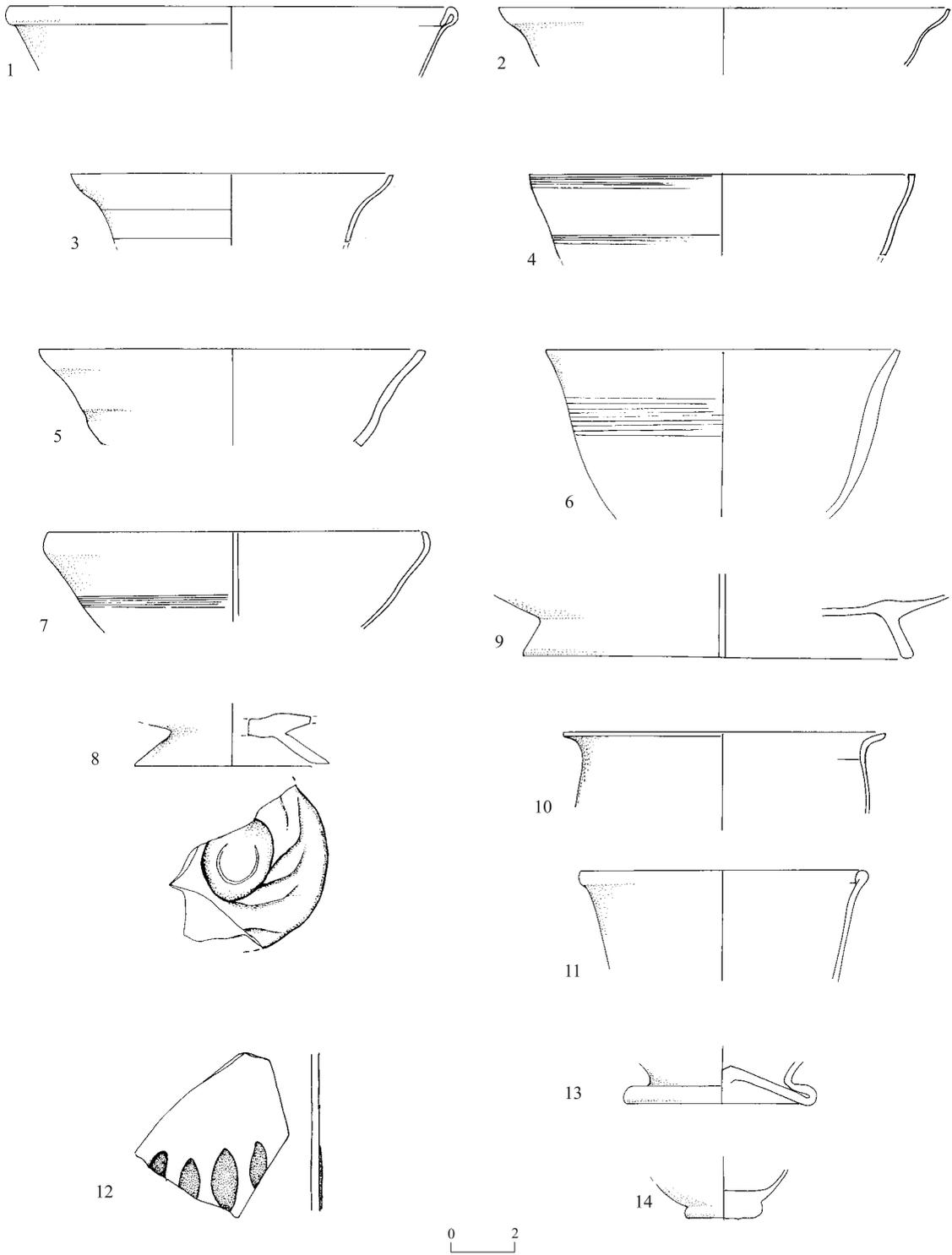


Fig. 1. Late Roman period: glass vessels from Stratum 4 and early Strata 3 and 2.

◀ Fig. 1

No.	Vessel	Stratum	Locus	Basket	Fragment	Diam. (cm)	Color and Fabric	Weathering
1	Bowl	4	309	1301	Part of rim and body	14.0	Light greenish	Milky silver iridescence, lime deposit
2	Bowl	3	206	1231	Small part of rim and body	14.0	Colorless with greenish tinge	Dull, silver iridescence, pitting
3	Bowl	2	262	1640	Small part of rim and body	10.0	Light greenish blue	Milky-rusty crust, iridescence, severe pitting
4	Bowl	2	262	1640	Small part of rim and body	12.0	Colorless	Blackish patches, silver iridescence, pitting, bubbly
5	Bowl	3	206	1231	Small part of rim and body	12.0 Th 0.3	Colorless	Silver-blackish crust, iridescent film, pitting
6	Bowl	4	309	1303	Rim and body	11.0 Th 0.5	Light greenish	Blackish silver patches, iridescent film, pitting
7	Bowl	3	206	1231	Rim and body	~11.5	Light greenish blue	Dull, blackish patches, silver iridescence, pitting
8	Bowl	2	407	1132	Small part of base and body	~12.0	Deep bluish green	Silver crust, iridescent film
9	Bowl	2	262	1640	Part of base and body	6.0 Pontil mark 1.7	Deep greenish	Shiny, milky silver patches
10	Bowl/ Beaker	2	407	1132	Part of rim and body	10.0	Greenish	Milky crust, iridescence, pitting
11	Beaker	4	309	1301	Part of rim and body	9.0	Greenish blue	Dull, milky lime patches, silver iridescence
12	Beaker	3	306	1254	Small part of body	Th. 0.2	Colorless with greenish tinge, deep blue blobs	Dull, blackish patches, pitting
13	Beaker	4	309	1301	Part of base and body	5.7 Pontil mark 2.0	Deep greenish	Shiny, lime and sand crust
14	Beaker	4	309	1303	Part of base and body	3.8 Pontil mark 1.7	Greenish blue	Dull, silver crust, iridescent film

Rim Nos. 2 and 3 have a thin wall and an S-shaped curve on the upper part of the wall and the rim. Bowls similar in shape to No. 2 but with an additional decoration<sup>3</sup> were found at Ḥammāt Gader (Cohen 1997:398, Pl. I:6, 7) and bowls of this subtype were found in Jordan at Amman, Umm Qeis, Aīn ez-Zāra and Jerash (Dussart 1998:61–62, Type BI. 221, Pl. 4:22–30, with further references from the western Roman provinces), and are dated mainly to the fourth and early fifth centuries.

Number 4 has a thicker, slanting wall, a slightly flaring rim and two bands of incised lines—one on the rim's edge and another further down the wall. A similar bowl dated to the Late Roman period was found in Burial Cave 1 at Khirbat el-Shubeika (Gorin-Rosen 2002:291–292, Pl. 2:13, with references therein to similar bowls from Jalame).

Number 5 has a thick, wavy wall decorated with two bands of incisions—one below the rim and the other further down the wall. Similar thick-walled bowls with grooved decoration on the body were recovered from the Youth Hostel site in Bet She'an (Katsnelson 2014b:24\*–28\*, Fig. 2:1, 2 with further references therein).

Better preserved No. 6 has a flaring rim, a thick wall and a wide band of incisions below the rim.

An incurving rim, thin wall and one band of incisions on the body distinguish No. 7 from all the vessels above. Bowls with similar profiles were found at Meẓad Tamar (Erdmann 1977:106, 128, Pl. 5:436, 439); one of them (No. 436) is decorated with a band of incisions and leaf decoration.

*Bowls with Solid Ring Base* ('Pad Base'; Fig. 1:8, 9).— These bowls were made by applying a glass trail to the bottom of the vessel, creating a solid ring base. Number 8 is a small base of uneven thickness with tooling marks, and No. 9 represents a rather large bowl with an even, solid ring base of fine workmanship. Eight bases of both types were found at Ḥammāt Gader in the past, made of green or dark green glass (Cohen 1997:402, Pl. II:9–12). A similar base was found in Banias Area F, in a complex dated to the fourth–early fifth centuries CE (Gorin-Rosen and Jackson-Tal 2008:143–146, Fig. 9.2:15) and at Bab el-Hawa (Hartal 2005:230, Fig. 160:6, 7). Such bases were also found in the factory dump at Jalame (Weinberg and Goldstein 1988:58, Fig. 4-20, with references therein to Ḥanita, Nahariyya and Khirbat Shema'), and at Ḥorbat 'Uza (Gorin-Rosen 2009:88, Fig. 2.52:14, 15, with further references therein). Pad bases like No. 8 were recovered from Burial Cave 1 at Khirbat el-Shubeika, dated to the fourth–early fifth centuries (Gorin-Rosen 2002:292–294, Fig. 3:17–19, with further references therein).

Based on the considerable number of vessels that have been found in many salvage excavations throughout the country and the published material, it is clear that this technique

<sup>3</sup> Cohen described these bowls as "conical bowls with wall indents". Their shape and the external cuts or grooves are common and have been found at many sites in Israel, but the indented decoration is rare.

was widely used by glassmakers in the workshops in Syria-Palestine, as well as in Egypt during the Late Roman period (Gorin-Rosen 2002:292).

*Bowl/Beaker with Flaring Short Shelf-Like Rim* (Fig. 1:10).— This small rim fragment may belong to a bowl or a beaker. A bowl with a similar rim was found in Banias Area F, in a complex dated to the fourth–early fifth centuries (Gorin-Rosen and Jackson-Tal 2008:145, Fig. 9.2:10, with further reference therein to Ḥanita).

A tall beaker with a similar rim, although almost half its diameter, was recovered at Ḥammat Gader (Cohen 1997:409–410, Pl. III:12). Its pushed-in tubular base is similar in shape and size to No. 13, dated by parallels to the second half of the fourth or the fifth century. A similar beaker was found at Bab el-Hawa (Hartal 2005:231–233, Fig. 161:2) and a beaker with a similar rim was found at ‘Iraq el-Amir, dated by parallels to the mid-third and fourth centuries (Dussart 1991:302, Fig. 38:33, with further references therein).

*Vessel with Infolded Rim* (Fig. 1:11).— The wide conical shape of this vessel is usually indicative of beakers. The infolded rim is very delicate, almost rounded. Beakers with infolded rims are rare. Two examples found at ‘Iraq el-Amir show a wide inward fold (Dussart 1991:302, Fig. 38:30, 31); they were found with other fourth-century glass vessels.

*Conical Beaker* (Fig. 1:12).— This is a small wall fragment of a conical beaker, characterized by its thickness, fabric and decoration. This type has a thick wall and a thickened conical base, usually with a knocked-off rim, decorated with horizontal wheel-cut bands or incisions, as well as applied dark-colored blobs, mainly of cobalt blue, dark blue or turquoise. Although there is no exact parallel in Cohen’s Ḥammat Gader report, there is a thin undecorated conical beaker, as well as bowls decorated with a combination of large blobs alternating with clusters of blobs (Cohen 1997:408, Pl. III:6 [bowl]; Pl. III:7 [conical beaker]). Conical beakers of this type were made in the Jalame glass factory, dated to the second half of the fourth century, some of these with similar decorations (Weinberg and Goldstein 1988:87–91, Fig. 4–46:405–407, and see therein a discussion of the technique and parallels). A fragment with turquoise blobs was found at the Youth Hostel site in Bet She’an, (Katsnelson 2014b:28\*, Fig. 2:6 with further references therein to Banias). Another fragment was found among the production remains at Khirbat el-Ni‘ana, dated to the fourth–early fifth centuries (Gorin-Rosen and Katsnelson 2007:90–93, Fig. 8:1, 2, with further discussion and references therein).

*Vessel with Pushed-In Tubular Base* (Fig. 1:13).— This base type was present on a variety of vessels, including bowls, beakers and jugs. At Ḥammat Gader, they were described as “cups with indented base” (Cohen 1997:409–410, Pl. III:12, 13). The base bears similarities to beakers found at Bab el-Hawa, dated to the mid-fourth and fifth centuries (Hartal 2005:224, 231–233, Fig. 161:1, 2, 6). This type is widely distributed, e.g., at the Youth Hostel site in Bet She’an (Katsnelson 2014b:31\*, Fig. 4:4 with further references therein) and at

Akhziv, dated to the fourth century (Syon 1998:95, Fig. 15:11). Such bases were found in Jordan, e.g., beakers from Jerash, dated to the early Byzantine period (324–491 CE; Meyer 1988:188–189, Fig. 5:V, Y, Z, with further references therein).

*Beaker with Solid Base* (Fig. 1:14).— This is one of the most common types in Galilee during the fourth century, widely distributed in other regions as well (see references below). It features a flaring rounded rim, a cylindrical body, a flat solid base and a wound trail applied below the rim.

In Cohen's report of Ḥammāt Gader, 50 bases of this type are noted, named after Jalame's "cups with solid-base" (Cohen 1997:410, Pl. III:15–17). Fragments of this type were unearthed in large quantities in the factory dump at Jalame, leading the excavators to suggest that they were produced there (Weinberg and Goldstein 1988:60–62, Fig. 4-23, with further discussion and references therein). Beakers of this type were found in almost all the burial caves and settlements excavated in Israel including Galilee, during the last few years. Such beakers were found at Ḥorbat 'Uẓa, dated to the fourth century (Gorin-Rosen 2009:88–89, Fig. 2.53:1–9, with further discussion and references to western Galilee and other regions: Loḥame Ha-Geta'ot, Akhziv, 'Akko, Giv'at Yasaf, Khirbat el-Shubeika, the village of Castra on the southern slope of Mt. Carmel, Caesarea, Samaria, Jerusalem and Ashqelon) and at the Youth Hostel site in Bet She'an (Katsnelson 2014b:28\*, 52\*, Figs. 2:10, 11; 14:6). It seems that the beaker with a solid base is one of the most diagnostic vessels of the fourth century.

## THE BYZANTINE–UMAYYAD PERIODS

### Stratum 3

Glass vessels were unearthed in three rooms in Stratum 3. The majority (Fig. 2:1–3, 5, 6, 9) was found in L306—an earth fill rich in pottery and coins; the latest coins from this locus belong to Justinian I (548–565 CE; see Berman and Bijovsky, this volume: Cat. Nos. 17\*, 18), providing a sixth century date to the complex. A few vessels (Fig. 2:4, 8, 11) came from nearby Room 312/313, which yielded pottery dated to the sixth and early seventh centuries (see Hartal, this volume), a coin dated to the reign of Justin II (569/570 CE) and three Umayyad coins (see Berman and Bijovsky, this volume: Cat. Nos. 19\*, 26\*, 27, 39). Two additional glass finds (Fig. 2:7, 10) retrieved from L328, were dated by a coin to the Umayyad period (see Berman and Bijovsky, this volume: Cat. No. 22).

### *Wineglasses*

*Wineglasses with Hollow Ring Base* (Fig. 2:1, 2).— Two subtypes represent the most common wineglasses of the Byzantine and early Umayyad periods: No. 1 with a solid beaded stem and No. 2 with a hollow beaded stem. Bases like No. 1 were not reported from Ḥammāt Gader, while one example similar to No. 2 is illustrated and 50 more are mentioned in the text (Cohen 1997:407, Pl. III:5).

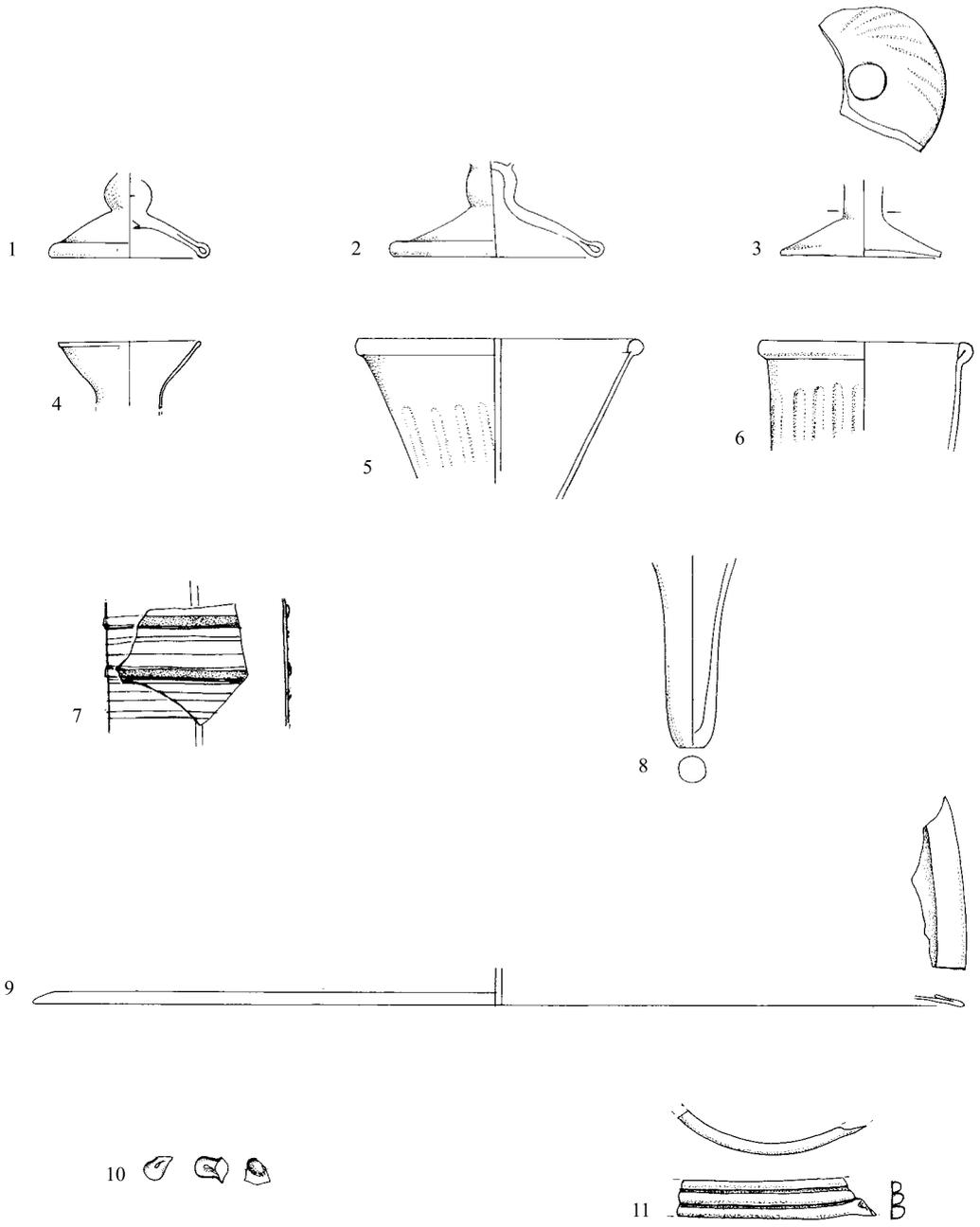


Fig. 2. Byzantine period: glass vessels from Stratum 3.

◀ Fig. 2

No.	Vessel	Locus	Basket	Fragment	Diam. (cm)	Color and Fabric	Weathering
1	Wineglass	306	1218	Part of base and stem	4.5 Pontil mark 1.5	Bluish green	Silver iridescence, pitting, sand deposit
2	Wineglass	306	1165	Part of base and stem	5.8 Pontil mark 1.0	Bluish green	Dull, silver iridescence, sand deposits
3	Wineglass	306	1165	Part of base and stem	4.5 Pontil mark 1.2	Bluish green	Shiny, iridescence, pitting, sand deposits, bubbly at base
4	Bottle	313	1476	Part of rim, mouth and neck	4.0	Colorless with tinge	Milky lime crust, iridescence
5	Bottle	306	1218	Small part of rim and neck; mended	~ 8.0	Greenish with yellow strikes	Shiny milky yellow patches, bubbly
6	Bottle	306	1254	Rim and neck; mended	6.0	Light greenish blue, shiny	Milky lime crust, iridescence
7	Bottle	328	1691	Small part of neck		Colorless; deep greenish yellow trails	Iridescence
8	Oil lamp	312	1453	Stem, pontil mark 1.0	1.5	Bluish green	Milky yellow patches, silver iridescence
9	Windowpane	306	1218	Small part of rim and body	~ 26.0	Colorless with bluish tinge	Iridescence, black impurities, pitting, lime deposit
10	Vessel	328	1691	Feet		Opaque red with black strike	Iridescence, pitting at top
11	Bracelet	313	1476	Small part		Transparent yellowish brown	Silver patches, iridescence, pitting

Wineglasses with a beaded stem were very common in the Jerusalem region during the late sixth and seventh centuries CE. Examples were found at Khirbat Ṭabaliya (Gorin-Rosen 2000:86\*, with further references therein to Ras Abu Ma'aruf, Siyar el-Ghanam and the City of David). Wineglasses like No. 2 were found in the Bet She'an theater pottery workshop (Winter 2011:346, Fig. 12.1:5, 6, with further references therein).

*Wineglass with Solid Base* (Fig. 2:3).— This type was also very common during the late Byzantine and Umayyad periods. More than 50 such bases were found at Ḥammāt Gader

(Cohen 1997:405–406, Pl. III:2, 3). Contemporaneous bases of this type were found at Bet Yerah (Khirbat al-Karak; Delougaz and Haines 1960: Pl. 60:16–18), Hippos-Sussita (Burdajewicz 2011:25–26, Fig. 2B:15–25), Kursi (Barag 1983:37–38, 62–63, Fig. 9:9), Tiberias (Lester 2004a:173–174, Fig. 7.2), in Umayyad complexes at Bet She'an (Hadad 2005:28, Pl. 21:402–409; Winter 2011:346, Fig. 12.1:7–9; Katsnelson 2014b:33\*, Fig. 6:3) and in the burial caves at Khirbat el-Shubeika (Gorin-Rosen 2002:301, Fig. 7:55 [Cave 1]; 314, 316, Fig. 7:36 [Cave 2]). Others are known from Umayyad contexts at Busra (Wilson and Sa'd 1984:75, 146–147: Nos. 556, 557, 559, 560) and Jerash (Meyer 1988:199–201, 211–212, Figs. 9:A–C; 11:V, X–Z).

### *Bottles*

*Bottle with Short Delicate Funnel-Mouth* (Fig. 2:4).— This rim type was very common during the Late Roman period, continuing into the Byzantine and Umayyad periods. The differences are mainly in the fabric and workmanship, as well as in the context of the finds. In some cases, the bottles are difficult to sort and date, especially when they come from burial caves used for a very long time, as at Khirbat el-Shubeika (Gorin-Rosen 2002:296, 298).

Complete bottles with similar rims were found at Ḥammāt Gader and are dated to the Late Roman period. They have a short funnel-mouth, a short cylindrical neck and a rounded or squat body, or a long plain or decorated neck (Cohen 1997:419, 424 Pl. VI:1–4). A bottle with a similar rim was found at Bab el-Hawa (Hartal 2005:224, 231–233, Fig. 161:10, with further references therein). A complete bottle with a similar rim came from the baths at Pella, dated to the sixth and early seventh centuries CE (Smith and Day 1989: Pl. 52:3).

*Mold-Blown Bottles with Infolded Rims* (Fig. 2:5, 6).— Bottle No. 5 has a wide funnel-mouth while No. 6 has a cylindrical neck with an upright rim. Both fragments are decorated with vertical mold-blown ribbing—No. 5 with shallow ribs and No. 6 with pronounced ribs. Both shapes were very common during the Byzantine and Umayyad periods and both plain and decorated specimens were distributed geographically throughout a large area and at a wide range of sites. Versions of bottles with a funnel-mouth like No. 5 were found at Ḥammāt Gader (Cohen 1997:424–425, Pl. VI:17–20) and bottles with similar mold-blown ribbing were found at Bab el-Hawa, dated to the fourth–fifth centuries (Hartal 2005:224, 231–233, Fig. 163:1–3). Plain bottles with rims similar to No. 6 were found at Bet Yerah (Delougaz and Haines 1960: Pl. 59:8, 13) and at Bet She'an, where similar decorated specimens were also recovered from Umayyad contexts (Hadad 2005:27, Pl. 16:317, 319–320; Winter 2011: Fig. 12.1:16).

*Bottle with Wound-Trail Decoration on Neck* (Fig. 2:7).— This bottle features a combination of thick and thin trails wound around a thin-walled neck. Bottles of this type were very common during the late Byzantine and Umayyad periods. Bottles with similar necks were found in the late Byzantine church at Bet Yerah (Delougaz and Haines 1960: Pl. 59:3) and

the North-West Church at Hippos-Sussita (Burdajewicz 2006: Fig. 1:3, 4) and in Umayyad complexes at Bet She'an (Hadad 2005:24–25, Pls. 12:223–231; 13:243–247; Winter 2011:348–349, Fig. 12.1:18–20).

### *Oil Lamp*

*Bowl-Shaped Oil Lamp with Hollow Stem* (Fig. 2:8).— This is the most common glass lamp during the Byzantine and Umayyad periods. A few lamps of this type, with slight differences, were found in the previous excavations at Ḥammat Gader (Cohen 1997:403–404, Pl. II:17) and at Hippos-Sussita (Burdajewicz 2011:25–26, Fig. 2B:32–35, 38). Such oil lamps were found at Bet She'an in Umayyad contexts (Hadad 2005:29, Pl. 22:436–440, with further references therein to Pella, Busra, Jerash and Beirut). It is noteworthy that only a few fragments of this type were unearthed in this excavation, although it is usually very common in contemporary assemblages. This is the only specimen from Stratum 3, while most of the stems were found in Stratum 2.

### *Windowpane*

*Windowpane* (Fig. 2:9).— This flat, outfolded rim probably belongs to a round windowpane of the Bull's Eye type. Two similar windowpanes were identified at Ḥammat Gader, based on comparisons to fragments found at Jerash (Cohen 1997:398, Pl. I:2, 3, and see further references therein). Fragments of windowpanes were also found at Mount Berenice, Tiberias (Amitai-Preiss 2004:183–184, Fig. 11.3:28) and nearby, at the foot of Mount Berenice (Hadad 2008:175, Pl. 5.8:132–134). This windowpane type was found in Umayyad contexts at Bet She'an (Hadad 2005:30, Pl. 24:477, 478, with further references therein to Jerash and Beirut) and similar windowpanes came from Jerash, dated to the late Byzantine–Early Umayyad period (Meyer 1988:204, 207, 209, Fig. 11:Q, R, S, with further discussion and references therein).

Many fragments of round windowpanes, usually found together with rectangular panes, were found throughout Israel. They appeared in Byzantine and Umayyad contexts, mainly in public and religious buildings.

### *Miscellanea*

*Vessel with Small Feet* (Fig. 2:10).— This small, tooled foot made of an opaque red glass trail probably belonged to a small decorated vessel similar in shape to one found in the baths of Ḥammat Gader (Cohen 1997:411, Pl. IV:3). The complete vessel is a small cup with a cylindrical body decorated with a thick red zigzag thread and five small feet applied to the flat base. Cohen noted that they found no parallel for this type.<sup>4</sup> The use of opaque red glass

<sup>4</sup> The only resemblance she noted was to a Late Roman flask in the Newark Museum Collection with feet pinched from the body. The vessels from Ḥammat Gader are not at all related to this flask, which is much earlier, and of a different tradition.

trails and blobs to decorate vessels point to a late Byzantine and Umayyad tradition. This dating is also supported by the shape of the complete vessel, called ‘beaker/bowl shaped vessel with incurving rim’, typical of the late Byzantine–Umayyad period, and by the bluish color of the vessel.

*Ribbed Bracelet* (Fig. 2:11).— This item is characterized by three horizontal ribs made of dark yellow almost brown translucent glass. Small remains of a flattened, tooled part, possibly remains of a seam, were preserved on the right side of the fragment. This type of bracelet is uncommon, and those that have been found differ in the number of ribs and their section. Spaer identified it as Type B4, tooled or molded, monochrome bracelet with horizontal ribbing, mainly seamed (Spaer 1988:55–57, Fig. 6). A complete bracelet with five horizontal ribs, made of purple glass, was found in Tomb 3 at Kursi, dated to the sixth–early seventh centuries (Katsnelson 2014a:199, 204, Fig. 3:4, with further discussion and references therein to Kafr Kama, Kabul, the Jerusalem area and Syria).

## Stratum 2

The largest group of glass vessels was uncovered in Stratum 2, represented in this report by 28 vessels of various types. Hartal suggested that the Stratum 3 structure was re-used in Stratum 2 and was probably destroyed in the 749 CE earthquake (see Hartal, this volume). He suggested dating Stratum 2 to the Umayyad period.

The largest concentration of glass in this stratum was found in Well 426, in the middle of stone Floor 424, from which nine vessels are presented. Another large group of vessels, of which seven are presented, was unearthed in a fill (L241) ascribed to Stratum 2. Figures 3 and 4 illustrate the vessels from this stratum, including bowls/beakers/oil lamps, various bottles and various decoration techniques.

### *Bowls/Beakers/Oil Lamps*

Fragments of at least four cylindrical vessels with incurving rims are presented below (Fig. 3:1–3, 5). Of these, three are plain; No. 2 is decorated with a fused-in trail on the rim’s edge, and decorated fragment No. 4, with its horizontal interior fold and pinched decoration on the exterior, could be of the same type. Together they form a group dated mainly to the late Byzantine and Early Islamic periods (see further discussion in Gorin-Rosen 2010:215, 218; 2016:46). It is not clear whether these vessels should be identified as bowls or beakers; we assume that some were used as drinking vessels, while others were used as lamps.

Fragment Nos. 6 and 7 may also belong to bowls or beakers, and as in the case above, they may have been used as oil lamps. The only vessel we can confidently attribute to the oil-lamp group is No. 8, with an outfolded rim and three handles. In this case the handle is of a purple hue.

*Beakers/Bowls with Incurving Rim* (Fig. 3:1, 2).— This type has a rounded incurving rim, usually slightly thicker than the wall, a cylindrical or hemispherical body and a concave or flat base. It appeared at the end of the Byzantine period and became one of the most common Umayyad glass vessels (Gorin-Rosen 2016:46–47). The bowls are often decorated in various techniques, mainly with applied horizontal fused-in trails or rows of horizontal pinching on the body. Examples of such plain and decorated vessels were found in Umayyad contexts at Bet She'an (Hadad 2005:21, Pls. 1:14–19, 25, 26 [plain]; 4:80, 81 [decorated]). A complete beaker/deep bowl was also uncovered in the first excavations at Bet She'an (Fitzgerald 1931: Pl. 39:32).

Number 1 is small and plain, while No. 2 is larger, with a thicker wall and an applied fused-in trail decoration on the rim's edge. Both subtypes are among those cited from Bet She'an. Beakers and bowls of this type were found in most of the excavated areas at Ramla and are dated mainly to the eighth century (Gorin-Rosen 2010:215–218, Pl. 10.1:1; 2016:46–47, Fig. 2:8–13, with further references therein to other sites at Ramla, Caesarea, Khirbat al-Karak, Ashdod, and sites around Jerusalem including Khirbat 'Adasa). Beakers of this type were found at Pella, dated to the Abbasid period (O'Hea 1993:222, Fig. 25:1, 2, 4, 5).

*Bowl with Thick Flattened, Slightly Incurving Rim* (Fig. 3:3).— This bowl is probably wide and shallow, with thick walls and a flattened rim. A similar bowl with a thick wall was found in an Umayyad context at Bet She'an (Hadad 2005:21, Pl. 1:12, with further references therein to Khirbat Siyar al-Ghanam and to the Umayyad stratum at Palmyra). An incurving flattened rim was also found in an Umayyad context at Jerash (Meyer 1988:213–214, Fig. 13:F).

*Beaker/Bowl/Oil Lamp with Horizontal Hollow Tube on Interior Wall and Pinched Decoration on the Exterior* (Fig. 3:4).— This fragment with remains of horizontal pinched decoration on the exterior and an interior pinched tube, probably belonged to a vessel similar to Nos. 1, 2 above. The combination of pinching and an inner fold on the same vessel is rare. Pinched decoration on bowls is more common than the interior tube; see for example those found in Umayyad contexts at Bet She'an (Hadad 2005:21, Pl. 4:78, 80, 81, with further references therein to Khirbat Siyar el-Ghanam and Burial Cave 1 at Khirbat el-Shubeika, dated to the Umayyad period). A vessel with an interior tube and an applied vertical wavy trail of contrasting color was found at Ramla, assigned to the Umayyad period (Gorin-Rosen 2010:219–220, Pl. 10.2:3a). A plain vessel with a similar interior tube was found at Ashdod, dated to the late Byzantine period, and identified as a lamp (Barag 1967:36–37, Fig. 16:14).

*Beaker/Bowl/Wineglass with Thin Upward Rounded Rim* (Fig. 3:5).— The thin wall and cylindrical shape hint that it belongs to a drinking vessel. A similar fragment described as a beaker was found in the Byzantine shops of Bet She'an (Agady et al. 2002:484, Fig.

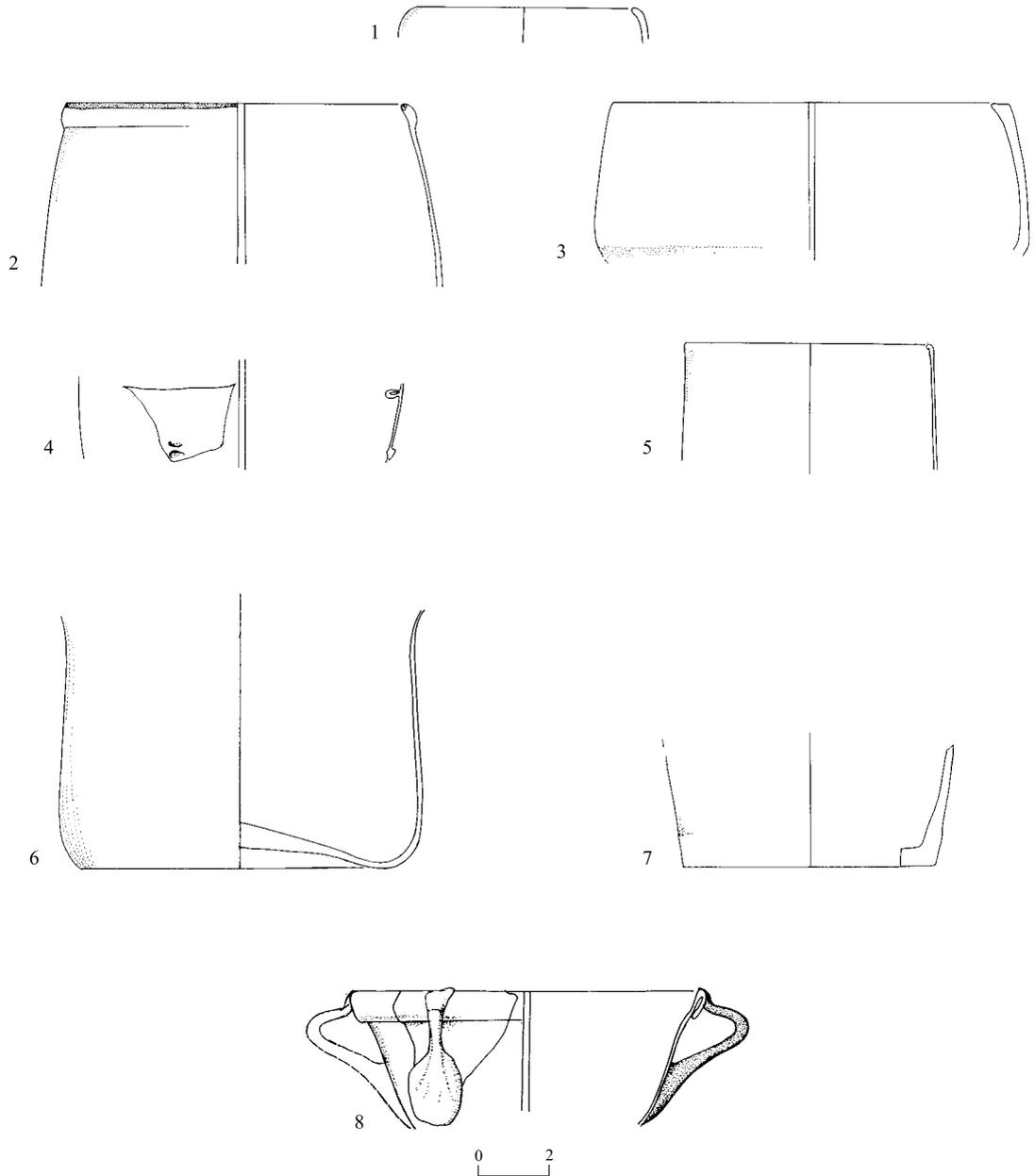


Fig. 3. Byzantine period: glass vessels from Stratum 2.

18). A few additional small cylindrical bowls came from Umayyad contexts, including one decorated with two horizontal rows of pinching around the bottom (Hadad 2005:21, Pl. 1:14–16, 23–26). Several such rims were found in an Umayyad assemblage at Ramla (Gorin-Rosen 2016:46–47, Fig. 2:8–13).

◀ Fig. 3

No.	Vessel	Locus	Basket	Fragment	Diam. (cm)	Color and Fabric	Weathering
1	Bowl	263	1688	Small part of rim and body	6.0	Deep turquoise, translucent	Iridescence
2	Bowl	426	1709	Part of rim and body	9.5	Greenish, brown-yellowish trail	Shiny, small blackish patches, iridescence
3	Bowl	426	1709	Part of rim and body	~ 11.0	Greenish	Milky enamel-like crust, iridescence
4	Bowl/ lamp	241	1601	Small part of body (another small pinched body of light greenish-blue color was found in the same basket)	~ 9.0	Greenish	Sand deposits
5	Beaker	426	1709	Part of rim and body	7.0	Almost colorless with greenish blue tinge	Iridescence, pitting, bubbly
6	Bowl/ lamp	426	1650	Base, body, and small part of mouth; mended, many parts Pontil scar 2.0	Rim ~ 10.0 Base 8.5	Light greenish	Milky yellow patches, silver iridescence, severe pitting
7	Bowl/ beaker	426	1650	Part of base and body	7.0	Deep olive-green	Enamel-like grayish-milky and black crust, iridescent film, severe pitting
8	Bowl/ lamp	426	1650	Handle, body and small part of rim	~ 11.0	Colorless with bluish tinge, purple handle, partly colorless at base	Shiny, delicate fabric, sand deposits

*Beaker/Bowl/Oil Lamp with Vertical Walls Flaring toward the Rim and Concave Base* (Fig. 3:6).— Similar deep vessels were found at Migdal within an Umayyad assemblage (Gorin-Rosen 2001:27\*–29\*, Fig. 1:2, 4).

*Beaker/Bowl/Oil Lamp with Thickened Flattened Base* (Fig. 3:7).— This vessel, probably cylindrical, has characteristic tapering walls that thicken at the junction with a thick flat base. Its complete shape is uncertain but such bases were found in Early Islamic contexts, e.g., at Bet She'an, and were dated to the Abbasid period (Katsnelson 2014b:40\*, Fig. 8:3, 6).

*Bowl-Shaped Oil Lamp with Flaring Outfolded Rim and Three Handles* (Fig. 3:8).— A short handle preserved on the rim assists in identifying this fragment as a suspended oil lamp. The handle is made of purple glass, in contrast with the greenish blue color of the bowl. Lighting devices of this type are known from the late Byzantine–Early Islamic periods, e.g., at the North-West Church in Hippos-Sussita (Burdajewicz 2006:130–131, Fig. 1:23a, 23b), the Umayyad period at Bet She’an (Hadad 2005:28–29, Pl. 22:413–418; Katsnelson 2014b:33\*, Fig. 6:1) and in an Umayyad assemblage at Ramla (Gorin-Rosen 2010:221, Pl. 10.1:11).

### *Bottles*

Bottles dominate the glass assemblage from this excavation. The same general phenomenon characterized the previous excavation at Ḥammāt Gader, as noted: “it appears that most of the glass vessels found in the excavation are closed vessels, such as bottles, juglets, amphoriskoi, tubes and jars” (Cohen 1997:396). The bottles are mainly of well-known types, and they all seem to be local products.

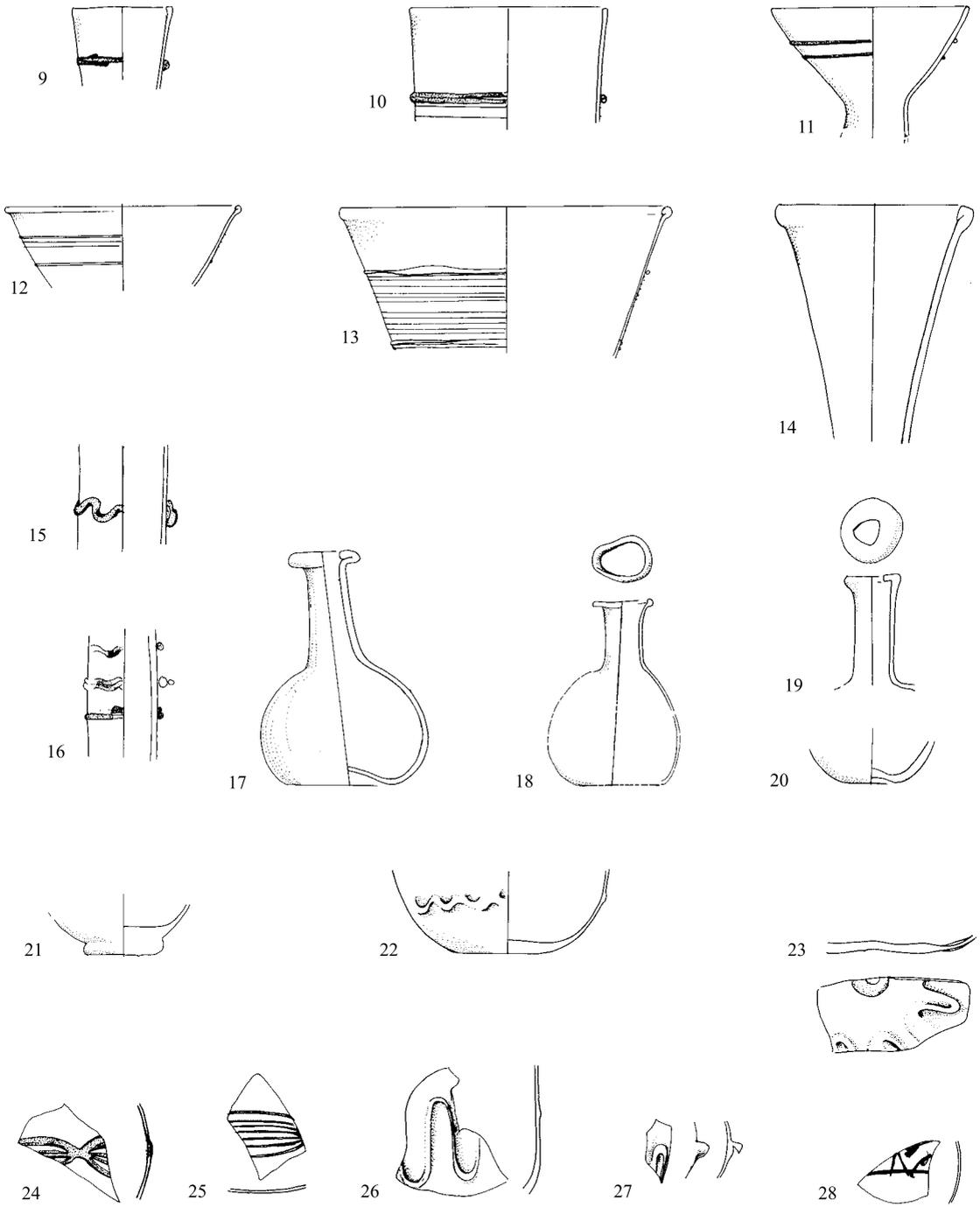
*Bottles with Cylindrical Mouth and Rounded Rim Decorated with Horizontal Trail below the Rim* (Fig. 4:9, 10).— These represent a very common type, dated to the Byzantine and Umayyad periods. They differ in the width of the rim: No. 9 has a narrow rim and No. 10 has a wide one. Bottles with rims similar to No. 9 were recovered from Umayyad contexts at Bet She’an (Hadad 2005: Pl. 13:250, 262–266 with additional wavy trails below the upper horizontal trail). A similar fragment was uncovered at Pella, in a context dated to the first quarter of the eighth century (Smith and Day 1989: Pl. 54:5).

*Bottle with Rounded Rim, Funnel-Mouth and Wound Trails around the Mouth* (Fig. 4:11).— In the previous report on Ḥammāt Gader, bottles with a similar rim, decorated with one or a few trails, were identified as “simple rim decorated with horizontal threads” (Cohen 1997:424, Pl. VI:9, 12, 13). Bottles of this type were found in Umayyad contexts at Bet She’an (Hadad 2005: Pl. 12:232–234).

*Bottles with Infolded Rim, Funnel-Mouth and Wound Trails around the Mouth* (Fig. 4:12, 13).— These two bottles differ in size and the number of wound trails around the mouth. Number 12 represents a medium-sized bottle, while No. 13 is a large specimen. Examples of both sizes were previously published from Ḥammāt Gader (Cohen 1997:425, Pl. VII:4, 5).

*Bottle with Infolded Rim and Elongated Funnel-Mouth* (Fig. 4:14).— This type was common during the late Byzantine and Umayyad periods. Similar bottles were found for example at Bet She’an (Peleg 1994:150–151, Fig. 15:6, 7).

*Bottles with Cylindrical Necks Decorated with Thin Wavy Trails* (Fig. 4:15, 16).— Wavy trail decoration, mainly on bottle necks, was common during the Umayyad period, the trails



0 2

Fig. 4. Late Byzantine-Umayyad periods: glass vessels from Stratum 2.

◀ Fig. 4

No.	Vessel	Locus	Basket	Fragment	Diam. (cm)	Color and Fabric	Weathering
9	Bottle	241	1579	Rim and neck	3.0	Colorless with greenish blue tinge, turquoise trail	Iridescence, sand deposits
10	Bottle	241	1579	Rim and neck	6.0	Greenish blue Brownish purple(?) trail and remains of two greenish blue trails	Iridescent film, lime deposits, sand deposits, bubbly
11	Bottle	422	1458	Part of rim, mouth and neck; mended	6.0	Colorless, turquoise trail	Shiny, silver iridescence, black impurities, bubbly
12	Bottle	426	1709	Two fragments: rim and neck, mended	7.0	Light greenish	Iridescent film, black impurities, lime deposits, bubbly
13	Bottle	304	1103	Part of rim and mouth	10.0	Greenish, yellowish tinge at rim	Iridescence, black impurities
14	Bottle	423	1559	Rim and neck	6.0	Greenish blue	Yellowish silver patches, iridescent film
15	Bottle	322	1450	Small part of neck	2.5	Colorless, turquoise trail with red strikes	Silver iridescence, pitting
16	Bottle	426	1709	Small part of neck	2.0	Light greenish blue, deep purple trail	Iridescent film
17	Bottle	361	1723	Complete bottle, small piece missing at rim	H 7.0 Rim 2.2 Base 3.3	Greenish blue	Silver iridescence, lime deposits, pitting, elongated vertical bubbles on neck and around shoulder
18	Bottle	107	1309	Two parts: most of body and base missing; mended	Rim 1.8 Base ~2.5	Colorless with bluish green tinge	Silver-milky iridescence, severe pitting, bubbly at rim
19	Bottle	423	1559	Rim, neck and part of shoulder	1.8	Greenish blue with yellow strikes	Dull, milky crust, iridescence
20	Bottle	241	1579	Base and part of body	1.7	Almost colorless, light greenish blue	Dull, iridescence, pitting, sand deposits, bubbly
21	Bottle	426	1709	Base and part of body	2.2 Pontil scar 1.8	Greenish blue	Silver iridescence, sand deposits, bubbly
22	Bottle	322	1450	Two fragments: base and part of body	2.8	Colorless with bluish tinge	Iridescence, soil deposits
23	Beaker/ bottle	422	1444	Base pontil mark 1.2		Greenish blue	Dull, iridescence, sand deposits

Fig. 4. (cont.).

No.	Vessel	Locus	Basket	Fragment	Diam. (cm)	Color and Fabric	Weathering
24	Bottle	403	1043	Small part of body		Colorless, reddish-brown opaque trail	Shiny, delicate fabric
25	Bottle	241	1579	Part of body		Colorless with bluish tinge, turquoise trail	Iridescence, sand deposits
26	Bottle	241	1579	Small part of body		Colorless with bluish tinge	Shiny, fabric, iridescence, sand deposits
27	Vessel	241	1601	Small part of body		Colorless with bluish tinge	Delicate fabric, sand deposits
28	Vessel	260	1409	Small part of body		Colorless, yellowish-brown paint	Delicate fabric, silver iridescence on int.

differing in their thickness and density. Usually, there is a single wavy trail, like No. 15, or a combination of two or three trails, including plain and wavy trails, like No. 16. Bottles similar to No. 15 were recovered in previous excavations at Ḥammāt Gader (Cohen 1997:427, Pl. VIII:16, 17, with further references therein) and a few bottles with a combination of wavy and plain trails on the neck were found in Umayyad contexts at Bet She'an (Hadad 2005: Pl. 13:262–266; Winter 2011:349, Fig. 12.1:18).

*Bottle with Infolded, Flattened Rim, Short Neck and Globular or Squat Body* (Fig. 4:17–19).— This is the most diagnostic type of the Umayyad period in Israel. It appears in various sizes and with slight differences in the rim and the body, but the main characteristics are the same. Many bottles of this type were unearthed at the previous excavations at Ḥammāt Gader, dated to the Umayyad period (Cohen 1997:427–428, Pl. IX:1–7), at Hippos-Sussita (Burdajewicz 2006:128–129, Figs. 1:6–8; 3) as well as at Kursi, dated to the seventh century (Barag 1983:37–38, Fig. 9:4–6, with further references therein to Capernaum, Jericho, Gerasa and Amman). They were also found in Byzantine/Umayyad Strata V–IV at Tiberias (Lester 2004a: Fig. 7.7:76, 77, 79) and in Umayyad-period contexts at Bet She'an (Hadad 2005:23–24, Pls. 9:182–184; 10:185, 186; Winter 2011:348, Fig. 12.1:10–12; Katsnelson 2014b:36\*, Fig. 7:2, 3) and Ramla (Gorin-Rosen 2010:223, Pls. 10.1:13; 10.2:8).

*Bottle with Globular Body and Small Concave Base* (Fig. 4:20).— The shape of the base of this vessel appears on bottles of all sizes. Number 20 is a small bottle, probably of the type of Fig. 4:19; see, for example, bottles from Bet She'an (Winter 2011:349, Fig. 12.1:22, with further references therein) and Ramla (Gorin-Rosen 2010:226, Pl. 10.2:9–11).

*Bottle with Small Applied Disc Base* (Fig. 4:21).— This base type is less common than the preceding one. It was made by applying an additional disc to the bottom of the bottle,

creating a solid disc base. This example may belong to small Umayyad-period bottles, such as a decorated globular bottle from the Israel Museum collection, dated to the eighth century (Brosh 2003:336, No. 436).

These solid bases may belong to small bowls and beakers like those mentioned above (see Fig. 3:1–3). At Ramla, several such bases were revealed in Umayyad assemblages (Gorin-Rosen 2010:220, Pl. 10.1:7, 8, with further references therein), for example, two that were found on Marcus Street: one, complete, was found together with pottery dated to the eighth–ninth centuries, while the other, identified as an oil lamp, was found in a locus dated to the eighth or first half of the ninth century (Pollak 2007:110, 115, Figs. 6:32; 7:43).

*Bottles or Beakers with Pinched Decoration* (Fig. 4:22, 23).— Fragment No. 22 is characterized by a hemispherical shape, a flat bottom and a row of horizontal pinches on the lower part, above the bottom. It could have belonged to a bottle with a globular body, like Nos. 17–20, or to a beaker/bowl with a rounded, incurving rim, similarly decorated with one or two rows of pinches. Both types date to the Umayyad period.

Jugs and bottles with pinched decoration were found in the previous excavations at Ḥammāt Gader (Cohen 1997: Pls. IV:5, 6 [jugs]; Pl. IX:12 [bottle]), as well as in an Umayyad context at Bet She'an (Hadad 2005:24, Pl. 12:222, with further references therein). Beakers/bowls with similar decoration were found in Umayyad contexts at Bet She'an (Hadad 2005:21, Pl. 4:78–81; Winter 2011:350, Fig. 12.1:23 with further references therein; Katsnelson 2014b:35\*–36\*, Fig. 6:11, 12) and Tiberias (Lester 2004a:206, Fig. 14:171), as well as Pella, in a context dated by the excavators to the Abbasid period (O'Hea 1992:264, Figs. 16, 17). The shape of the bottom and the density of the pinching in fragment No. 22 bear more similarities to beakers than to bottles. This type is now attributed to the Umayyad period based on the finds from Bet She'an, Tiberias and other sites with well-dated Umayyad contexts.

Fragment No. 23 represents a rare example of pinches on the bottom. Although no exact parallel to this fragment has been published, it is dated to the Umayyad period based on the fabric and the decoration technique.

*Vessels with Pinched Trail Decoration* (Fig. 4:24–27).— This group of decorated vessels includes a few subtypes featuring a combination of applied trails pinched in different ways.

Number 24 has thick trails pinched together. The 'bifurcated pattern' displayed in Fig. 4:24, 25 is the more common, consisting of three or more horizontal trails, usually of a darker color than the vessel, pinched together to create a 'bifurcated' pattern. This pattern was used mainly to decorate bottles of various sizes. A small bottle decorated in this fashion was found at Ḥammāt Gader; it is of bluish glass with red-brown decoration, defined as a 'chain pattern' (Cohen 1997:428, Pl. IX:11). The applied decoration on the complete bottle is somewhat crude compared to the two fragments found in this salvage excavation.

Number 25 has five very thin trails between two thicker trails pinched together. A body fragment of a globular bottle decorated with a crude 'bifurcated pattern,' identified by Lester as 'spectacle pattern,' was found at Tiberias (2004b:59, Fig. 5.1:2). Two wall fragments with 'bifurcated' decoration, brown or reddish in color like the one from Ḥammat Gader were found in Umayyad contexts at Bet She'an (Hadad 2005:24, Pl. 14:284, 285). Another example, made of bluish green glass and decorated with purple threads, was found at Tel Bet She'an, dated to the Umayyad period (Hadad 2006:629, 632, Fig. 19.4:76).

Bottles of this type were found in tombs at el-Jish, and were initially dated to the fourth–fifth centuries (Makhoully 1939:46, Pls. 32:2f; 33:1a); Barag re-dated these tombs to the sixth century based on a comparison with the finds from the late Byzantine church at Bet Yerah (Barag 1970:64). Additional vessels with this decoration dating to the Umayyad period were found at Caesarea and Ramla (Pollak 2003:165–166, Fig. 1:12; Gorin-Rosen 2010:225, Pls. 10.1:18; 10.2:13–15, with further references therein). Bottles with 'bifurcated' decoration were found in the Jerusalem region in late Byzantine contexts (Gorin-Rosen 2000:88\*, Fig. 2:22, with further references therein to Jerusalem and to a Byzantine fill in a Roman tomb at Ashqelon).

Numbers 26 and 27 are rare examples of a single tooled and pinched trail on the body, creating a wavy pattern. Vessels decorated in the same technique were found at Bet She'an (Katsnelson 2014b:36\*, Fig. 6:10–12). A squat jar with 'trailed arcades' in the same color as the vessel was found in an Abbasid context at Pella, Area XXIX (O'Hea 1993:222, Fig. 25:6).

*Vessel with Painted 'Luster Ware' Decoration* (Fig. 4:28).— A small body fragment decorated with luster painting was found on the surface, in Stratum 2. The vessel's wall is curved and very thin and the decoration is not clearly visible but it could be the lower part of a beaker/bowl with a low horizontal line and the remains of a floral pattern above it. The fragment resembles those illustrated in Fig. 3:1, 2.

A beaker/bowl of this type decorated with luster from Ḥorbat Migdal was dated to the eighth century (Lehrer-Jacobson 1993, with further discussion therein) and another contemporaneous example comes from Ramla (Gorin-Rosen 2008:49, Color Pl. 1:6). Additional vessels with luster decoration discovered in Tiberias date to the Abbasid and Fatimid periods (Lester 2004a:207–208, Fig. 7.15:181; Hadad 2008:169, Pls. 5.2; 5.3:39), and in Ramla, where they were assigned to the Umayyad and Abbasid periods (Gorin-Rosen 2013:72\*, Fig. 1:2 with further references therein to Ramla and Caesarea).

## Stratum 1

The vessels presented below were found in the upper loci, assigned to Stratum 1. They include various bowl types (Fig. 5:1–3), wineglass or jug (Fig. 5:4), plain and decorated bottles (Fig. 5:5–13), as well as miscellaneous vessels (Fig. 5:14, 15) and a windowpane (Fig. 5:16). They date to the Early Islamic period—mainly the seventh–eighth centuries—

and are made of fabrics typical of the Umayyad period with their corresponding shapes and decorations. Some fragments could belong to the second half of the eighth century, namely post-749 CE, as they were retrieved from post-earthquake contexts, but they are still part of the Umayyad tradition and not the new styles manufactured in the ninth century. Hartal assigned Stratum 1 to the Abbasid period (see Hartal, this volume). Abbasid-period glass is recognized by its fabrics and forms and differs from the glass of the previous period. It is well-known from other sites in the region, for example, Tiberias and Bet She'an, and farther afield, from Caesarea and Ramla. This difference is also supported by the change in the composition of the glass, which influenced the colors and fabrics. Therefore, Hartal's attribution of Stratum 1 to the Abbasid period correlates with our identification of the latest glass vessels. However, based on the glass vessels, we suggest limiting the date to the end of the eighth or the early ninth century CE, and not later. As mentioned above, most of the vessels found in Stratum 1 are typical of the Umayyad tradition, which might have continued during the second half of the eighth century under the leadership of the Abbasid Caliphate.

#### *Bowls*

*Bowl with Outfolded Rim* (Fig. 5:1).— This is a wide, probably shallow bowl with a thick fold. It bears similarities to Late Roman and early Byzantine forms, with some differences in workmanship and fabric. The bowl's size, shape, angle and fabric date it to the late Byzantine–Early Umayyad period, representing the continuity of earlier traditions into the new Islamic world. However, in the Umayyad period, it is less common and represents the latest appearance of the type. Two shallow bowls with outfolded hollow rims were found in late Umayyad contexts at Bet She'an (Hadad 2005:21, Pl. 3:63, 64, 69–71), and another bowl, from the Umayyad pottery workshop there (Winter 2011:346, Fig. 12:1, with further references therein to Bet She'an and Bet She'arim). Two bowls with flaring outfolded rims were found at Tiberias (Hadad 2008:167, Fig. 5.3:26, 28), where few of the vessels were given a general assignation to the Umayyad period and the remainder were attributed to the Abbasid–Fatimid periods. Additional bowls with outfolded rims, slightly differing in shape and size, were found in Umayyad assemblages at Ramla (Gorin-Rosen 2016:44, Fig. 1:3, with further references to other sites at Ramla and at Khirbat el-Thahiriya).

*Beakers/Bowls with Incurving Rim* (Fig. 5:2, 3).— For this type of vessel, see discussion in Stratum 2 (Fig. 3:1, 2). Additional undecorated subtypes were found in Stratum 1.

#### *Wineglass*

*Wineglass or Jug with Solid Foot* (Fig. 5:4).— This vessel is characterized by its applied foot-shaped solid base showing remains of the tooling and the vertical pinched decoration on the lower part of the body. This type of foot was usually applied to Umayyad-period wineglasses (see above, Fig. 2:3). The pinched decoration is very common on bottles, jars and beakers (see above, Fig. 4:22). A similar base was found in previous excavations

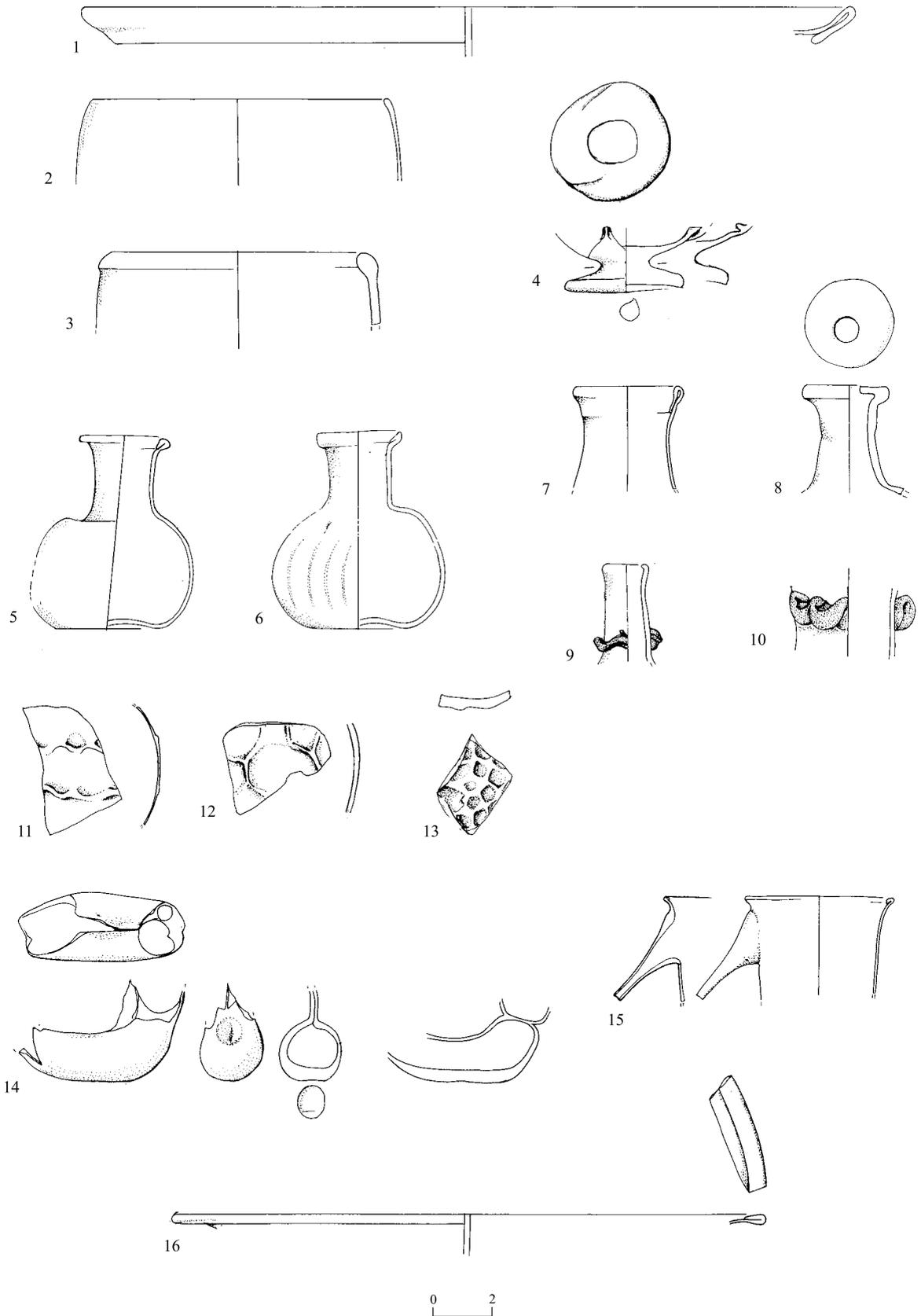


Fig. 5. Early Islamic period: glass vessels from Stratum 1 and surface.

◀ Fig. 5

No.	Vessel	Locus	Basket	Fragment	Diam. (cm)	Color and Fabric	Weathering
1	Bowl	221	1615	Part of rim	~ 26.0	Almost colorless with greenish tinge	Blackish rusty patches, iridescence, film, pitted, long horizontal bubbles
2	Beaker/bowl	221	1615	Small part of rim and body	10.0	Deep bluish green (turquoise)	Shiny, iridescence, bubbly at rim
3	Beaker/bowl	420	1342	Small part of rim and body	8.5	Light greenish blue	Shiny, small lime deposit, bubbly at rim
4	Wineglass/ jug	320	1343	Base and part of body	4.0 Pontil mark 1.0	Body nearly colorless with bluish green tinge and yellow strike; base bluish green with strong yellowish strike	Iridescent film, silver patches, sand deposits, base pitted, bubbly
5	Bottle	621	1584	Two parts, missing at neck, body and base; many mended parts	H 6.4 Rim 3.0 Base 3.5	Light greenish blue	Black impurities at rim, milky yellow patches, lime deposit, iridescence
6	Bottle	621	1584	Two parts and few small fragments, missing at rim, neck and body; mended, many parts	H 6.6 Rim 2.8 Base 3.4	Greenish blue, greenish strikes at rim	Black impurities at rim, large elongated bubbles at neck; round bubbles at body
7	Bottle	420	1342	Rim and part of neck; mended	3.5	Bluish green	Dull, silver iridescence, black impurities at rim, sand deposits, bubbly
8	Bottle	320	1379	Rim, neck and part of shoulder	3.0	Deep greenish blue (turquoise)	Shiny, pitted at top, sand deposits, bubbly
9	Bottle	320	1349	Rim, neck and part of shoulder	1.5	Greenish blue, yellow-brownish trail	Dull, crust of silver iridescence, sand deposit
10	Bottle	342	1359	Part of neck	3.3	Light bluish green, turquoise trail	Silver iridescence, sand deposits
11	Bottle?	426	1724	Part of body		Colorless with bluish tinge	Iridescence, pitting, sand deposits

Fig. 5. (cont.).

No.	Vessel	Locus	Basket	Fragment	Diam. (cm)	Color and Fabric	Weathering
12	Bottle?	320	1343	Part of body		Deep greenish blue (turquoise)	Shiny, sand deposits, bubbly
13	Bottle?	320	1384	Small part of base?		Bluish green with yellow strikes	Iridescence, soil deposit
14	Flask	104	112	Part of body and base	Pontil mark 1.0	Deep yellowish green	Shiny, lime deposits
15	Alembic	426	1724	Part of rim, body and spout	5.0	Colorless with bluish tinge	Shiny, iridescence, lime deposit
16	Windowpane	202	1026	Small part of rim and body	~ 20.0	Deep greenish	Sand deposits

at Ḥammāt Gader, where it was identified as belonging to a closed vessel with a spherical body, probably a jug (Cohen 1997:417, Pl. V:9). Although there is no exact parallel, we attribute it to the Umayyad period based on its main characteristics.

### *Bottles*

*Bottles with Infolded Rim, Short Wide Neck and Globular or Squat Body* (Fig. 5:5–8).— Two almost complete bottles (Nos. 5 and 6) were uncovered in loci above L620, a depression in bedrock. Number 5 is plain with the neck partly sloping into the asymmetrical body and No. 6 has mold-blown, shallow vertical ribs on the body.

These bottles, with a wide neck that often identifies them as jars, are characteristic of the Umayyad period. They usually appeared together with the bottles with infolded rims that are distinctive of this period (e.g., Fig. 4:17–20). A plain vessel similar to No. 5 was found in previous excavations at Ḥammāt Gader (Cohen 1997: Pl. IX:8) and bottles with similar rims and necks were uncovered in Umayyad contexts at Bet She'an (Winter 2011:348, Fig. 12.1:12, with further references therein). Bottles that combine a wide neck and infolded rim with pinched decoration on the body were found at Bet She'an, Kursi, Umm al-Rasas, Pella and Jerash (Katsnelson 2014b:36\*, Fig. 7:1, with further references therein). Bottle No. 7 has a wider neck and an uneven infolded rim.

*Bottle with Infolded Flattened Rim, Short Neck and Globular or Squat Body* (Fig. 5:8).— This bottle is of the same type as the bottles from Stratum 2 (Fig. 4:17–20), differing slightly in its wider neck, flat thick rim and wider body. It was a surface find and also dates to the Umayyad period. Examples of this type are found in Umayyad assemblages at Bet She'an (Hadad 2005: Pl. 10:186–190).

*Bottles with Cylindrical Neck Decorated with Wavy Trails* (Fig. 5:9, 10).— The wavy trail is one of the most typical decorations of the late Byzantine and Umayyad periods (see above,

Fig. 4:15, 16). Small bottle No. 9 features a short cylindrical mouth and a neck decorated with a thin, brown wavy trail on its lower part. A bottle of this type was uncovered previously at Ḥammāt Gader (Lester 1997:438, No. 6, Pl. I:6) and a similar bottle was found at Ramla (Gorin-Rosen 2010:224, Pl. 10.2:8 with further references therein to Khirbat Tinani, Haifa, and to the Memorial of Moses Church on Mount Nebo). A small cylindrical bottle with a similar upper part, decorated with a brown wavy trail around the shoulders, is in the Israel Museum collection and is dated to the eighth century (Brosh 2003:337, No. 440). Number 10 is a colorless neck fragment with a thick, wavy turquoise trail. Tall cylindrical necks with thick wavy trails are known from Umayyad contexts at Bet She'an (Hadad 2005: Pl. 13:262–268; Winter 2011:349, Fig. 12.1:18, 20). Examples of these massive wavy trails are known from later contexts, e.g., Tiberias, found in Strata IV (early Abbasid) and I (late Fatimid) (Lester 2004a: Fig. 7.8:90–92). Eighth-century jugs and sprinklers were also decorated with a wavy trail, like the examples recovered from Ramla (Gorin-Rosen 2008:47, Color Pl. 1:3, 5; 2016: Fig. 5:34) and similar bottles were also uncovered in the Memorial of Moses Church on Mount Nebo (Saller 1941:320, Pl. 141:19–23).

#### *Decorated Vessels*

*Vessels with Pinched Decoration* (Fig. 5:11, 12).— Pinched decoration was widespread during the late Byzantine and Umayyad periods, and is discussed in Stratum 2 (see above, Fig. 4:22, 23). The vessels found in Stratum 1 have a curved, thin wall, indicating that they probably belong to bottles, jars or jugs. Two different types of pinches are observed. Number 11 has two rows of horizontal pinches, creating a wavy pattern on the widest part of the vessel's body, while less frequent No. 12 features vertical pinches on the wall. A jug with vertical pinches on the body was uncovered at Ḥammāt Gader in the past and dated to the Late Roman period (Cohen 1997:414–416, Pl. V:2). We assign this jug to the Early Islamic period based on its characteristic trefoil rim, the applied wavy trail on the neck and its pinched decoration. Another closed vessel with vertical pinches on the body was found at Bet She'an (Fitzgerald 1931: Pl. 39:28) and a bottle with a row of spaced vertical pinches on the body and a wavy trail on the neck was found at Ramla, dated to the Umayyad period (Gorin-Rosen 2008:47).

*Vessels with Mold-Blown Decoration* (Fig. 5:13).— Two vessels with mold-blown decoration were found in Stratum 1. One is a complete bottle (see above, Fig. 5:6) and the other (No. 13) is a body or base fragment with remains of a diamond or net pattern.

A fragment decorated with a mold-blown pattern similar to Fig. 5:13 was uncovered at Ḥammāt Gader, identified by Cohen as a bottle decorated with small diamonds (1997:415, Pl. IV:11). Fragment No. 13 is too small to reconstruct its shape. It has thick walls and a smoothed interior surface; it is likely to have been a base: its ornamented exterior carries a scar (on the left corner) with a strike of yellow glass that possibly came from a pontil. The fabric shows similarities to the rest of the assemblage from Stratum 1, leading us to attribute it to the Umayyad period. A base with similar decoration was uncovered at Bet She'an, dated to the Umayyad period (Hadad 2005: Pl. 4:86).

*Miscellanea*

*Tubular Lentoid Flask(?)* (Fig. 5:14).— This vessel is very irregular in shape, lentoid, with hollow tubes. The fabric is like that of other vessels dated to the Umayyad period. While registering and classifying many Umayyad period glass assemblages from various sites, it was noticed that Umayyad glassmakers produced very unusual shapes alongside their repertoire of daily-use vessels. Examples for such irregular shapes were retrieved from previous excavations at Ḥammat Gader (Cohen 1997: Pls. IV:1 [bowl with basket handle]; V:14 [double-tube flask]). Umayyad vessels with four tubes in their neck were found in Egypt (Foy, Picon and Vichy 2003:139, Fig. 1:8).

Fragment No. 14 bears similarities to a complete vessel in the Israel Museum collection, identified as an amphoriskos, its body pressed in the middle until the walls meet, forming three tubes on either side of the vessel (Israeli 2003:292, Cat. No. 388). Israeli dated it to the third–fourth centuries based on parallels from Europe (Israeli 2003:292). We are of the opinion that these vessels were locally produced during the Umayyad period. Support for this suggestion stems from the shape of the rim, mouth and two handles of the vessel from the Israel Museum collection, which are similar to those of vessels previously found at Ḥammat Gader (Cohen 1997: Pl. V:14, 17). Fragment No. 14 from Ḥammat Gader supports the dating of the vessel and its attribution to local manufacture.

*Alembic* (Fig. 5:15).— Vessel No. 15 is a frequent type characterized mainly by its long spout. These vessels have a small, cylindrical, globular, ovoid, or pear-shaped body and a folded rim, and are found at nearly every Islamic-period excavation site, often in considerable numbers and usually, in eighth-century contexts. Very little is known about their use, but they probably served a medicinal or chemical function; they may have had a domestic function, used in the home to produce rose water or date wine (Kröger 1995:186, with a discussion of this type).

A dozen fragments of alembics, including two complete examples, were found at Bet She'an in Umayyad contexts; they were identified as cupping glasses. They differ from our example slightly in the angle of the spout and the rim (Hadad 2005:29, Pl. 23:453–455). Several more were found there in contexts dated from the second half of the eighth till the eleventh century CE (Hadad 2005:47–48, Pl. 46:979–981). Although Hadad noted parallels from the ninth to the eleventh centuries, we believe that this type, usually of greenish blue hues, dates to the eighth or the early ninth century, at the latest. The glass fabric of the Umayyad alembics is easily recognized and is completely different from that of later alembics found at other sites.

Alembics were also found in the Umayyad stratum at Caesarea-Maritima (Pollak 2003:165–166, Fig. 1:17) and in the many salvage excavations at Ramla (Gorin-Rosen 1999:12–14, Fig. 1:19–21; 2008:47, Color Pl. 1:4; 2010:227, Pl. 10.2:18–21, with further discussion and references therein). The alembic from the current excavation is attributed to the Umayyad period or the early Abbasid period at the latest (eighth century) based on its shape, fabric and workmanship. The alembics hailing from later periods differ in their fabric and shape.

*Windowpane* (Fig. 5:16).— This flat, outfolded rim probably belongs to a round windowpane of the Bull's Eye type, like the fragment from Stratum 3 (see above, Fig. 3:9 and see discussion therein). It was found together with tesserae and fragments of frescoes that may all belong to the same building.

#### SUMMARY AND CONCLUSIONS

The glass finds from the excavations at the pools of 'Ein el-Jarab, Ḥammāt Gader, were described according to their stratigraphic contexts—from the Late Roman and early Byzantine periods (Stratum 4) till the Abbasid period (Stratum 1). The Stratum 4 glass assemblage revealed the most common types of bowls and beakers from this time span. The assemblage from Stratum 3 is smaller and includes typical Byzantine vessels, including wineglasses, bottles, oil lamps and a windowpane. Most of these types continued into the late Byzantine and Umayyad periods and therefore were observed as well in Strata 2 and 1.

The largest group came from Stratum 2, representing most of the Umayyad-period glass repertoire. Additional well-known types appeared in Stratum 1. There is no clear difference between the glass vessels found in Strata 2 and 1. The lion's share of the glass from Strata 2 and 1 is made of late Byzantine–Umayyad fabrics, which continued in use up to the end of the eighth century. In the early ninth century, the fabric changed completely. Only five Abbasid-period glass vessels were identified, three recovered in Stratum 2 and two, in Stratum 1. This division between the earlier and later glass types may be clearly observed when comparing the glass vessels from Ḥammāt Gader with those from Tiberias, Bet She'an, or sites excavated in Ramla.

Most of the vessels found in this excavation have parallels in the material retrieved from earlier excavations at the site (Cohen 1997). The similarities in form, as well as their fabrics and workmanship, may point to a local glass production. Two small chunks of raw glass were found together with characteristic Umayyad vessels, one, a green glass chunk (L221, B1425) and the other, a chunk of greenish blue glass (L322, B1441). This evidence, however, is not sufficient to declare that a local glass workshop existed at the site, but the homogeneity of the fabrics and the shapes, as well as some of the unique types, is significant. Most cities had active glass workshops. It is reasonable to presume that each workshop produced the basic repertoire of each period in addition to local forms. Future comparative studies, between small local glass workshops and the main production centers such as Bet She'an and Tiberias, may complete the picture.

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