

EARLY ISLAMIC-PERIOD GLASS FINDS FROM RAMLA

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INTRODUCTION

The salvage excavation in the Azrieli Mall compound at Ramla (see Toueg and Torgë, this volume)¹ yielded some 1100 fragmentary glass finds, about half of which are diagnostic, displaying a rich variety of types. Most of the finds were free-blown and display various decoration techniques. The vessels and other artifacts were made mostly of greenish blue or colorless glass, rarely employing other colors.

Eighty-six diagnostic fragments, representative of various types of vessels and other glass artifacts, among them production remains, were studied and illustrated. Below is a summary of the finds according to excavation area (A–C), followed by a typological discussion of the assemblage.

Most of the shapes and decoration techniques of the glass vessels from this excavation have analogous examples from previous excavations at Ramla, and many have been thoroughly discussed in the publication of the glass finds from the excavation north of the White Mosque (Gorin-Rosen 2010b). For the sake of brevity, the present article refers to the relevant discussions in that publication where applicable. Reference is also made to additional examples from Ramla and other sites in Israel and neighboring countries.

THE ARCHAEOLOGICAL CONTEXT

Area A

The majority of the glass finds from the site, some 1000 fragments, and all the remains of glass production were retrieved from Area A (Figs. 1–12). About half the fragments are diagnostic and represent various vessels: bowls, beakers, jars, bottles, lamps and alembics, and other artifacts, including a horseshoe-shaped object and windowpanes.

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Some of the finds are typical of the Umayyad period (seventh–eighth centuries CE), while most of the assemblage is dated to the mid-eighth/ninth–tenth/eleventh centuries CE; some types possibly continued into the Mamluk period. The provenance of the glass finds corresponds to the three strata identified in Area A, which were assigned by the excavators to the late Abbasid–Fatimid periods (Strata III–I; see Toueg and Torgë, this volume); nevertheless, no typological or chronological distinctions are apparent among the finds from the three strata.

Area B

This area yielded some 40 fragmentary glass finds, about half of which were diagnostic. The vessels include bowls, jars, bottles and a lamp (Fig. 13), dated mostly to the Abbasid–Fatimid periods, while some types possibly continuing into the Mamluk period. The bowls and bottles (Fig. 13:1, 2, 4, and additional examples, not illustrated) are typical of the ninth–tenth centuries CE; the jar (Fig. 13:3)—of the Abbasid–Fatimid periods; and the base (Fig. 13:5)—of the Fatimid–Mamluk periods. The provenance of these vessels (Loci 311, 334) was identified by the excavators as an ephemeral Mamluk-period use of the Fatimid-period remains (see Toueg and Torgë, this volume).

Area C

This area yielded some 80 fragmentary glass finds, about one-third of which are diagnostic. The vessels include bowls, bottles and a lamp (Fig. 14). One of the bottles (Fig. 14:3) and the lamp (Fig. 14:7) are dated to the Umayyad–Abbasid periods; the bowls and another bottle (Fig. 14:1, 2, 6) are attributed to the ninth–tenth centuries CE, in the Abbasid period; and two other bottles (Fig. 14:4, 5) are typical of the Abbasid–Fatimid periods. These vessels were retrieved from three of the secondary architectural phases identified in a large building in Area C: Phase A (Fig. 14:1, 5, 7), Phase C (Fig. 14:3) and Phase E (Fig. 14:2, 4, 6), all assigned by the excavators to the Fatimid period (see Toueg and Torgë, this volume).

THE FINDS

Bowls and Beakers

Bowls/Beakers (Fig. 1:1–4).— These vessels, shaped as either deep bowls or wide beakers, were widespread in the region during the seventh and eighth centuries CE, and appeared in many variations of shape and decoration. The specimens from Ramla comprise a subtype with curved walls (Fig. 1:1), and another bearing a trail of a color darker than the vessel, fused-in on the rim (Fig. 1:2). Other fragments of bowls/beakers have a base with a double hollow fold around its perimeter (Fig. 1:3) or a flat bottom (Fig. 1:4). The latter fragment is irregularly modeled; the artisan may have intended to form a double-fold base, but the production had probably failed, causing the vessel to distort.

Diverse variants of bowls/beakers, including examples resembling those from Azrieli Mall, were recovered in Umayyad-period contexts in the excavation north of the White



Fig. 1. Glass bowls/beakers from Area A.

◀ Fig. 1

No.	Locus	Basket	Description and Condition
1	189	1502	Bowl/beaker with a rounded rim (diam. 90 mm) and thick walls, their upper part slightly incurved; colorless; weathering, iridescence, pitting
2	239	1718	Bowl/beaker with a rounded rim (diam. 100 mm) and thin vertical walls; thick dark blue trail fused-in on rim; light greenish blue; weathering, iridescence; mended
3	249	1802	Base with a double hollow-fold around its perimeter (diam. 85 mm); greenish blue; weathering, iridescence
4	126	1148	Large and heavy, irregular and distorted, flat base (diam. c. 90 mm) with a pontil scar off-center on its underside; colorless; severe black and white weathering (and probably remains of metal), iridescence, pitting
5	180	1407	Bowl/beaker with a rounded rim, and a D-shaped handle (height c. 90 mm) with tooled indents at both ends; light green; black weathering, iridescence, pitting
6	250	1805	Bowl/beaker or bottle with a rounded rim (diam. 65–70 mm) adorned with bilateral tonged decoration, depicting ovals encircled by dotted ovals; greenish blue; weathering, iridescence
7	188	1682	Body fragment with bilateral tonged decoration, depicting lozenges and a dotted line; olive green; weathering, iridescence
8	238	1786	Complete thick-walled bowl/beaker (height 75 mm) with a rounded incurved rim (diam. c. 80 mm), nearly vertical walls and a concave bottom (diam. c. 45 mm) with a pontil scar on its underside; mold-blown decoration of vertical ribs along the walls, 15 mm below the rim, and concentric circles on the bottom underside; dark greenish blue, bubbles; iridescence

Mosque at Ramla (Gorin-Rosen 2010b:215–219, Pls. 10.1:1–4; 10.2:1, 2). Bases with a double hollow fold around the perimeter were discovered in eighth-century CE contexts at Ramla (Gorin-Rosen 2011: Fig. 15:4; Winter 2015: Fig. 1:2) and at other sites, for example, Khirbat ‘Adasa, north of Jerusalem (Gorin-Rosen 2008a:125, Fig. 2:5, 6).

Bowl/Beaker with a Handle (Fig. 1:5).— This vessel has a large handle and may have served as a lamp. Several specimens of such vessels are known from Mesopotamia, for example, a beaker with a similar handle and a wick tube from Samarra, in modern-day Iraq (Lamm 1928:38, Pl. 27:149), and two beakers with a handle with a thumb rest on its upper part—one with the wick tube intact, from Nishapur in northern Iran, dated to the ninth–tenth centuries CE (Kröger 1995:180–181, Nos. 232, 233).

Bowls/Beakers Adorned in Various Techniques (Fig. 1:6–8).— Bowls/beakers of the Early Islamic period were adorned using techniques such as tonging (Fig. 1:6, 7), mold-blowing (Fig. 1:8) and incising (see below, Fig. 8:7–9), as was the case with other glass vessels of that time.

Tonged decoration first appeared in the Near East in the Umayyad period and became particularly widespread during the Abbasid period, in the ninth–tenth centuries CE (e.g., Carboni 2001:261–262, 268–271, Cat. Nos. 71a, 71b, 72). The specimens from Azrieli Mall

are adorned with bilateral tonguing, depicting ovals, lozenges and a combination of dotted lines and ovals (Fig. 1:6, 7, and additional body fragments from L238, B1807 and L116, B1140, not illustrated). Similarly-decorated vessels were unearthed in various locations at Ramla (Gorin-Rosen 2010b:242–245, Pl. 10.8:1–5; Winter 2015: Fig. 1:5).

Mold-blowing was employed in the production of glass vessels from the Roman period onward. The complete bowl/beaker (Fig. 1:8) from Ramla is adorned with mold-blown vertical ribbing on the walls and concentric circles on the bottom underside. A similar vessel, in which the ribbing occurred well below the rim, was discovered at Nishapur and dated to the ninth–tenth centuries CE (Kröger 1995:87, No. 114).

Shallow Cylindrical Bowls (Figs. 2:1–6; 13:2; 14:1, 2).— Shallow, rather thick-walled bowls with vertical walls and a flat or slightly concave bottom were widespread in the Early Islamic period, particularly during the ninth–tenth centuries CE. The fragments from Areas A–C display a variety of sizes, and have a plain rounded rim (Figs. 2:1–3, 6; 13:2; 14:1, 2), or an out-curved rim (Fig. 2:4, 5).

Similar bowls were unearthed in previous excavations at Ramla, where they were associated with the eighth–eleventh centuries CE (Pollak 2007:104–106, Fig. 3:13, 15, 16; Jackson-Tal 2008: Fig. 6.111:1; Gorin-Rosen 2010a: Fig. 22:1, 2; Winter 2013: Fig. 36:2, 3). Other specimens were uncovered, for example, in Caesarea Maritima Stratum VI, dated to the late ninth–mid-tenth centuries CE (Pollak 2003:167, Fig. 3:40), and in contexts of the Abbasid–Fatimid periods at Bet She'an (Hadad 2005:35, e.g., Pl. 25:492–495).

The bowl illustrated in Fig. 2:6 has a shallow ridge below the rim. Bowls of this type, associated with the Abbasid–Fatimid periods, were discovered in various locations at Ramla (e.g., Gorin-Rosen 2010b:228–229, Pl. 10.4). A complete example was unearthed in Caesarea Maritima Stratum VI, dated to the late ninth–mid-tenth centuries CE (Pollak 2003:167, Fig. 3:38).

Shallow Bowl with a Ridge below the Rim (Fig. 13:1).— Bowls of this type with slanting or curved walls were widespread in the Early Islamic period, particularly during the ninth–tenth centuries CE. Somewhat similar bowls were discovered at Ramla and its surroundings (e.g., Gorin-Rosen 2008b:48, top left; Jackson-Tal 2008:166, Fig. 6.109:9, 10).

Large Base (Fig. 13:5).— This large base was possibly made of two parisons, and has bulges on its floor and underside. It is characteristic of Fatimid- and Mamluk-period vessels.

A similar base was unearthed in the Cardo excavations in Jerusalem and identified as a lamp of the twelfth–thirteenth centuries CE (Brosh 2012:403, 417, Pl. 15.3:G45). A decorated bowl with a base of this type, and another such base, were discovered at Hama in Syria (Riis 1957:40, 55, Figs. 73, 145).

Beakers (Fig. 3).— Most of the specimens presented here (Fig. 3:1–7) belong to cylindrical beakers of a type that was widespread in the ninth–tenth centuries CE. They generally have

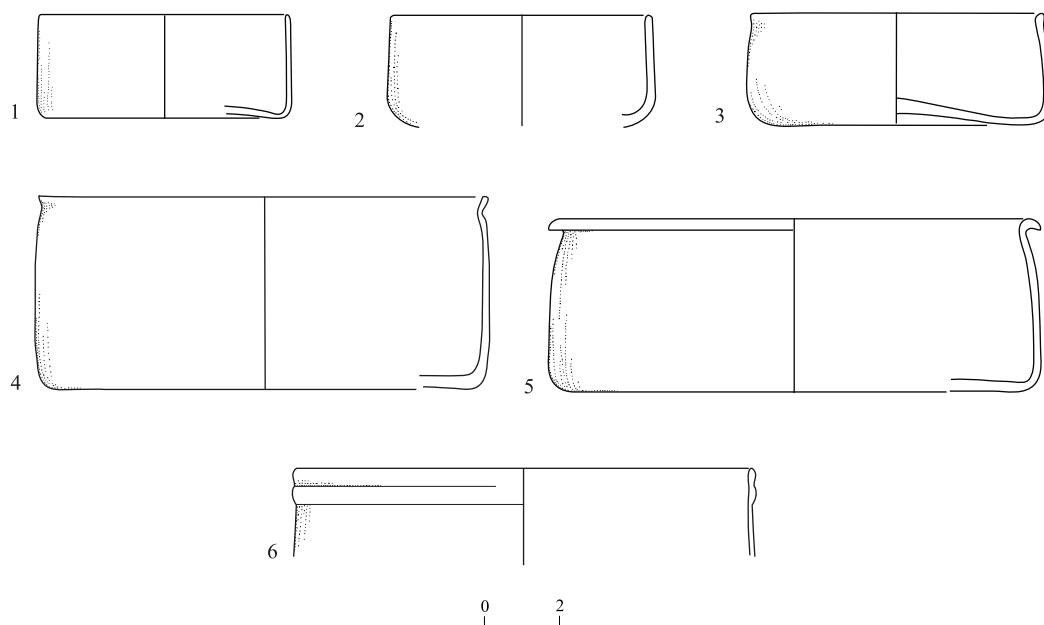


Fig. 2. Glass bowls with vertical walls from Area A.

No.	Locus	Basket	Description and Condition
1	233	1658	Bowl (height c. 27 mm) with a rounded rim (diam. 65 mm), vertical walls and a thick, slightly concave bottom (diam. 60 mm); light green; weathering, iridescence, severe pitting
2	136	1127	Thick-walled bowl with a rounded rim (diam. 70 mm) and thick vertical walls; light green, bubbles; weathering, iridescence
3	184	1428	Thick-walled bowl (height c. 30 mm) with a rounded rim (diam. 78 mm), thick vertical walls, and a bottom (diam. 75 mm) concave at its center, with a pontil scar on its underside; light green; weathering, iridescence, pitting; mended
4	184	1486	Bowl (height 45 mm) with an out-curved rim (diam. c. 120 mm), vertical walls and a flat bottom (diam. 115 mm); colorless with a greenish tinge; weathering, iridescence, pitting
5	184	1629	Bowl (height 50 mm) with an out-curved rim (diam. c. 130 mm), vertical walls and a thick, probably flat bottom (diam. c. 120 mm); colorless with a greenish tinge; iridescence, pitting
6	144	1253	Bowl with a rounded rim (diam. 120 mm) and vertical walls with a shallow ridge c. 7 mm below the rim; colorless; black weathering, pitting

vertical walls and a flat bottom, and were occasionally adorned with cut decoration (see below, Fig. 8:3).

Examples of such vessels were discovered at Ramla, in contexts dated to the ninth–tenth centuries CE (Pollak 2007:111–113, Fig. 6:35–37; Gorin-Rosen 2010b:248–252, Pl. 10.10:8, 9; Winter 2015: Fig. 1:7–9). The base illustrated in Fig. 3:8 may have belonged to

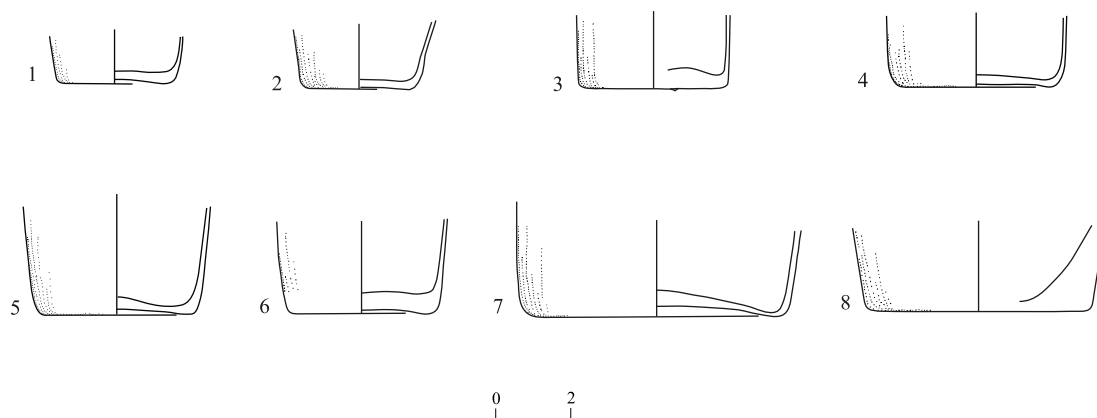


Fig. 3. Glass beakers from Area A.

No.	Locus	Basket	Description and Condition
1	249	1802	Beaker with vertical walls and a thick flat bottom (diam. 30 mm); bluish green; black weathering, iridescence, severe pitting
2	123	1344	Beaker with slightly slanting walls and a flat bottom (diam. 30 mm) with traces of glass from the pontil on its underside; colorless with a purple tinge; black weathering, iridescence, pitting
3	165	1304	Beaker with thin vertical walls and a thick flat bottom (diam. 40 mm) with a pontil scar on its underside; light green; iridescence, pitting
4	136	1127	Beaker with thin vertical walls and a thin flat bottom (diam. 43 mm) with a pontil scar on its underside; colorless; iridescence
5	184	1486	Beaker with vertical walls and a slightly concave bottom (diam. 40 mm) with traces of glass from the pontil on its underside; colorless; black weathering, iridescence, severe pitting; mended
6	127	1214	Beaker with thin vertical walls and a flat bottom (diam. 38 mm) with a pontil scar on its underside; colorless; black weathering, iridescence, pitting
7	126	1148	Beaker with a flat bottom (diam. 65–70 mm) with a pontil scar on its underside; colorless; severe black and white weathering, iridescence, severe pitting
8	165	1304	Beaker with a thick flat bottom (diam. c. 60 mm) thickened around its perimeter; light green; iridescence, pitting

a bottle rather than a cylindrical beaker; an example with a base of that shape was found at Khirbat el-Thahiriya (Jackson-Tal 2012: Fig. 2:32).

Jars

Thin-Walled Jars (Fig. 4).— Several thin-walled jars from the Abbasid period were discovered at the site. A small jar variant has an out-splaying rim and no neck (Fig. 4:1), while a larger variant has a short neck (Fig. 4:2).

Similar jars were unearthed in various locations in and south of Ramla (Pollak 2007:117–119, Fig. 8:48; Jackson-Tal 2008:172, Fig. 6.114:1; Winter 2013: Fig. 39:3), and in other

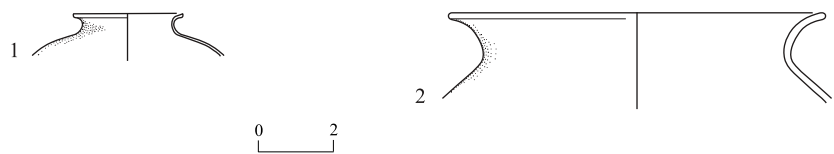


Fig. 4. Glass jars from Area A.

No.	Locus	Basket	Description and Condition
1	123	1344	Small thin-walled jar with an irregular rounded rim (diam. 30 mm), out-splaying upper part of the wall, and slanting shoulders; colorless; black weathering, iridescence, pitting
2	123	1344	Jar with a rounded rim (diam. 100 mm), out-splaying upper part of the wall, and slanting shoulders; colorless with a brownish tinge; black weathering, iridescence, pitting

parts of the country, for example, at Bet She'an, in contexts dated to the Abbasid–Fatimid periods (Hadad 2005: Pl. 43:889–893).

Thick-Walled Jar (Fig. 13:3).— This rim-and-neck fragment may have belonged to a jar of a type characteristic mostly of the Crusader, Ayyubid and Mamluk periods; it resembles an example from Ramla (Gorin-Rosen 2010b:242, Pl. 10.7:5).

Bottles

Bottle with an Infolded Flattened Rim (Figs. 5:1; 14:3).— Bottles of this type were widespread in the Umayyad and Abbasid periods. Several subtypes were discovered in the excavation: a large thick-walled version from Area A (Fig. 5:1) and a smaller thin-walled version from Area C (Fig. 14:3).

Examples of both subtypes were previously recorded at Ramla (e.g., Pollak 2007:125, Fig. 10:61, 62; Gorin-Rosen 2010b:235–237, Pl. 10.6:3, 12; Winter 2015: Fig. 1:3).

Bottles with a Ridged Neck (Fig. 5:2, 3).— These widespread bottles occurred in many variations in the Early Islamic period, particularly in the eighth–ninth centuries CE. Examples of several subtypes were discovered in the excavation: a small thin-walled variant with an infolded rim (Fig. 5:2) and a larger thick-walled version with a flattened rim (Fig. 5:3).

Various subtypes of bottles with a ridged neck were discovered at Ramla (e.g., Gorin-Rosen 2010b:233–235, Pl. 10.6:7–10).

Large Bottle with an Infolded Rim (Fig. 5:4).— This type of bottle continues Byzantine traditions in its form and fabric. A similar large bottle was unearthed, for example, in a context dated to the Abbasid–Fatimid periods at Bet She'an (Hadad 2005: Pl. 43:879).

Elongated Thin-Walled Bottle (Figs. 5:5; 14:6).— This distinctive type of thin-walled vessel has a cut-off unworked rim, a narrow cylindrical neck, a tall ovoid body and a convex bottom. These bottles were carelessly made, generally of blue glass, although some specimens are green or brown. This type of bottle is represented herein by a rim-and-neck fragment of blue glass from Area A (Fig. 5:5) and a deformed bottom of blue glass from Area C (Fig. 14:6).

Such elongated bottles have been found in Islamic-period contexts of the ninth–tenth centuries CE in the Near East, for example, at Nishapur, northern Iran (Kröger 1995:75) and Fustat, Egypt (Shindo 2000:235–236, Fig. 6:9; 2002:83, No. 38). Several elongated blue bottles have been documented in previous excavations at Ramla (Gorin-Rosen 2008b:48–49; 2010a: Fig. 22:6; 2010b:227–228, Pl. 10.9:19; Winter 2013: Fig. 37:3; 2015: Fig. 1:14, 15), and similar vessels were retrieved from other contexts of the ninth–tenth centuries CE, for example, at Mount Berenice, Tiberias (Amitai-Preiss 2004:181, Fig. 11.2:18) and at Caesarea Maritima, in Stratum VI, dated to the late ninth–mid-tenth centuries CE (Pollak 2003:167–169, Fig. 3:45).

Small Bottles (Fig. 5:6–8).— A tube-shaped bottom (Fig. 5:6) probably belonged to a tiny bottle or ‘phial’, the likes of which were discovered in contexts of the Abbasid and Fatimid periods in previous excavations at Ramla (e.g., Katsnelson 2007: Fig. 3:6; Gorin-Rosen 2010a: Fig. 22:4). Numerous other examples were unearthed at Tiberias, in various contexts dating from the mid-eighth to the mid-eleventh centuries CE (Lester 2004:188–192, Fig. 7.9:107–115).

Small bottles with a quadrangular cross-section (Fig. 5:7) and cylindrical bottles (Fig. 5:8) initially appeared in the Umayyad period and became widespread during the Abbasid–Fatimid periods. Similar bottles were recorded at Ramla (e.g., Gorin-Rosen 2010b:231–232, Pl. 10.5:4–6; Winter 2015: Fig. 1:13).

Various Bottles (Fig. 5:9, 10, 14).— The bottles from the excavation include an example with a rounded rim and a slightly conical neck (Fig. 5:9); another with a rim that was either inadvertently deformed during production or deliberately pinched, its fabric typical of the Umayyad and early Abbasid periods (Fig. 5:10); and a wall fragment, probably of a bottle, adorned with a thick wavy trail, typical of the Umayyad period (L165, B1304; not illustrated). A pushed-in bottom (Fig. 5:14) probably belonged to a large bottle.

Bottles with a Short Funnel-Shaped Mouth (Figs. 5:11–13; 14:4).— Bottles with a short and wide funnel-shaped mouth generally have a long tapering neck and a cylindrical or barrel-shaped body, and were occasionally decorated using various techniques. These bottles were widespread in the Early Islamic period, particularly during the Abbasid–Fatimid periods.

Several bottles of this type were unearthed in Area A (Fig. 5:11–13), and another in Area C (Fig. 14:4). These bottles all have a short funnel-shaped mouth, and one (Fig. 5:13) is adorned with cut decoration, a characteristic ornamentation on these bottles.



Fig. 5. Glass bottles from Area A.

◀ Fig. 5

No.	Locus	Basket	Description and Condition
1	188	1855	Thick-walled bottle with an unevenly infolded rim (diam. 23 mm; opening diam. 10 mm) and thick-walled neck; green blue; weathering, iridescence
2	188	1855	Bottle with an uneven rim (diam. 14 mm) and a thin-walled neck tooled to create ridges, three of which are intact; green blue; weathering, iridescence
3	193	1549	Bottle with a flattened (diam. c. 25 mm) and a thick-walled neck tooled to create ridges, three of which are intact; green blue; weathering, iridescence
4	251	1821	Bottle with an infolded rim (diam. 80–85 mm) and a long wide neck; greenish blue; weathering, iridescence
5	227	1619	Elongated bottle with an irregularly cut-off rim (diam. 10 mm), a slightly convex neck and slanting shoulders; blue; weathering, iridescence, pitting
6	136	1127	Small deformed tube-shaped bottle with a convex bottom (diam. c. 8 mm); colorless; weathering, iridescence
7	106	1090	Small thick-walled bottle (surviving height c. 37 mm, missing neck and rim) with a quadrangular section and a flat bottom; blue; weathering, iridescence, pitting
8	123	1344	Small cylindrical bottle (surviving height 50 mm) with its neck broken and a nearly flat bottom (diam. 30 mm); dark blue; weathering, iridescence, severe pitting
9	180	1407	Thick-walled bottle with an uneven rim (diam. 40 mm) and slightly conical neck; light green; black weathering, iridescence
10	136	1247	Thin-walled bottle with a deformed or deliberately-pinched rounded rim (diam. 21–23 mm), wide neck and convex shoulders; colorless; black weathering, iridescence, severe pitting
11	184	1486	Bottle with a rounded, severely weathered rim (diam. c. 43 mm), a short funnel-shaped mouth, and a cylindrical neck; colorless; black weathering, iridescence, pitting
12	180	1407	Bottle with a rounded rim (diam. 105 mm) and a short funnel-shaped mouth; bluish green; black weathering, iridescence, pitting
13	245	1793	Large thick-walled bottle with a rounded rim (diam. 80 mm), a short funnel-shaped mouth, and a long bulging neck adorned with cut vertical strips and a horizontal band at its lower end; colorless with greenish tinge; black weathering, iridescence
14	245	1793	Large pushed-in bottom (diam. 105 mm) with a pontil scar on its underside, and vertical walls; greenish blue; weathering, iridescence, pitting; mended
15	125	1153	Irregular bottle with a rounded rim (diam. 26–29 mm), funnel-shaped mouth with a bulge, a curved-wall neck, and slanting shoulders; colorless with green tinge; weathering, iridescence, pitting
16	104	1011	Bottle with an irregular rounded rim (diam. c. 30 mm), funnel-shaped neck with a bulge at its lower end; light green; black weathering, iridescence, pitting

Bottles with a short funnel-shaped mouth were unearthed in various locations at Ramla (Gorin-Rosen 2010b:238, Pl. 10.6:17, 18; Winter 2015: Fig. 1:11, 12). Complete bottles of this type, and a fragment with a decoration similar to that illustrated in Fig. 5:13, were recovered from the Serçe Limani shipwreck, sunk shortly after 1025 CE (Cullen and Lledó 2009: Figs. 16-1; 16-3; 16-4; 16-6:DR312).

Bottles with a Bulge on the Mouth or Neck (Fig. 5:15, 16).— These bottles are irregularly modeled, and have a bulge on the funnel-shaped mouth (Fig. 5:15) or on the neck (Fig. 5:16). Such bulges are typical of bottles from the Abbasid through the Mamluk periods.

Similar specimens were discovered at Ramla, in contexts dated to the Abbasid period (Gorin-Rosen 2013a:73*, Fig. 1:3) and the Fatimid period (Gorin-Rosen 2010b:238–239, Pl. 10.6:19, 20).

Bottles Adorned with Mold-Blown Decoration (Fig. 6).— Mold-blowing was one of the most widespread techniques for decorating glass vessels in the Near East in the Early Islamic period and later on (e.g., Carboni 2001:197–199; Hadad 2005:36–37). Mold-blown patterns adorned many vessel types, particularly bowls and bottles, and commonly occurred on vessels found at Ramla (e.g., Gorin-Rosen 2010b:246–248, Pl. 10.9; Winter 2015: Fig. 1:6).

Several bottle fragments from Area A are adorned with mold-blown patterns. A shoulder fragment of a bottle (Fig. 6:1) and a neck or body fragment (Fig. 6:2), both thin-walled, are decorated with shallow vertical ribbing, resembling that on bottles from Umayyad-period contexts at Bet She'an (Hadad 2005: Pl. 16:318, 320, 321). Another body fragment (Fig. 6:3) is adorned with a mold-blown facet pattern, somewhat resembling the decorations appearing on vessels from contexts dated to the Abbasid–Fatimid periods at Bet She'an (Hadad 2005: Pl. 40:830, 833, 835).

A rim-and-neck fragment adorned with a mold-blown geometric pattern (Fig. 6:4) probably belonged to a jug with a wide neck, its shape resembling that of an example from the al-Sabah collection (Carboni 2001: Cat. Nos. 36a, 61). The bright dark-green color (also referred to as 'bottle green') and the relatively large weight of the glass of the specimen from Ramla, suggest it was made of 'lead glass', i.e., glass containing a high percentage of lead oxide (e.g., Whitehouse 2006:50).

A body fragment of a bottle is adorned with mold-blown decoration, comprising concentric ovals and half-circles or round-pointed triangles (Fig. 6:5), resembling the decoration of a vessel discovered in Caesarea Maritima Stratum VII, dated from 750 to the late ninth century CE (Pollak 2003: Fig. 2:30).

A colorless body fragment of a bottle is adorned with a mold-blown architectural pattern, depicting arches topped by tear-shaped forms (Fig. 6:6). The presumed original shape of the vessel, its fabric, and the decorative pattern on the body, all suggest a date in the ninth–tenth centuries CE. The architectural design comprising arches was applied to various vessels by mold-blowing or by cutting.

Similarly decorated examples include a body fragment discovered in Tiberias Stratum III, dated to 880–980 CE (Lester 2004:204, Fig. 7.13:169), and a body fragment of a similarly cut bottle found in a context dated to the ninth–tenth centuries CE at Fustat (Scanlon and Pinder-Wilson 2001:99, Fig. 42-z``). A similarly shaped bottle, kept at the British Museum, was probably made in Persia in the eighth–ninth centuries CE (Tait 1991:116–117, No. 141: left), and a complete bottle with a conical neck and a barrel/bell-shaped body, acquired in

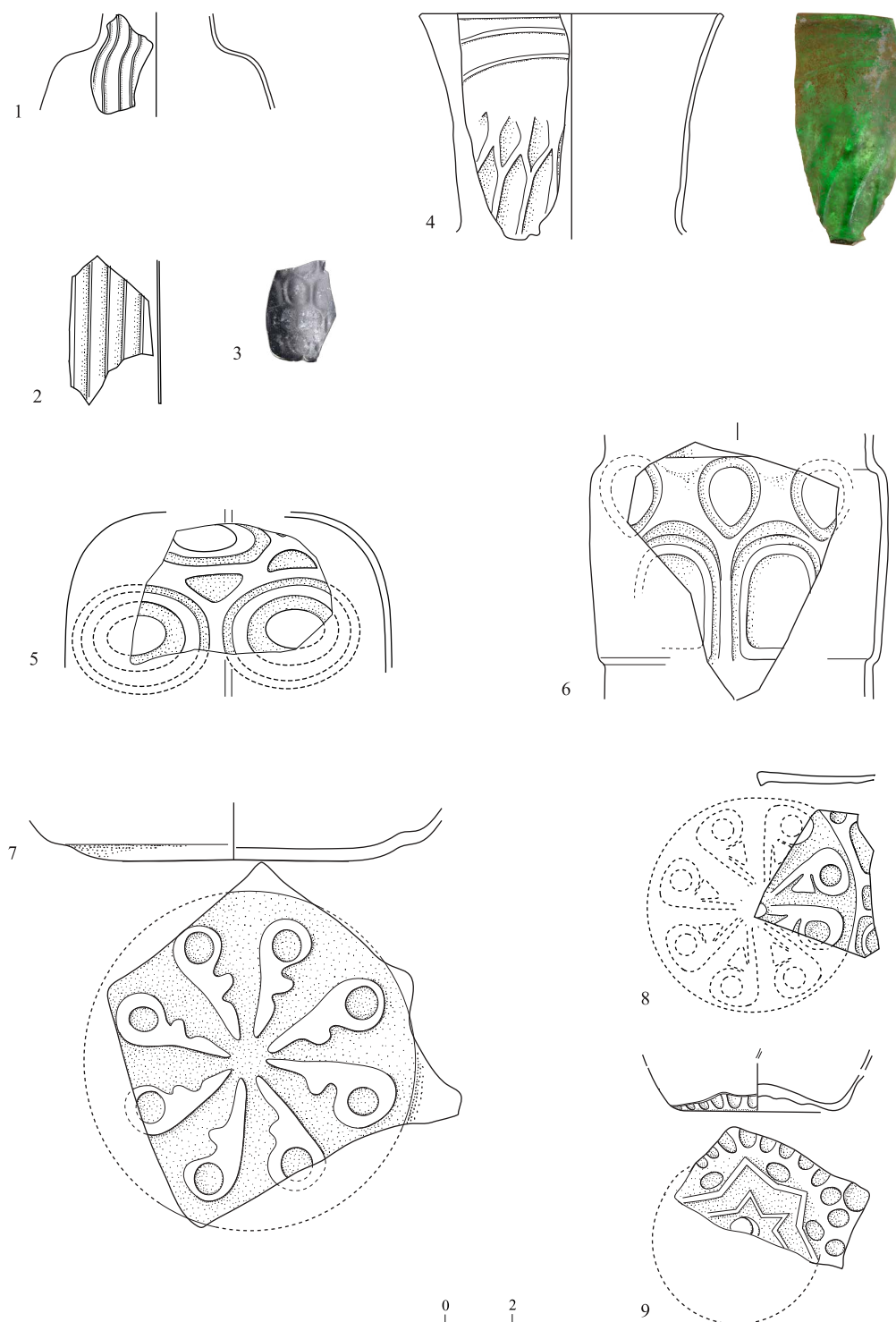


Fig. 6. Glass bottles adorned with mold-blown decoration from Area A.

◀ Fig. 6

No.	Locus	Basket	Description and Condition
1	174	1389	Shoulder and neck fragment of a thin-walled bottle adorned with mold-blown shallow vertical ribbing; colorless with a purple tinge; iridescence, pitting
2	227	1619	Body/neck fragment (diam. c. 60 mm) of a thin-walled bottle adorned with mold-blown shallow vertical ribbing; colorless; weathering, iridescence, pitting
3	151	1275	Small thin body fragment adorned with mold-blown facets; colorless; iridescence
4	163	1327	Rounded rim (diam. 90 mm) and a funnel-shaped neck, adorned with a mold-blown geometric pattern; bright dark green; weathering, iridescence
5	249	1802	Body fragment of a bottle adorned with mold-blown decoration, comprising concentric ovals and half-circles/round-pointed triangles; light greenish blue, large bubble; weathering, iridescence
6	123	1344	Body fragment of a bottle adorned with a mold-blown architectural pattern, depicting arches topped by tear-shaped forms; colorless; black weathering, iridescence, severe pitting
7	151	1275	Bottle with a flat bottom (diam. 85–100 mm), its underside adorned with mold-blown decoration, depicting eight radiating P-shaped forms; colorless with an olive-green tinge; weathering, iridescence, pitting; mended
8	193	1549	Bottle bottom fragment (diam. c. 60 mm) adorned on its underside with mold-blown decoration, depicting eight radiating P-shaped forms; green; weathering, iridescence
9	118	1087	Bottle with a concave bottom (diam. c. 50 mm) adorned with a mold-blown geometric pattern, depicting central concentric stars, encircled by facets; colorless; weathering, iridescence, pitting

Teheran, was dated to the tenth century CE, and believed to have been originally produced in Iran or Iraq (Lamm 1929–1930:56, Pl. 12:13*).

Two bottoms (Fig. 6:7, 8) are adorned on the underside with a mold-blown pattern, comprising eight radiating P-shaped forms. A similar design was found on a bottle from Ramla, entirely covered with mold-blown decoration, attributed to the Abbasid–Fatimid periods (Gorin-Rosen 2010b:246–247, Pl. 10.9:9).

A concave bottom (Fig. 6:9) is adorned with a mold-blown geometric pattern, comprising concentric stars encircled by facets, resembling the decoration appearing on vessel bottoms from Tiberias (Lester 2004:201, Fig. 7.13:162, 163), and the bottoms of a bowl and a bottle discovered in the Serçe Limani shipwreck (Acién and Bass 2009: Fig. 17-3:BR21; Lledó 2009: Fig. 13-5:HB82).

Jugs

Handles (Fig. 7:1–4).— Several handles found in Area A most probably belonged to jugs: one is of a light olive-green hue, folded at its top end (Fig. 7:1), and the other handles are greenish blue, and have pinched folds on both ends (Fig. 7:2) or a single one at the upper part (7:3, 4); one of these folds (Fig. 7:4) is exceptionally long and upward-slanting.

Handles of these types appeared on cups and jugs of the Abbasid–Fatimid periods, i.e., the ninth–eleventh centuries CE. The pinched folds on these jug handles served as

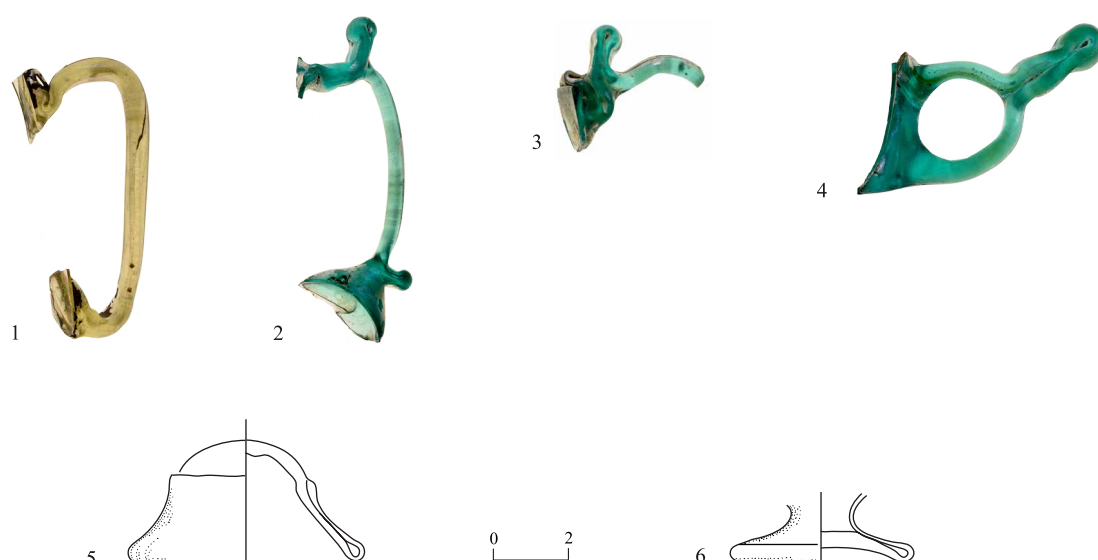


Fig. 7. Glass jugs from Area A.

No.	Locus	Basket	Description and Condition
1	180	1466	Trail handle (height c. 70 mm) folded on the top end and attached to a thin wall; light olive green; weathering, iridescence
2	180	1466	Thin-walled vessel with hollow rim and trail handle (height c. 85 mm), folded and pinched at both ends; greenish blue; weathering, iridescence
3	180	1466	Vessel with a rounded rim and a fragment of a large trail handle folded and pinched at the top end; greenish blue; weathering, iridescence
4	251	1821	Loop handle with a long pinched fold, attached to a thin body fragment; greenish blue; weathering, iridescence
5	126	1148	Deeply pushed-in, hollow ring base (diam. c. 60 mm) with a pontil scar on its underside; greenish blue; weathering, iridescence
6	136	1127	Complete hollow ring base (diam. 47–48 mm) with a pontil scar on its underside; colorless with a greenish tinge; iridescence

thumb rests to facilitate the grip while pouring liquids. The handle illustrated in Fig. 7:2 is exceptional, as it has a pinched fold at both its upper and lower ends.

Handles resembling the ones illustrated in Fig. 7:2, 3 were unearthed in past excavations at Ramla (Katsnelson 2007: Fig. 3:3; Gorin-Rosen and Katsnelson 2005: Fig. 1:6; Gorin-Rosen 2010b:240, Pl. 10.6:26), and jugs with similar handles were recovered from the Serçe Limani shipwreck (Kenesson 2009b: Fig. 26-2:JG1, JG9, JG12, JG23). A handle resembling the example illustrated in Fig. 7:4 was discovered at Ramla (e.g., Gorin-Rosen 2010b:253, Pl. 10.11:5). Various handles resembling those from the Azrieli Mall excavation were also recovered in contexts dated to the Abbasid–Fatimid periods at Bet She’an (Hadad 2005: Pls. 43–45). Complete specimens from the al-Sabah collection include pitchers and ewers (Carboni 2001: Cat. Nos. 36b, 48a, 48b, 3.40).

Bases (Fig. 7:5, 6).— These hollow ring bases (Fig. 7:5, 6) most probably supported jugs. A jug with a base resembling the example illustrated in Fig. 7:5 was recovered from the Serçe Limani shipwreck (Kenesson 2009b: Fig. 26-2:JG10).

Vessels Fashioned by Cutting and Vessels Adorned with Cut or Incised Decoration

Bottle with a Faceted Neck (Fig. 8:1).— This rather short, wide six-sided neck belonged to a bottle. Bottles of this type, widespread in the Abbasid period, were cut and polished to form a six-, seven- or eight-sided shape, with the neck and body either short and wide, or long and narrow (Carboni 2001:100–101, Cat. Nos. 28a–c, 2.34a–c; Brosh 2003:361–365, Cat. Nos. 491, 495).

Analogous examples include a rim-and-neck fragment unearthed in a past excavation at Ramla (Gorin-Rosen 2013b:47*, Fig. 1:4); the upper part of a six-sided bottle discovered in an Abbasid–Fatimid-period context at Bet She'an (Hadad 2005:45–46, Pl. 43:895); the lower part of a bottle, recovered in an extramural residential quarter of Bet She'an, and dated to the late eighth–tenth centuries CE (Katsnelson 2014:42*–44*, Fig. 11:4); the lower part of a bottle unearthed at Ḥorbat Kasif in the northern Negev, in a context dated to the eighth–ninth centuries CE (Gorin-Rosen 2012a: Fig. 11:3).

Base with a Cut Central Boss (Fig. 8:2).— This colorless base, with a round boss cut on its underside, probably belonged to a beaker of the Abbasid period. Beakers with a similar cut boss on their bottoms, also adorned with cut facets, are kept in the collection of the Corning Museum of Glass, and are dated to the Abbasid period (Whitehouse 2010:42–43, 370, Cat. Nos. 52, 53).

Vessels Adorned with Cut Decoration (Figs. 8:3–6; 13:4).— Cut-decorated vessels were widespread in the Near East in the Early Islamic period, particularly during the ninth–tenth centuries CE (Carboni 2001:71–137). Vessels adorned with various cut designs were unearthed in various locations at Ramla (Gorin-Rosen 2010b:248–252, Pl. 10.10).

Several vessels with walls adorned with cut decoration were discovered in Area A (Fig. 8:3–6). Their cut patterns include two horizontal lines and diagonal bands flanking three oval facets (Fig. 8:3); vertical elongated oval facets (Fig. 8:4); straight and curved bands (Fig. 8:5); a combination of various oval shapes and straight and curved bands (Fig. 8:6).

The fragments illustrated in Fig. 8:3, 6 have analogous examples in the glass assemblage recovered from the Serçe Limani shipwreck (Kitson-Mim Mack 2009: Figs. 4-7:BK39; 4-8:BK57, respectively). The pattern on the body fragment illustrated in Fig. 8:5 appears to resemble a pattern on an ewer from the Serçe Limani shipwreck (Kenesson 2009a:298, Fig. 25-4:EW42).

The style of decoration on the small body fragment illustrated in Fig. 8:4 resembles the decoration style on Sassanian vessels, generally dated to the fourth century CE; yet, the dating of other glass finds associated with this fragment suggests that it should be dated to the Abbasid period. A similarly decorated bowl fragment was discovered at Fustat and

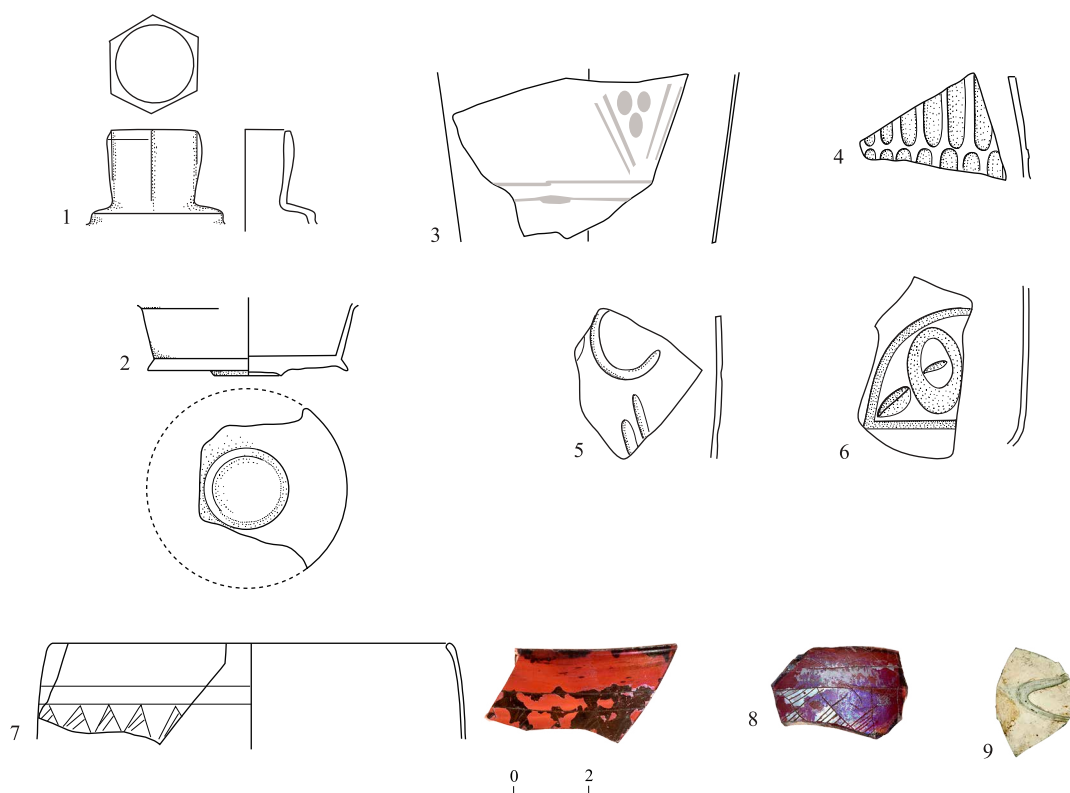


Fig. 8. Glass vessels fashioned by cutting, or adorned with cut or incised decoration from Area A.

No.	Locus	Basket	Description and Condition
1	125	1153	Thick-walled bottle with a cut rim (diam. 24 mm), a faceted six-sided neck and a small part of the shoulders; colorless; weathering, iridescence, pitting
2	250	1805	Base (diam. 53 mm) with a round bulge (diam. 18 mm) cut on its underside; colorless; weathering, iridescence, severe pitting
3	248	1800	Beaker with thin slanting walls adorned with shallow cut decoration, depicting two horizontal lines and diagonal bands flanking three oval facets; colorless; weathering, iridescence
4	249	1802	Body fragment adorned with cut decoration, depicting rows of vertical elongated oval facets; colorless; weathering, iridescence
5	175	1391	Body fragment adorned with cut geometric decoration, depicting straight and curved bands; colorless; iridescence
6	200	1608	Body fragment adorned with cut decoration, depicting various ovals and straight and curved bands; colorless; weathering, iridescence, severe pitting
7	249	1802	Bowl with a rounded rim (diam. 105 mm) and nearly vertical walls, their upper part slightly incurved and adorned with incised decoration, depicting hatched triangles topped by a horizontal band; purple; weathering, iridescence
8	158	1313	Body fragment adorned with incised decoration, depicting a band and hatched areas; purple; weathering
9	203	1543	Tiny body fragment adorned with incised decoration, depicting a band and a hatched triangle; blue; weathering, iridescence

dated to the ninth–tenth centuries CE (Scanlon and Pinder-Wilson 2001:86–87, Fig. 41a), as were other shallow bowls of this type adorned with elongated cut facets, which are kept in the Corning Museum of Glass (Whitehouse 2010:93–95, Cat. Nos. 142–145 [No. 144 is the fragment from Fustat]).

The neck-and-body fragment of a bottle from Area B (Fig. 13:4) is adorned with rows of cut facets. Complete bottles with a similarly decorated globular body, also bearing cut ornamentation on the neck, were assigned to the ninth–tenth centuries CE (Whitehouse 2010:44–45, Cat. Nos. 55, 56).

Vessels Adorned with Incised Decoration (Fig. 8:7–9).— Three small specimens adorned with this type of decoration were recovered in the excavation: a purple rim fragment (Fig. 8:7), depicting hatched triangles topped by a horizontal band; two purple body fragments (Fig. 8:8; and another fragment from L201, B1547, not illustrated) and a tiny blue piece (Fig. 8:9), also depicting bands and hatched triangles, although these pieces are too small to enable identification of the entire pattern.

Incised vessels of the Early Islamic period included bowls, beakers and closed vessels, mostly of dark blue glass, but also of purple, green, olive green, yellowish green and brown glass. This decoration, occasionally referred to as ‘scratch-engraved’, comprised thin-lined, shallow scratches fashioned in various patterns, among them vertical and horizontal bands, geometric and vegetal designs and, occasionally, Arabic inscriptions. This decoration technique was widespread in the Early Islamic period, particularly in the Abbasid period (e.g., Carboni and Whitehouse 2001:156, 162–167). However, some vessels adorned with incised patterns may date to the Umayyad period, as is the case with some of the vessels of this type discovered at Bet She’an (Hadad 2005:22–23, Pl. 5:96–97).

Vessels adorned with incised decoration were unearthed in various locations at Ramla (e.g., Gorin-Rosen 2010b:245, Pl. 10.8:6; Winter 2013: Fig. 37:7). Bowls/beakers adorned with a pattern resembling the pattern appearing on the bowl in Fig. 8:7 were discovered, for example, in Abbasid–Fatimid-period contexts at Bet She’an (Hadad 2005:37–38, Pl. 33:655–657).

Lamps

The glass lamps from the excavation represent the two most common types: three-handled bowl-shaped lamps and stemmed lamps. These lamp types appeared in the Byzantine period and continued with various modifications in the Early Islamic period.

Bowl-Shaped Lamps (Figs. 9:1–4; 14:7).— These lamps are represented by a hollow out-folded rim with one trail handle intact (Fig. 9:1); several handles, one of which is a loop handle (Fig. 9:2); and bottoms with wick tubes (Figs. 9:3, 4; 14:7).

Bowl-shaped lamps of this type were widespread in the Byzantine and Umayyad periods and continued into the Abbasid–Fatimid periods. The lamp illustrated in Fig. 9:1 is assigned to the Umayyad–early Abbasid periods based on its fabric. Similar lamps were discovered at

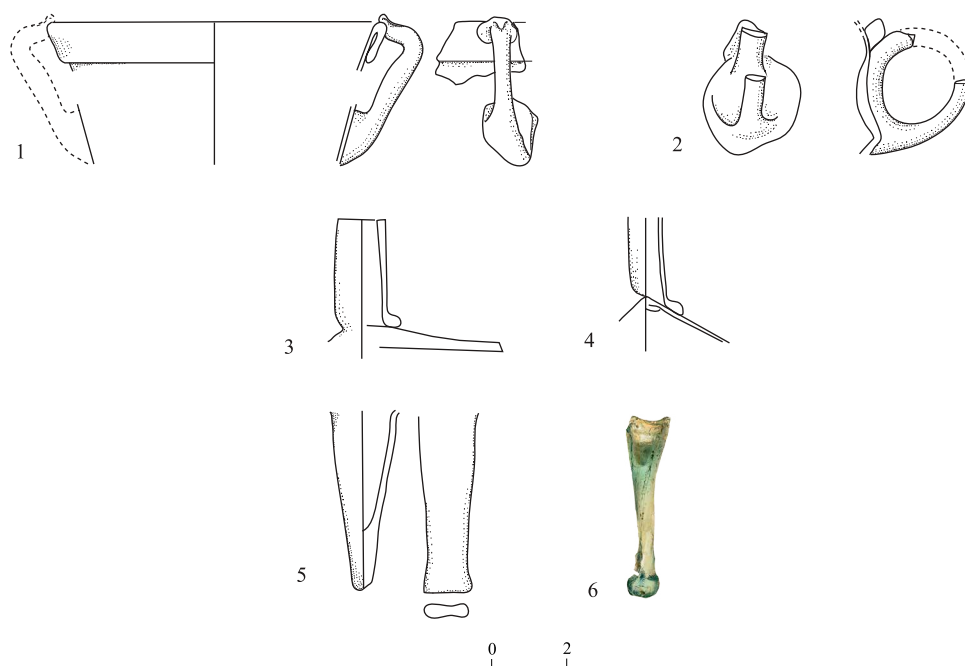


Fig. 9. Glass lamps from Area A.

No.	Locus	Basket	Description and Condition
1	136	1247	Bowl-shaped three-handled lamp with an out-folded hollow rim (diam. 90 mm), and a handle attached to the wall and drawn up over the rim; greenish blue with dark streaks; iridescence
2	239	1718	Loop handle (ext. diam. 25–27 mm) attached to a wall fragment; greenish blue; weathering, iridescence
3	116	1248	Lamp with an oval-sectioned wick tube (diam. 12–15 mm) and a part of the lamp bowl; colorless with a greenish tinge; iridescence, severe pitting
4	123	1344	Thin-walled lamp with a narrow wick tube (diam. 8–9 mm) and a part of the lamp bowl; greenish blue; black weathering, iridescence, pitting
5	199	1727	Lamp with a conical stem, hollow at its upper part, and solid and pinched at the lower end; colorless with a brownish tinge; black weathering, iridescence, severe pitting
6	170	1383	Twisted stem, tooled at its bottom; greenish blue; weathering, iridescence, pitting

Ramla, in contexts of both the Umayyad period (Gorin-Rosen 2010b:221–222, Pl. 10.1:11; Katsnelson 2013: Fig. 12:4) and the Abbasid period (Pollak 2007:114, Fig. 7:38). A loop handle (Fig. 9:2) was probably attached to a bowl used as a lamp; a bowl with a similar loop handle was discovered in the excavation north of the White Mosque at Ramla, and dated to the seventh–eighth centuries CE (Gorin-Rosen 2010b:222–223, Pl. 10.3).

The wick tubes illustrated in Fig. 9:3, 4 are assigned to the Abbasid period based on their fabric. Lamps fitted with a wick tube were recorded in various locations at Ramla, dated to the eighth–eleventh centuries CE (e.g., Sion 2004:87, Fig. 18:15–17; Pollak 2007:114, Fig. 7:40, 41; Gorin-Rosen 2011: Fig. 16:4).

Stemmed Lamps (Fig. 9:5, 6).— Stemmed lamps were produced with minor changes during the Byzantine period, throughout the Early Islamic period and into the Mamluk period. The stemmed lamps from the Azrieli Mall excavation are represented by two variants, distinguished by the stem shape: a conical stem, made of colorless glass with a brownish tinge, which is hollow at its upper part and solid and asymmetrically-pinched on its lower end (Fig. 9:5); and a greenish-blue stem, twisted and tooled on its lower end (Fig. 9:6).

Analogous examples were recorded in various locations at Ramla, dated to the Abbasid–Fatimid periods (e.g., Gorin-Rosen and Katsnelson 2005: Fig. 2:19; Pollak 2007: Fig. 7:42; Gorin-Rosen 2010b:252–253, Pl. 10.11:1, 2).²

Miscellaneous Vessels and Other Artifacts

Alembics (Fig. 10:1, 2).— Two hollow alembic spouts, one conical (Fig. 10:1) and the other curved (Fig. 10:2), were discovered in the excavation. Complete alembics with both types of spouts are part of the al-Sabah collection (Carboni 2001:144–145, Cat. Nos. 34:a, b).

Alembics, comprising a small U-shaped container and a distinctive long spout, were widespread during the Umayyad and Abbasid–Fatimid periods. They were possibly used in chemical procedures or the domestic production of date wine or rose water, and were probably introduced into the glass repertoire of the region by the newly-settled Muslim

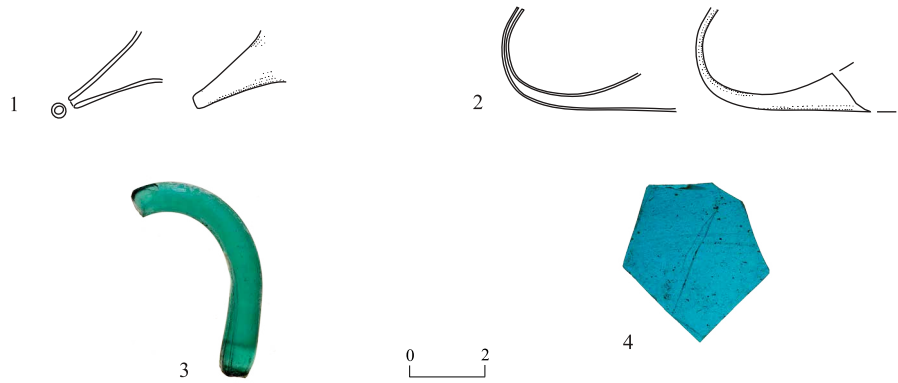


Fig. 10. Miscellaneous glass vessels and other glass artifacts from Area A.

No.	Locus	Basket	Description and Condition
1	165	1304	Hollow conical alembic spout; light greenish blue; weathering, iridescence
2	172	1384	Hollow curved alembic spout; colorless; weathering, iridescence
3	250	1805	Fragment of a horseshoe-shaped object; greenish blue; weathering, iridescence
4	221	1628	Fragment of a thin windowpane; deep turquoise color; weathering, iridescence

² The stemmed lamps published by Gorin-Rosen (2010b) are described in the text, yet were mistakenly omitted from the plates in the published article.

population in the Early Islamic period (Kröger 1995:186; Carboni 2001:139–140, 144–145; Gorin-Rosen 2010b:227).

Alembics were recovered at Ramla, in contexts dated to the eighth century CE (e.g., Gorin-Rosen 2010b:227, Pl. 10.2:18–21), and at other major sites of the Early Islamic period in the country, for example, Caesarea Maritima Stratum VIII, dated to 640–750 CE (Pollak 2003:165, Fig. 1:17), and Bet She'an, in contexts dated to the Umayyad and Abbasid–Fatimid periods (Hadad 2005:29, 47–48, Pls. 23:453–455; 46:979–981).

Horseshoe-Shaped Object (Fig. 10:3).— This curved, greenish blue fragment is part of a horseshoe-shaped object. Such U-shaped objects generally have a knob at one end and a slight thickening at the other end. Their function is unclear; they may have been a final product or part of the glass production process. A complete unprovenanced specimen in the Israel Museum was presumably a good-luck amulet, possibly from Hebron, and perhaps dated to the Middle Islamic period (Spaer 2001:255, Cat. No. 616, Pl. 47:616).

Many fragments of such horseshoe-shaped objects were discovered in various excavations at Ramla, suggesting that they were locally produced (e.g., Gorin-Rosen 2010b:254, Pl. 10.11:9; 2012b: Fig. 5:1; Katsnelson 2013: Fig. 12:1–3). These items are attributed to the Umayyad period, particularly the eighth century CE, based on their fabric and archaeological context.

Windowpane (Fig. 10:4).— This thin, deep turquoise-colored fragment probably belonged to a circular windowpane. It is also possible that it was cut and used as an inlay in a window screen.

Similarly colored circular windowpanes were documented, for example, at Khirbat el-Mefjer (Brosh 1990).

Raw Glass and Glass Production Debris

Numerous remains of glass production originated in Area A. They were retrieved from various contexts containing glass vessels attributed mostly to the Abbasid period (Figs. 11, 12), and occasionally to the Umayyad period (Loci 116, 136, 165; Fig. 11). A relatively large quantity of production remains (Fig. 12) was unearthed in L175, B1391, together with glass vessels from the Abbasid period.

The glass production remains comprise moils (Figs. 11:1, 2; 12:1), one of which originated from the production of a bottle characteristic of the Abbasid period (Fig. 11:1); ‘buttons’ (Figs. 11:3; 12:2, 5); droplets and threads (Fig. 12:3, 4, 8); chunks of yellowish brown and greenish blue raw glass (Figs. 11:4–7; 12:10); various pieces of amorphous refuse (Figs. 11:8, 9, 12; 12:6, 7, 9); debris from the bottom of furnaces (Figs. 11:10, 11; 12:11), some pieces bearing metal residue (Fig. 12:11); and fragments of glazed bricks from furnace walls (Fig. 12:12).³

³ The various categories of glass production remains were identified by Yael Gorin-Rosen.

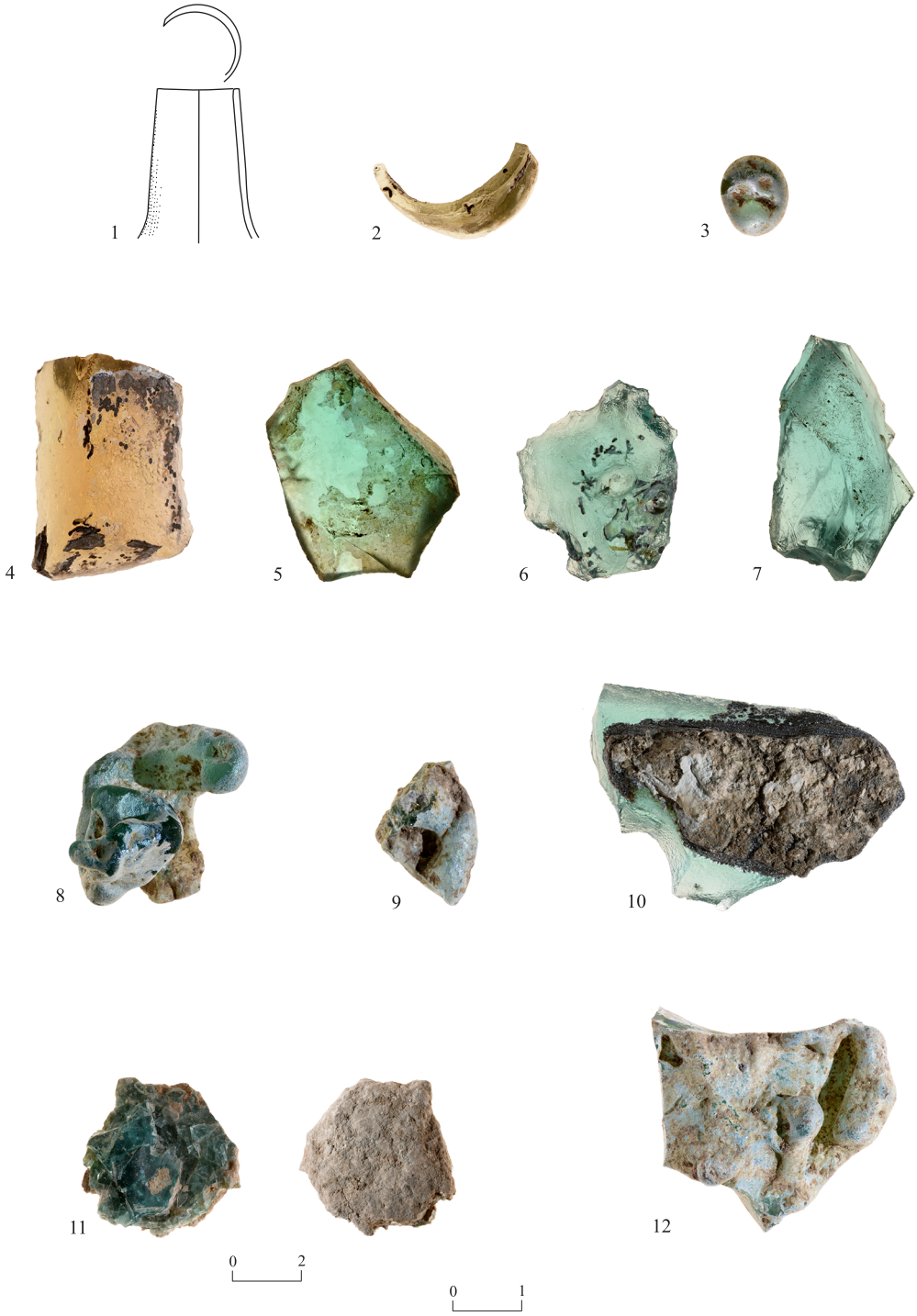


Fig. 11. Raw glass and glass production debris from Area A.

◀ Fig. 11

No.	Locus	Basket	Description and Condition	Date
1	116	1248	Moil from the production of a bottle; cut-off rim (diam. 24 mm) and neck; colorless with a brownish tinge; iridescence, severe pitting	Umayyad–Abbasid
2	200	1538	Moil from the blowing process; colorless	Abbasid–Fatimid
3	154	1273	‘Button’; greenish blue; weathering, iridescence	Abbasid
4	111	1062	Raw glass chunk; yellowish brown	Abbasid–Fatimid?
5	233	1658	Raw glass chunk; greenish blue	Abbasid
6	200	1538	Raw glass chunk; greenish blue	Abbasid–Fatimid
7	136	1247	Raw glass chunk; greenish blue	Umayyad–Abbasid
8	136	1247	Amorphous droplet; greenish blue	Umayyad–Abbasid
9	136	1247	Amorphous refuse; greenish blue	Umayyad–Abbasid
10	184	1428	Debris from bottom of furnace	Abbasid
11	233	1658	Debris from bottom of furnace	Abbasid
12	165	1304	Deformed refuse	Abbasid–Fatimid

Fig. 12 ▶

No.	Description
1	Moils
2	‘Buttons’
3	Droplet; greenish blue
4	Droplet; greenish blue
5	‘Button’; greenish blue
6	Refuse; greenish blue
7	Refuse; greenish blue
8	Threads and elongated droplets
9	Amorphous refuse
10	Raw glass chunks
11	Debris from bottom of furnace, with traces of metal
12	Small fragments of glazed bricks from furnace

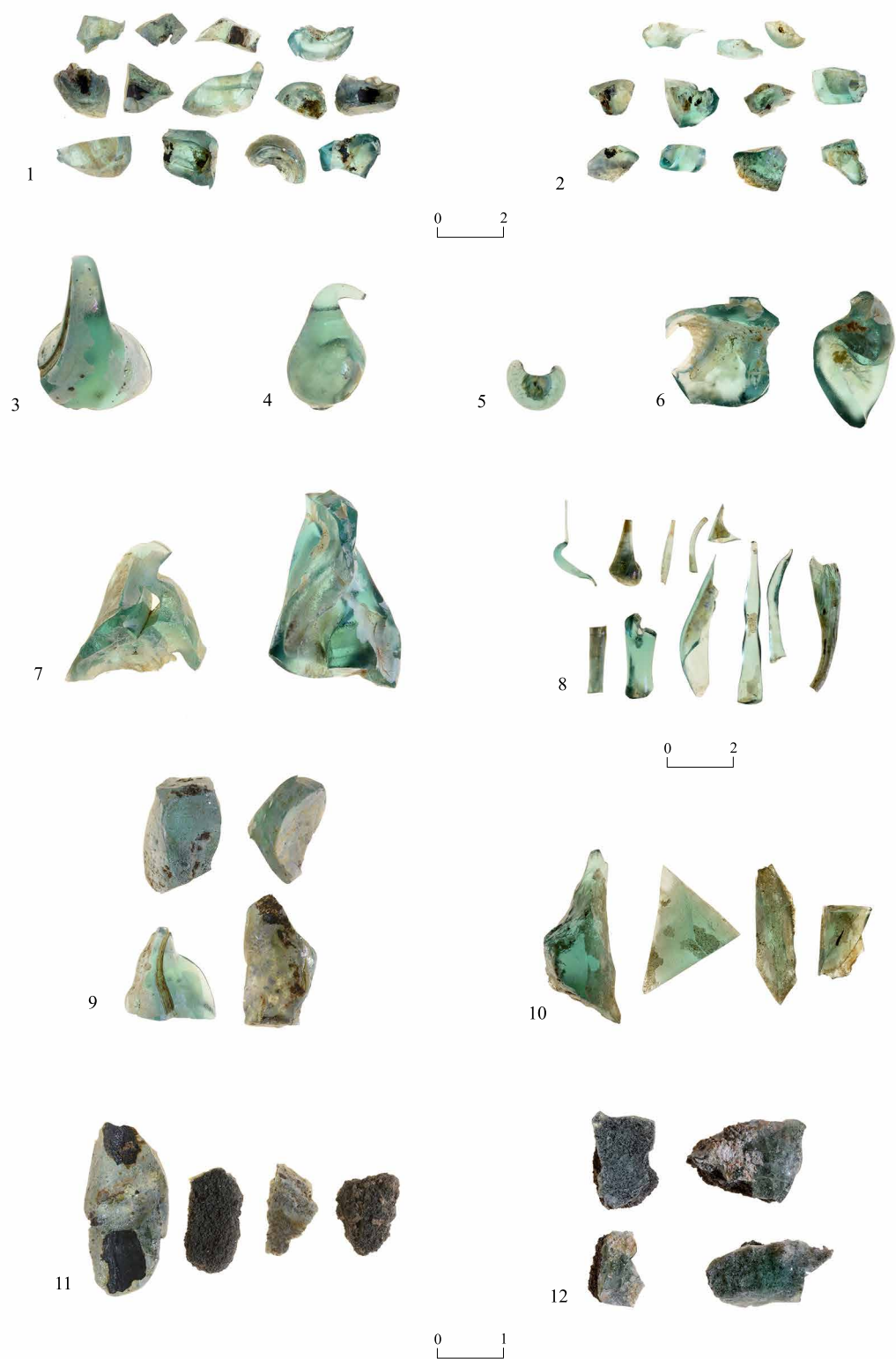


Fig. 12. Raw glass and glass production debris from Area A (L175, B1391).

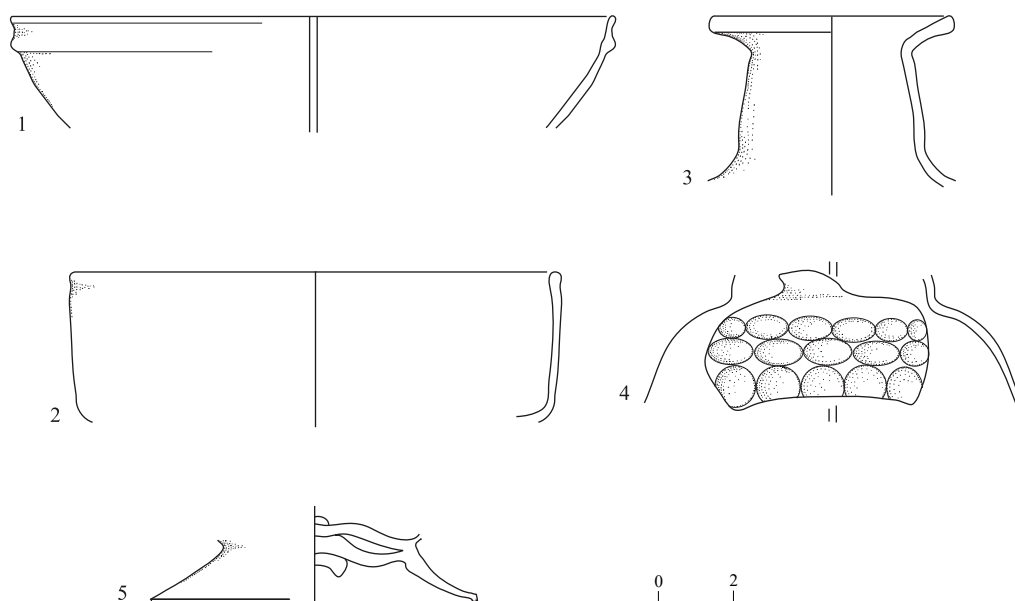


Fig. 13. Glass vessels from Area B.

No.	Locus	Basket	Description and Condition
1	334	3104	Thick-walled bowl with a rounded rim (diam. 160 mm), convex walls and a horizontal ridge below the rim; greenish blue; weathering, iridescence, pitting
2	311	3076	Thick-walled bowl with a rounded rim (diam. c. 125 mm), vertical walls and probably a flat bottom; colorless; weathering, iridescence, severe pitting
3	311	3093	Thick-walled jar with a rounded rim (diam. 64 mm), a short funnel-shaped mouth and a wide neck; green; black weathering, iridescence, pitting
4	304	3014, 3085	Neck and body fragments of a bottle adorned with rows of cut facets; colorless; weathering, iridescence, pitting
5	311	3093	Large base (diam. 85 mm), possibly made of two parisons, with a bulge in the center, and a large bulge on the underside with traces of glass from the pontil; olive green; weathering, iridescence, pitting

The nature of these remains indicates that they originated in a vessel-blowing workshop (for a comprehensive discussion on production debris, see Gorin-Rosen and Katsnleson 2007:124–129, Fig. 25). Their occurrence in numerous contexts at the site, including a floor dismantling (L233), a fill beneath a floor (L184), soil accumulations (e.g., Loci 136, 165) and surface soil (L200), suggests that the glass production remains were brought over from a nearby site, where a workshop for producing glass vessels had operated.

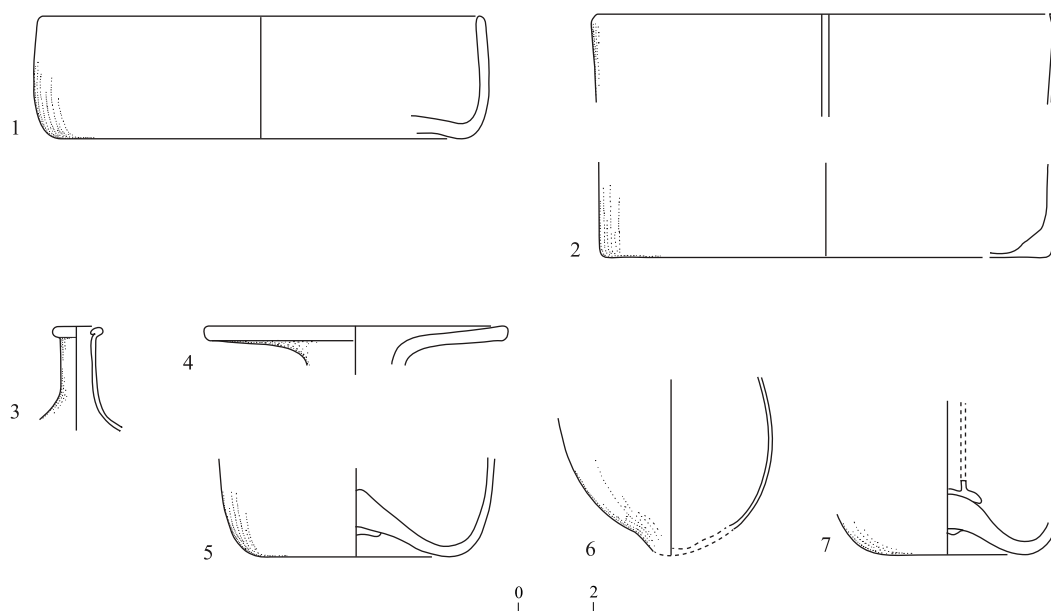


Fig. 14. Glass vessels from Area C.

No.	Locus	Basket	Description and Condition
1	544	4146	Thick-walled bowl (height 33 mm) with a rounded rim (diam. 115 mm), vertical walls and a flat or slightly concave bottom (diam. 115 mm); colorless; black weathering, iridescence
2	508	4024	Bowl with a rounded rim (diam. 120 mm), thin vertical walls and a flat bottom (diam. 115 mm) thickened around its perimeter; colorless; iridescence, severe pitting; two fragments
3	523	4089	Bottle with an irregularly infolded rim (diam. 13–15 mm) and cylindrical neck; greenish blue; weathering, iridescence
4	504	4012	Bottle with a rounded rim (diam. 80 mm) and a thick short funnel-shaped mouth; colorless with a brownish tinge; weathering, iridescence, pitting
5	529	4101	Pushed-in bottom (diam. 55 mm) with a scar and traces of glass from the pontil on its underside; greenish blue; weathering, iridescence
6	508	4024	Slightly deformed, thin-walled, elongated bottle with a deformed bottom; blue; weathering, iridescence; mended
7	529	4140	Lamp with a concave bottom (diam. c. 45 mm) bearing remains of a wick tube installed at its center, and a pontil scar on its underside; greenish blue; weathering, iridescence

SUMMARY AND DISCUSSION

Most of the glass finds from the excavation in the Azrieli Mall compound at Ramla were retrieved from Area A. Some of these finds are characteristic of the Umayyad period, while most date to the Abbasid–Fatimid periods, of which some types possibly continued into the Mamluk period. The same can be said of the finds from Area B, while those from Area C are dated to the Umayyad and Abbasid–Fatimid periods.

This glass assemblage attests to a very rich typological variety and wide array of decoration techniques, which apparently represent much of the repertoire of glass vessels manufactured and used in Ramla in the Early Islamic period. The rich variety of the glass assemblage and sophisticated nature of the vessel types attest to the affluence of the population inhabiting this part of Ramla, and the familiarity of this population with contemporary trends of the glass industry.

Nearly all of the glass finds from the excavation were made of greenish blue or colorless glass. These fabrics suggest two different chemical compositions: that of the former fabric was widely used in the Late Roman, Byzantine and Umayyad periods, while the chemical composition of the latter fabric was typical of the Abbasid–Fatimid periods (Gorin-Rosen 2010b:213).

The Early Islamic period saw the continuation of Byzantine traditions, as attested, inter alia, by the use of natron in producing greenish blue glass fabrics. About half of the vessels and other artifacts from the excavation were made of such fabrics. This period also saw a wave of innovation, manifested, among other aspects, by the re-introduction of plant ash and the manufacture of colorless glass, the latter of which accounts for the severe weathering of many of the colorless specimens.

It is noteworthy that some loci contained fragments made of both the greenish blue and the colorless fabrics; for example, L126, B1148 yielded three bases, two of which are colorless and display severe black and white weathering (Figs. 1:4; 3:7), and another which is greenish blue (Fig. 7:5) and bears a different, lighter weathering. This may attest to a period of transition between the Umayyad and Abbasid periods, when glass vessels were made using natron or plant ash.

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