

# Glass

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## INTRODUCTION

The present chapter provides an overview of glass finds recovered during rescue excavations at Zeugma in 2000. This survey covers the full chronological scheme of Zeugma as reflected in the archaeological record, from Seleucid through Early Islamic times, with emphasis on the Early, Middle, and Late Imperial periods.<sup>1</sup> The finds under consideration include glass vessels, window glass, and glass objects (mainly jewelry), as well as a small number of objects in other materials (e.g., faience) related to glass.<sup>2</sup> While it has been possible to publish only a small fraction of the glass recovered at Zeugma, the pieces chosen for publication are, for the most part, representative of larger classes of material; at the same time, an effort has also been made to treat atypical finds.

### Methodology

This chapter was written with the assistance of notes compiled by Dr. Jennifer Price during a June 2002 visit to Zeugma, along with photos and drawings made by Oxford Archaeology. At the time of Dr. Price's visit, the majority of the glass finds excavated during the Zeugma 2000 excavations were kept at Birecik, while a smaller body of material was housed in the Gaziantep Museum; at present, the Zeugma glass has been transferred to Gaziantep. Dr. Price's notes, while thorough, were intended to be provisional. Her descriptions of individual pieces of glass are generally partial, consisting of only the most diagnostic features. Dimensions were rarely recorded. Regrettably, it has not been possible to supplement these notes through direct reexamination of the material. This study is, therefore, subject to certain limitations imposed by heavy reliance on photographs and drawings.

### Quantitative Analysis

The glass finds from the Zeugma 2000 excavations total nearly 10,500 fragments.<sup>3</sup> Vessel glass accounts for a little less than half of that number (45.5 percent), window glass for a little more than half (54 percent); glass objects make up a minuscule fraction of the total (0.5 percent). The distribution of vessel glass fragments can be divided into three roughly equal groupings, with Trenches 2, 7, and 9 each accounting for around 20 percent, Trenches 1 and 18 each for 10 percent, Trenches 11, 12, and 15 each for 5 percent, and Trenches 4, 5, 10, 13, and 19 together for the final 5 percent. The distribution of window glass follows a contrasting pat-

tern, with over 95 percent of the fragments found in Trench 2 in contexts datable to the mid-third century A.D. Due to the recording methods used, it has not been possible to calculate relative quantities of vessel glass by period, beyond offering that the bulk of finds in Trenches 2, 9, 11, and 18 come from mid-third century A.D. contexts and those in Trenches 1, 7, and 12 from contexts dating to the fifth century A.D. or later. It has also proven impossible to compute relative proportions of vessel types within the assemblage, beyond concluding that vessels used as tableware (e.g., bowls, cups, beakers, jars, flasks) far outnumber vessels devoted to other functions (e.g., bottles, unguent bottles, lamps).

### Condition

The glass finds consist mainly of fragments, most of them quite small. Joining fragments are not uncommon, but in only a few instances have vessels been preserved nearly whole. This is, of course, to be expected of glass excavated in an urban setting, where much of what has been recovered is likely to be refuse of some sort. In addition to their fragmentary state, the glass finds all exhibit some degree of surface weathering, resulting from interaction with moisture in the burial environment. Typical weathering effects include cloudiness, iridescence, surface pitting, and/or flaking; in severe cases, these effects may obscure the color of the fabric and details of surface decoration. Besides normal weathering, a substantial portion of the Zeugma glass was also affected by exposure to extreme heat, principally from fires associated with the Sasanian attack on the city in A.D. 252/253, and, to a lesser extent, with a second wave of destruction inflicted by invading Arabs ca. A.D. 636.<sup>4</sup> The

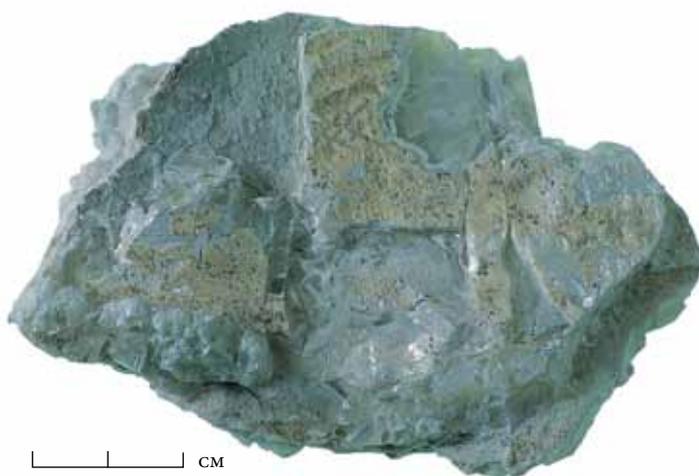


Figure 1. G42. Lump of fused glass.

effects of exposure to heat include obscuring of surface color and detail, changes in fabric color, distortion of shape, and, in the most severe cases, fusion of multiple pieces into an aggregate mass of glass (fig. 1).<sup>5</sup> Variations in physical condition play a large role in determining the quantity of information that can be derived from a given piece of glass. At one extreme, many are simply unidentifiable; at the other, a single fragment may provide copious indications for technique, decoration, typology, and/or date.

### Findspots

Glass was found in only a few closely datable construction contexts (e.g., foundation trenches, leveling layers) and occupation deposits; in both situations, the fragments are rarely diagnostic. Most of the glass finds come from one of two kinds of contexts: debris layers associated with destruction events (generally related either to the Sasanian attack of A.D. 253 or the Arab invasions of ca. A.D. 636) or postoccupation colluvium overlying settlement remains. The colluvium contexts tend to combine assorted material carried down from the slopes above, and a single context may contain glass spanning several hundred years. The destruction contexts also frequently include fragments of apparently mixed date, and in these instances it is necessary to question whether the particular amalgamation of fragments in a given context indicates simultaneous deposition, or if pieces of outlying date represent intrusions from other strata. Such matters are not always easily resolved and can confuse the chronology of certain types of glassware.

### Dating

It is important to bear in mind that, while this chapter abides by a chronological scheme based on the history of Zeugma, these divisions of time do not correlate meaningfully with the history of glass. Many fragments are too small and/or generic to date closely. Furthermore, the date ranges for some techniques of manufacture and types of vessels and objects encountered at Zeugma remained standard over several centuries, extending outside the borders of a single period. For the sake of clarity, classes of material are discussed in the sections of the chapter dealing with the period to which they are customarily dated, with additional commentary offered where relevant.

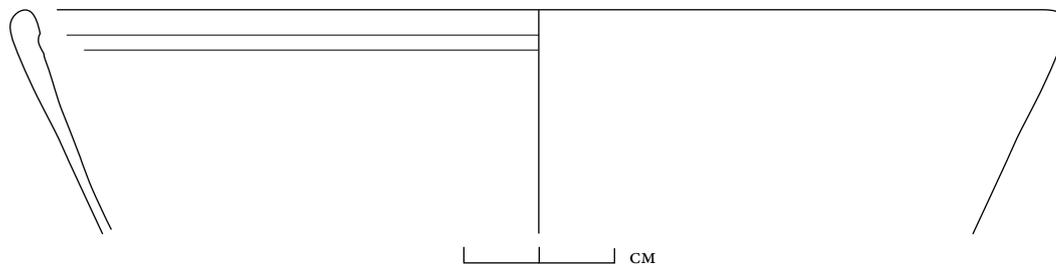


Figure 2. G1. Conical bowl.

## GLASS VESSELS

### I. Seleucid Period (300–64 B.C.)

Hellenistic glass is poorly represented, with only a single fragment plausibly dated to the Seleucid period.

#### *Ia. Core-Formed Vessels*

The complete absence of core-formed vessels in the assemblage is surprising.<sup>6</sup> The discovery of several fragments of core-formed glass at Dura-Europos demonstrates that the distribution of these vessels, produced on the Syro-Palestinian coast, extended inland to Seleucid cities along the Euphrates.<sup>7</sup>

#### *Ib. Cast Vessels*

Only one fragment of cast glass unearthed at Zeugma can be dated to the Seleucid period. A fragment preserving the rim and upper body of a conical bowl with a single horizontal wheel-cut groove on the interior wall just below the rim (G1) belongs to a class of cast drinking vessels produced on the Syro-Palestinian coast and traded extensively throughout the eastern Mediterranean beginning in the middle of the second century B.C.<sup>8</sup> A date between ca. 150 and 50 B.C. for this fragment is supported by its association with context 18090, an Early Imperial wall whose foundations cut into a late Seleucid (?) terrace.<sup>9</sup>

G1 context 18090

Conical bowl

Greenish

FIG. 2

Fragment of rim and body. Upright rim with rounded edge. Straight side, sloping diagonally inward. On the interior, horizontal cut groove just below rim.

Similar: Grose 1979, group A.

### II. Commagenian (64 B.C.–A.D. 18)

The Commagenian period at Zeugma encompasses a fertile era in the history of glass, during which technical advances allowed for increased production of cast glassware, while Roman expansion into Asia Minor fostered a major escalation of trade.<sup>10</sup> Cast bowls with linear-cut decoration in the Syro-Palestinian tradition continued to be produced

into the middle decades of the first century A.D. but declined in popularity during the age of Augustus in favor of more elaborate products, including ribbed bowls and polychrome “mosaic” glass.

#### *Ila. Cast Vessels (Linear-Cut)*

A fragment preserving the rim and upper body of a cast bowl with a cut groove on the interior just below the rim (G2) was found in a late first-century B.C. to early first-century A.D. context (15232) in Trench 15 that also included fragments of Hellenistic fineware and Eastern Sigillata A.<sup>11</sup>

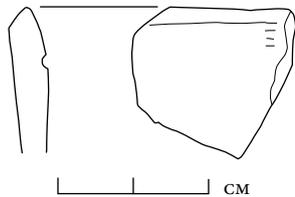


Figure 3. G2. Broad, shallow bowl (?) (linear-cut).

G2 context 15232

**Broad, shallow bowl (?)**

Greenish

FIG. 3

Fragment of rim and body. Upright rim with almost pointed edge. Short section of fairly straight side. On the interior, horizontal cut groove just below rim.

Similar: Grose 1979, group D.

#### *Iib. Cast Bowls (Ribbed)*

Cast ribbed bowls (sometimes called pillar-molded bowls) were the predominant class of glass tableware between the late first century B.C. and early first century A.D., though production continued at least into Flavian times.<sup>12</sup> The remnants of at least 10 ribbed bowls were excavated at Zeugma across a broad distribution of contexts. Naturally colored bluish-green glass appears to have been the standard fabric here, as it was throughout the eastern Mediterranean; one bowl may have been intentionally decolorized. The reconstructed profiles of these vessels illustrate two of the most common forms: the broad shallow bowl (G3) and the hemispherical bowl (G4), as well as a fairly widespread variant on the hemispherical bowl with an outplayed rim (G5). It is noteworthy that the ribs differ in prominence and shape from one fragment to another. This heterogeneity makes it unlikely that the same workshop was responsible for all of the ribbed bowls found at Zeugma and argues against local manufacture for these vessels. The cast ribbed bowls, like the other vessels discussed thus far, were likely imported from the Syro-Palestinian coast, where they are known to have been made.<sup>13</sup>

G3 context 18002

**Broad, shallow bowl**

Bluish-green

FIG. 4

Fragment of rim and body. Upright rim with almost flat edge, sloping diagonally outward. Convex side, curving inward. On the interior, horizontal cut groove just below rim. On the exterior, upper part of one prominent vertical rib.

Similar: Isings 1957, form 3a; Grose 1979, group C.

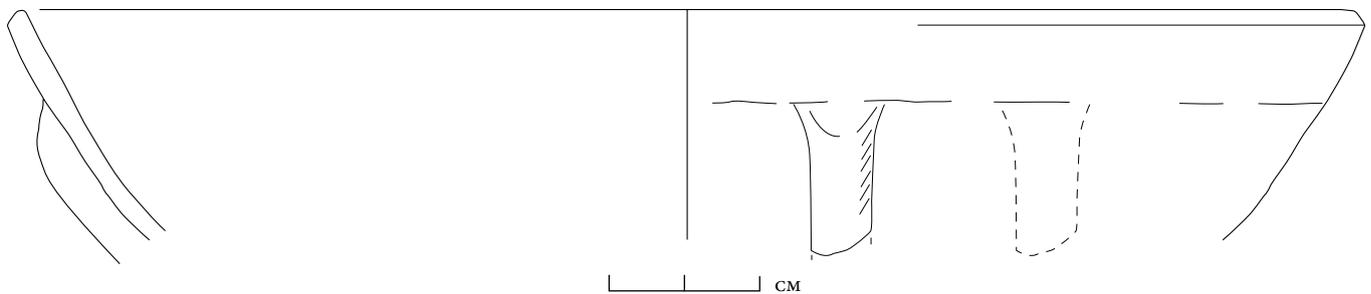


Figure 4. G3. Broad, shallow bowl (ribbed).

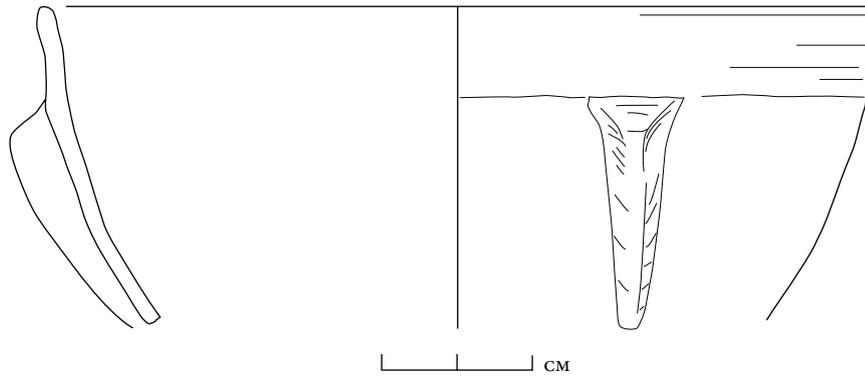


Figure 5. G4. Hemispherical bowl (ribbed).

G4 context 12000

**Hemispherical bowl**

Bluish-green

FIG. 5

Fragment of rim and body. Upright rim with rounded edge. Convex side, curving inward. On the exterior, most of one prominent vertical rib.

Similar: Isings 1957, form 3b; Grose 1979, group C.

G5 context 11028 (fragment joins with another found in context 11026)

**Hemispherical bowl with outsplayed rim**

Colorless (?)

FIG. 6

Fragment of rim and body. Outsplayed rim with flat edge. Convex side, curving inward. On the exterior, three (?) shallow vertical ribs.

Similar: Isings 1957, variant of form 3b; Grose 1979, group C.

*Iic. Mosaic Vessels*

Mosaic glass vessels of the late first century B.C. to early first century A.D., while still widespread, were less commonplace and surely more costly than those cast from monochrome glass.<sup>14</sup> A total of nine fragments of mosaic glass (G6) were found in two nearby contexts in Trench 2 (two fragments in context 2269 and seven in 2376). The fragments are all very similar in appearance and probably belong to a single vessel, reconstructed here as a broad, shallow bowl. The composite mosaic pattern is uncomplicated, consisting entirely of opaque yellow roundels with dark green centers, set in a dark green matrix (the blue areas on the fragments are iridescence). Although fairly simple in comparison with much contemporary mosaic glass, this single example of the technique preserved at Zeugma, certainly imported, was surely prized as a luxury item.

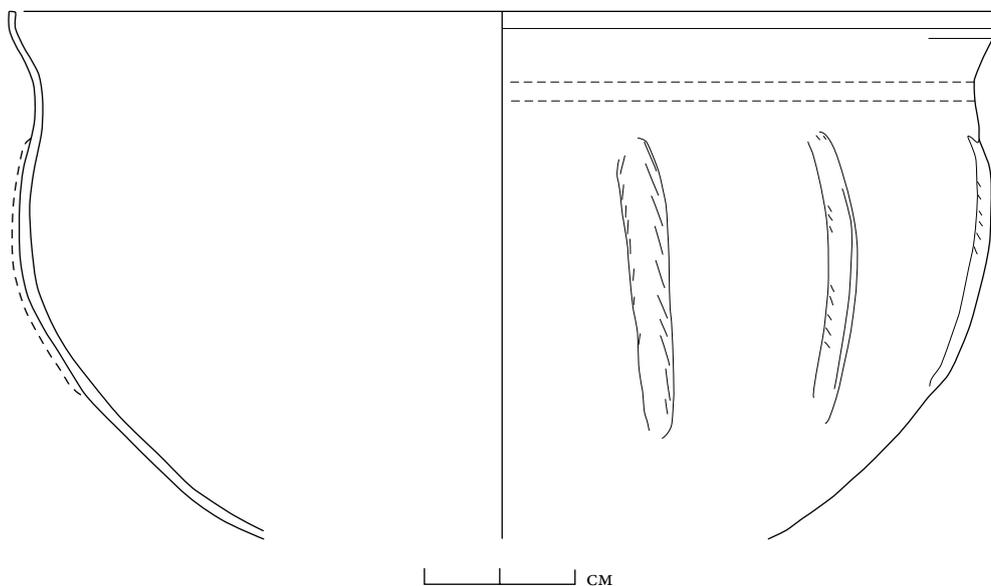


Figure 6. G5. Hemispherical bowl (ribbed) with outsplayed rim.

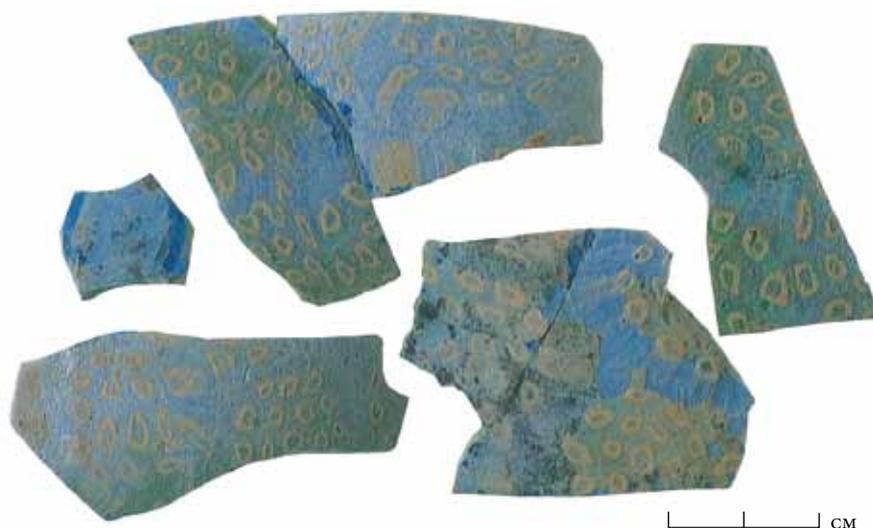


Figure 7. G6. Broad, shallow bowl (composite mosaic).

G6 contexts 2269 (two fragments) and 2376 (seven fragments)

**Broad, shallow bowl**

Dark green inlaid with opaque yellow roundels around green rods

FIG. 7 (context 2376 fragments only)

Nine fragments of rim and body (two pairs joining). Upright rim with rounded edge. Convex side, curving inward. Similar: Grose 1989, family IV: noncarinated forms.

REMARKS

It is remarkable that nearly half of the ribbed bowl fragments and all of the mosaic glass published here were discovered in contexts associated with the Sasanian attack of the mid-third century A.D.<sup>15</sup> Although neither type of vessel ordinarily appears in assemblages later than the early second century A.D., their repeated incidence at Zeugma in third-century contexts, some of them deeply buried beneath layers of destruction and collapse, makes it unlikely that all of these fragments simply represent intrusions from overlying deposits of mixed material.<sup>16</sup> It is noteworthy that contexts containing fragments of three ribbed bowls and the mosaic glass vessel (G6) fall within a single house, the affluent House of the Bull.<sup>17</sup> It seems plausible that a small number of glass vessels manufactured between the late first century B.C. and the early first century A.D. survived into the third century A.D., safeguarded as heirlooms.

**III. Early Imperial (A.D. 18–161)**

The glass finds of the Early Imperial period are divided between vessels made using long-established casting techniques and those produced with more recently developed glassblowing technologies. Two new classes of cast tableware were introduced, differentiated by the presence or absence of color in the fabric. Finds of blown glass securely datable to the Early Imperial period are limited to a few small mold-blown vessels, along with a single fragment of a beaker with distinctive relief-cut decoration.

*IIIa. Translucent Colored Cast Tableware*

A very small portion of the cast glass finds from Zeugma are of translucent “peacock” blue glass, including four joining fragments of a hemispherical bowl (G7).<sup>18</sup> This distinctively colored fabric was used almost exclusively in the production of tableware in the second and third quarters of the first century A.D. Vessels made from translucent colored glass were much more popular in Italy and the northern provinces than in the eastern Mediterranean. It is likely, therefore, that only a few vessels of this sort were imported to Zeugma from the West.

G7 context 18001

**Hemispherical bowl**

“Peacock” blue

Four joining fragments of rim and body. Upright rim with rounded edge. Convex side, curving inward.

Similar: Grose 1989, family III: monochrome translucent colored fine wares.

*IIIb. Colorless Cast Tableware (Plain)*

By far more plentiful at Zeugma than colored glass are fragments of colorless cast bowls and plates.<sup>19</sup> The use of colorless fabrics for glass tableware became popular across the Roman Empire towards the end of the first century A.D. This class includes vessels made of both intentionally decolorized (i.e., clear) and naturally colorless (pale greenish and bluish-green) fabrics. Intentionally decolorized pieces appear to outnumber the naturally colorless at Zeugma substantially. Since both fabrics were cast in the same assortment of shapes, it is probable that vessels made of naturally colorless glass were simply less expensive. All three of the principal forms of colorless cast tableware are represented among the glass finds from Zeugma: the hemispherical bowl with high base-ring (G8); the broad, shallow bowl with base-ring (G9) and overhanging rim (G10); and the plate with wide sloping rim (G11) or overhanging rim.

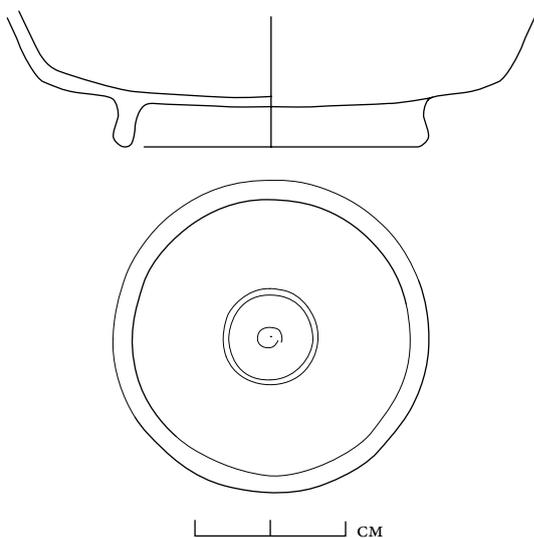


Figure 8. G8. Hemispherical bowl.

G8 context 2269  
**Hemispherical bowl**  
 Colorless

FIG. 8

Two joining fragments of body and base. Fairly straight side, sloping diagonally inward. Angular transition from side to slightly convex bottom. Slightly outplayed, high base-ring with rounded edge.

G9 context 18001  
**Broad, shallow bowl**  
 Colorless

FIG. 9

Four joining fragments of body and base. Convex side, curving inward. Gradual transition from side to slightly convex bottom. Slightly outplayed base-ring with rounded edge.

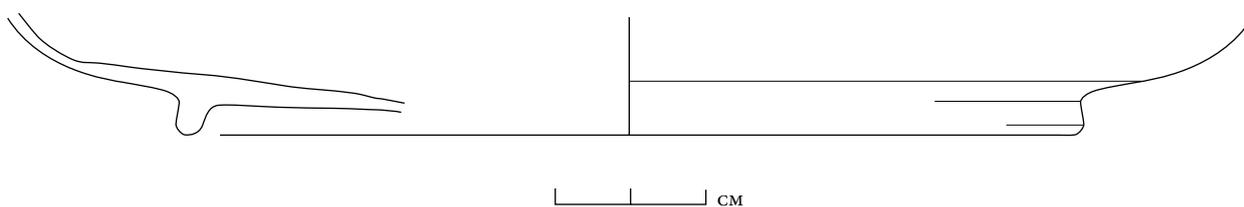


Figure 9. G9. Broad, shallow bowl.

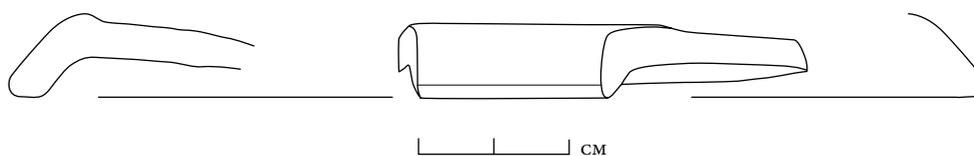


Figure 10. G10. Broad, shallow bowl with overhanging rim.



Figure 11. G11. Plate.

G10 context 2039  
**Broad, shallow bowl (?) with overhanging rim**  
 Colorless

FIG. 10

Fragment of rim. Wide, nearly horizontal rim, with downturned, overhanging edge.

G11 context 9082  
**Plate**  
 Colorless

FIG. 11

Fragment of rim and body. Wide, nearly horizontal rim with rounded edge. Short section of slightly convex (?) side curving inward.

### IIIc. Colorless Cast Tableware (Cut Decoration)

While most colorless cast vessels were left undecorated, about one-third of the fragments recovered at Zeugma have cut grooves on bases and/or rims; within this group, several have a pair of concentric circles cut into the interior surface of the bottom of the vessel (G12).<sup>20</sup> More ornately embellished are four fragments of a shallow cast dish with at least three irregular rows of oval and circular facets on the exterior (G13). While excavations at Zeugma have yielded an abundance of vessel fragments with facet-cut decoration (see below), this is the only cast example. A date of manufacture in the late first or early second century A.D. is suggested by the application of closely set facets over the whole surface of the vessel, rather than in zones, as was the norm on blown tableware with cut decoration datable to the Middle Imperial period. This dish, then, may mark the initial appearance at Zeugma of glassware with facet-cut decoration.

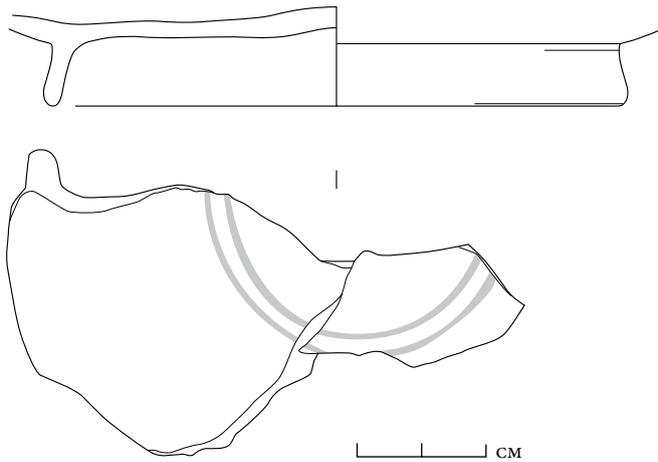


Figure 12. G12. Broad, shallow bowl (?) (cut circles).

G12 context 18001

**Broad, shallow bowl (?)**

Clear colorless

FIG. 12

Three joining fragments of body and base. Short section of convex side, curving inward. Gradual transition from side to nearly flat bottom. Slightly outplayed, high base-ring with rounded edge. On the interior, two concentric cut circles near center of bottom.

G13 context 2046

**Shallow dish (?)**

Clear colorless

FIG. 13

Four joining fragments of rim and body. Upright rim with rounded edge. Short, convex side, curving inward. Gradual transition from side to flat bottom. On the exterior, three rows of irregularly shaped circular and oval cut facets.

#### REMARKS

The substantial numbers of colorless cast glass finds, combined with their distribution across contexts in Trenches 2, 9, and 18, demonstrate that this class of glass tableware

was widespread at Zeugma. Relative quantities of extant fragments show that colorless cast bowls and plates were at least three times more common than cast ribbed bowls (see above), suggesting a more quotidian status, as well. The prevalence of colorless cast tableware may also relate to production nearer at hand, as similarities with material excavated at Dura-Europos raise the possibility that cities along the Euphrates were supplied by one or more regional workshops.<sup>21</sup> It is also worth remarking that fragments of colorless cast bowls and plates comprise a remarkably large share of the glass finds from both Zeugma and Dura-Europos. Moreover, it is probable that the inhabitants of both cities continued to use this type of tableware into the third century A.D., although it is rarely found elsewhere later than the mid-second century.<sup>22</sup> While residuality is a possibility in a few cases, another explanation is that conservative glass workshops in the region persisted in their adherence to familiar casting techniques for longer than has generally been recognized.<sup>23</sup> Consequently, it may be necessary to extend the accepted date range for colorless cast glass at Zeugma and other sites in the eastern Mediterranean by as much as a century.

#### III.d. Mold-Blown Vessels

Only a handful of mold-blown pieces recovered during the Zeugma 2000 excavations are datable with certainty to the Early Imperial period. One is a body fragment of a shallow bowl decorated with vertical ribs (G14), belonging to a class of mold-blown ribbed bowls produced during the second and third quarters of the first century A.D.<sup>24</sup> Fragments of a few mold-blown truncated conical beakers with protruding knobs (sometimes called “lotus-bud” beakers) (G15) are similarly dated.<sup>25</sup> Another fragment preserves the base and lower body of a small mold-blown bottle, jug, or flask (G16).<sup>26</sup> The pattern of upturned tongues in relief preserved on the sloping lower body of the fragment appears on a wide variety of small mold-blown perfume containers of the first century A.D., precluding precise identification of the vessel type; none of the decoration above the tongues is preserved.



Figure 13. G13. Shallow dish (facet-cut).

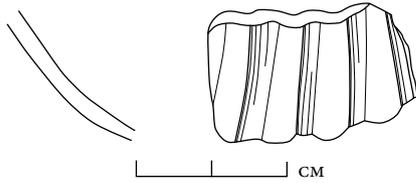


Figure 14. G14. Shallow bowl (ribbed).

G14 context 2269

Shallow bowl

Greenish (?)

FIG. 14

Fragment of body. Convex side, curving inward. On the exterior, four shallow vertical ribs.

G15 context 2278

Conical beaker

Greenish-colorless

Fragment of body. Straight side, sloping diagonally inward. On the exterior, protruding knobs alternating with small circular bosses.

Similar: Isings 1957, form 31. Small circular bosses are a common decorative element on this type of beaker.

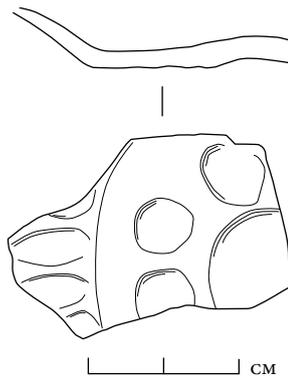


Figure 15. G16. Small bottle, jug, or flask (mold-blown decoration).

G16 context 9074

Small bottle, jug, or flask

Color not recorded

FIG. 15

Fragment of body and base. Straight side, sloping diagonally inward. Angular transition from side to flat base. On the exterior, remains of four upturned tongues on lower body; on underside of base, design of roughly circular indentations around larger central depression, also roughly circular.

Similar: Clairmont 1963, nos. 28–32. The shape of the tongues is close to a small group of vessels from Dura-Europos, including two flasks (nos. 28–9) with a lattice design of conjoined lozenges on the body above the tongues. The design on the base of the Zeugma fragment, however, is without parallel at Dura-Europos and may be unique.

### III d. Blown Vessels (Relief-Cut)

A fragment of a conical beaker (G17) recovered at Zeugma illustrates a decorative technique known as relief-cutting, in which the cutting wheel was used to grind down parts of the exterior surface of a blown-glass blank, leaving other areas raised in relief. Beakers with relief-cut decoration date mainly to the later first and early second centuries A.D. The Zeugma example is unusual in the apparent absence of a zone of cut facets on the body.<sup>27</sup> It appears to belong to a relatively rare class decorated only with ground-out horizontal ribs.<sup>28</sup>

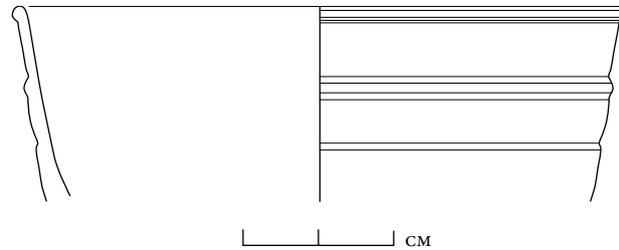


Figure 16. G17. Conical beaker (ground-out ribs).

G17 context 2189

Conical beaker

Yellowish-colorless

FIG. 16

Fragment of rim and body. Upright rim with cracked-off edge, rounded by grinding. Nearly straight side, sloping diagonally inward. On the exterior, one convex horizontal molding in relief at rim and two more on upper body; broad recesses in between formed by grinding of surface. Similar: Isings 1957, form 29 or 34. The vessel was blown thick, in order to leave the walls sufficiently sturdy after the recessed areas of the surface were ground away.

#### REMARKS

The scarcity of fragments securely datable to the Early Imperial period suggests that blown-glass vessels remained rare at Zeugma in the first and early second centuries A.D. The few mold-blown pieces were certainly imported—from the Syro-Palestinian coast, if not from the West.<sup>29</sup> The relief-cut beaker must also have been an import.<sup>30</sup> These vessels would have been highly valued as luxury items, and those found in third-century contexts were presumably kept as heirlooms.<sup>31</sup> It may not be coincidental that the fragment of the mold-blown ribbed bowl (G14) was found in the same context (2269) as finds of cast ribbed and mosaic glass (see above).

### IV. Middle Imperial (A.D. 161–253)

The glass finds of the Middle Imperial period at Zeugma are characterized by both a major expansion in quantity and a diversification of form and function.<sup>32</sup> The finds include an extensive collection of tableware—bowls, dishes,

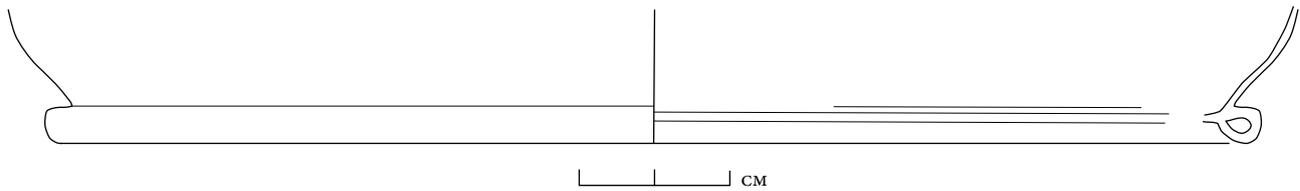


Figure 17. **G18**. Dish or shallow bowl (pushed-in hollow base-ring).

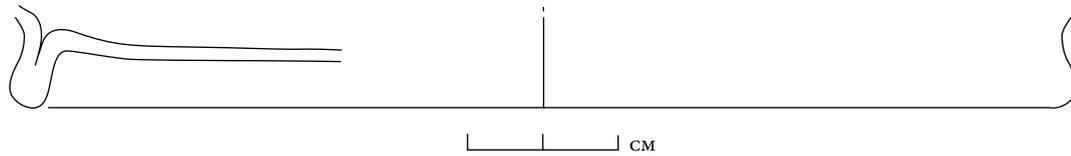


Figure 18. **G19**. Dish or shallow bowl (pushed-in hollow base-ring).

cups, and beakers for eating and drinking, as well as jars and flasks for serving; the majority of the tableware is plain, but a substantial portion is distinctively decorated with cut designs or applied ornament. In addition to tableware were found unguent bottles designed to hold scented oils, cosmetics, medicine, etc., as well as cylindrical and square bottles employed in large part for the storage and transport of goods.

#### *IVa. Blown Tableware (Undecorated)*

Fragments of undecorated blown-glass vessels are very numerous at Zeugma, appearing in many third-century deposits and colluvium layers. In spite of the prevalence of this material, these fragments are often difficult to type and to date closely. The greatest part consists of fragments preserving the convex, curving bodies of bowls and cups. More specifically, fragments of bases with pushed-in hollow base-rings (**G18–19**), belonging to dishes and shallow bowls, are quite common. Deeper bowls and cups with applied base-rings (**G20–21**) and pad bases (**G22**) also occur somewhat frequently. Rims are mostly simple, either fire-rounded (**G23**) or cracked off (**G24**); folded rims are rare. Particularly notable among the finds of plain blown glassware are a few fragments of goblets with solid, knobbed stems and separately blown feet (**G25–26**).<sup>33</sup>

**G18** context 1010

#### **Dish or shallow bowl**

Yellowish-green

FIG. 17

Fragment of body and base. Convex side, curving inward. Angular transition from side to flat (?) bottom. Outsplayed base-ring with tubular edge, formed by folding. Similar: Isings (1957), form 49; Vessberg 1956, shallow bowl type BIa.

**G19** context 2332

#### **Dish or shallow bowl**

Pale bluish-green

FIG. 18

Fragment of base. Flat bottom. Slightly outsplayed base-ring, formed by folding.

Similar: possibly Isings 1957, form 97a; Vessberg 1956, shallow bowl type BIIa.

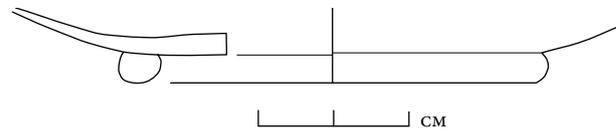


Figure 19. **G20**. Hemispherical cup or bowl (applied base-ring).

**G20** context 9074

#### **Cup or bowl**

Bluish-green

FIG. 19

Fragment of body and base. Nearly straight side, sloping diagonally inward. Gradual transition from side to flat bottom. Applied base-ring with rounded edge.

Similar: possibly Isings 1957, form 85b. The shallow angle of the lower body suggests that the shape of this cup/bowl was roughly cylindrical.

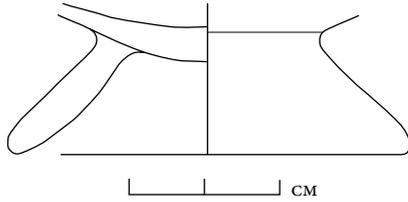


Figure 20. G21. Deep bowl (applied base-ring).

G21 SF 2128; context 2039

**Deep bowl**

Pale greenish

FIG. 20

Fragment of body and base. Convex, curving bottom. Applied diagonal base-ring with rounded edge.

Similar: Clairmont 1963, nos. 384–402. Many similar bases, associated with deep bowls, were found at Dura-Europos.

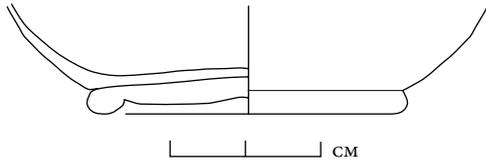


Figure 21. G22. Hemispherical cup or bowl (pad base).

G22 context 2080

**Hemispherical cup or bowl**

Colorless

FIG. 21

Fragment of body and base. Convex side, curving inward; thicker towards bottom. Angular transition from side to slightly concave bottom. Pad base, tooled to form base-ring with rounded edge.

Similar: possibly Isings 1957, form 69. This type of vessel was popular in the later first and early second centuries A.D. and probably later. Examples with pad bases are relatively common.

G23 context 2002

**Cylindrical cup or bowl**

Colorless

FIG. 22

Fragment of rim and body. Vertical rim with thickened, fire-rounded edge. Straight, vertical side, beginning to curve towards bottom.

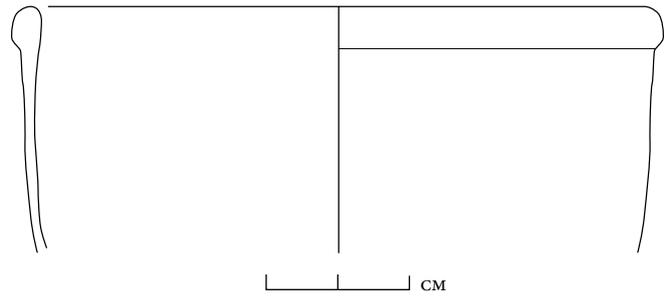


Figure 22. G23. Cylindrical cup or bowl (fire-rounded rim).

G24 context 2001

**Convex bowl with outsplayed rim**

Greenish-colorless

FIG. 23

Fragment of rim and body. Outsplayed rim with sloping, cracked-off edge, flattened by grinding. Convex side, curving inward.

Similar: Isings 1957, form 96a; Vessberg 1956, deep bowl type AI.

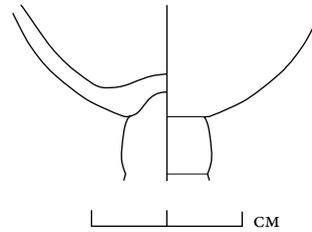


Figure 24. G25. Goblet.

G25 context 11047

**Goblet**

Greenish

FIG. 24

Fragment of body and stem. Convex side, curving inward. Angular transition from side to concave bottom. Solid, globular knobbed stem inserted into underside of concave bottom; very small section of a second knob (?) below first.

Similar: Clairmont 1963, nos. 460–7. Fragments of similar goblets, with either ovoid or bell-shaped bodies, were found at Dura-Europos.

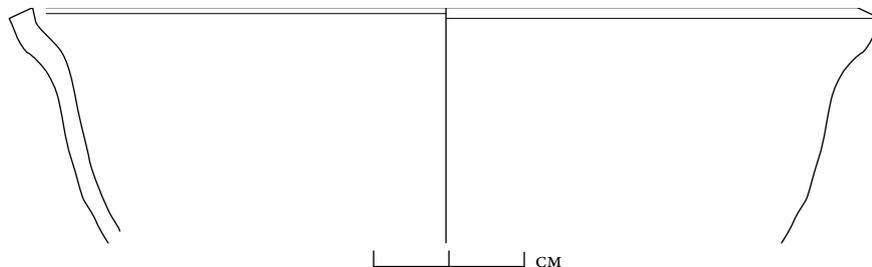


Figure 23. G24. Convex bowl with outsplayed rim (cracked-off rim).

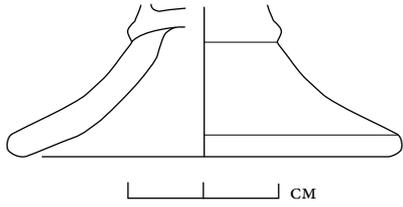


Figure 25. G26. Goblet.

G26 context 2080

**Goblet**

Colorless

FIG. 25

Fragment of stem and foot. Lower section of knobbed stem. High, outsplayed foot, slightly concave, with rounded edge.

**REMARKS**

Fragments of jars and flasks occur much less frequently than bowls, dishes, and cups, indicating that glass vessels used for serving food and drink were not as widespread as those geared towards consumption. One of the best preserved vessels recovered at Zeugma is a small square jar (G27) with indented sides and outsplayed rim.<sup>34</sup> Another type of jar in use during this period was presumably globular, with a wide mouth and cylindrical neck (G28). Flasks with funnel-shaped mouths (G29) also came into use during the Middle Imperial period.



Figure 26. G27. Square jar.

G27 SF 452; context 9137

**Square jar**

Pale bluish-green

FIG. 26

Intact except for small section of rim and neck. Outsplayed, nearly horizontal rim with edge folded out, up, and in. Short, funnel neck, tapering diagonally downward from rim to sloping shoulder. Slightly convex side, flattened manually; deep oval indent pressed into each of four sides. Concave base with central kick; pontil mark in center of base.

Similar: Whitehouse 1997, nos. 288–90, with additional bibliography. Small jars of this type are found with and without indentations in the body. The body may be left globular or, as in this case, made square by manually flattening the sides.

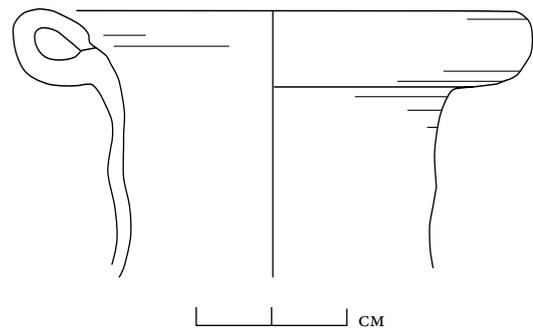


Figure 27. G28. Jar (cylindrical neck).

G28 SF 2328; context 2312

**Jar**

Greenish

FIG. 27

Two fragments of rim and neck (distorted by heat). Outsplayed rim with rolled-in edge. Wide, cylindrical neck (slightly warped).

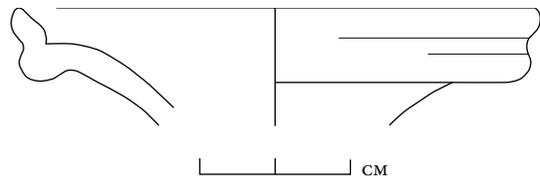


Figure 28. G29. Flask (funnel-shaped mouth).

G29 context 13036

**Flask**

Greenish-colorless (?)

FIG. 28

Fragment of rim and mouth. Rim outsplayed and bent up into nearly vertical position; fire-rounded edge. Funnel-shaped mouth, tapering diagonally downward towards neck.

Similar: Clairmont 1963, no. 504. A flask with similar rim treatment was found at Dura-Europos.

## REMARKS

Throughout the Roman world, glassblowing was responsible for the supplanting of pottery by glass as the preferred medium of tableware.<sup>35</sup> In archaeological terms, this is evident not only in an increase in the overall quantity of glass recovered, but also in a correlative decline in the proportional representation of tableware among the pottery finds. Blown-glass tableware seems to have arrived relatively late to Zeugma. If the cities around Vesuvius may be regarded as typical, the shift from pottery to glass was fully realized in Italy and the western provinces by the Flavian period.<sup>36</sup> At Zeugma, by contrast, demand for ceramic tableware seems to have diminished little between Augustan/Tiberian and Flavian (/Trajanic) times, whereas it had all but disappeared by the middle of the third century A.D.<sup>37</sup> The changeover from pottery to glass, therefore, must have come to pass at some point between the early second and mid-third centuries; unfortunately, the lack of pottery evidence for this intervening period does not allow the shift to be pinpointed more narrowly. The fact that a large proportion of the diagnostic glass fragments found in contexts associated with the Sasanian attack of A.D. 252/253 are characteristic of the later second and third centuries suggests that the major influx of blown glass to Zeugma took place in the Middle Imperial period. The belated introduction of blown glass on a large scale may be associated with the protracted popularity of cast glass (see above) as another manifestation of the conservatism of the region's glassmakers.

As the use of blown-glass tableware increased substantially at Zeugma in the Middle Imperial period, long-distance imports may no longer have sufficed to meet the demands of the city, which would have been better served by the establishment of local workshops. No direct evidence for glassmaking has been discovered at Zeugma, either in

the form of provisions for production (i.e., furnaces, tools) or waste products (i.e., cullet, moils, misfires, etc.); this deficiency is hardly conclusive, however, since the Zeugma 2000 excavations focused on a primarily upscale, domestic area of the city, where a glass workshop was unlikely to have been located. It is worth considering that, while most of the ceramic tableware predominant through Flavian (/Trajanic) times is presumed to be local, no evidence for pottery production has come to light either.<sup>38</sup> It seems sensible that in the supplanting of ceramic tableware by glass, one local product would have been substituted for another.

*IVb. Blown Tableware (Cut Decoration)*

Various styles of wheel-cut decoration were employed on blown-glass tableware of the Middle Imperial period. Simple linear-cut decoration, consisting of series of horizontal abraded bands or deeper cut grooves, was the most common means employed to enliven the exterior surfaces of bowls (G30) and beakers (G31), as well as flasks (G32-33). In a more dramatic application of essentially the same linear-cutting technique, the body of a globular flask (G34) was embellished with a large number of parallel and intersecting grooves.

**G30** context 11026

**Convex bowl with outsplayed rim**

Pale bluish-green

FIG. 29

Two fragments of rim and body. Outsplayed rim with nearly vertical, cracked-off edge, flattened by grinding. Convex side, bulging out from transition to rim before curving inward. On the exterior, four (?) horizontal abraded bands: one at transition from rim to body, one roughly in middle of body, and two on lower body.

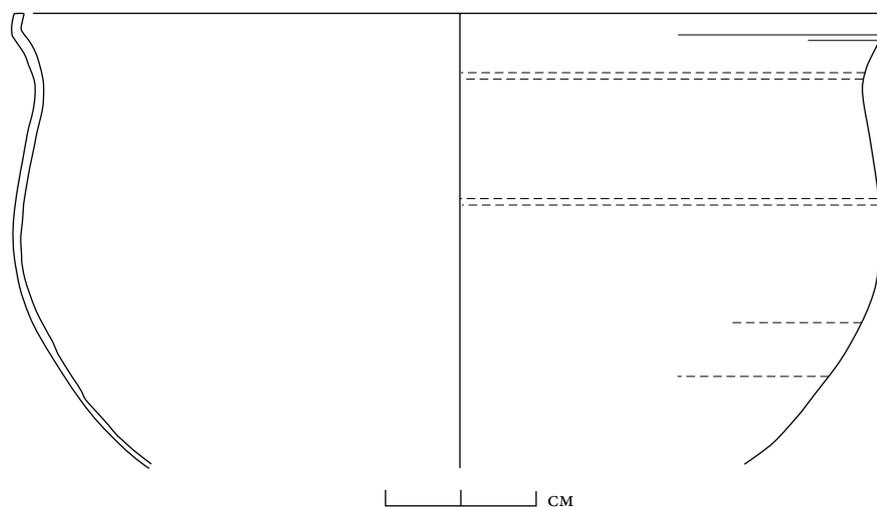


Figure 29. G30. Convex bowl with outsplayed rim (linear-cut).

Similar: shape as G24. Wheel-cut and abraded bands are common on bowls of this type at Cyprus and elsewhere.

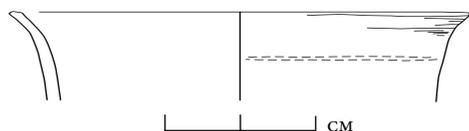


Figure 30. G31. Conical or cylindrical beaker (linear-cut).

G31 context 11026

### Conical or cylindrical beaker

Greenish-colorless

FIG. 30

Two fragments of rim and body. Outsplayed rim with cracked-off edge, roughly ground. Straight side, sloping diagonally downward. On the exterior, at least one horizontal abraded band on upper body.

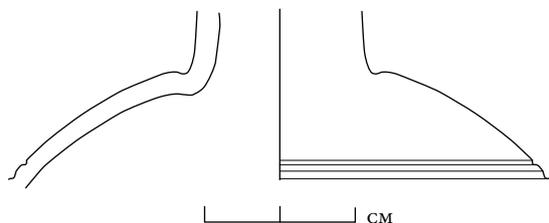


Figure 31. G32. Globular flask (linear-cut).

G32 context 9175

### Globular flask

Colorless

FIG. 31

Two joining fragments of neck and body. Lower section of vertical, cylindrical (?) neck. Very short, slightly dipping shoulder. Convex side, expanding outward. On the exterior, two (?) horizontal wheel-cut grooves on upper body. Similar: probably Isings 1957, form 103; form 104 is also a possibility, as the cylindrical lower neck may have opened out into a funnel mouth.

G33 SF 916; context 18001

### Globular flask

Colorless (?)

FIG. 32

Fragment of rim and neck. Vertical rim with cracked-off edge, flattened by grinding. Cylindrical neck, expanding outward from rim before turning inward towards bottom; constriction at base of neck. On the exterior, five horizontal wheel-cut grooves on neck.

Similar: Isings 1957, form 103.

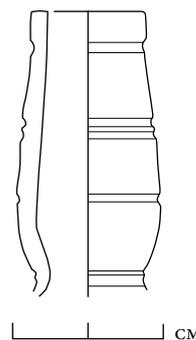


Figure 32. G33. Globular flask.



Figure 33. G34. Globular flask (linear-cut).

G34 context 9175

### Globular flask

Colorless

FIG. 33

Nine (?) fragments of body. Convex side, expanding outward. On the exterior, numerous parallel and intersecting cut grooves.

Similar: shape as G32–33. Globular flasks decorated in this manner were also found at Dura-Europos (Clairmont 1963, nos. 540–1). For an intact parallel, with additional comparanda, see Whitehouse 1997, no. 433.

Also popular were blown-glass vessels, mostly bowls, with facet-cut decoration. In its most haphazard form, this consists of vertical rice-grain facets dispersed in irregular rows over part or all of the exterior surface of a vessel (G35). Most arrangements are more orderly, however, with facets occupying distinct zones. A common pattern features one or more rows of vertical rice-grain facets encircling the body of a bowl between sets of horizontal wheel-cut bands (G36–37). Alternatively, horizontally oriented rice-grain facets could be used instead of wheel-cut bands to divide the vessel into zones (G38).

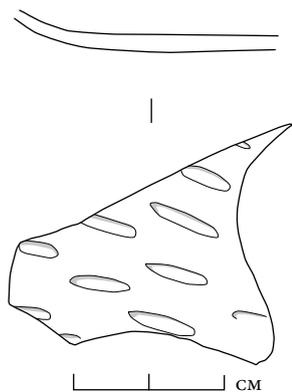


Figure 34. G35. Bowl (facet-cut).

G35 context 9175

**Bowl**

Colorless

Fragment of body. Short section of convex side, curving inwards. Gradual transition from side to flat bottom. On the exterior, at least four horizontal rows of vertical rice-grain facets, irregularly sized and shaped.

G36 context 11034

**Convex bowl with outplayed rim**

Colorless

Fragment of rim and body. Outplayed rim with cracked-off edge, roughly finished by grinding. Convex side, bulging out from transition to rim before curving inward. On the exterior, eight horizontal wheel-cut bands: one on upper body, six set closely together just below middle of body,

FIG. 34

FIG. 35

and one on lower body; between the upper and middle bands, a horizontal row of vertical rice-grain facets, irregularly sized and shaped.

Similar: shape as G24 and G30. Vessels with such simple combinations of linear- and facet-cut decoration are found at both eastern and western sites and were probably manufactured widely.

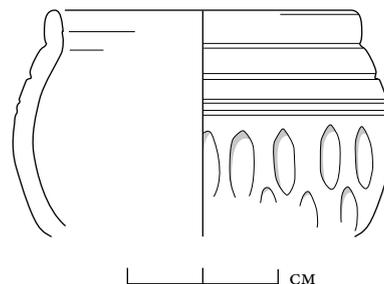


Figure 36. G37. Cup (linear- and facet-cut).

G37 context 18001

**Hemispherical cup**

Colorless

FIG. 36

Fragment of rim and body. Vertical rim with cracked-off edge, rounded by grinding. Convex side bulging out from below rim to middle of body before curving inward. On the exterior, four horizontal wheel-cut bands: one below rim and three on upper body; below the bands, two rows of rice-grain facets, irregularly sized and shaped.

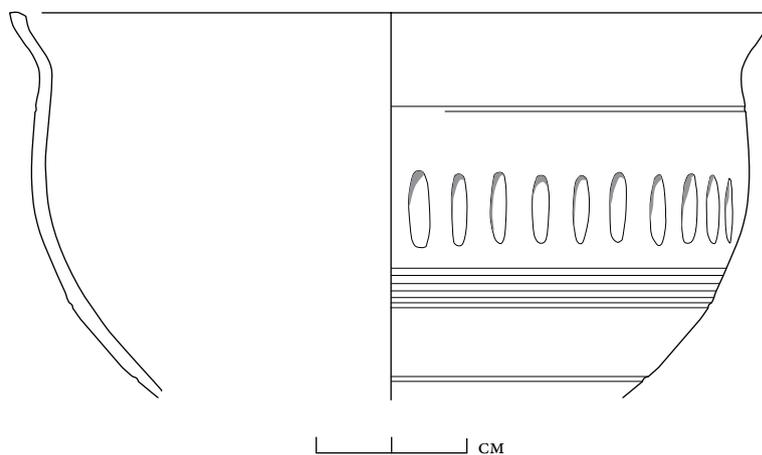


Figure 35. G36. Convex bowl with outplayed rim (linear- and facet-cut).

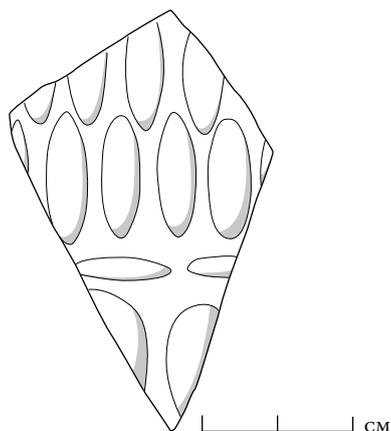


Figure 37. G38. Bowl (facet-cut).

G38 context 18070

**Bowl**

Colorless

FIG. 37

Fragment of body. Convex side. On the exterior, two rows of vertical rice-grain facets; below, a band of horizontal rice-grain facets; below, a row of oval facets.

Similar: Clairmont 1963, 65-6, group C.

**REMARKS**

More complex geometric designs could also be made by facet-cutting. Multiple fragments (G39-40), belonging to one or more bowls (?), feature a pattern of circular facets alternating with I-shaped motifs, the latter formed by a vertical rice-grain facet sandwiched between two horizontal rice-grain facets.<sup>39</sup> Another fragment comes from a bowl decorated with wheel-cut circles separated by pairs of rice-grain facets (G41). Still visible on the outer layer of a fused lump of badly burned glass (see above) are slivers of what appear to be highly stylized floral motifs: leaves, flower petals, etc. (G42).

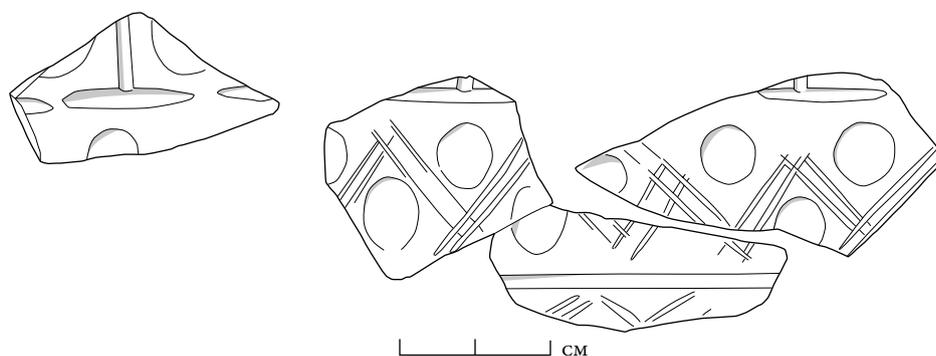


Figure 39. G40. Bowl (?) (geometric cut design).

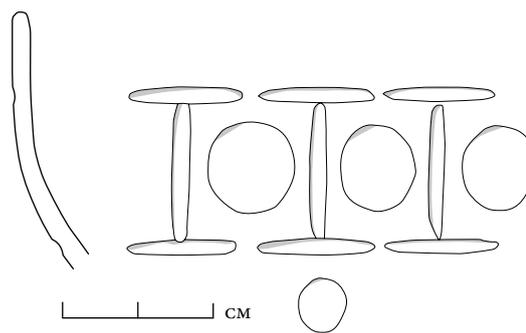


Figure 38. G39. Deep bowl (geometric cut design).

G39 context 9175

**Deep bowl**

Colorless

FIG. 38

Twelve fragments of rim and body (distorted by heat). Upright rim with cracked-off edge, rounded by grinding. Convex side, curving inward. On the exterior, a row of facet-cut I's alternating with roughly circular facets; below, another circular facet, probably belonging to second register of cut decoration.

G40 context 9175

**Bowl (?)**

Colorless

FIG. 39

Twelve fragments of body (distorted by heat). Body shape undetermined. On the exterior, a row of facet-cut I's alternating with roughly circular facets; below, a row of circular facets separated by pairs of diagonal lines, overlapping at ends; below, horizontal cut groove; below, another register of diagonal lines (?).

G41 SF 4006; context 10000

**Bowl**

Colorless

FIG. 40

Fragment of body. Convex side, curving inward. Gradual transition to flat (?) bottom. On the exterior, wheel-cut circles separated by pairs of rice-grain facets. Similar: Clairmont 1963, 70-2, group F.

G42 context 9175

**Bowl**

Colorless

FIG. 1, FIG. 41

Outer layer of fused lump of glass (distorted by heat). On the exterior, various cut patterns and cross-hatching. Similar: Clairmont 1963, 77-9, group J.

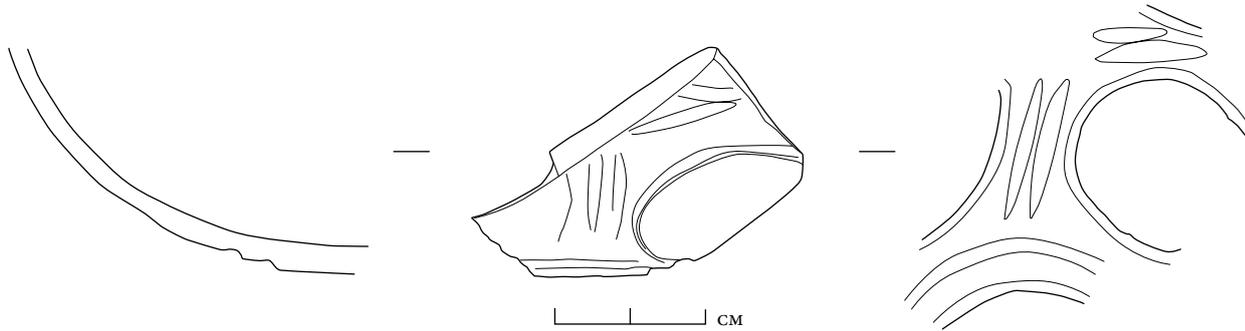


Figure 40. G41. Bowl (geometric cut design).

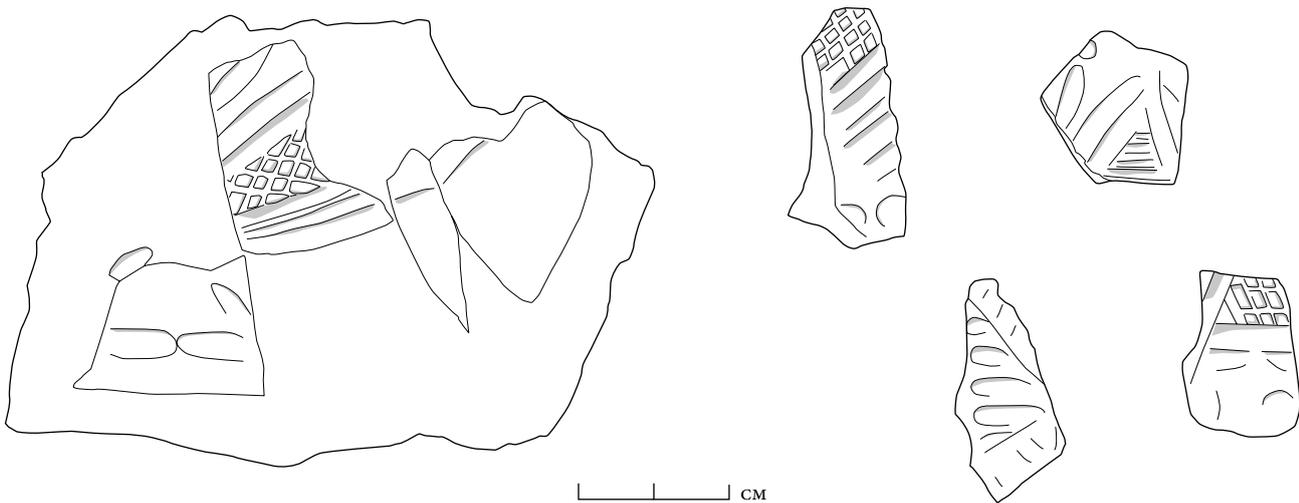


Figure 41. G42. Bowl (geometric cut design).

## REMARKS

The popularity of blown tableware with cut decoration at Zeugma in the Middle Imperial period accords with the reigning fashion in glassware throughout the Roman Empire at that time. In general, glasscutters (*diatretarii*) are considered a professional group distinct from glassmakers (*vitrearii*). This distinction may have had little relevance for simple linear-cut decoration, whose application required little expertise. Even if a single craftsman did not serve as both glassmaker and glasscutter, there is no reason that both functions could not be contained within a single local workshop. Facet-cutting, on the other hand, was a more specialized skill and may have been practiced on a regional rather than a local level. Dura-Europos, where cut glass is known to have been made, has been proposed as a center of production in the East.<sup>40</sup> Parallels between cut designs favored at Dura-Europos and those seen on some of the finds from Zeugma seem to support that supposition. On the other hand, the decorative repertoire of the glasscutters at Dura-Europos evidently did not encompass all of the designs found at Zeugma, making it unlikely that the city's cut glass was supplied by a single source.

## IVc. Blown Tableware (Applied Decoration)

A number of glass fragments found at Zeugma were decorated with applied glass threads of the same color as the fabric of the vessel. Applied decoration seems to have been used primarily, though not exclusively, on serving vessels (i.e., jars and flasks). One of the most distinctive examples is a funnel-mouthed flask with a thick coil applied to the rim (G43). A single fragment of a bowl (?) (G44) preserves part of a "spectacle" pattern formed by the intermittent pinching together of glass threads applied to the body of the vessel. Another fragment comprises the rim of a bowl with an applied corrugated band (G44).

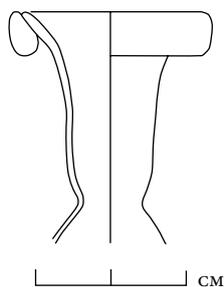


Figure 42. G43. Flask (coil rim).

G43 context 11047

Flask

Colorless

FIG. 42

Fragment of rim, mouth, and body. Slightly outplayed rim with fire-rounded edge; thick coil applied to rim. Funnel-shaped mouth, tapering toward constriction at bottom. Below constriction, slightly convex side, expanding outward.

Similar: Clairmont, 1963, nos. 537–39.

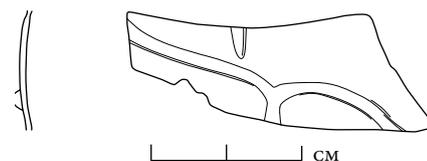


Figure 43. G44. Bowl ("spectacle" pattern).

G44 context 2039

Bowl (?)

Colorless

FIG. 43

Fragment of body. Convex side. On the exterior, "spectacle" pattern of applied threads, oriented horizontally; small section of single thread, oriented vertically.

Similar: Clairmont 1963, nos. 189–92. The small section of vertical thread on the Zeugma example must correspond to the vertical "rib" seen on several fragments of bowls with applied spectacle decoration found at Dura-Europos.

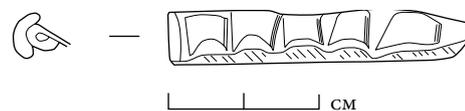


Figure 44. G45. Bowl (corrugated band).

G45 context 9003

Bowl

Greenish-colorless

FIG. 44

Fragment of rim. Outplayed (?) rim with tubular edge, formed by folding down and in. Applied to the rim, section of corrugated band with five (?) ridges.

Similar: probably Isings 1957, form 43.

## IVd. Blown Tableware (Pinched Decoration)

A few fragmentary glass vessels decorated with protruding points formed by pinching were recovered at Zeugma. One is a flask (G46), whose concave bottom is encircled by a ring of pinched "toes." Another is perhaps also a flask (G47), with five rows of pinched "warts" protruding from the body. Vessels with pinched "toes" and "warts" have been found mainly at Dura-Europos and other sites in Syria.

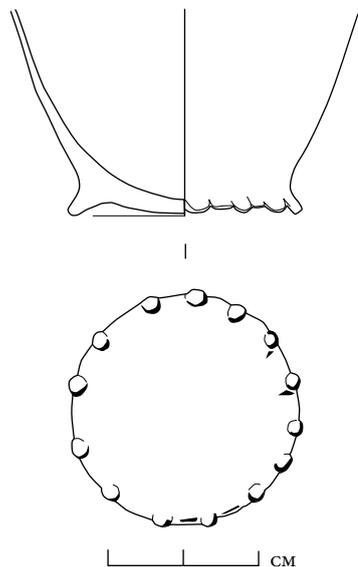


Figure 45. G46. Flask (pinched "toes").

G46 context 18070

Flask

Greenish-colorless

FIG. 45

Five joining fragments of body and base. Slightly convex side, curving inward. Gradual transition from side to concave bottom. Base-ring of fourteen pinched "toes."

Similar: Clairmont 1963, nos. 200–13. Most of the vessels from Dura-Europos with rings of pinched toes are identified as flasks.

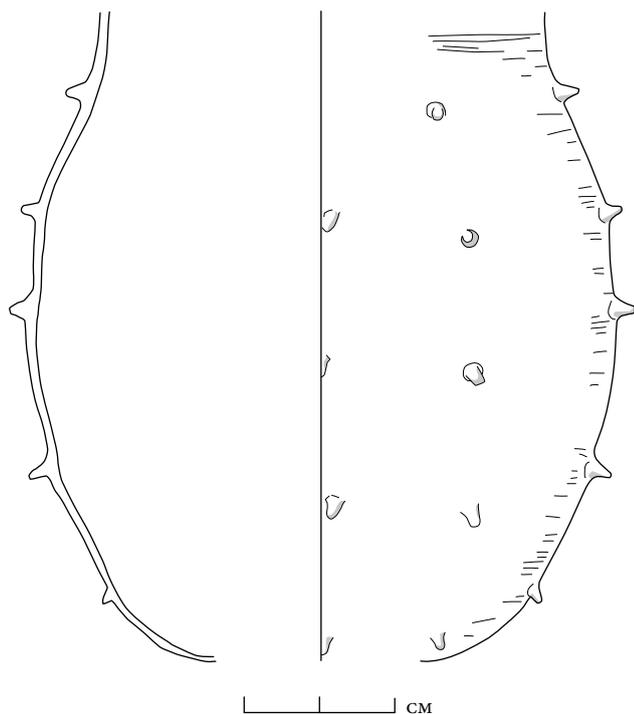


Figure 46. G47. Flask (?) (pinched "warts").

G47 context 11026

Flask (?)

Colorless

FIG. 46

Three fragments of body. Short section of cylindrical neck. Convex side, expanding outward from neck before curving inward toward slightly convex (?) bottom. On the exterior, five rows of pinched "warts."

Similar: Clairmont 1963, nos. 214–22. It should be noted, however, that the shape of this vessel finds no close parallel among the finds with pinched warts from Dura-Europos.

#### REMARKS

As with the blown tableware with cut decoration, glass vessels with applied and pinched decoration recovered at Zeugma bear considerable (though not perfect) resemblance to material from Dura-Europos, which may have supplied Zeugma with various classes of decorated glassware in the Middle Imperial period.

#### IVe. Unguent Bottles

Unguent bottles (sometimes called unguentaria or ampullae) are another category of blown-glass vessels found in quantity at Zeugma.<sup>41</sup> Among the simplest shapes to blow, unguent bottles tended to change little over time, making precise dating difficult. All of the pieces are undecorated and belong to common eastern Mediterranean types; local production seems probable. One nearly complete example of a squat unguent bottle (G48) can be dated to the late second or early third century A.D. Fragmentary examples include a club-shaped unguent bottle (G49) and two variants on a type with conical lower body (G50–51); all of these shapes were in use from the first through third centuries A.D. The lower half of a pipette-shaped unguent bottle (G52), found in a context (9137) associated with the Sasanian attack of A.D. 252/253, is a relatively early example of a type that became widespread in the fourth century.



Figure 47. G48. Unguent bottle (squat).

G48 context 2010

Unguent bottle

Bluish-green

FIG. 47

Intact except for minor surface damage. Outsplayed rim with rolled-in edge. Concave neck. Convex side. Concave base; pontil mark in center.

Similar: De Tommaso 1990, tipo 29.

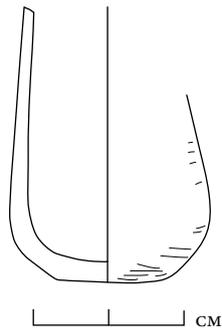


Figure 48. G49. Unguent bottle (club-shaped).

G49 context 15002

**Unguent bottle**

Bluish-green

FIG. 48

Fragment of body and base. Straight side, expanding outward. Convex bottom curving into flat base.

Similar: Isings 1957, form 82b1; De Tommaso 1990, tipo 70.

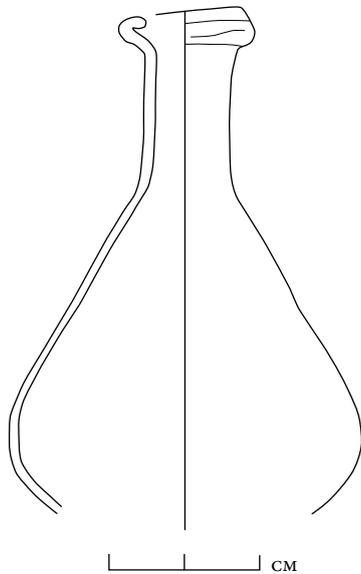


Figure 49. G50. Unguent bottle (conical).

G50 context 9001

**Unguent bottle**

Yellowish-brown

FIG. 49

Twenty fragments of rim, neck, and body. Outplayed rim with edge folded in. Cylindrical neck. Straight side, expanding outward. Convex bottom.

Similar: Isings 1957, form 28a; De Tommaso 1990, tipo 42.

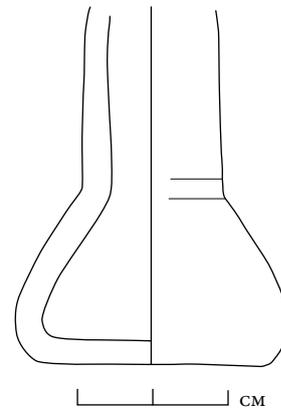


Figure 50. G51. Unguent bottle (conical).

G51 SF 3408; context 18070

**Unguent bottle**

Greenish

FIG. 50

Fragment of neck, body, and base. Vertical, cylindrical neck. Straight side, expanding outward. Convex bottom curving into flat base.

Similar: Isings 1957, form 28b. The types represented by G50-51 differ only in the relative proportions of the neck and body.

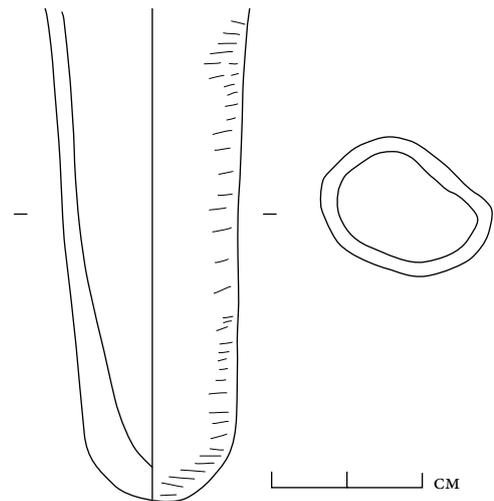


Figure 51. G52. Unguent bottle (pipette-shaped).

G52 SF 453; context 9137

**Unguent bottle**

Pale greenish-colorless

FIG. 51

Fragment of lower body and base. Straight side, sloping inward. Convex base.

Similar: Probably Isings 1957, form 105; De Tommaso 1990, tipo 57. Although the middle portion of the body is missing, the taper of the body suggests a central bulge. The pipette-shaped unguent bottle was most common in the fourth century A.D., but it is known from third-century contexts, as well; for examples from Dura-Europos, see Clairmont 1963, nos. 736-7.

*IVf. Bottles*

The use of blown-glass bottles for the storage and transport of goods, such as wine or oil, offered several advantages, including easy visibility and negligible effect on the taste or smell of the contents. Fragments of both cylindrical and square bottles were found at Zeugma, the latter in considerably larger number than the former. The best preserved cylindrical bottle (G53) was apparently free blown, squat rather than tall; the body is decorated with several series of horizontal abraded bands, rarely seen before the late second century A.D.<sup>42</sup> The square bottles are all mold blown, with designs in relief preserved on the undersides of several bases, variously interpreted as identifying the maker of the vessel or the vendor of the contents.<sup>43</sup> The designs in evidence at Zeugma include a flower with six petals (G54) and some sort of lattice pattern (G55). Mold-blown square

bottles are conventionally dated to the later first and early second centuries A.D., but their use seems to have extended into the third century in the eastern Mediterranean.<sup>44</sup> The standard rim for both cylindrical and square bottles at Zeugma seems to have been folded in and flattened, forming a broad lip (G56). A “mushroom-shaped” variant (G57) was also used. Some, if not all, of about five detached fragments of broad strap-handles with fine vertical ribs (reeding) (G58) are probably to be associated with bottles.

G53 context 2046

**Cylindrical bottle**

Colorless

FIG. 52

Twenty-nine fragments of body and base. Convex shoulder, curving outward. Gradual transition from shoulder to

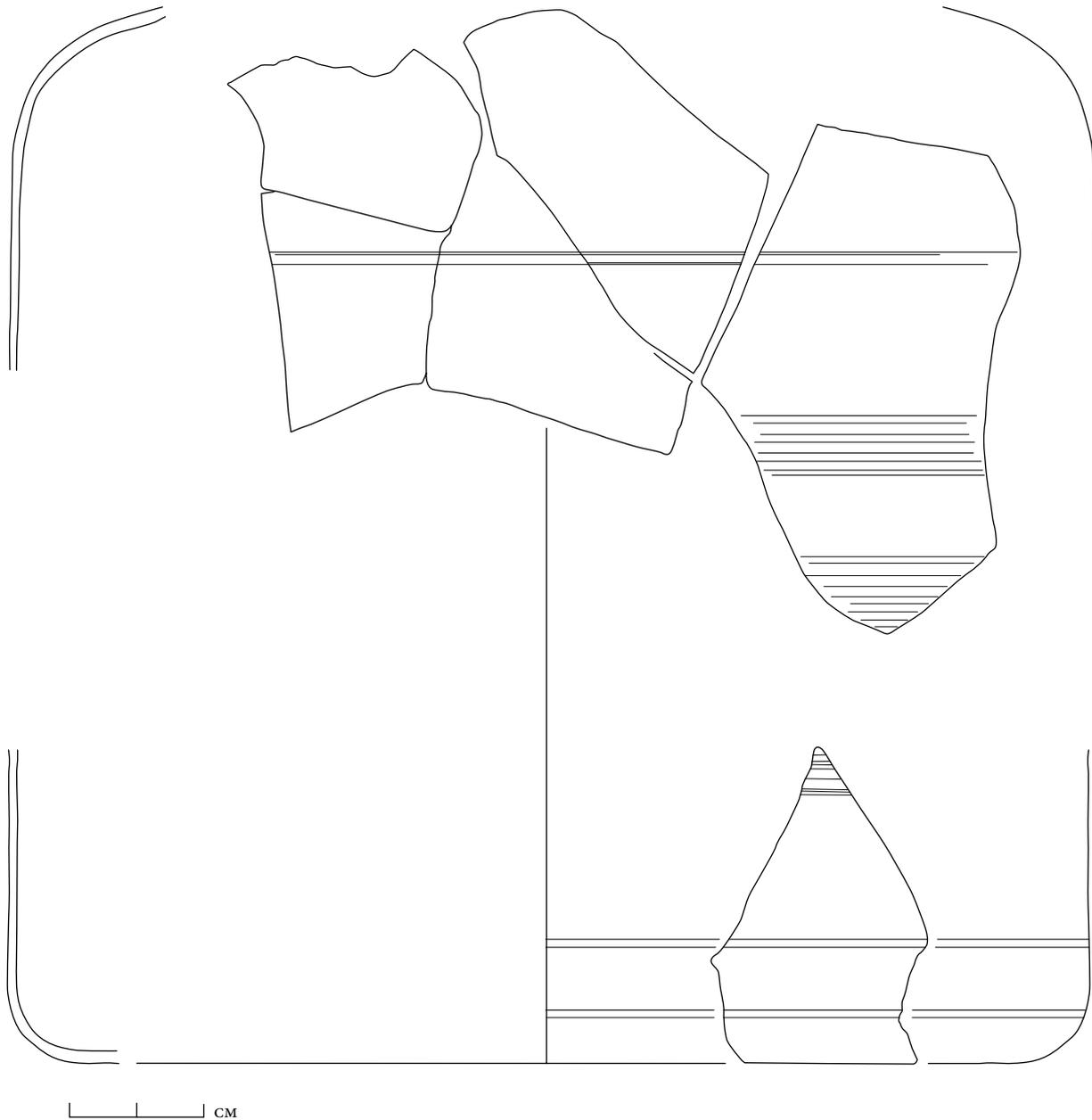


Figure 52. G53. Cylindrical bottle (linear-cut).

straight, vertical side, curving inward towards bottom. Flat (?) base. On the exterior; at least five (?) sets of horizontal abraded bands.

Similar: Isings 1957, form 51a. It is possible that these 29 fragments belong to two very similar cylindrical bottles.

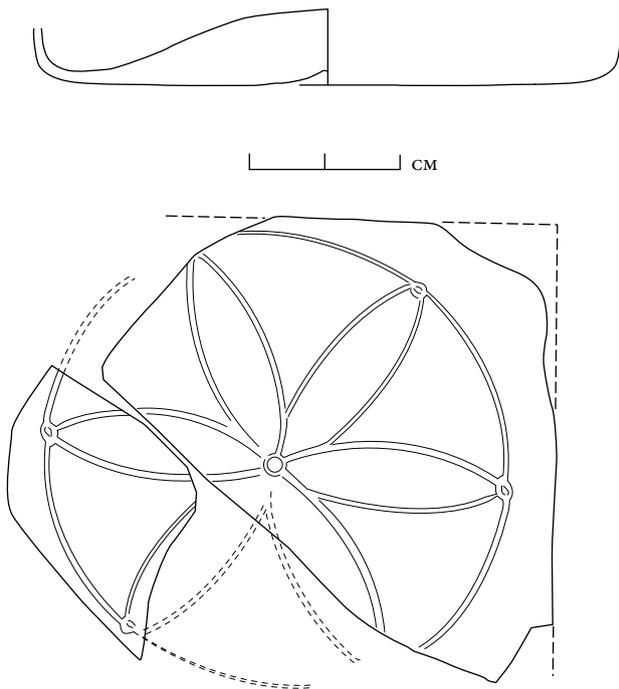


Figure 53. G54. Square bottle (mold-blown design).

G54 context 2312

**Square bottle**

Pale yellowish-green

FIG. 53

Three joining fragments of base. Flat base, thickening towards center; pontil mark in center. Mold-blown design on underside of base: flower with six petals within circular frame.

Similar: Isings 1957, form 50. A similar design appears on the base of a square bottle found in context 2269.

G55 SF 2328; context 2312

**Square bottle**

Greenish

FIG. 54

Four joining fragments of body and base. Straight, vertical side. Angular transition to slightly concave base. Mold-blown design on underside of base: lattice pattern within circular frame.

Similar: shape as G54. A similar lattice pattern, surrounded by four concentric circles, appears on the base of a square bottle found in context 9143.

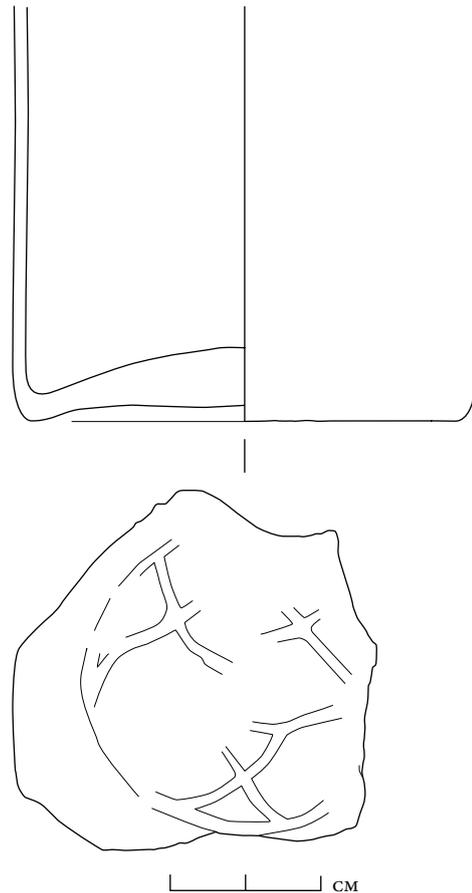


Figure 54. G55. Square bottle (mold-blown design).

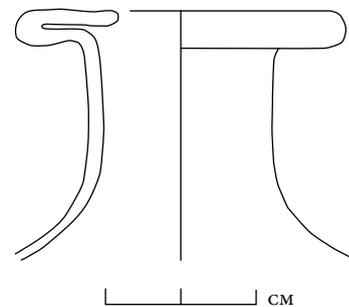


Figure 55. G56. Bottle (flattened rim).

G56 context 13036

**Bottle**

Greenish-colorless

FIG. 55

Four joining fragments of rim and neck. Horizontal rim, folded out, up, and in, then flattened. Cylindrical neck, curving outward towards bottom. Gradual transition from neck to slightly concave shoulder.

Similar: Charlesworth 1966, type 1a. It is not possible to determine whether G56 belonged to a cylindrical or square bottle.

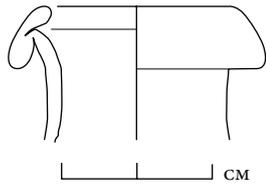


Figure 56. G57. Bottle (mushroom-shaped rim).

G57 context 1024

**Bottle**

Pale yellowish

FIG. 56

Fragment of rim and neck. Slightly outsplayed, sloping rim, folded out, up, and in. Cylindrical neck, curving slightly outward towards bottom.

Similar: Charlesworth 1966, type 1b.

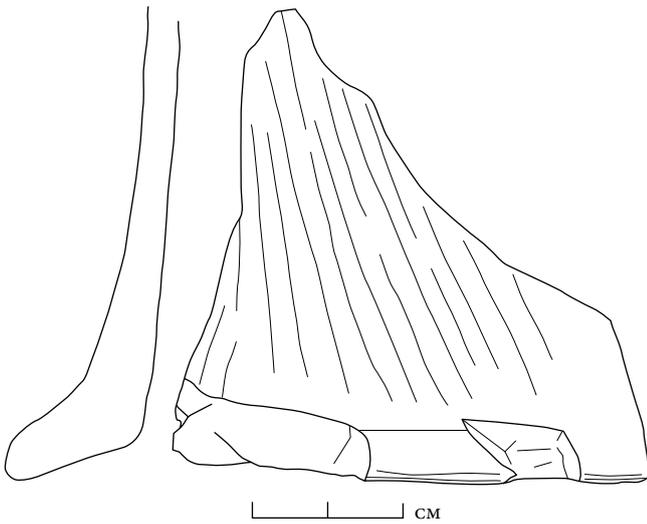


Figure 57. G58. Bottle handle (reeded).

G58 context 2046

**Handle**

Colorless

FIG. 57

Five joining fragments of handle. Section of broad strap-handle and lower terminal. On the exterior of handle, fine vertical ribs (reeding).

**V. Late Imperial (A.D. 253–636)**

Glass vessels of the Late Imperial period are well represented among the finds from Zeugma, regularly appearing in destruction contexts plausibly associated with an Arab invasion of ca. A.D. 636, as well as in colluvium deposits across the site. Based on style, most of this material appears to date between the later fourth and sixth centuries A.D., during which time Zeugma underwent something of a revival. The Late Imperial glass vessels encompass an assortment of tableware — both undecorated and decorated — along with a few pieces identifiable as lamps.<sup>45</sup>

*Va. Blown Tableware (Undecorated)*

In contrast to the preceding periods, the largest part of the blown-glass tableware of the Late Imperial period is comprised not of bowls and cups, but of goblets and beakers. Goblets were by far the most common class of glass vessel at Byzantine Zeugma, with fragments of as many as one hundred of these vessels recovered in the excavations. All belong to a standard type with a plain (rather than knobbed), hollow stem and a flaring foot with either a rounded (G59) or tubular (G60) edge. Also popular at this time were conical beakers with outsplayed, curving rims (G61).

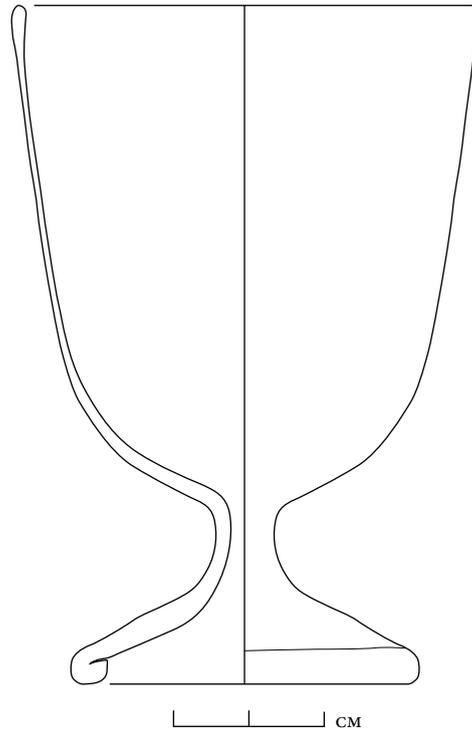


Figure 58. G59. Goblet.

G59 SF 496; context 7036

**Goblet**

Pale greenish

FIG. 58

Two fragments of rim, body, stem, and foot. Vertical rim with fire-rounded edge. Straight side, sloping inward towards convex, curving bottom. Short, hollow stem. Flaring foot with rounded edge, curving under.

Similar: Isings 1957, form 111. Goblets of this type came into use in the fourth century A.D. and continued to be produced for several centuries thereafter.

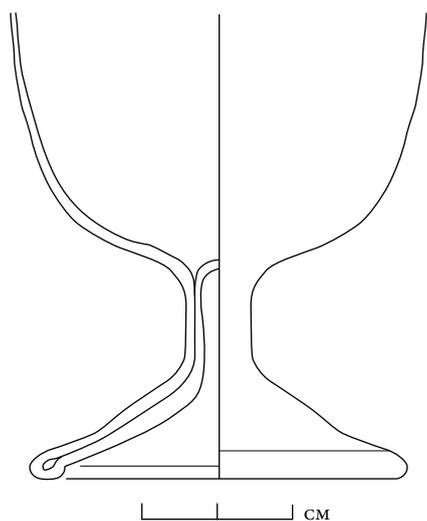


Figure 59. G60. Goblet.

G60 context 2000

**Goblet**

Greenish

FIG. 59

Fragment of body, stem, and foot. Convex side, curving inward. Cylindrical, hollow stem. Flaring foot with tubular edge, formed by folding.

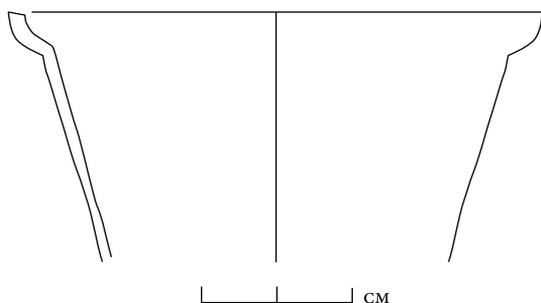


Figure 60. G61. Conical beaker.

G61 context 7000

**Conical beaker**

Greenish (?)

FIG. 60

Fragment of rim and body. Outplayed, curving rim with cracked-off edge, flattened by grinding. Straight side, sloping inward.

Similar: Isings 1957, form 106c1 or 109c. As the base of this vessel was not found, it cannot be definitively assigned to one or the other of these types.

Bowls and cups, while less numerous than in the Middle Imperial period, were nonetheless still plentiful in the Late Imperial period at Zeugma. Small bowls with pushed-in hollow base-rings are fairly numerous (G62–63). Similarly shaped vessels with applied base-rings (G64) are also seen

occasionally. A single example of a wound-coil base (G65) may belong to a bowl, as well. The standard rim seems to have been tubular, with the edge rolled inward (G66). More unusual is a fragment of a bowl with a double-folded rim (G67). Another noteworthy fragment belongs to a bowl with a fire-rounded rim and a projecting roll in the body (G68).

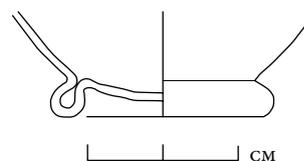


Figure 61. G62. Hemispherical bowl (pushed-in hollow base-ring).

G62 context 7077

**Hemispherical bowl**

Pale greenish

FIG. 61

Fragment of body and base. Convex side, curving inward. Gradual transition from side to convex bottom. Outplayed base-ring with tubular edge, formed by folding.

Similar: Isings 1957, form 115. Bowls of this type were common in the Byzantine period throughout the eastern Mediterranean.

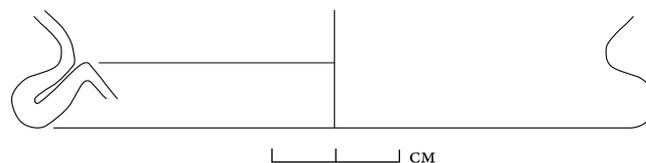


Figure 62. G63. Bowl (pushed-in hollow base-ring).

G63 context 1056

**Bowl**

Greenish-colorless

FIG. 62

Fragment of base. Short section of convex side, curving inward. Large, outplayed base-ring with tubular edge, formed by folding.

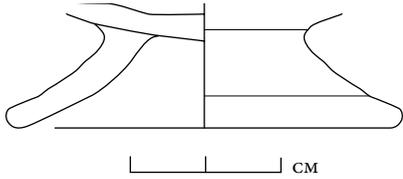


Figure 63. **G64**. Bowl (applied base-ring).

**G64** context 5048

**Bowl**

Colorless

FIG. 63

Fragment of base. Slightly convex base. Large, outsplayed base ring, applied.

Similar: shape as **G21**. Despite its similarity to pieces of Middle Imperial date, this fragment can be dated to the Late Imperial period on the basis of its excavation context. Similar bases of comparable date have been found at Jalame (Weinberg and Goldstein 1988, nos. 145–51) and elsewhere.

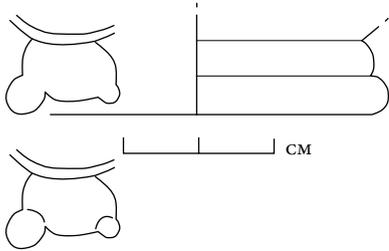


Figure 64. **G65**. Bowl (?) (wound-coil base).

**G65** context 9000

**Bowl (?)**

Greenish

FIG. 64

Fragment of base. Concave bottom; pontil mark in center. Coil base-ring, twice wound.

Similar: von Saldern 1980, no. 196. A comparable fragment from Sardis, identified as a bowl, is not closely dated.

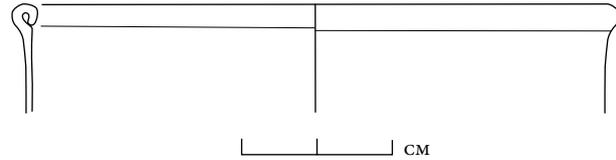


Figure 65. **G66**. Cylindrical bowl (tubular rim).

**G66** context 1010

**Cylindrical bowl**

Bluish-green

FIG. 65

Fragment of rim and body. Slightly outsplayed, tubular rim, formed by rolling edge inward. Straight, vertical side.

**G67** context 9000

**Bowl**

Greenish

FIG. 66

Fragment of rim and body. Rim folded out and down; edge rolled in. Short section of slightly convex side, curving inward.

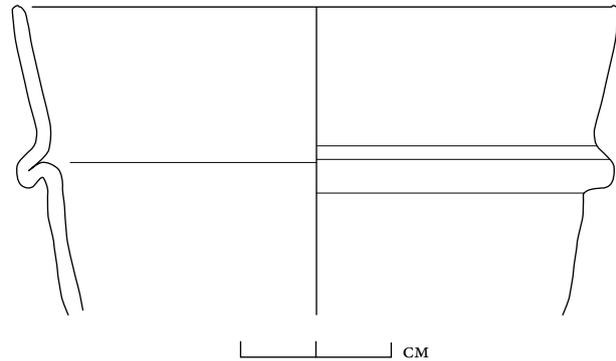


Figure 67. **G68**. Bowl (projecting roll).

**G68** context 1024

**Bowl**

Bluish-green

FIG. 67

Fragment of rim and body. Vertical rim with fire-rounded edge. Straight side, sloping inward. Near middle of body, projecting roll, formed by tooling.

Similar: Weinberg and Goldstein 1988, no. 103.

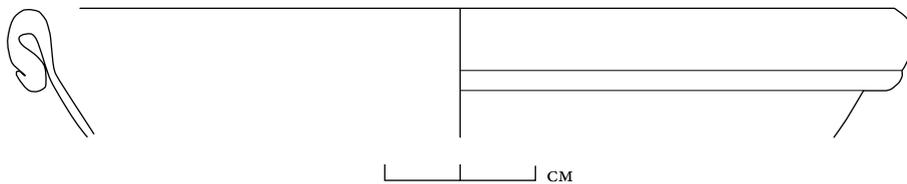


Figure 66. **G67**. Bowl (double-folded rim).

## REMARKS

Serving vessels seem to have become more widespread at Zeugma in the Late Imperial period than they had been previously. A jar with bulbous body and short, tapering neck (G69-70) belongs to a type found throughout the eastern Mediterranean in the fourth and fifth centuries A.D.<sup>46</sup> Flasks with bulbous bodies and long necks opening into funnel-shaped mouths (G71) seem to have been especially popular at Zeugma; the rims of these vessels were generally fire-rounded, sometimes with a lip formed on one edge (G72) to aid in pouring. Other serving vessels with wide mouths and tubular rims (G73) are likely to have been jugs, since a number of jug handles (G74-75) were found in Late Imperial contexts.

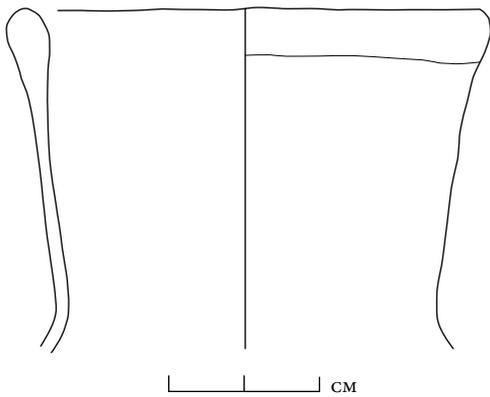


Figure 68. G69. Bulbous jar.

G69 context 7004

Jar

Bluish-green

FIG. 68

Fragment of rim, neck, and shoulder. Upright rim with thickened, fire-rounded edge. Neck tapering towards expanding shoulder.

G70 context 7004

Jar

Bluish-green

FIG. 69

Four joining fragments of body and base. Convex side, curving inward toward bottom. High, concave base; pontil mark in center.

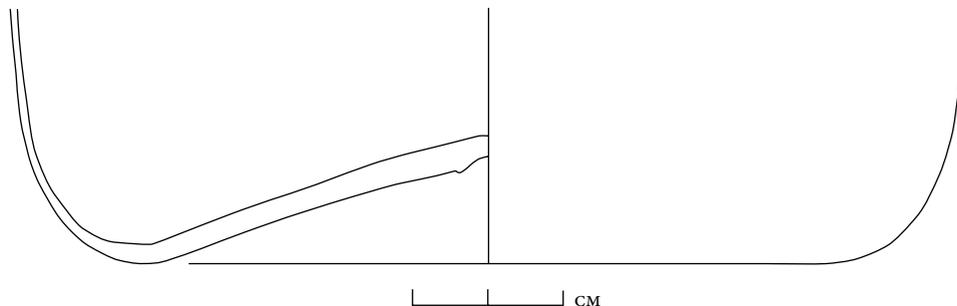


Figure 69. G70. Bulbous jar.

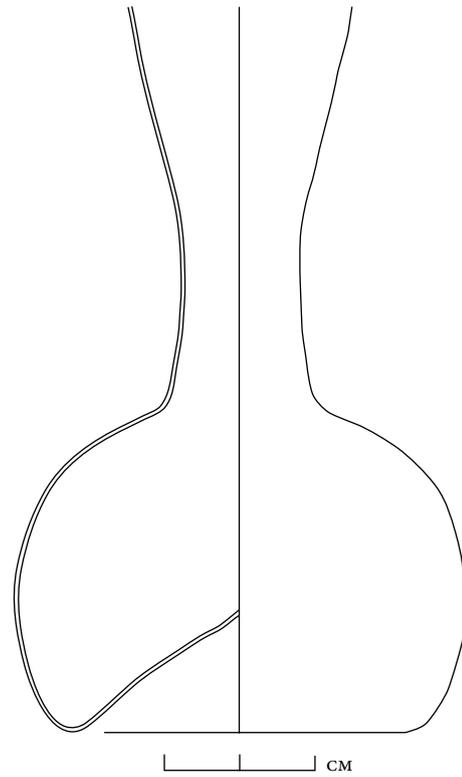


Figure 70. G71. Flask (funnel-shaped mouth).

G71 SF 496; context 7036

Flask

Pale greenish

FIG. 70

At least 20 fragments of mouth, neck, body, and base. Funnel-shaped mouth. Roughly cylindrical neck, expanding towards shoulder. Gradual transition from shoulder to convex side, expanding outward before curving inward towards bottom. High, concave base.

Similar: Isings 1957, form 104b.

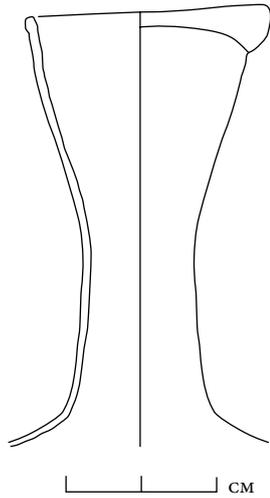


Figure 71. G72. Flask (funnel-shaped mouth).

G72 context 7003

Flask

Bluish-green

FIG. 71

Three joining fragments of rim, mouth, neck, and shoulder. Upright rim with fire-rounded edge; lip formed on one side. Funnel-shaped mouth. Roughly cylindrical neck, expanding slightly towards shoulder.

Similar: shape as G71.



Figure 73. G74. Jug handle.

G74 SF 498; context 7023

Jug handle

Bluish-green

FIG. 73

Nearly intact handle. Strap-handle with nearly perpendicular bend; four vertical ribs.

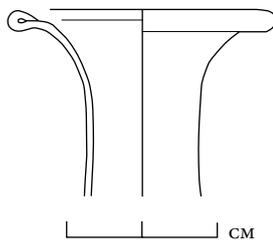


Figure 72. G73. Jug (tubular-rim).

G73 context 9000

Jug

Greenish

FIG. 72

Fragment of rim, mouth, and neck. Outsplayed, tubular rim, formed by rolling edge inward. Funnel-shaped mouth. Cylindrical neck.

Similar: probably Isings 1957, form 121.

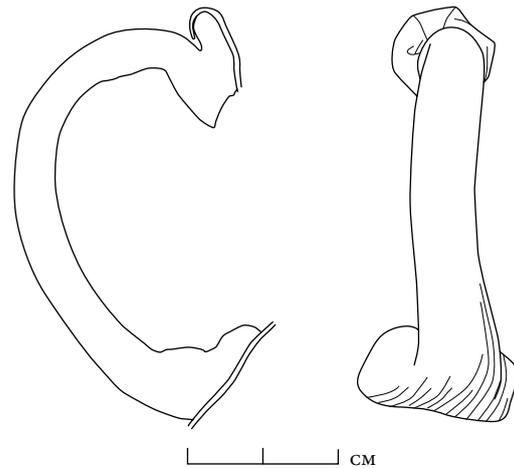


Figure 74. G75. Jug handle.

G75 context 7000

Jug handle

FIG. 74

Nearly intact handle. Curved coil handle; excess glass pinched into nearly vertical projection above upper terminal.

*Vb. Blown Tableware (Cut Decoration)*

Cut decoration continued to be used on blown-glass tableware in the Late Imperial period. The finds from Zeugma include a group of fragmentary beakers decorated with series of horizontal abraded lines (G76) or cut grooves (G77–78). A few fragments preserve more complex geometric cut designs (G79), including one whose intricacy suggests that it may have been part of a figural composition (G80), though the subject of the decoration is not clear.

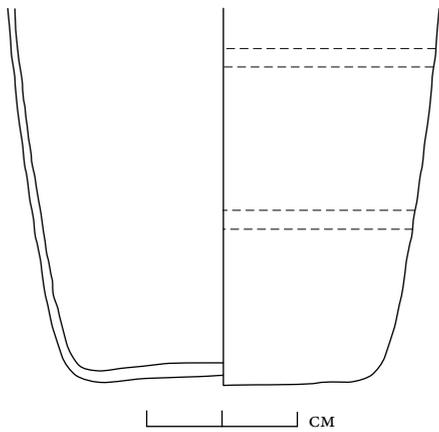


Figure 75. G76. Conical beaker (linear-cut).

G76 context 1036

**Conical beaker**

Colorless

FIG. 75

Two joining fragments of body. Straight side, sloping inward. Angular transition to slightly concave base. On the exterior, two sets of horizontal abraded lines.

Similar: Isings 1957, form 106b2.

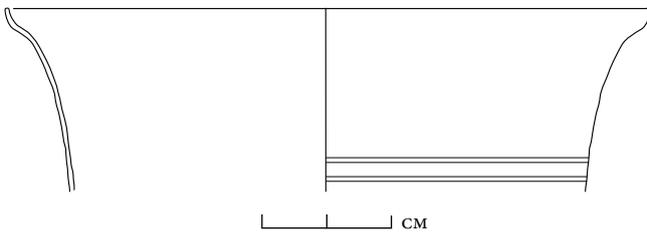


Figure 76. G77. Conical beaker (linear-cut).

G77 context 1024

**Conical beaker**

Colorless

FIG. 76

Fragment of rim and body. Outsplayed, curving rim with cracked-off edge, flattened by grinding. Straight side, sloping inward. On the exterior, two horizontal cut grooves towards middle of body.

Similar: shape as G61.

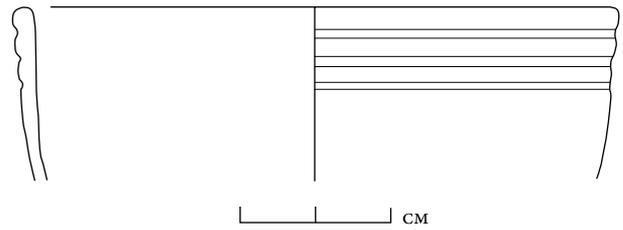


Figure 77. G78. Conical beaker (linear-cut).

G78 context 7060

**Conical beaker**

Greenish-colorless

FIG. 77

Fragment of rim and body. Vertical rim with cracked-off edge, rounded by grinding.

Nearly straight side, sloping inward. On the exterior, three horizontal cut grooves below rim.

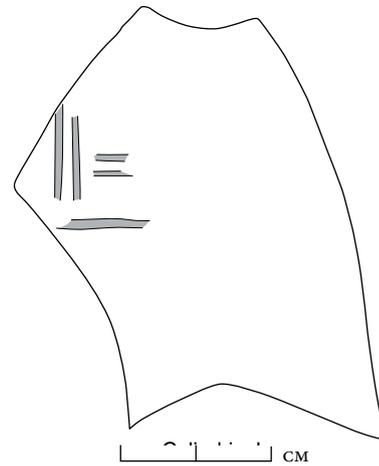


Figure 78. G79. Cylindrical flask or jug (geometric cut design).

G79 context 1010

**Cylindrical flask or jug**

Colorless

FIG. 78

Fragment of body. Straight, vertical side. On the exterior, incised design of vertical and horizontal lines.

Similar: possibly Isings 1957, form 126. Lightly incised geometric motifs, usually arranged in registers, are frequently seen on bottles, jugs, and flasks in the fourth and fifth centuries A.D. Too little survives of the vessel to reconstruct the precise shape or decorative scheme.



Figure 79. G80. Shallow bowl (figured [?] cut design).

G80 SF 4; context 11004

Shallow bowl (?)

Colorless

FIG. 79

Fragment of body. Nearly flat.

Similar: possibly Isings 1957, form 116b. The flatness of the fragment suggests that it comes from the bottom of the bowl.

*Vc. Blown Tableware (Applied Decoration)*

Glass vessels with applied decoration comprise a substantial portion of the decorated tableware of the Late Imperial period at Zeugma. In contrast with the fashion current in the Middle Imperial period (see above), the decoration applied to Late Imperial vessels tends to be of differently colored glass from the main fabric. One such piece is a conical beaker of pale greenish glass with a ring of dark blue blobs encircling the body (G81). The rim of another beaker of bluish-green glass was decorated with a dark blue coil (G82). An unusual bowl features a horizontal trail of purple glass running around the body of the vessel just above a projecting roll (G83). The finds from Zeugma also include several examples of serving vessels (jugs and flasks) decorated with spirally wound trails of dark blue glass (G84–85).

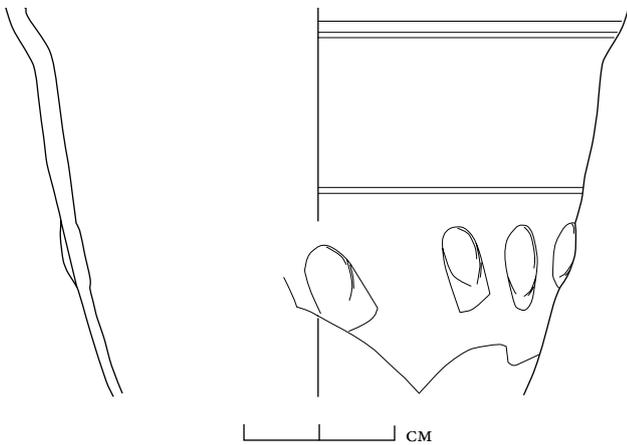


Figure 80. G81. Conical beaker (blue blobs).

G81 context 9000

Conical beaker

Pale greenish and dark blue

FIG. 80

Two joining fragments of rim and body. Slightly outsplayed rim with cracked-off edge, flattened by grinding. Straight side, sloping inward. On the exterior, remains of four blobs, forming ring around body; two (?) horizontal wheel-cut grooves: one below rim, the other above ring of dark blue blobs.

Similar: Isings 1957, form 106c2. Conical beakers decorated in this manner are dated to the fourth and fifth centuries A.D. For examples from Jalame, with an explanation of the manufacturing technique, see Weinberg and Goldstein 1988, nos. 404–12.

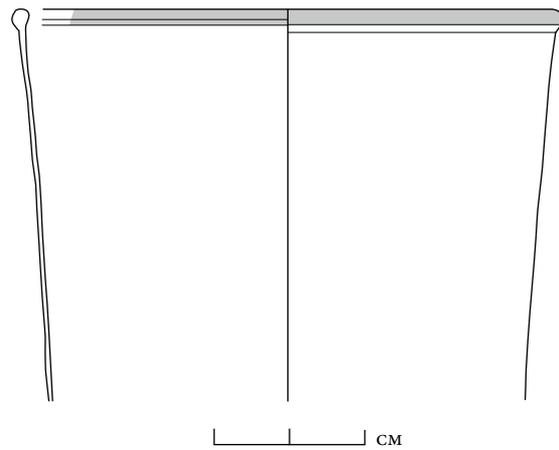


Figure 81. G82. Cylindrical beaker (blue rim coil).

G82 context 7036

Cylindrical beaker

Bluish-green and dark blue

FIG. 81

Five joining fragments of rim and body. Upright rim with fire-rounded edge. Straight side, sloping slightly inward. Dark blue coil encircling rim.

Similar: Gill 2003, nos. 88–9. Examples recovered at Amorium, dated to the fourth century A.D. or later, provide close parallels.

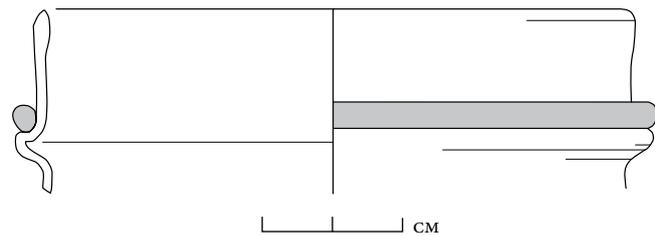


Figure 82. G83. Bowl (projecting roll, coil).

G83 context 12000

Bowl

Yellowish-green and purple

FIG. 82

Fragment of rim and body. Vertical rim with fire-rounded (?) edge. Straight, nearly vertical side. Partway down side, projecting roll, formed by tooling. Purple coil encircling body above projecting roll.

Similar: shape related to G68. The combination of a projecting roll and colored coil is unusual.

G84 context 12011

**Jug**

Bluish-green and dark blue

FIG. 83

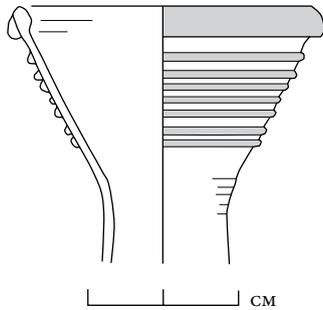


Figure 83. G84. Jug (spirally wound trail).

Fragment of rim, mouth, and neck. Upright rim with fire-rounded edge. Funnel-shaped mouth. Short section of cylindrical neck. On the exterior, thick, dark blue trail encircling rim; thinner trail wound seven times around mouth.

Similar: Weinberg and Goldstein 1988, nos. 207–16. Jugs decorated in this manner were common from the fourth century A.D. onward.

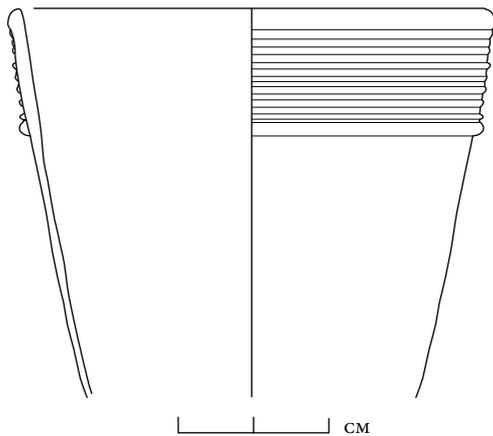


Figure 84. G85. Flask (spirally wound trail).

G85 context 7005

**Flask**

Greenish-colorless and dark blue

FIG. 84

Fragment of rim and neck. Upright rim with fire-rounded edge. Neck tapering from wide mouth. On the exterior,

thin, dark blue trail wound eight times around neck below rim; below spirally wound trail, thicker trail encircling neck.

Similar: Weinberg and Goldstein 1988, nos. 272–81.

*Vd. Blown Tableware (Gilded Decoration)*

Glass vessels with gilded decoration are fairly rare and must have been among the most costly types of glassware. A single fragment of gilded glass (G86) was found in a Late Imperial destruction context (7203) at Zeugma. Oddly, the preserved section of gold leaf does not seem to have been worked into any sort of design, but was left as a solid band.

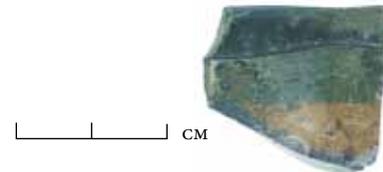


Figure 85. G86. Beaker (?) (gilded).

G86 context 7203

**Beaker (?)**

Greenish

FIG. 85

Fragment of rim and body (distorted by heat). Upright rim with cracked-off edge, rounded by grinding. Fairly straight side. On the exterior, horizontal cut groove below rim. Band of gold foil applied to body.

*Ve. Mold-Blown Vessels*

The small group of mold-blown vessels of the Late Imperial period found at Zeugma were all manufactured using a technique known as pattern-blowing, in which a gather of glass was blown into a mold, imparting a surface pattern, and then inflated further outside the mold. This technique was frequently used to create vessels with shallow ribs (G87–88). Various “honeycomb” patterns (G89–90), usually found on bowls and beakers, were also achieved in this way.

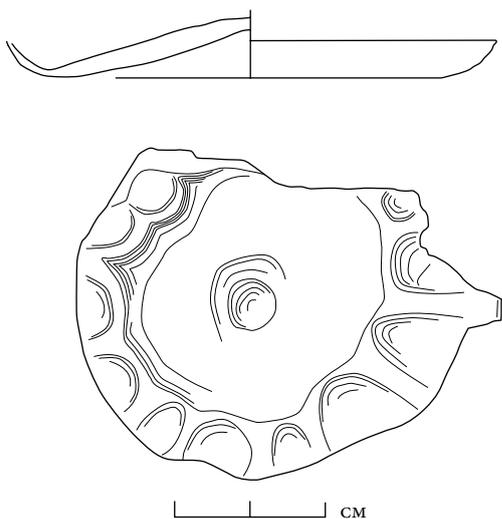


Figure 86. G87. Flask (?) (ribs).

G87 context 1010

Flask (?)

Bluish-green

FIG. 86

Fragment of body and base. Very short section of convex, curving (?) side, sloping inward. Concave base; pontil mark in center. On the exterior, irregularly shaped, rounded ribs, radiating from center of base.

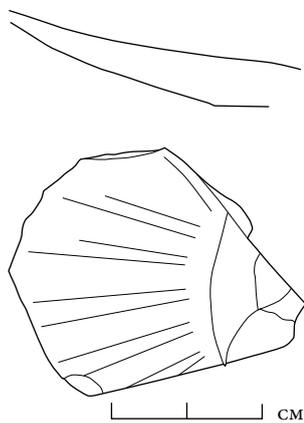


Figure 87. G88. Broad, shallow bowl (?) (ribs).

G88 context 7003

Broad, shallow bowl (?)

Bluish-green

FIG. 87

Fragment of body and base. Slightly convex side, curving inward. Flat base; pontil mark in center. On the exterior, straight, slender ribs radiating from center of base.

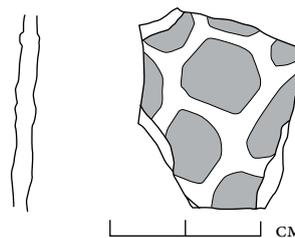


Figure 88. G89. Beaker or bowl ("honeycomb" pattern).

G89 context 1010

Beaker or bowl

Bluish-green

FIG. 88

Fragment of body. Nearly straight side. On the exterior, "honeycomb" pattern of irregularly shaped polygons.

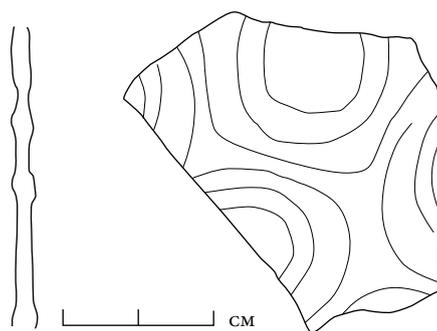


Figure 89. G90. Beaker or bowl ("honeycomb" pattern).

G90 context 1010

Beaker or bowl

Dark blue

FIG. 89

Fragment of body. Straight side. On the exterior, "honeycomb" pattern of irregularly shaped, concentric ovals.

#### *Vf. Lamps*

The Late Imperial period witnessed the application of glass vessels to yet another function—lighting. From the fourth century onwards, lamps became a major component of Byzantine glass production throughout the eastern Mediterranean.<sup>47</sup> A relatively small number of ceramic lamps datable to the fifth and sixth centuries was recovered at Zeugma, suggesting a decline in their use before a resurgence in the seventh and eighth centuries; glass lamps may have substantially filled this gap.<sup>48</sup> The finds from Zeugma include one mostly preserved example of a deep bowl-shaped hanging lamp with handles attached at the rim (G91), as well as numerous detached handles (G92) belonging to lamps of the same type. In addition to vessels securely identifiable as lamps, it is possible that some types treated here as tableware—goblets and conical beakers, in particular—may, in fact, have functioned as lamps.



Figure 90. G91. Lamp with handles.

G91 SF 652; context 7076

**Hanging lamp**

Pale bluish-green

FIG. 90

Twenty-seven joining fragments of rim, body, base, and handles. Upright rim folded out and down, forming tubular edge. Straight side, sloping inward, then curving toward bottom. Concave base. Three evenly spaced, vertical handles pulled out, in, and up from upper side, attached to outside of rim.

Similar: Isings 1957, form 134. This is the most common type of early Byzantine lamp found in the eastern Mediterranean.

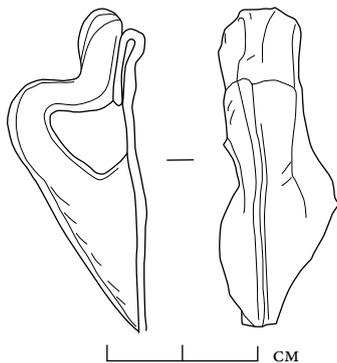


Figure 91. G92. Lamp handle.

G92 SF 4125; context 12024

**Lamp handle**

Pale greenish

FIG. 91

Fragment of rim, body, and handle. Upright rim folded out and down, forming tubular edge. Straight side. Vertical handle pulled out, in, and up from upper side, attached to outside of rim.

**VI. Early Islamic (A.D. 636 and Later)**

A small assortment of glass vessels found at Zeugma post-dates the Arab invasion of ca. A.D. 636. All of this material comes from contexts in Trench 1, also the sole major source of Islamic pottery.<sup>49</sup>

*Via. Blown Tableware (Undecorated)*

A number of fairly crude, thick-walled bowls, roughly hemispherical (G93) or cylindrical (G94–95) in shape, belong to a common class of Early Islamic blown-glass tableware. Probably datable to this period is a fragment preserving the funnel-shaped mouth of a flask or jug (G96), similar to those used in the Late Imperial period, but made of thicker glass. A squat, squarish bottle (G97) of an extremely widespread type may also have been used in table service.

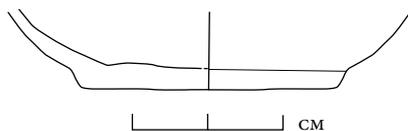


Figure 92. G93. Hemispherical bowl.

G93 context 1010  
**Hemispherical bowl**  
 Colorless

FIG. 92

Fragment of body and base. Convex side, curving inward. Fairly gradual transition from side to roughly flat base.

G94 context 1010  
**Cylindrical bowl**  
 Colorless

FIG. 93

Fragment of rim, body, and base. Upright rim with fire-rounded (?) edge; outer edge of rim slightly sheared. Slightly convex side, curving inward. Angular transition from side to roughly flat base

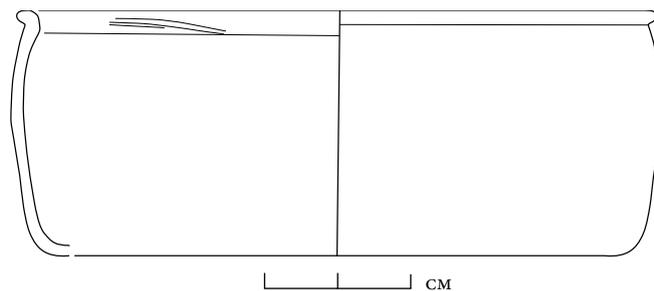


Figure 94. G95. Cylindrical bowl.

G95 context 1010  
**Cylindrical bowl**  
 Bluish-green

FIG. 94

Fragment of rim, body, and base. Outsplayed rim with fire-rounded edge. Convex side, expanding outward before curving inward. Angular transition from side to roughly flat base.

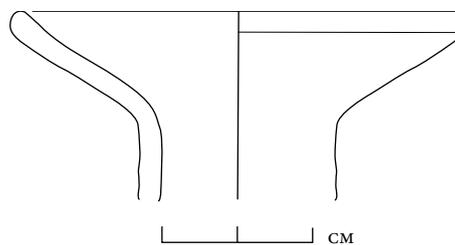


Figure 95. G96. Flask or jug.

G96 context 1010  
**Flask or jug**  
 Yellowish-green

FIG. 95

Fragment of rim, mouth, and neck. Upright rim with fire-rounded edge. Funnel-shaped mouth. Cylindrical neck.

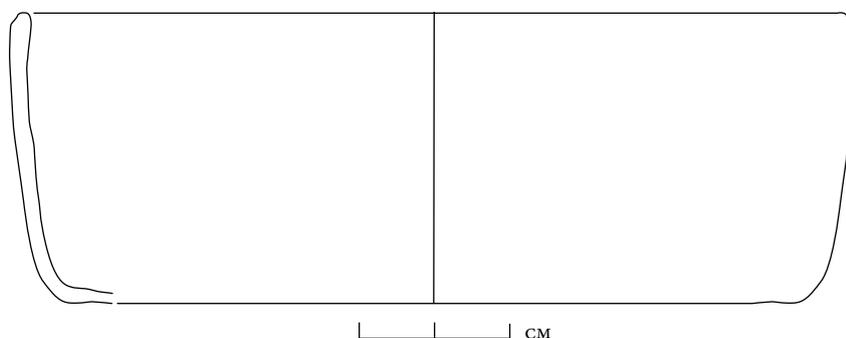


Figure 93. G94. Cylindrical bowl.

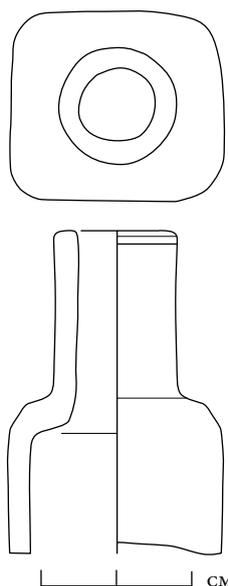


Figure 96. G97. Squat bottle.

G97 context 1024

**Squat bottle**

Colorless

FIG. 96

Fragment of rim, neck, and body. Vertical rim with fire-rounded edge. Cylindrical neck. Angular transition from neck to convex shoulder. Straight side, flattened manually.

*VIb. Blown Tableware (Cut Decoration)*

One glass vessel with cut decoration datable to the Early Islamic period was recovered. The fragment, perhaps belonging to a conical beaker, preserves part of a geometric design of horizontal grooves enclosed within a downturned triangle (G98).

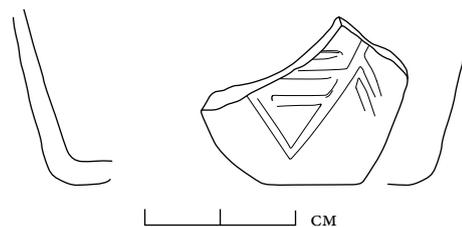


Figure 97. G98. Conical beaker (?) (geometric cut design).

G98 context 1024

**Conical beaker (?)**

Yellowish-colorless

FIG. 97

Fragment of body and base. Straight side, sloping inward. Angular transition from side to flat base. On the exterior, cut grooves forming downturned triangle, with additional horizontal grooves within.

*VIc. Blown Tableware (Impressed Decoration)*

In the Early Islamic period, glass vessels were sometimes decorated by impressing patterns into the exterior surface using a tong-like instrument. Impressed decoration may take many forms; a fragment from Zeugma features a variant on a common motif, consisting of a horizontal band of roughly circular medallions (G99).

G99 context 1024

**Flask or jug (?)**

Colorless

FIG. 98

Fragment of neck (?). Neck tapering towards body. Angular transition from neck to side. On the exterior, remains of two impressed concentric circles; above, scanty remains of additional impressed decoration (?).

Similar: Carboni 2001, cat. 3.56b. A nearly identical impressed pattern appears on the neck of a jug dated to the 10th or 11th century A.D.

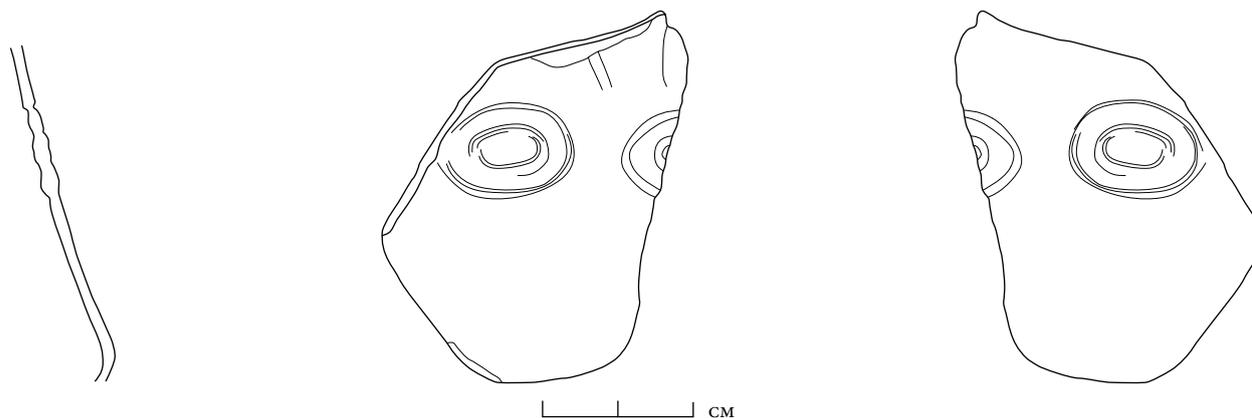


Figure 98. G99. Flask or jug (?) (impressed decoration).

*Vid. Mold-Blown Vessels*

One mold-blown vessel datable to the Early Islamic period was recovered at Zeugma. A fragment preserving the lower body and base of a bottle was decorated with what appears to be a pattern of closely packed concentric circles (G100).

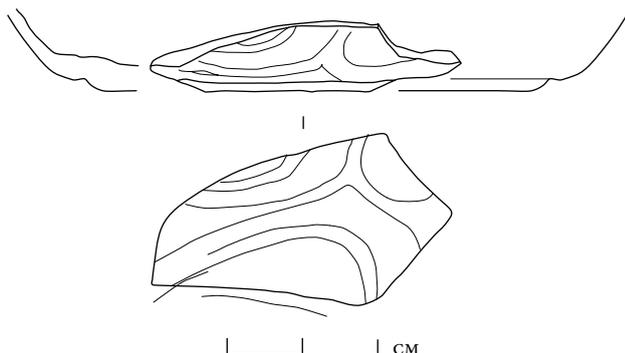


Figure 99. G100. Bottle (mold-blown decoration).

G100 context 1024

**Bottle**

Colorless

FIG. 99

Fragment of lower body and base. Slightly convex side, curving inward. Flat base. On the exterior, pattern of concentric circles in shallow relief.

**WINDOW GLASS**

The glazing of windows by setting rectangular panes of glass into metal frames was fairly common practice in Roman architecture.<sup>50</sup> Perhaps developed initially as a means to aid in the heating of bath buildings, the benefits of window glass — admitting light while regulating atmospheric conditions — were quickly seized upon for use in domestic settings. The tendency in scholarship on window glass to focus on the western provinces of the Roman Empire, especially Britain, enhances the importance of the Zeugma finds.<sup>51</sup>

More than 5,500 fragments of window glass account for over half of the total number of glass finds recovered from the Zeugma 2000 trenches published in this volume. With little variation, the fragments (G101) are flat, irregularly shaped, quite thin, and greenish in color.<sup>52</sup> Many have been affected by exposure to fire. The thinness of the glass, as well as the apparently double-glossy surface of the fragments, suggests that most, if not all, of the window glass from Zeugma was fabricated using the “muff” process.<sup>53</sup> In this method of manufacture, a blown cylinder of glass was cut longitudinally, then flattened to form a rectangular sheet, which could be cut into smaller panes. While small

amounts of window glass were found in almost all of the trenches at Zeugma, over 95 percent of the material comes from contexts in Trench 2.<sup>54</sup> Within Trench 2, 10 individual contexts yielded substantial quantities of window glass, and a single context (2278) contained over half (53 percent) of the window glass fragments.<sup>55</sup>

G101 context 2095

**Window glass**

Pale greenish

FIG. 100

Twelve fragments of window glass.

**Middle Imperial**

Most of the contexts yielding substantial quantities of window glass fall within one of two neighboring houses — the House of the Bull and the House of the Helmets; the House of the Bull, in particular, was very rich in finds of window glass.<sup>56</sup> The earliest construction phases of both houses date to the Early Imperial period, though the installation of glazed windows is better considered an aspect of renovations undertaken in the Middle Imperial period.<sup>57</sup> The distribution of window glass fragments offers some indication of the probable locations of glazed windows within these two houses. The immense concentration of finds in a destruction layer (context 2278) covering the central courtyard of the House of the Bull can be explained by the placement of glazed windows in the walls of an upper story, which seem to have collapsed inward as a result of fire in the mid-third century A.D.; this hypothesis is further supported by the presence of several hundred additional fragments of window glass in a layer of mudbrick and rubble (2269) overlying context 2278. Significant amounts of window glass were also found in destruction contexts in rooms J, K, and M of the same house, which may mean that windows in the walls of these ground-floor rooms facing onto the courtyard were also glazed. The evidence for glazed windows in the House of the Helmets appears to follow a similar pattern. Although a rather modest quantity of window glass was recovered from destruction layers covering the peristyle court of the house, the discovery of an iron window frame (IR269) in one of these contexts (2251) bears out the likelihood that the windows of the upper story were glazed.

**Late Imperial**

The Zeugma 2000 excavations produced no finds of window glass datable to the Late Imperial period. The apparent absence of glazed windows in structures postdating the Sasanian siege is curious, as the use of window glass seems to have been more widespread in the Byzantine East than it had been earlier on.<sup>58</sup> The prosperous Late Imperial Peristyle House in Trench 7B — a Byzantine analogue to the House of the Bulls and the House of the Helmets — not



Figure 100. G101. Window glass.

only yielded no significant deposits of window glass, but the lack of cuttings on preserved limestone windowsills in rooms C and D of the house make it impossible for these windows, facing onto the courtyard, to have been glazed.<sup>59</sup>

## GLASS OBJECTS

The glass finds from Zeugma include an assortment of small objects. Most of these are items of personal adornment—beads, bracelets, and rings. In addition to these, a few miscellaneous objects further attest to the wide variety of uses to which glass was put in antiquity.

### I. Beads

Beads of glass and other related materials, strung together to make necklaces, were a common form of personal adornment in antiquity.<sup>60</sup> The approximately 20 beads re-

covered at Zeugma exhibit a considerable variety of shape and decoration. The dating of beads is often a problem, as the same styles and techniques of manufacture remained in use over long periods of time. The archaeological context in which a given bead was found may provide an indication of its date.

#### *Ia. Monochrome Beads*

All of the monochrome beads from Zeugma can probably be dated to the Early and Middle Imperial periods. The simplest type—the plain, globular bead (G102–103)—was found in greatest abundance. The use of brightly colored opaque glass, including yellow and green, is typical. Similarly shaped beads were also made from other materials, including faience (G104) and a yellowish-brown stone (G105), perhaps carnelian. Other types of monochrome beads recovered at Zeugma include an elongated, biconical bead of dark blue glass (G106) and a tripartite segmented bead of colorless glass (G107).<sup>61</sup>

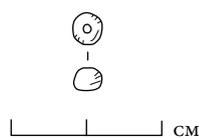


Figure 101. G102. Globular bead.

G102 SF 3176; context 18071

**Globular bead**

Opaque yellow

Intact small, globular bead. Central perforation.

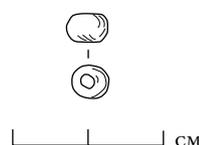


Figure 102. G103. Globular bead.

G103 SF 3671; context 15295

**Globular bead**

Opaque green

Intact small, globular bead. Central perforation.



Figure 103. G104. Globular bead (faience).

G104 SF 859; context 18085

**Globular bead**

Faience (pale blue)

Intact small, globular bead. Central perforation.



Figure 104. G105. Globular bead (carnelian?).

G105 SF 2207; context 2001

**Globular bead**

Carnelian (?)

Intact small, globular bead. Central perforation.

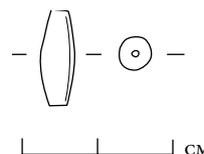


Figure 105. G106. Biconical bead.

G106 SF 506; context 7023

**Biconical bead**

Dark blue

Intact long, biconical bead. Small, central perforation.

FIG. 101

FIG. 105

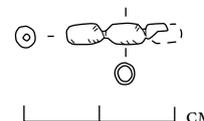


Figure 106. G107. Segmented bead.

G107 SF 441; context 9144

**Segmented bead**

Colorless

Fragment of segmented bead. Two complete globular sections and part of a third.

FIG. 102

FIG. 106

*Ib. Polychrome Beads*

The finds include a few examples of more elaborate, polychrome glass beads. These are probably later in date than the monochrome beads, though none of them was found in a closely dated context. One is a roughly cylindrical bead, decorated with blobs of opaque yellow, blue, and white, set against a background fabric of undetermined color (G108); this type of decoration, sometimes called “crumb” decoration, was most popular between the third and fifth centuries A.D. Two more are elongated, roughly cylindrical beads of dark-colored glass, decorated with white and/or yellow threads (G109–110); beads decorated with colored threads were most popular between the third and fifth centuries A.D.



Figure 107. G108. Cylindrical bead (“crumb” decoration).

G108 SF 843; context 9133

**Cylindrical bead**

Ground color unknown

Intact cylindrical bead. Blobs of opaque yellow, blue, and white.

FIG. 104

FIG. 107



Figure 108. G109. Cylindrical bead (colored threads).

G109 SF 2172; context 2107

**Cylindrical bead**

Black and white

FIG. 108

Nearly intact elongated cylindrical bead. White threads, some feathered, marvered into surface.



Figure 109. G110. Cylindrical bead (colored threads).

G110 SF 2083; context 2011

**Cylindrical bead**

Black, white, and yellow

FIG. 109

Nearly intact elongated cylindrical bead. Alternating white and yellow threads, mostly feathered, some marvered into surface.

## II. Bracelets

Glass bracelets came into fashion in the eastern Mediterranean beginning in the third century A.D. and remained a standard costume accessory through the Islamic period.<sup>62</sup> As with beads, certain types of glass bracelets enjoyed great longevity. Consequently, the 12 fragmentary glass bracelets recovered at Zeugma must be dated largely on the basis of archaeological context.

### Ila. Monochrome Bracelets

The most common type of glass bracelet at Zeugma, and one of the most widespread and long-lived of all, was the monochrome spirally twisted bracelet (G111–G112). Bracelets of this type are invariably circular in section and often black in color, though blue, purple, and green glass were also used; the twists may be clockwise or counterclockwise, arranged tightly or loosely. Spirally twisted bracelets seem to have reached Zeugma at an early date, since one fragmentary example, partially melted, was found in a destruction context (2012) associated with the Sasanian attack of A.D. 252/253. The majority of the finds, however, come from Late Imperial contexts, in line with the pinnacle of the type's popularity in the fourth and fifth centuries. A related type, the D-sectioned bracelet with prominent diagonal ribs (G113), is represented at Zeugma by a fragment found in a Late Imperial context (7321). Another type of bracelet, likely dating to the fourth or fifth century A.D., was decorated with circular protuberances (G114).

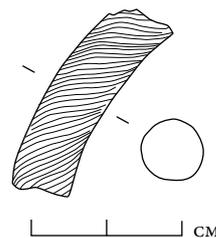


Figure 110. G111. Bracelet (spirally twisted)

G111 SF 3709; context 12011

**Spirally twisted bracelet**

Black

FIG. 110

Fragment of bracelet. Circular section. Counterclockwise twist.

Similar: Spaer 1988, type C1a.

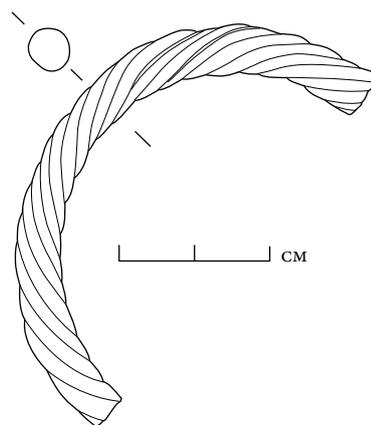


Figure 111. G112. Bracelet (spirally twisted).

G112 SF 629; context 7201

**Spirally twisted bracelet**

Black

FIG. 111

Fragment of bracelet. Circular section. Clockwise twist.

Similar: Spaer 1988, type C1b.

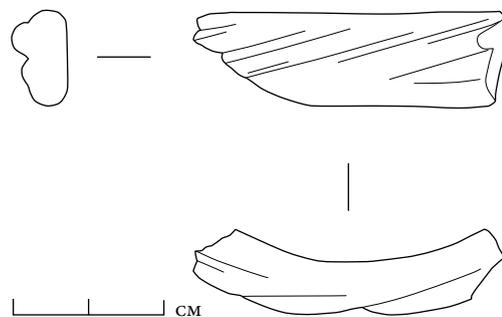


Figure 112. G113. Bracelet (ribbed).

G113 context 7321

**Ribbed bracelet**

Dark green

FIG. 112

Fragment of bracelet. D-shaped section. Prominent, diagonal ribs.

Similar: Spaer 1988, type B3b.

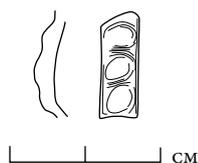


Figure 113. G114. Bracelet (protuberances).

G114 context 1024

**Bracelet with circular protuberances**

Color not known

FIG. 113

Fragment of bracelet. Row of circular protuberances on outside.

Similar: Spaer 1988, type B5b.

*Iib. Polychrome Bracelets*

Glass bracelets with polychrome decoration were produced mainly in the Islamic period.<sup>63</sup> A single example from Zeugma — decorated with intertwined red and white trails marvered into a black background (G115) — was found in a colluvium deposit (context 5150) along with pottery of Late Imperial date and may represent a Byzantine precursor of a future trend.



Figure 114. G115. Bracelet (colored trails).

G115 context 5150

**Bracelet**

Black, red, and white

FIG. 114

Fragment of bracelet. D-shaped section. Intertwined red and white trails, marvered into surface.

**III. Rings**

Fragments of finger rings comprise a small group within the glass finds from Zeugma. Two oval ring bezels of colored glass (G116–117) would have provided an inexpensive substitute for gems. Even more modest was a finger ring made entirely of faience, with a conical bezel (G118). All three of these objects evidently date to the Middle Imperial period.



Figure 115. G116. Ring bezel.

G116 SF 2246; context 2080

**Ring bezel**

Dark blue

FIG. 115

Intact ring bezel (broken and mended). Oval. Edges slightly beveled.



Figure 116. G117. Ring bezel.

G117 SF 2002; context 2000

**Ring bezel**

White and black

FIG. 116

Intact ring bezel. Oval. Edges beveled. Top surface opaque white; bottom surface black.



Figure 117. G118. Finger ring (faience)

G118 SF 3390; context 18070

**Finger ring**

Faience (greenish)

FIG. 117

Intact finger ring. Circular section. Spirally twisted, conical bezel.

**IV. Miscellaneous Objects**

This survey of glass objects recovered during the Zeugma 2000 excavations ends with discussion of a few miscellaneous pieces that further illustrate the broad functional range of ancient glass. One is a small, plano-convex disc of opaque black glass (G119) belonging to a class of objects generally datable to the Roman period and identified as gaming pieces. Another is a fragment of a spiral-twisted rod of pale bluish-green and blue glass (G120), which probably served as a stirring rod. Glass stirring rods are usually

dated between the first and third centuries A.D., but a later date for this object is suggested by its findspot in a destruction deposit (context 7066) datable to the mid-seventh century A.D.<sup>64</sup>



Figure 118. G119. Gaming piece

G119 SF 2216; context 2001

Gaming piece

Black

Intact gaming piece. Plano-convex disc.



Figure 119. G120. Stirring rod.

G120 context 7066

Stirring rod

Pale bluish-green and dark blue

Fragment of stirring rod. Spirally twisted; alternating strands of bluish-green and dark blue.

FIG. 118

FIG. 119

## NOTES

I wish to thank William Aylward (University of Wisconsin) for entrusting me with the publication of this material and for addressing numerous technical queries about the Zeugma 2000 excavations. Jennifer Price (University of Durham) was kind enough on several occasions to share insights based on her personal study of the Zeugma glass. I am grateful to Christopher S. Lightfoot (Metropolitan Museum of Art), who discussed a number of “tricky” objects with me. Finally, my gratitude is due Susan B. Matheson (Yale University Art Gallery), who got me hooked on ancient glass.

1. For the chronological scheme, see Aylward, volume 1.
2. Glass finds under consideration here come from the following trenches: 1, 2, 4, 5, 7, 9, 10, 11, 12, 13, 15, 18, and 19. Publication of the glass finds from Trenches 3 and 8 will appear elsewhere. This chapter does not treat glass tesserae, whether found loose or associated with specific mosaic pavements. For mosaics, see Dunbabin, volume 1.
3. All quantities and percentages are approximate. The total of 10,500 fragments excludes data from Trenches 3 and 8.
4. See Aylward, volume 1.
5. This lump of fused glass (G42) comes from context 9175, a badly burnt accumulation of collapse debris datable to the mid-third century A.D. The lump consists of at least eight distinct layers, each probably representing a separate vessel, which may have been stacked, one atop another, when affected by fire. Facet and linear-cut patterns remain visible in areas on the outermost layer.
6. For core-formed vessels of the Hellenistic period, see Grose (1989), 122–5; see also Stern and Schlick-Nolte 1994, 28–30 and 37–44; Jackson-Tal 2004, 13–5.
7. For core-formed vessels from Dura-Europos, see Clairmont 1963, 7.
8. For mid-Hellenistic cast vessels, see Grose 1979, 55–9; Grose 1989, 193–4; see also Jackson-Tal 2004, 17–9. For other finds of cast bowls with linear-cut decoration in Turkey, see Lightfoot 1993, 22–7.
9. See Tobin, volume 1.
10. On the conditions of the period and their relationship to the history of glass, see Grose 1983; Grose 1989, 241–4.
11. For early Roman cast vessels with linear-cut decoration, see Grose 1979, 63–5; Grose 1989, 247. For context 15232, see Aylward, volume 1.
12. For early Roman cast ribbed bowls, see Grose 1979, 60–3; Grose 1989, 244–247; see also Jackson-Tal, 21–2.
13. For other finds of cast ribbed bowls in Turkey, see Lightfoot 1993, 27–33.
14. For early Roman mosaic glass vessels, see Grose 1989, 31–5; see also Stern and Schlick-Nolte 1994, 53–72; Jackson-Tal 2004, 24.
15. The remainder of the ribbed bowl fragments were found in post-occupation/colluvium deposits.
16. An exception may be G5, found in third-century context 11028, but joining with a fragment found in the overlying colluvium layer 11026.
17. For the House of the Bull, see Tobin, volume 1.
18. For translucent colored cast tableware, see Grose 1989, 254–6; Grose 1991, 2–11. The fragments of peacock-blue glass reconstructed here as a hemispherical bowl were found in colluvium deposit 18001. Additional fragments of peacock-blue glass were recorded in context 9137, a burnt layer associated with the Sasanian attack of A.D. 253; very small and affected by heat, these fragments cannot be assigned to vessels of any particular shape.
19. For colorless cast tableware, see Grose 1991, 12–8.
20. The central portion of the bottom of G12 is missing, but compar-

- ison with a similar fragment from the same context suggests that the concentric circles may have surrounded a central decorative element, perhaps a circular facet.
21. For colorless cast vessels from Dura-Europos, see Clairmont 1963, 18–25.
  22. Most of the finds of colorless cast glass from Zeugma come from contexts associated with the Sasanian attack of A.D. 253. Although exact findspots were not recorded for many of the finds from Dura-Europos, it is likely that they come mainly from destruction deposits associated with a Sasanian siege of A.D. 255/6. At Karanis, too, much of the colorless cast glass seems to date to the second and third centuries A.D.; see Harden 1936, 49–51, 60–2, and 77–8.
  23. For the suggestion that eastern Mediterranean workshops were slow to embrace glassblowing, see Stern 1999, 443.
  24. For mold-blown ribbed bowls, see Stern 1995, 111–3. The fragment from Zeugma belongs to a bowl of the type represented by Stern's no. 14.
  25. For truncated conical beakers with knot-shaped knobs, see Stern 1995, 103–8.
  26. For small mold-blown bottles, jugs, and flasks, see Stern 1995, 74–86.
  27. For the standard class of beakers with relief-cut moldings and facets, see Oliver 1984.
  28. For brief discussion of vessels decorated with ground-out horizontal ribs, see Cool and Price 1995, 73–4.
  29. Small mold-blown bottles, jugs, and flasks are thought to have been produced mainly by workshops on the Syro-Palestinian coast. Workshops producing mold-blown ribbed bowls and beakers with protruding knobs were evidently concentrated in the western and central Mediterranean provinces. Relatively few vessels of either type have been excavated at sites in Asia Minor.
  30. Published vessels decorated with ground-out ribs come primarily from sites in Britain.
  31. All fragments come from contexts associated with the Sasanian attack of A.D. 253, with the exceptions of G15, found in context 1024, a postoccupation accumulation of debris including material of mixed date, and possibly G17, found in context 2189, apparently a mixture of colluvium and wall collapse.
  32. The functions of ancient glass vessels are often conjectural and sometimes ambiguous. Moreover, it is likely that many vessel types served multiple functions. For a glossary of vessel types and their presumed functions, see Stern 2001, 21–2.
  33. The separately blown foot and solid, knobbed stem distinguishes goblets of the Middle Imperial period, which are rare, from their more typical counterparts of the Late Imperial period.
  34. Some scholars classify vessels of this shape as unguent bottles; see, e.g., Hayes 1975, no. 272.
  35. For the impact of the invention of glassblowing on Roman society, see Stern 1999.
  36. Stern 1999, 469, n. 160.
  37. Tableware accounts for 74.3 percent of the pottery finds of Augustan/Tiberian date (Kenrick Group B), 67.6 percent of the pottery finds of Flavian/Trajanic date (Kenrick Group C), and 6.7 percent of the pottery finds from the mid-third century A.D. (Kenrick Group D).
  38. See Kenrick, this volume.
  39. G39–40 appear to be fragments of the same vessel, but even if they are not, the lower registers of decoration on G39 probably resembled that preserved on G40.
  40. Clairmont 1963, considers most of the cut glass found at Dura-Europos to have been made locally. Stern 2001, 137, suggests Dura-Europos as a regional center of production.
  41. For the most common forms of unguent bottles, see De Tommaso 1990.
  42. Cylindrical bottles with linear-cut decoration are sometimes assumed to have been used as tableware.
  43. For square bottles, see Charlesworth 1966.
  44. Charlesworth 1966, 31–2.
  45. Assigning functions to particular forms of Late Imperial vessels is especially problematic. In particular, a number of vessel types discussed here as tableware (e.g., goblets, beakers, etc.) may also have been used as lamps.
  46. It is probable that fragments G69–70, found in the same context, belong to a single vessel.
  47. For a survey of glass lamps in use in Byzantine Anatolia, see Olcay 2001.
  48. See Hawari, this volume. Table 1 shows the relative proportions of each lamp type within the assemblage. Type 7 (late fifth to sixth century A.D.) accounts for only 3.2 percent, whereas type 8 (seventh to eighth century A.D.) accounts for 33.5 percent of the total.
  49. See Kenrick, this volume.
  50. For Roman window glass generally, see Whitehouse 2001, 31–6.
  51. Substantial quantities of window glass were recovered at Dura-Europos. This material receives occasional mention in the preliminary reports of the Yale-French Excavations but has not been systematically published. For a photograph of a fragment of window glass from Dura-Europos, see Grossmann 2002, 39, fig. 40.
  52. Besides greenish glass, fragments of pale greenish and bluish-green window glass are fairly common; fragments of colorless (i.e., intentionally decolorized) window glass are rare.
  53. On the use of the “muff” process to produce double-glossy window panes, see Allen 2002, esp. 109.
  54. No window glass was found in Trenches 1 and 19. Fewer than five fragments were found in Trenches 4, 5, 10, and 15; fewer than 25 in Trenches 11, 12, 13, and 18; fewer than 100 in Trench 9; and fewer than 150 in Trench 7. Contexts in Trench 2 yielded over 5,000 fragments of window glass.
  55. One hundred or more fragments of window glass were found in the following contexts in Trench 2: 2012, 2095, 2098, 2099, 2212, 2269, 2278, 2376, 2379, and 2383.
  56. See Tobin, volume 1.
  57. The “muff” process for the production of window glass seems to have come into general use in the later second or early third century A.D.
  58. Large quantities of window glass found at Sardis are dated between the early fifth and early seventh centuries A.D.; see von Saldern 1980, 91–2. The evidence from Sardis is complemented by more recent finds from Amorium; see Gill 2002, esp. 101–3.
  59. See Tobin, volume 1.
  60. For a survey of ancient glass beads of the eastern Mediterranean, see Spaer 2001.
  61. G106 can be securely dated to the Early Imperial period on the basis of its context (7023), a leveling layer for a later floor.
  62. For pre-Islamic glass bracelets, see Spaer 1988.
  63. For glass bracelets of the Islamic period, see Spaer 1992.
  64. A similar spirally twisted stirring rod of dark blue and opaque white glass (SF 488) was found in context 7007.

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# PLATES

