

Early Imperial Roman Glass at the University of Pennsylvania Museum

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FIG. 1. THE AMPHITHEATER AT SCYTHOPOLIS (BETH SHEAN), IN ISRAEL, from the air. A sixth of the Museum's collection of Roman glass comes from well-provenanced, 3rd–5th century AD tombs in the various cemeteries that surround this city.

Photograph by Gabi Laron, courtesy of Yoram Tsafir, Institute of Archaeology, Hebrew University of Jerusalem

Five years ago, when the ideas underlying the forthcoming exhibition *Roman Glass: Reflections on Cultural Change* were still in embryo, I did the logical academic thing—I set aside some time to put together a bibliography of where the Museum's glass collections

had been previously published. General exploration of the Mediterranean Section's storage areas had alerted me to the fact that the Museum's holdings of Roman glass might be considerable. There seemed to be tray upon tray of bottles and jars, dishes and cups of every

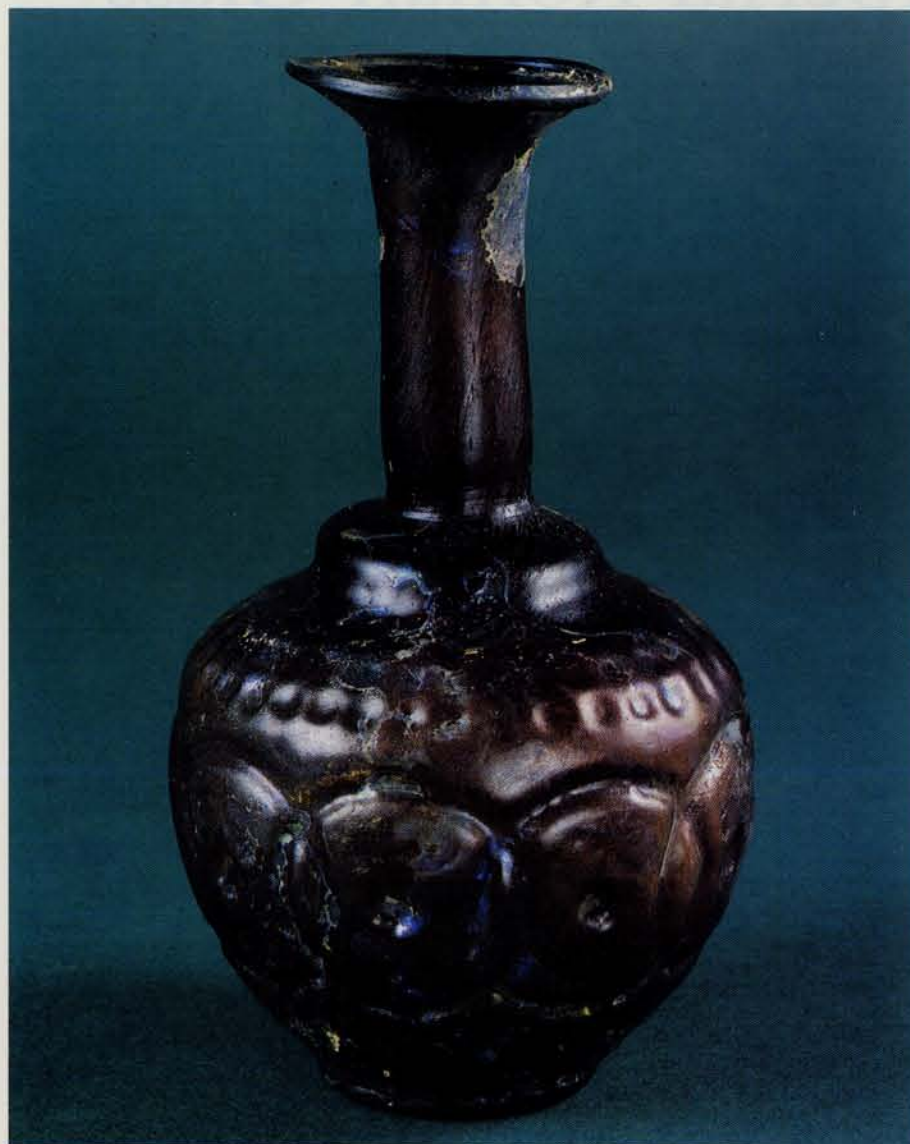


FIG. 2. PURPLE FLASK, mid 3rd century AD, possibly from Aleppo, Syria. One of the earliest pieces of Roman glass acquired by the Museum, it is also one of the most interesting, for the dimpling and "bull's-eye" decoration closely mimics that on the Roman silverware of its day.

UPM no. MS 4953. Purchased from Vestor and Co. (1913). H. 13.6 cm

shape and size. In the Near East Section's storerooms, dozens of glass vessels were spread throughout the trays of pottery and other grave goods excavated from the massive cemeteries of Beth Shean (Scythopolis in Roman times) in Israel (Fig. 1), together with a small amount of glassware from Kourion in Cyprus.

I assumed that the literature on this material would be extensive. I was wrong. Record cards in the Registrar's Office guided me to two articles in issues of *The Museum Journal—Expedition's* forerunner—Vol. IV, No. 4 (1913) and Vol. X, No. 3 (1919). The first of these articles noted that the Museum had "acquired from Jerusalem two collections of glass, comprising 392 pieces and consisting mostly of vases" (Fig. 2). (F. J.

Whiting had arranged the purchase of this material from the Vestor Company in 1913.) The second article mentioned that, in 1916, Lydia Thompson Morris had made a donation of 180 vessels "exclusive of beads and fragments." There were 41 Roman vessels illustrated in these two articles, but the discussion of their provenance, dating, and cultural significance was very superficial—certainly not the stuff of modern scholarship.

Even the excavated material went largely unreported. Gerald Fitzgerald, the excavator of the Beth Shean cemeteries, published just one page of line drawings and two paragraphs of commentary on 35 pieces of glass (mostly fragments) from the site. (However, a copy of his unpublished thesis, "Excavations in the Northern

FIG. 3A-C. PROFILE AND DETAIL DRAWINGS for three vessels documented in the Museum's VITRA data base:

(A) PALE GREEN JUG, late 1st century AD, probably from Carthage, Tunisia. This is one of the oldest kinds of transport vessels in the Mediterranean region and has close parallels in Hellenistic pottery.

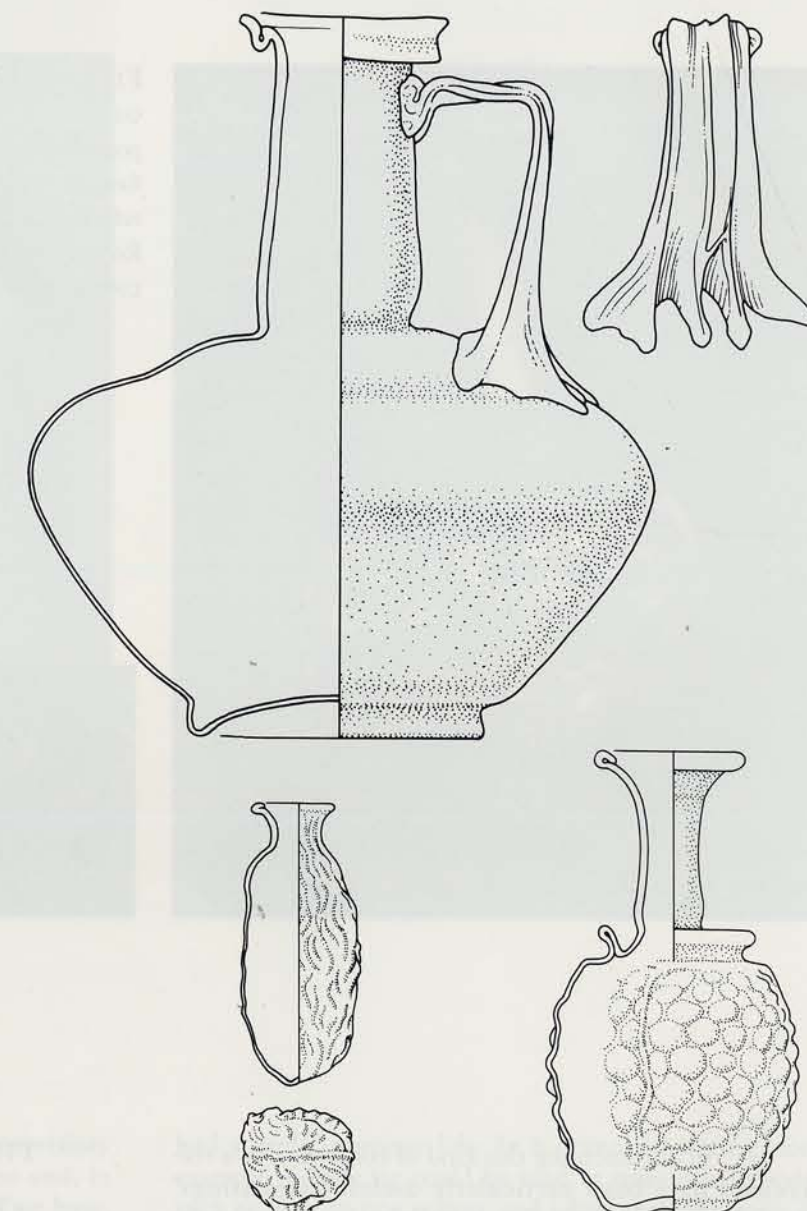
UPM no. 63-26-3. Donated by Mrs. Earl Ford (1963). Drawing by Jennifer Hook. H. 19.5 cm

(B) DARK BROWN, DATE-SHAPED FLASK (lower left), late 1st-early 2nd century AD, possibly from Aleppo, Syria. Note the well defined mold seam running across the underside of this vessel.

UPM no. MS 5112. Purchased from Vestor and Co. (1913). Drawing by Jennifer Hook. H. 7.6 cm

(C) COLORLESS FLASK IN THE SHAPE OF A CLUSTER OF GRAPES (lower right), late 2nd-early 3rd century AD, possibly from Yebna, Syria. Note the line of the mold seam running down the sidewall, faintly visible beneath the weathered crust on the surface.

UPM no. MS 5114. Purchased from Vestor and Co. (1913). Drawing by Jennifer Hook. H. 12.4 cm



Cemetery Area, 1922-1931," in the Museum's Archives provides substantially more information.) And the excavator of Roman graves at Kourion, George McFadden, died in a sailing accident in 1953, before he could publish the handful of intact vessels from Tomb 5 now in the Museum's collections. Later acquisitions, some of them sizable, have received equally little recognition. As a consequence, from 1919 until now, all but a minute proportion of the vessels in these collections have remained in complete obscurity.

Over the past three years, we have been able to document in some detail just how rich the Museum's collections of Roman glass are. A computerized database (VITRA), created with the Claris software *FileMaker Pro*,

now holds routine information on more than seven hundred vessels, along with at least one profile sketch of each. Close to three hundred of these sketches are finished to publication quality, and many have supplementary sketches of significant parts, such as the handle or rim form or the decoration on the body or the base (Fig. 3a-c). More than 95 percent of the vessels are intact, and they span the entire period of Roman Imperial history, from the late 1st century BC to the early 7th century AD. These facts were major considerations in the decision to prepare the exhibition *Roman Glass: Reflections on Cultural Change*, since they assure that we can offer both an aesthetically appealing display and a complete historical perspective for our public visitors.



FIG. 4. FLASK OF LIGHT PURPLE MOLD-BLOWN GLASS WITH MEDUSA HEADS, early 2nd century AD, possibly from Aleppo, Syria. In the Museum's VITRA database, this flask carries the notations "Isings 78b" and "Trier 158" in cross reference to the two preferred sources for dating and comparing Roman glass from the 1st century BC to the 4th century AD.

UPM no. MS 4990. Purchased from Vestor and Co. (1913). H. 11.1 cm

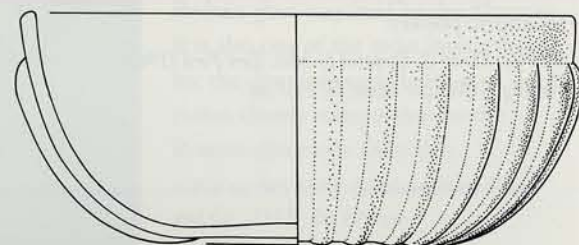


FIG. 5A, B. A "GENERIC" RIBBED BOWL, first half of 1st century AD. Bowls of this kind, with a mosaic pattern of white canes set in a blue ground, have been found as far afield as Radnage (eastern England), Ganquan

(Jiangsu province, China), Trier (Germany), and Bahrain on the Persian Gulf.

Drawing by Veronica Socha; graphic by Paul Zimmerman

THE STUDY OF ROMAN GLASS

There are major scholarly issues still unresolved about Roman glassware, not least where any particular piece was made. Glass vessels, like many other goods, moved effortlessly through the sprawling Roman trade network (DeMaine 1983; Price 1978; Sorokina 1967). Thus, while the production of cast mosaic bowls and dishes is set firmly in Italy during the early decades of the 1st century AD (Grose 1989), dozens of these vessels were distributed throughout the Empire and sometimes far beyond (Fig. 5). For example, when legions were moved in times of crisis from one frontier to another, some of the domestic glassware—tablewares and storage vessels—was carted along with all the usual military paraphernalia. Thus, a robust bottle made in Spain might finish its life in a fort on the Rhine, while one made in Gaul could appear in a trash pit near Hadrian's Wall or in a grave near one of the veterans' colonies that the Romans established along the north African coastline (Fig. 6).

In documenting this kind of collection, two references have been particularly useful: Clara Isings' *Roman Glass* and Karin Goethert-Polaschek's *Katalog der römischen Gläser des Rheinischen Landesmuseums Trier* (see Fig. 4). Despite being almost forty years old, Isings' book is still an excellent resource for known parallels in Italy and the western Empire over the period of the 1st century BC to the 4th century AD and an efficient link to older publications of glass grave goods. Goethert-Polaschek's book documents in detail several dozen well-provenanced tomb assemblages from the Trier region. The Trier assemblages constitute one of the best resources available for dating 1st–3rd century AD Roman glassware. However, these standard works define each vessel form only in a quite general way. Regional idiosyncrasies in the shape of a vessel's base, handle, or rim call for a constant awareness of innumerable excavation reports. In these reports, we can on occasion find matches for some of the Museum's vessels that are so close that we can suggest they came from the same workshop, even perhaps from the same mold.

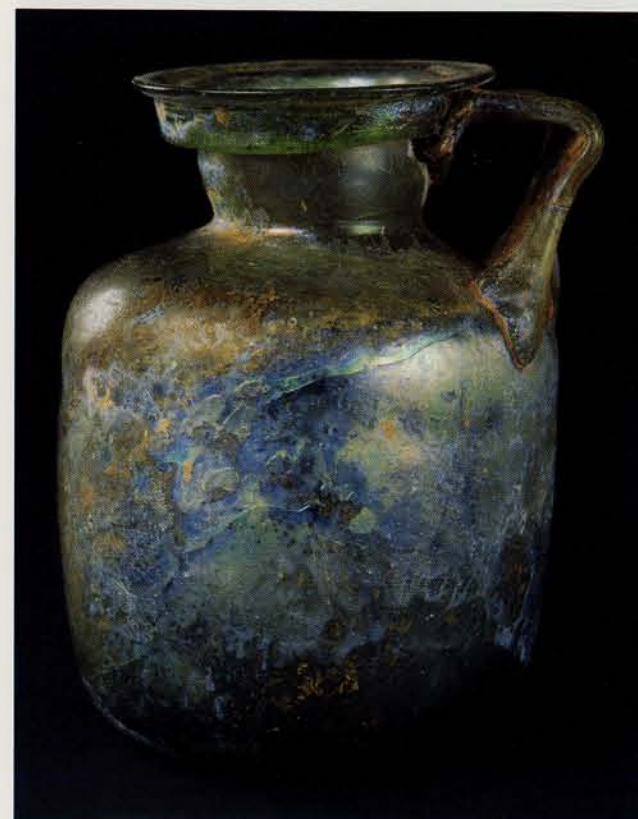


FIG. 6. PALE GREEN, SQUAT CYLINDRICAL BOTTLE, late 1st century AD, probably from Carthage, Tunisia.

UPM no. 91-26-15. Donated by Margaret Wasserman Levy (1991). H. 11.2 cm

There is also a remarkable level of uncertainty about what Roman glass vessels were used for and, in case of the various kinds of bottles and flasks we have, what they contained. The wonderfully preserved wall-paintings at Pompeii and Herculaneum do depict glassware and so, to some extent, put it in its social setting (Naumann-Steckner 1991). But those items are only a tiny fraction of the repertoire of vessels produced and used at that time (Fig. 7). They guide us little in our quest to understand the directions that Roman glass-making took in subsequent centuries. So many of the Roman glass vessels that we have available for study today survived only because they were grave goods and so were afforded some degree of long-term shelter. The general dampness and acidity of a tomb environment, however, ensured that the contents of those vessels evaporated or rotted a long time ago. In any case, only in modern excavations would care be taken to preserve any residues.

Even such residues, however, might tell us only part of the story, since many vessels were utilitarian and

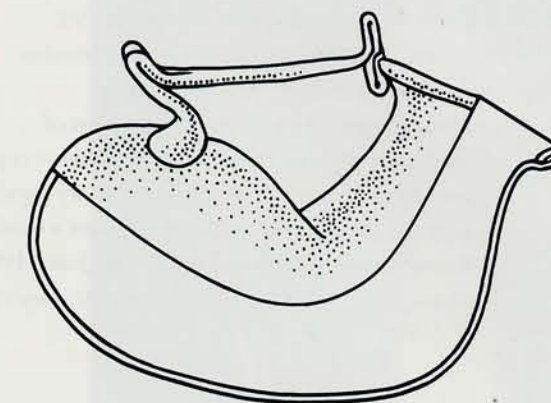


FIG. 7. JUGLET IMITATING A WELL-KNOWN SHAPE (the askos) in Greek pottery and bronze work. This is a very rare form in glass and seems to have been in fashion for only a decade or so around AD 75.

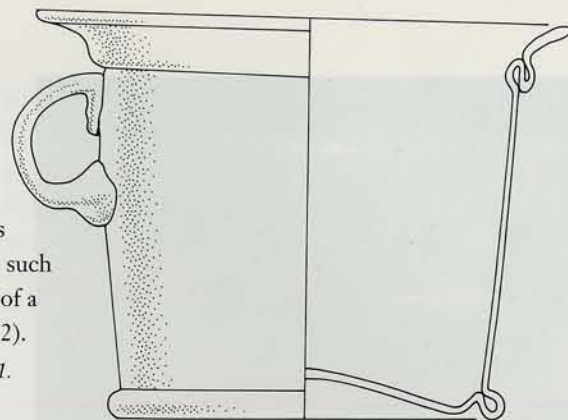
Drawing by Veronica Socha after Scatozza-Hörich 1995: pl. 37. L. 13.0 cm

had a multi-purpose life. In a domestic setting, for example, a large jar could be used to store dried goods such as flour in one season, and salted meat the next; if used in trade, it might contain fruit preserved in honey one time, pickled fish the next; in a final use as a grave good, it might contain a good stock of olives to be enjoyed in the afterlife, or the deceased's cremated remains. Indeed, many glass vessels finished up as funerary urns, including even a large measuring cup originally used to dispense grain allowances to the needy (Fig. 8). Similarly, any small bowl or jar could be used to mix things (Fig. 9), but those things could range from spices for a dinner entrée to dried herbs that would be concocted into a cure for insomnia (see Scarborough, this issue). Truth to tell, we should not expect otherwise, since today a coffee jar will often find a secondary usage as a paint pot or a place to put spare nuts and bolts.

There is also uncertainty as to how the Romans valued glass. Given the Roman proverbial use of *vitrea fracta* for "rubbish," it is difficult to resist Michael Vickers' assertion that, for the most part, glass was the

FIG. 8. ONE OF TWO MASSIVE CUPS used for someone's cremated remains in a late 1st century AD tomb at Saint Mathieu-de-Trévières (about 35 km west of modern Nîmes) in France. Originally these cups would have been used to measure out dry goods such as grain, each having a capacity of about a third of a Roman modius (= 8.6 liters) (Duncan-Jones 1982).

Drawing by Veronica Socha after Sternini 1991: entry 571. H. 11.0 cm



medium of the less wealthy sectors of Roman society (pers. com., 1996); whether one should say "of the Roman middle class" I don't know, because that is to impose modern western imagery on a culture with a materialism different from our own.

The range of technical quality that characterizes glass from ancient contexts, both domestic and funerary, suggests that the glassmaking industry had an internal hierarchy of its own, in terms of quality of product. Note the following in a letter sent by a young man stationed in Alexandria to his father living in Karanis in the Fayoum oasis sometime in the 3rd century AD: "I thank you because you considered me worthy and have made me free from care. I have sent you, father . . . sets of glassware, two bowls of quinarius size, a dozen goblets . . ." (Gazda 1983). Should we be surprised that a rural family in a Roman province would enjoy owning some glassware that was more delicate than anything they could buy locally, even though the gentry of Rome and other large cities of the Empire held glass vessels of any kind in low regard?

*Glass vessels . . .
moved effortlessly
through the
sprawling Roman
trade network*

There is also the puzzle of why there was no Roman glassmaking craft before the latter part of the first century BC. For whatever reason, the Romans chose to ignore it as a material, domestic or luxurious, throughout the first three centuries of their pre-Imperial territorial growth. It was not as if they knew nothing about it, since Rome's territories of the late 3rd century BC encompassed those parts of southern Italy and neighboring Sicily where immigrant Greek settlers and native Italic peoples had culturally fused together centuries before. The tomb furnishings recovered from cemeteries outside Canusium (modern Canosa di Puglia) illustrate this region's taste for imported Hellenistic luxury items (Grose 1989), including some

fine cast glassware (Figs. 10, 11). Additionally, direct Roman trading contacts with the Hellenistic world of the eastern Mediterranean were firmly established by the mid 2nd century BC (Weinberg 1965), and Hellenistic glassmaking was certainly flourishing at that time. So much of Hellenistic culture was then eagerly embraced by the Romans—architecture, religious cults, modes of dress, literary style—that Cato the Censor (died 149 BC) created a counter-movement designed to re-assert earlier Roman homespun values and personal austerity. (His pleas went largely unheeded.) The Roman adoption of Hellenistic glassmaking processes lagged far behind the Roman acceptance of Hellenistic philosophies.

The primary Roman contribution to the development of glassmaking was much less technological than it was organizational—the transformation of a craft into an industry. Admittedly, this industry never had a scale of productivity remotely close to that of glassmaking today, but it did have similar ideals: mass production of wares through management of a skilled labor force and constant provision of raw materials, some standardization of products, and a responsiveness to popular demand that went well beyond local and regional needs. This industry serviced a population which, on mainland Italy at least, was crammed into sprawling cities at levels rivaling those of Charles Dickens's London. In Rome alone, we are talking of perhaps 180,000 households in the mid 1st century AD, so that an annual turnover of more than a million glass vessels does not seem unreasonable in satisfaction of that city's domestic needs.

Each of the featured vessels in the six vignettes that follow is in the permanent collections of the University of Pennsylvania Museum. Each vignette explores a different aspect of the crafting, distribution, and uses of early Roman glassware.



FIG. 9. PURPLE JAR WITH INDENTED BODY WALL, late 1st century AD, provenance unknown. This jar was probably used for the blending of herbal ingredients with an oil to make a sweet-scented ointment, though that ointment could as easily have been a cosmetic or a medicine.

UPM no. MS 5601. Donated by Miss Lydia T. Morris (1916). H. 5.5 cm

FIG. 10. LIDDED AMPHORA OF COLORLESS GLASS WITH GILDED COPPER ORNAMENT, late 3rd–early 2nd century BC, reportedly found near Olbia, Ukraine. Part of the so-called Canosa Group of Hellenistic cast glassware.

Courtesy Bildarchiv Preussischer Kulturbesitz, 30219.54. H. 59.6 cm

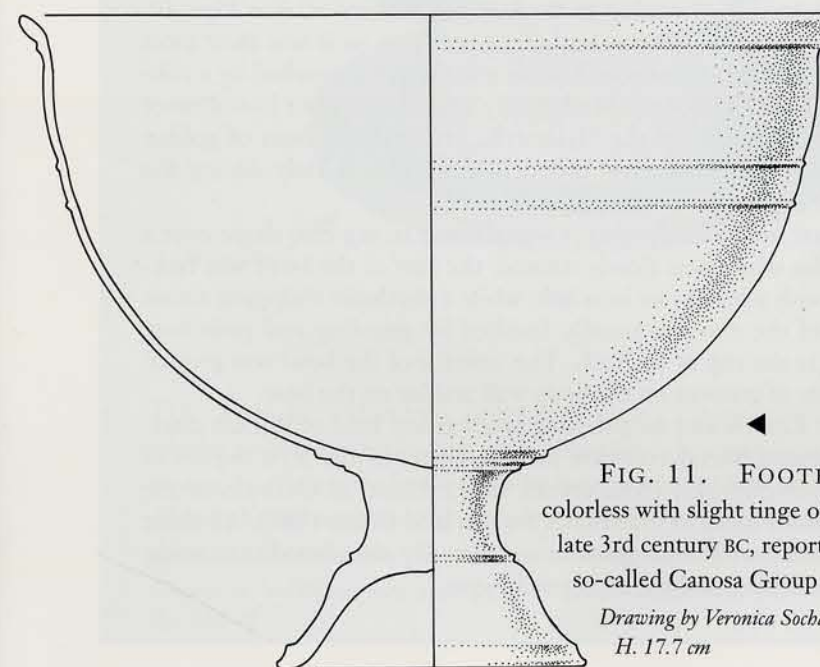


FIG. 11. FOOTED BOWL (KRATER), colorless with slight tinge of greenish-yellow, mid to late 3rd century BC, reportedly from Egypt. Part of the so-called Canosa Group of Hellenistic cast glassware.

Drawing by Veronica Socha after Grose 1989: entry 183. H. 17.7 cm

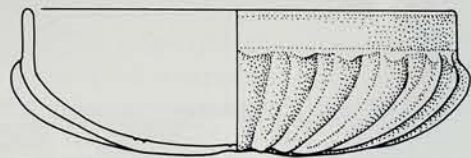


FIG. 12A, B
PALE BLUISH-GREEN RIBBED BOWL
Early 1st century AD
Provenance unknown
Dia. 12.0 cm
Two narrow, cut grooves circle the interior at the junction of the sidewall and the bottom; a smaller circle was cut at the center of the base.
UPM no. 86-35-45. Donated by George and Henry J. Vaux (1986). Drawing (b) by Jennifer Hook

RIBBED BOWL

86-35-45

Hellenistic glassmakers first adopted the technique of casting in the late 3rd century BC (see Figs. 10, 11). Although the ribbed bowl was not part of the original repertoire, within a century or so it was their most popular product. Roman glassmakers favored it as well. The Hellenistic-Roman transition was marked by a considerable improvement in the form: the ribs became more pronounced and widely spaced, and their layout more symmetrical (Fig. 12a,b). At the same time, the natural colors of the Hellenistic era—varying hues of golden brown and murky green—were replaced by a Roman palette of vivid monochromes and, in Italy during the Augustan era, a wide range of complex marbling and mosaic cane effects (Fig. 13).

Ribbed bowls were made by tooling hot glass immediately after it was allowed to sag into shape over a model resting on a potter's wheel (Fig. 14a,b). As the wheel was slowly rotated, the rim of the bowl was fashioned by pressing the disk's edge against the model with a bronze or iron lath, while a rhythmic chopping action with a second lath defined the ribs. The exterior of the rim was usually finished by grinding and polishing, which invariably created a slanting triangular bevel at the top of each rib. The interior of the bowl was ground smooth and sometimes decorated with concentric sets of grooves on the body wall and/or on the base.

Ribbed bowls were as scattered through the Empire and neighboring lands as any kind of Roman glassware. Recently published examples from provenanced burial contexts include Espe, in the Fyn region of Denmark (Ekholm 1963); Zohor (near Bratislava) in Slovakia (Kraskovská 1981); Umm al-Qaiwain in the United Arab Emirates (Haerinck 1992); and Vitudurum (near Windisch) in Switzerland (Rütti 1988). All these and earlier finds date to the 1st century AD, after which time Roman glassmakers virtually abandoned the casting technology described above in favor of a more cost-effective mold-blowing technique.



FIG. 13. COLORS AND PATTERNS. Some of the more common monochrome colors and polychrome patterns used for cast ribbed bowls of the Roman period. Graphics by Paul Zimmerman, MASCA

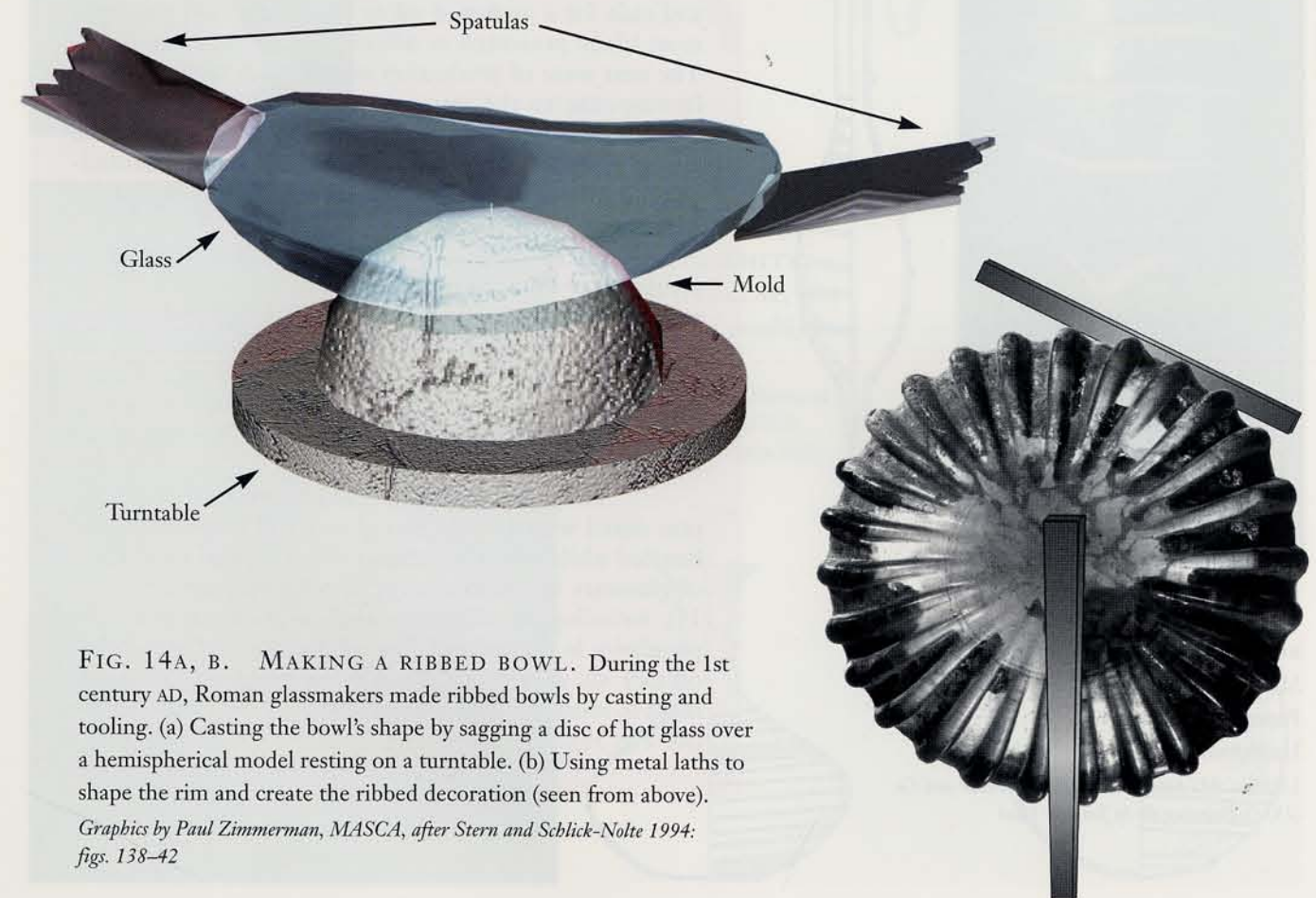


FIG. 14A, B. MAKING A RIBBED BOWL. During the 1st century AD, Roman glassmakers made ribbed bowls by casting and tooling. (a) Casting the bowl's shape by sagging a disc of hot glass over a hemispherical model resting on a turntable. (b) Using metal laths to shape the rim and create the ribbed decoration (seen from above).

Graphics by Paul Zimmerman, MASCA, after Stern and Schlick-Nolte 1994: figs. 138-42



FIG. 15A, B
UNGUENTARIUM WITH DARK BLUE
BODY AND WHITE SPIRAL OVERLAY
Mid 1st century AD
Provenance unknown
H. 16.6 cm
UPM no. MS 5005. Purchased from Vestor and Co.
(1913). Drawing (b) by Jennifer Hook

BLUE UNGUENTARIUM

MS 5005

Our earliest evidence for any attempt to blow glass comes from an early 1st century BC trash deposit in Jerusalem that included several partially worked glass rods—probably applicators for cosmetics or ointments—and fragments of glass tubes, some of which had been fire-sealed at one end and partially inflated into simple bulbs. Parts of a few crude bottles among the same debris indicate the general success of this experimentation (Israeli 1991). However, the industrial potential of this new technology went unrecognized for several more decades, awaiting the invention of the blow-pipe—in prototype, perhaps one of the pottery nozzles used to provide draft for the crucibles and molds of metalworkers (Stern and Schlick-Nolte 1994). The changeover was abetted by Augustus's imperial decision to uproot hundreds of craftsmen from the eastern Mediterranean and resettle them on the Italian mainland. There, as slaves, those craftsmen were obliged to adapt their craft skills towards mass production.

The first products of commercial glass-blowing were mostly roughly finished unguentaria—small bottles and vials for a perfumed oil or lotion (Fig. 16) that were most likely presented as offerings to deceased relatives. The next wave of production was of much higher quality. In response to the importance placed upon personal appearance and hygiene in Roman society, various jars and juglets appeared, to be used for cosmetic mixing, decanting, and application (see Fig. 9). The forms and decoration of unguentaria also multiplied.

The elegantly tapered unguentarium of Figure 15 combines two fashionable aspects of glassmaking of the mid-1st century AD. Both its shape and its white-on-blue color scheme echo contemporary cameo vessels (Painter and Whitehouse 1990) (Fig. 18). Its form is a natural elongation of the spherical unguentaria (Fig. 19) that were fire-sealed after filling so that the end had to be snapped off before the contents could be used.

The use of spiraling threads as a means of decoration suited well the way that glass could be extruded and handled while hot. The technique was applied to all kinds of glassware in a whole range of color schemes (Figs. 17, 19), including monochromes such as green-on-green. Its popularity in the western Empire declined in the mid 2nd century AD, after which it was rarely more than a supplement to more complex manipulations of the glass's surface (see Fig. 39).



FIG. 16. PALE GREEN
UNGUENTARIUM, late 1st
century BC–late 1st century AD,
probably from Carthage, Tunisia.
This and other simple forms of glass
unguentaria have been found at
several late 1st century BC Italian
sites (Grose 1977).

UPM no. 91-26-10. Donated by Margaret
Wasserman Levy (1991). H. 11.7 cm

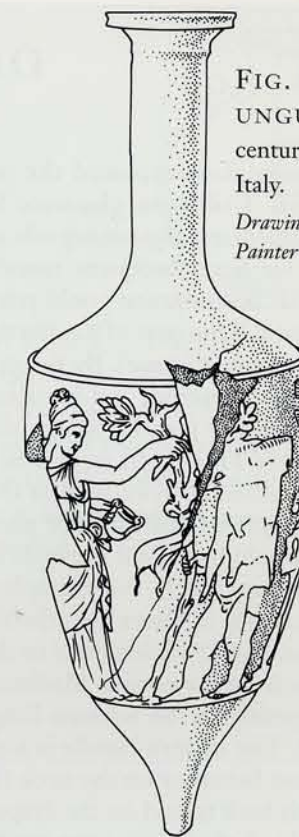


FIG. 18. CAMEO
UNGUENTARIUM, mid 1st
century AD, from Torre di Siena,
Italy.

Drawing by Veronica Socha after
Painter and Whitehouse 1990: fig. 105

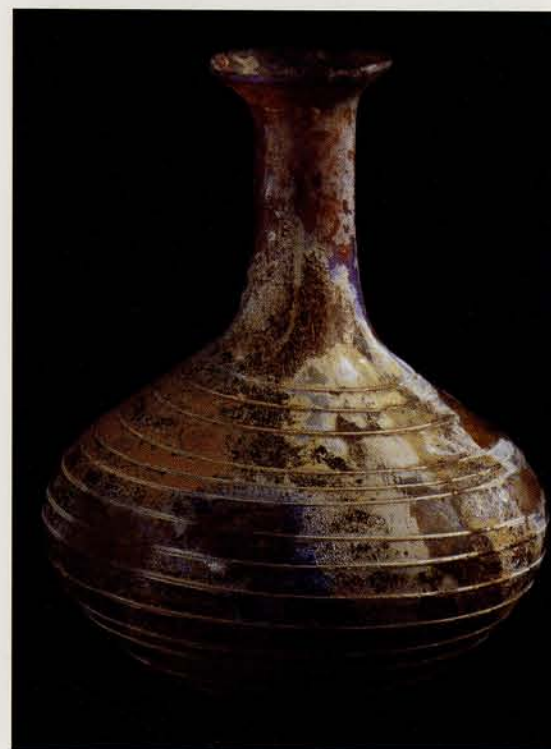


FIG. 17A, B. FLASK
WITH PALE AMBER
BODY AND WHITE
SPIRAL OVERLAY, mid
1st century AD, possibly from
Aleppo, Syria.

UPM no. MS 4937. Purchased
from Vestor and Co. (1913).
Drawing (b) by Veronica Socha.
H. 9.0 cm

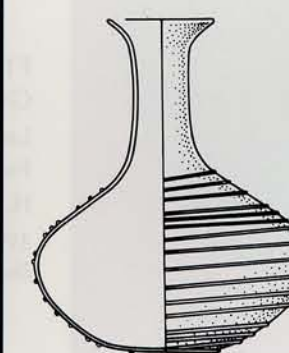
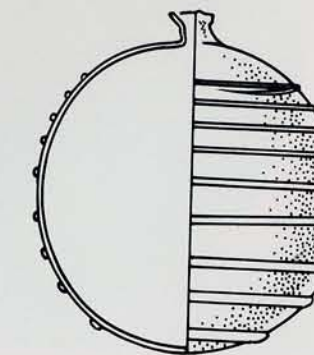


FIG. 19. SPHERICAL
UNGUENTARIUM WITH A
BLUE BODY AND WHITE
SPIRAL OVERLAY, mid 1st
century AD.

Drawing by Veronica Socha after
Goethert-Polaschek 1988: pl. 79.
D. 4.5 cm



OIL FLASK

91-8-4

As Roman glassmakers explored the practicalities of free-blowing, their products diversified and became more substantial. Utilitarian glassware found a niche in almost every part of Roman daily life. Each morning, dozens of unguentaria containing oils and lotions were brought forth, to endow a lady with the fresh complexion necessary for her subsequent round of socializing. Pitchers and bowls of water were carried by household slaves, so that businessmen could refresh themselves either during a morning meeting, or between courses at an evening meal. One part of the normal day of every Roman, patrician and plebeian alike, was a visit to the public bathing houses (*thermae*). By the mid 2nd century AD these were complexes of bathing pools and areas for bathing, exercise, reading, and socializing (Carcopino 1962). In a few spacious rooms, the wealthy, after they had bathed, could be pummeled into shape and rubbed down with heavily scented oils. The two flasks shown here (Fig. 20a,b and Fig. 21a,b) are typical of those used for storing such oils.

Social bathing, albeit at more modest *thermae*, was just as much a part of everyday life in the Roman provinces as it was in Rome, so find spots for glass oil flasks are Empire-wide. The forms of their rims and handles (which originally would have held the ends of a bronze carrying loop) do, however, show some interesting regional variations (Sorokina 1987). For example, a collar-like rim (see Fig. 20) appears frequently among flasks from Asia Minor, particularly at places near the Bosphorus. (This rim form mimics that on glazed pottery being traded out of Pergamon, just 150 kilometers to the south.) A quite different rim, one with an inwardly flattened profile, occurs on flasks from the eastern Mediterranean and around the northeastern coastline of the Black Sea, but it also occurs frequently in the western Empire. Handle form goes some way towards separating eastern from western products. The eastern handle is a curved pivot that stretches from one point on the flask's shoulder to another either just below or on the neck (Fig. 21); the western handle is a drape of glass along the flask's body and neck that curls back to end on the drape itself (Fig. 22).

This globular kind of oil flask went out of fashion by the 3rd century AD. It does persist in places, however. In Egypt, its handle becomes smeared along the entire neck (Fig. 23). In the Rhineland, the flask becomes more bottle-like, with handles in a dolphin-like shape shared by many other vessels from that region.

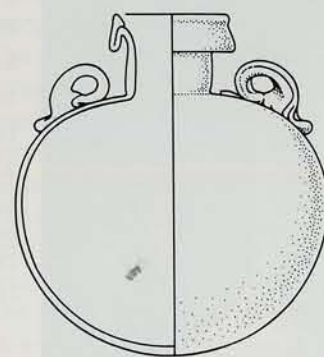
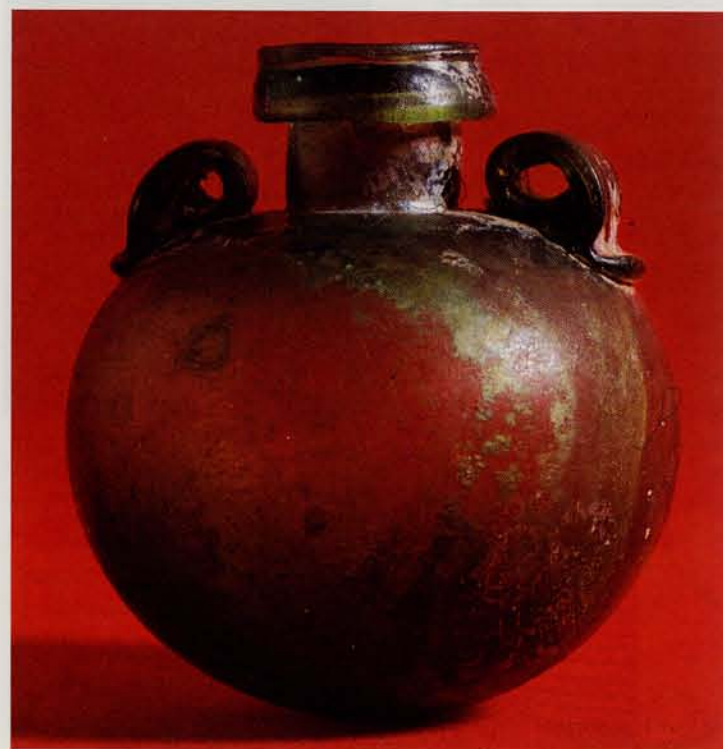


FIG. 20A, B
GREEN OIL FLASK
Late 1st–mid 2nd century AD
From Ras el-Ain, Syria
H. 9.1 cm

UPM no. 91-8-4. Donated by J.M. Hammett (1991).
Drawing (b) by Jennifer Hook

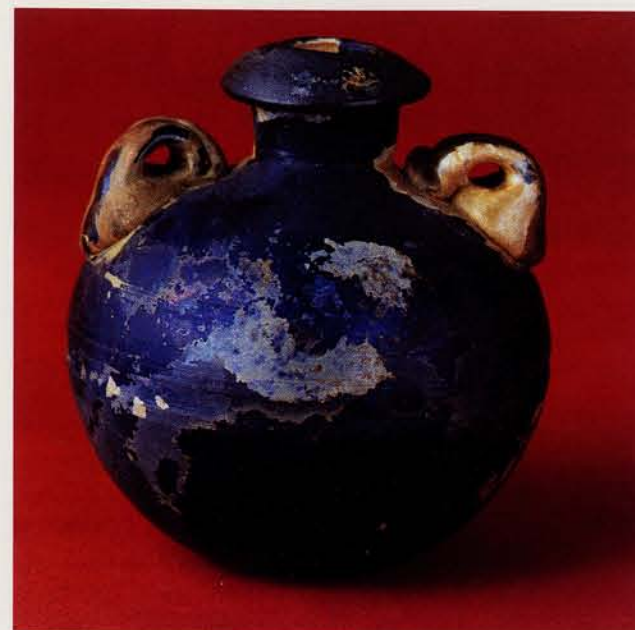


FIG. 21A, B. OPAQUE, DARK BLUE OIL FLASK, late 1st–mid 2nd century AD, possibly from Aleppo, Syria. The handles are “eastern” in form. Flasks with grooved and incised decoration on the body are rare, but two were found in separate graves at Pantikapaion (near Odessa) on the Black Sea coast.

UPM no. MS 4999. Purchased from Vestor and Co. (1913). Drawing (b) by Jennifer Hook. H. 7.3 cm

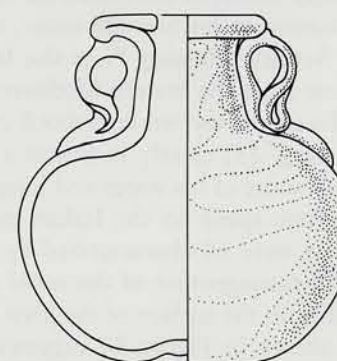


FIG. 22. AN OIL FLASK WITH “WESTERN” HANDLES. Cologne was probably the main center of production of such vessels, though their find spots are spread throughout Gaul and the Danubian provinces. This “western” handle form may have originated in central Italy.

Drawing by Veronica Socha after Püffgen 1989: pl. 2:15. H. 9.6 cm

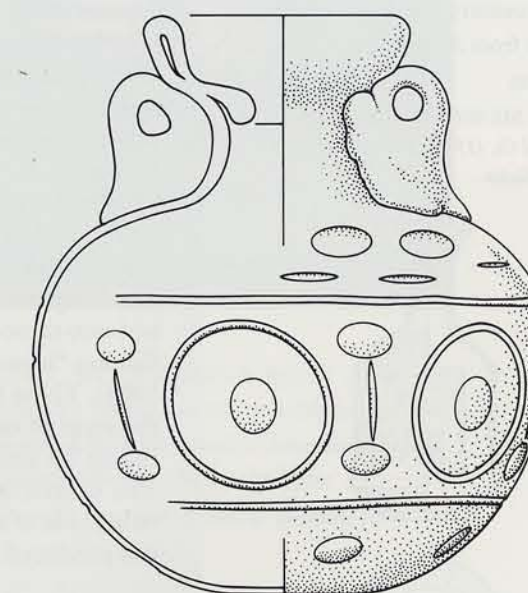


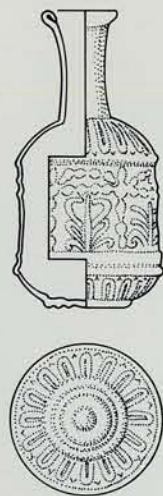
FIG. 23. OIL FLASK OF COLORLESS GLASS, second half of the 3rd century AD, from grave 330 at Karanog, Nubia. The decoration probably mimics that on a luxurious flask carved from rock crystal.

UPM no. E 7353. Excavated during the Coxe Expedition (1908). Drawing by Veronica Socha. H. 15.7 cm



FIG. 24A, B
PALE GREEN BOTTLE
Mid 1st century AD
Possibly from Aleppo, Syria
H. 7.8 cm

UPM no. MS 5014. Purchased from Vestor and Co. (1916). Drawing (b) by Veronica Socha



JUGLET BY ENNION

MS 5014

Glassmaking was just one of the crafts Augustus placed in the hands of entrepreneurs to ensure industrialization. Pottery making was another—possibly the first and assuredly the most successful. The already sizable kiln complexes in northern Italy (particularly those at Arezzo) were expanded, then supplemented by ones in southern Gaul (Greene 1986). Initial commercial success owed much to the experienced mold-makers that were brought to Italy from Asia Minor to help produce tablewares with a fine red gloss finish and a decoration inspired by the silverware of the day.

Glassmakers may have envied the efficiency of these pottery-making centers and the quality of their products, but they could not simply usurp the technology. A vessel molded in unfired clay shrinks as it dries, and so frees itself naturally from the mold. But glass, hot and fluid when blown, clings closely to the mold's surface. For closed forms, such as bottles, the mold itself has to be in two or more parts if it is to be lifted away (Price 1991). Solutions were found. Multi-part molds of stone and sheet copper found favor because of sturdiness; clay ones were popular because they could be prepared as sets by replication from a metal or wooden model, then filled in turn from one glass melt.

When glassmakers developed the technology of mold-blown glass around AD 35, the benchmark for quality seems to have been set by someone called Ennion. The Hellenized nature of his Semitic name, together with its occasional coupling to the Semitic blessing "Let the buyer be remembered" suggest that Ennion came from the eastern Mediterranean—possibly Sidon, possibly Jerusalem. His use of the western motif of a handled rectangle around his name (see Fig. 25) clearly indicates a Roman influence upon his career. Findspots for some of his wares and a suggestion of Italic mimicry in his style hint at time spent on the Italian mainland. Whatever his background, his products were all characterized by a crispness in the design motifs and a skillful management of the mold parts so that their line of union is all but invisible on the surface of the glass.

Everything about the bottle shown in Figure 24 suggests that it, too, is a product of Ennion's workshop. The central frieze of alternating in- and out-turned palmettes matches exactly the frieze on the shoulder of an Ennion "signed" jug (Fig. 25) found in the Old City of Jerusalem (Israeli 1983). These two vessels share the device of obscuring the mold-join under the stem of one of the palmettes. The rough finish of the juglet shown in Figure 26 underscores, by contrast, the quality of Ennion's craftsmanship. The central motif of tendril scrolls is poorly defined; the mold-joins on either side of the body disfigure the design. When this kind of tendril scroll was produced by Ennion, the vegetation always retained its lifelike form.

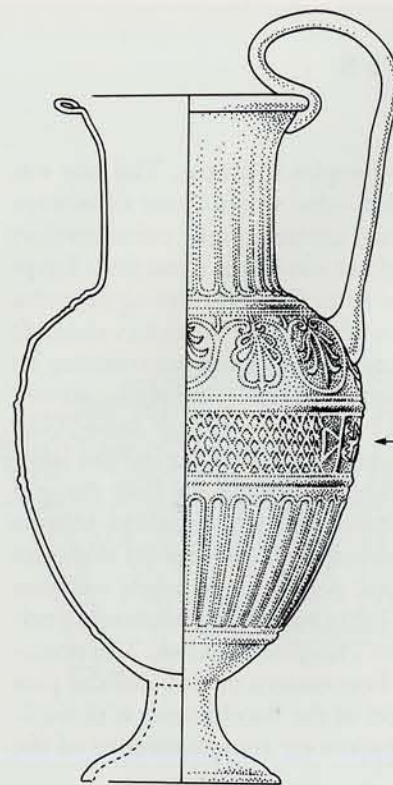


FIG. 25. THE GREEK TEXT in the central honeycomb frieze of this mold-blown jug translates as "Ennion made it." Four vessels of this kind are known, all cast from the same mold (see Price 1991).

Courtesy of The Corning Museum of Glass, 59.1.76. Drawing by Veronica Socha after Harden 1987: entry 87. H. 21.1 cm

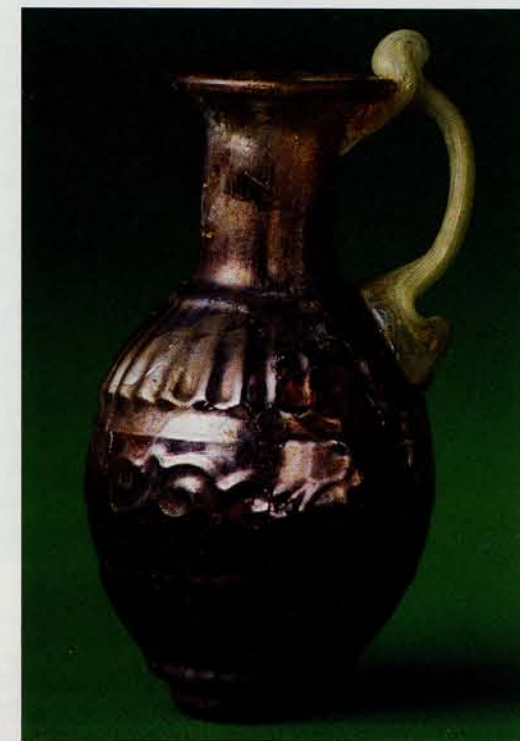
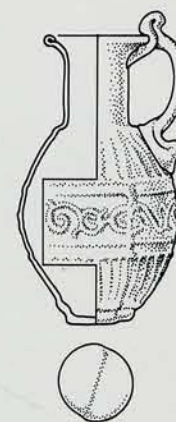


FIG. 26A, B. JUGLET WITH PURPLE BODY AND LIGHT GREEN HANDLE, 1st century AD, possibly from Aleppo, Syria. Similar vessels have been found at Samothrace in Greece and at the Azar necropolis near Tartous in Syria.

UPM no. MS 5013. Purchased from Vestor and Co. (1916). Drawing (b) by Veronica Socha. H. 8.5 cm



JUGLET, BACCHUS MOTIFS

MS 5010

As early as the 2nd century BC, eastern cults were attracting eager disciples in Rome. The city was teeming with people of non-Roman birth—slaves, freedmen and businessmen—for whom those cults were native religions; but times of plague and famine also encouraged many a Roman citizen to seek cultic comfort (Shelton 1988). Cybele came from Asia Minor to help defeat Hannibal; Isis and her son Osiris came from Egypt with promises of resurrection; and Dionysus, transformed into Bacchus, came from Greece, offering salvation and a blessed afterlife. Bacchic rituals were mysterious, emotional to the point of frenzy, and (so critics claimed) prone to lewdness and drunken devilry. Yet Bacchus worship persevered for many centuries, contributing its favorite symbols—the vine and the mask of revelry—to many a Roman sculptural relief and wall-painting (Lehmann-Hartleben and Olsen 1942).

Some specific imagery on mold-blown glass gives us a sense of Bacchus's popularity during the latter part of the 1st century AD (Weinberg 1972; Matheson 1980). In the most direct allusions, we have the god accompanied by his acolytes, drunken Silenus and pipe-playing Pan. Similar allusions include depictions of wine jugs and bowls alongside such items as the panpipes and a vine-garlanded shepherd's staff (the *thyrsus*) that were part of the paraphernalia of Bacchic festivals. But the pairing-up of pine cone and pomegranate motifs with one of a grape bunch (Fig. 27a,b) is a more subtle expression of Bacchic beliefs. It harks back to the Hellenistic origins of the cult as a mixture of two gods of nature, the Greek Dionysus and the Phrygian Sabazios. The pomegranate, by virtue of its heavy seed load, was an image of fertility for both of these eastern deities, and the pine cone was always a primary symbol for Sabazios (Fig. 28). Meanwhile, the fusion of the Bacchus cult with traditional Roman paganism is clear where, for example, Bacchus joins Neptune among representations of the Seasons (Fig. 29).

While Bacchic symbols in glass decoration are easy to recognize, those for other cults are not. For example, the frequency of occurrence of a specific sextet of bird motifs among bottles and juglets similar to those bearing Bacchic motifs suggests some cultic influence (Fig. 30a,b). But the bird itself is unidentified, and its actions are hard to discern beyond the general notions of flying and nesting. An ibis or a falcon would have Egyptian connotations, but we simply cannot make that connection here with any certainty.

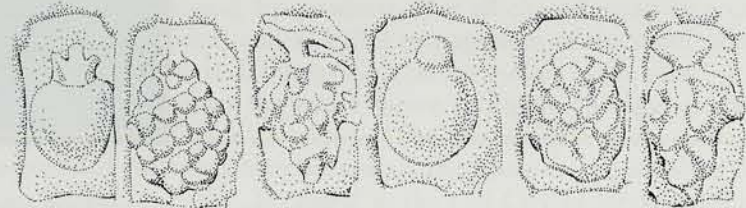


FIG. 27A, B
PALE GREEN JUGLET
Late 1st century AD
Possibly from Aleppo, Syria
H. 8.4 cm.
UPM no. MS 5010. Purchased
from Vestor and Co. (1916).
Drawing (b) by Jennifer Hook

FIG. 28. THE VOTIVE OFFERING FOR THE GOD SABAZIOS was a bronze hand covered with zodiac signs and/or cult symbols such as a pine cone, a tortoise, and a salamander.

Courtesy of Musée romain de Avenches, 1845/597. H. 11.5 cm



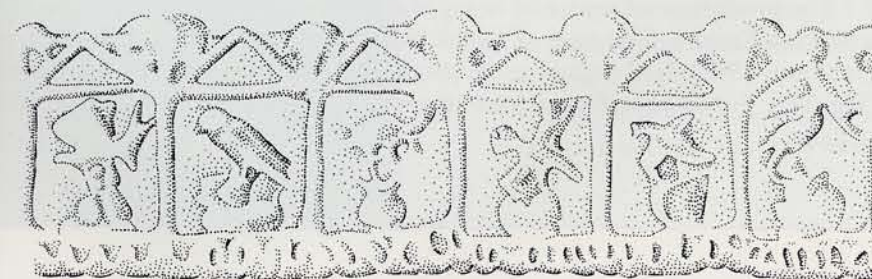
FIG. 29. MOTIFS FROM A FOUR-SIDED BEAKER, depicting personifications of the Seasons. Note how the *thyrsus* in Bacchus's left hand is topped by Sabazios's pine cone rather than vine foliage.

Drawing by Veronica Socha after Matheson 1980: entry 137



FIG. 30A, B. OPAQUE WHITE BOTTLE, late 1st century AD, possibly from Aleppo. Six bird motifs circle the body. (The bottle probably mimics a similar item in alabaster.)

UPM no. MS 5009. Purchased from Vestor and Co. (1916). Drawing by Jennifer Hook. H. 8.0 cm



SQUARE BOTTLE

86-35-27

A Mediterranean merchant would hardly risk using something as fragile as glass for the thousands of liters of wine or olive oil shipped from say southern Spain to Rome. So, when it came to long-distance trade in bulk, the containers of choice were always pottery amphorae or wooden casks (Greene 1986). However, within more regional networks of trade, there was a need for smaller containers. Pottery amphorae were still essential, but they were much supplemented by a variety of jugs and bottles. It was among the latter that glass found another niche alongside its pottery counterparts. For some reason, the niche was not filled as swiftly as it had been for tablewares and unguentaria in the Augustan era, but rather more slowly during the two decades following Nero's death in AD 68 (Cool and Price 1995). Thereafter, judging by the wear-and-tear now visible on some of the pieces, they seem to have moved back and forth, their contents changing time and again as the market place demanded.

These bottles mostly came in two shapes—free-blown cylindrical and mold-blown square (Fig. 31)—though a mold-blown, hexagonal one was also reasonably popular. Mold-blowing has the practical advantage of assuring uniformity of size along the length of the bottle, so that mass-replicated sets of both the square and hexagonal varieties could be packed neatly and safely for longer-range travel. Whatever their shape, these bottles were usually finished with a broad, angular handle with a reed-like texture. A plain or a widely ribbed handle was equally preferred for smaller bottles (Fig. 32).

The bases of these bottles often have raised markings at each corner. These L-shapes, indented dimples, and other simple devices (Figs. 33, 34) may have helped steady the vessel when it was placed on a storage shelf or uneven floor. In other instances, however, these markings are combined with, or replaced by geometric patterns that range from squares, latticework (Fig. 31), and sets of concentric circles to more complex rosette motifs (Fig. 34b). The symmetry of these patterns indicates the use of a compass and a straight edge to pre-define the design on the clay (or wooden) mold's surface before it was gouged out in fuller relief (Cool and Price 1995). On other bottles, bases are stamped with distinctive groups of letters and/or symbols (Fig. 34c). The former are often abbreviated in the same way they might be on Roman architectural inscriptions—CCAA for the city of Cologne (Colonia Claudia Ara Agrippinensium), P. for someone's first name (Publius, for example), and so on.

The purpose served by these various kinds of basal markings remains obscure. Some certainly identify the owner of the glass workshop. Thus, P. GESSI AMPLIATI links a number of vessels from Herculaneum to an entrepreneurial member of the Gessius family which had strong links to the East through the port of Puteoli (Scatozza Hörich 1991). However, if we accept recent interpretations of contemporary unguent bottles with similar basal markings (Price 1977), most of the markings were trademarks for the purveyors of the original contents of the bottles. A strong parallel can be drawn to the specific names and labels impressed on pottery amphorae by Roman wine producers (Callendar 1965).

Trademarks imply a certain discipline in production and commerce, so we would anticipate that the Roman system for liquid measure also would be in effect (Duncan-Jones 1982). These units were mainly the sextarius (a little over half a liter), the smaller cyathus ($1/12$ of a sextarius), and the massive congius (6 sextarii). Mold-blowing did allow considerable size control in a way that earlier free-blowing had not (Charlesworth 1966). But structural features such as body tapering, wall thickness, and varying basal concavity make it unlikely that any standardization could be rigidly applied. The successful bottle would have been just a little larger than the specified measure of its contents, perhaps by about half the capacity of its squat neck.

The production of square or hexagonal bottles was very much a speciality of glassmaking workshops in the western Empire. The style of Greek lettering included in the basal markings of some bottles of this kind (Jacobson 1992) does suggest some production in the eastern Mediterranean, by certain Syrian craftsmen (Fig. 34c). But these craftsmen have attracted scholarly attention more by their rarity than by the scale of their activity.

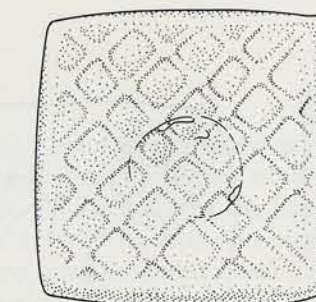
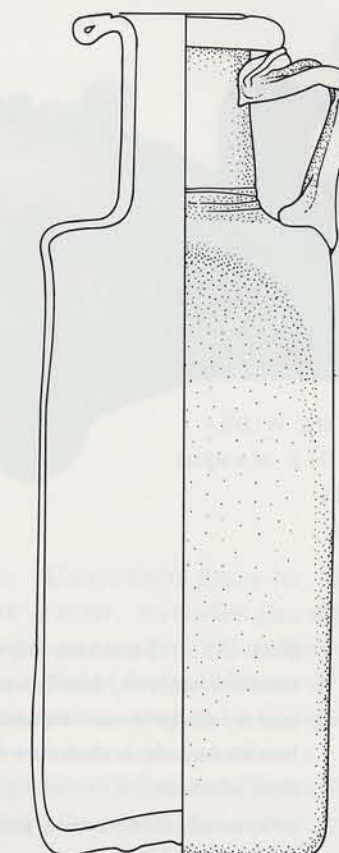


FIG. 31A, B
SQUARE GREEN BOTTLE

Late 1st–early 2nd century AD
Provenance unknown

H. 22.4 cm

This bottle's capacity is close to 1.5 sextarii, i.e., a little more than a wine bottle's usual capacity of 750 ml.

UPM no. 86-35-27. Donated by George and Henry J. Vaux (1986). Drawing by Jennifer Hook



FIG. 32. THE WIDE-RIBBED HANDLE of a squat cylindrical bottle.

UPM no. MS 5128



FIG. 33. SQUARE BOTTLE OF GREEN GLASS, late 1st–early 2nd century AD, provenance unknown. This bottle's capacity is close to 4 cyathi, about a sixth of a liter.

UPM no. MS 5124. Purchased from Vestor and Co. (1913). H. 11.8 cm

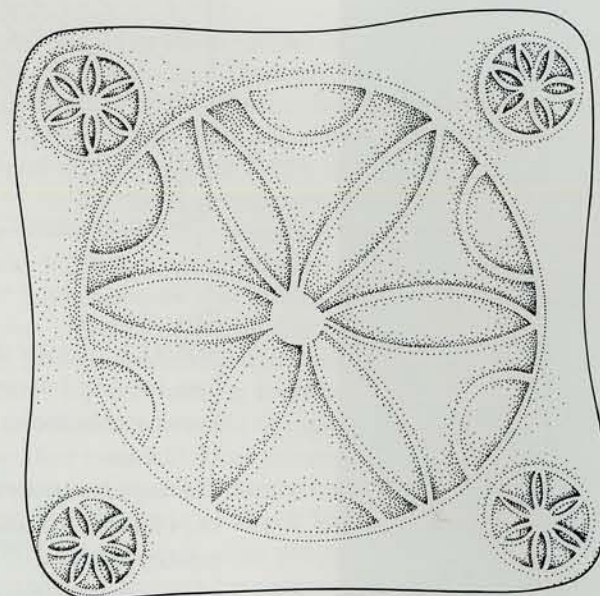
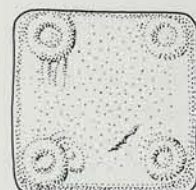


FIG. 34A-C. SOME BASAL PATTERNS FROM SQUARE BOTTLES: (a) corner dimples on the bottle shown in Figure 33; (b) multiple rosettes on a bottle from a grave in Tripolitania; (c) ZHΘOC and elephant symbol (from the Place des Carmes, Nîmes).

Drawings by Jennifer Hook (a) and Veronica Socba (b) after Price 1985: fig. 6, and (c) after Sternini 1990, I: pl. 39

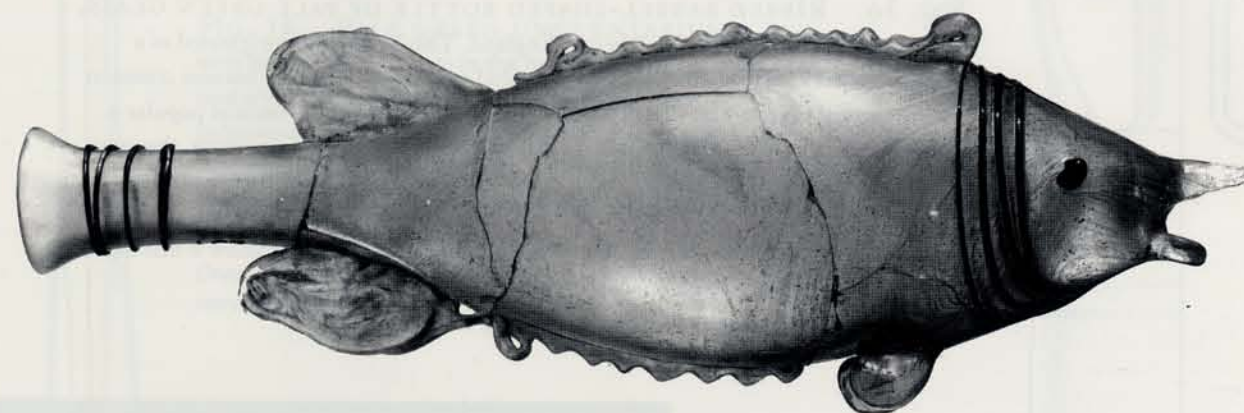


FIG. 35. UNGUENTARIUM IN THE FORM OF A FISH, in colorless glass with olive green spiral decoration, early 3rd century AD. This fish is typical of the fanciful forms of unguentaria that were produced in Cologne, perhaps the most unusual of which was a miniature gladiator's helmet (see Harden 1987).

Courtesy Römisch-Germanisches Museum, 234. L. 17.0 cm

POSTSCRIPT

The preceding discussion of transport, trade, trademarks, and Roman square bottles is an appropriate point to close out this brief look at the Museum's early Imperial glassware. The subsequent evolution of all of the vessels presented in the vignettes was surely much influenced by the changes in trade patterns that occurred over subsequent centuries. Just as the flat-sided square bottle gave way to a ribbed barrel form (Fig. 36), so too did many other common vessels of 1st century AD glass, particularly the unguentarium, change shape (Figs. 37, 38). The east-to-west transfer of technical ideas drew strongly on the trade conduits that crisscrossed the entire Mediterranean and linked up at various points to the wandering courses of the Danube, Rhine and Rhône rivers. Eastern and Italic craftsmen moved about freely, carrying their tools of the trade and their molds with them (Cool and Price 1995). The Roman trade network ensured an ongoing interplay of the many cultures that the Empire's frontiers encompassed. Its presence explains why, for example, Cologne emerged in the 3rd century AD as a glassmaking center

par excellence, a place of innovation in its own right yet one so willing to absorb the ideas of its counterparts in the East (Figs. 39, 35) and why the Egyptian glassmaking industry, revived by Roman entrepreneurship at much the same time, produced vessel forms and decorations as distinctly eastern as those in Cologne were western (Gazda 1983; O'Connor 1994). Roman glassmaking remained restless and dynamic all through the first four centuries AD, setting the firmest of foundations for the industry as we know it today. 2

ACKNOWLEDGMENTS

I wish to express my thanks to all the scholars worldwide who have responded to my many scholarly queries as I have put this article together. I would extend a special thanks to David Grose for being my "tutor" during the first couple of years of research into Roman glass, to Hilary Cool for her patient response to all my detailed questions over the past two years, and to John Scarborough for helping me keep my sense of humor at times of imagined crisis. The VITRA database, from which many of the illustrations in this essay were drawn, was funded by The National Endowment for the Arts.

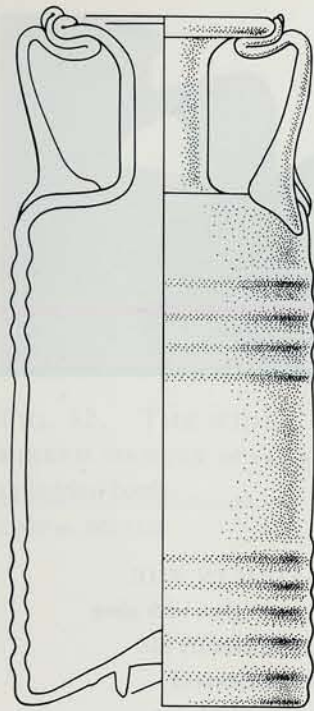


FIG. 36. RIBBED BARREL-SHAPED BOTTLE OF PALE GREEN GLASS, 4th century AD, excavated at Colchester, England. This barrel form originated as a single-handed jug during the late 1st–early 2nd century AD, but only became common during the 3rd century AD. The double-handed bottle shown here became popular a century or so after that. Several of these jugs and bottles have basal markings, the most common being some form of the name FRONTINUS (e.g., FRO here; other times, FRON SCF, or F.P. FRONT, etc.; see Sennequier 1985), the abbreviation perhaps varying from generation to generation. As with square bottles, however, we do not know if this name acts as a trademark of the glassmaker or of the purveyor of the contents.

Drawing by Veronica Socha after Cool and Price 1995: fig. 11.17. H. 18.2 cm



FIG. 37. UNGUENTIUM OF COLORLESS GLASS, 2nd century AD, possibly from Euboeia. This candlestick form of unguentarium originated sometime late in the 1st century AD, and remained extremely popular for the two centuries thereafter. Some have basal markings that suggest they were used for the storage of high-quality balsam or perfume imported from Egypt during the reign of Marcus Aurelius (AD 161–180) (see Frova 1971).

UPM no. 34-36-1. Donated by E.C. Harder (1934). H. 15.3 cm

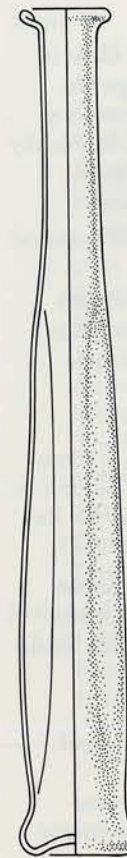


FIG. 38. PALE GREEN UNGUENTIUM with four shallow indents in the body wall, 3rd century AD, provenance unknown. Whether the indentations served anything more than a decorative function is unknown. This form is assumed to originate in Asia Minor, though western contexts for such vessels are documented.

Drawing by Veronica Socha after Lightfoot and Arslan 1992: entry 53. H. 17.0 cm

FIG. 39. DETAIL OF THE DECORATION ON THE “ARTEMIS AND ACTAEON BOWL,” recovered from a grave at Leuna, near Bezirke Halle, Germany, in 1834. The skillful facet-cutting and engraving on this bowl is typical of an Egyptian (probably Alexandrian) workshop that flourished during the second half of the 2nd century AD (Harden 1960). Such bowls are regarded as the parent for all the superb cut and engraved glassware produced at Cologne during the next two centuries.

Courtesy British Museum, MLA 1868.5-1.320



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