

The Pendant Possibilities of Core-Formed Glass Bottles

C. S. LIGHTFOOT

Associate Curator, Greek and Roman Art, The Metropolitan Museum of Art

CORE-FORMED GLASS was produced in the Mediterranean area between the sixth and first centuries B.C. The industry follows on from those developed in Egypt and western Asia in the Late Bronze Age (1600–1200 B.C.), which created the first glass vessels, principally small containers for expensive perfumes, oils, and cosmetic creams. The making of glass vessels was revived in Mesopotamia in the Iron Age (ca. 725–600 B.C.). Monochrome cast-glass bowls, jars, and palettes are some of the more spectacular products of this industry, but it was the renewed production of core-formed bottles that stimulated the growth of glass industries elsewhere in western Asia and the eastern Mediterranean. The manufacture of a core-formed bottle was relatively simple and straightforward; the hot glass could be worked easily around the core (probably a mixture of clay, sand, and an organic binder), while the core itself could be both made and removed by an unskilled worker.¹ The predominant shape of Mesopotamian core-formed glass was the alabastron, a tall cylindrical bottle, imitating vessels made in other media, notably alabaster itself. This shape was eagerly adopted by the new production centers farther west, and the alabastron became a standard form in the repertoire of Mediterranean core-formed glassmaking until the industry's final demise in the first century B.C. But, in addition to the alabastron, the Mediterranean industry produced a number of other shapes—principally the aryballos, the amphoriskos, and the oinochoe—which were adapted from forms commonly used by Greek potters. As time went on, a greater variety of shapes and sizes was produced, and three new forms were introduced—the stamnos, the hydriske, and the unguentarium.²

Modern scholarship divides Mediterranean core-formed vessels into three chronological groupings. Group I is dated to between the mid-sixth and the end of the fifth century B.C. There then comes a gap of some fifty years or more before the reemergence of the core-formed industry in the late fourth century B.C.³ Groups II and III both date to the Hellenistic period

(332–31 B.C.); the division between them, in terms of chronology and style, is harder to define. Although there does appear to be a gap in the archaeological record between the late third and mid-second centuries B.C. in some of the standard forms, other forms such as the amphoriskos and unguentarium show some continuity and overlap of production. Essentially, however, Group II is dated to the late fourth and first half of the third century B.C., while Group III represents production in late Hellenistic times from the mid-second century B.C. onward.

The three small aryballoi in the Metropolitan Museum that are the subject of this article have been assigned to Group II, although there is no firm archaeological evidence for dating them to this period. The first of these bottles was acquired by the Museum in 1891 as part of the bequest of Edward C. Moore (91.1.1367; Figure 1). It is broken into three pieces, and a small fragment is missing from the neck.⁴ Because of this damage, it has been possible to observe that the interior retains a layer of fine, deep reddish brown grit from the core. The second example was part of the bequest of Theodore M. Davis in 1915, although it was only accessioned in 1930 (30.115.7; Figure 2). It is intact but has a milky iridescent surface. The third bottle, also intact, was acquired by J. Pierpont Morgan as part of the Gréau Collection and came to the Metropolitan Museum with the Morgan bequest in 1917 (17.194.309; Figure 3), along with approximately seven thousand other objects.⁵ Since their acquisition, these small aryballoi have attracted little attention, and all have remained unpublished for seventy years or more.

The three vessels are very similar in shape and size. Each stands only about 2 inches (about 5 cm) high and has a broad, horizontal or inward-sloping rim-disk, a short cylindrical neck, and a small circular body. Although the bottles are described as lentoid aryballoi because their bodies are wider than they are deep, it is misleading to say that their sides have been “flattened”; rather, they have convex, rounded profiles quite unlike later-blown glass lentoid bottles.⁶ Two small ring handles, set vertically on the shoulder of each vessel, suggest that these bottles could have

© The Metropolitan Museum of Art 2001
METROPOLITAN MUSEUM JOURNAL 36

The notes for this article begin on page 65.



Figure 1. Core-formed glass aryballos. H. 5.1 cm. The Metropolitan Museum of Art, Edward C. Moore Collection, Bequest of Edward C. Moore, 1891 (91.1.1367). See also Colorplate 2

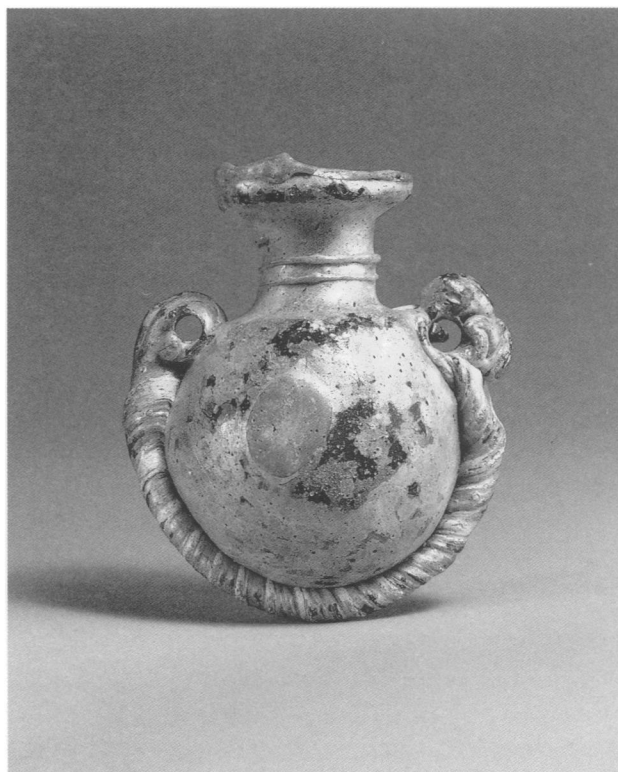


Figure 2. Core-formed glass aryballos. H. 5 cm. The Metropolitan Museum of Art, Theodore M. Davis Collection, Bequest of Theodore M. Davis, 1915 (30.115.7). See also Colorplate 2

been suspended from a chain or string of some sort.

The most interesting and distinguishing characteristic of these core-formed vessels is the amount of decoration applied to them, for it is seemingly quite out of proportion to their size and importance. This ornamentation generally comprises four elements:⁷ a prominent twisted thread in two contrasting colors of glass that runs from beneath the ring handles under the body in a graceful U-shape; a fine trail of light-colored glass wound around the neck; a circular blob of differently colored glass, pressed and smoothed into each side of the body using a technique known as marvering; and a single trail wound around the outer edge of the rim. The body of the first bottle (Figure 1) is in a translucent honey brown glass, while the rim trail and marvered blobs are opaque white. The twisted thread around the body is translucent honey brown and opaque white. The body of the second piece (Figure 2) is also translucent honey brown, but the marvered blobs and applied trails are in an opaque yellow glass. The badly weathered twisted thread comprises one honey brown thread intertwined with a finer, possibly opaque yellow thread. The body of the third vessel (Figure 3) is a translucent deep blue glass with numerous opaque white speckles. The twisted thread is blue and opaque white, while the marvered

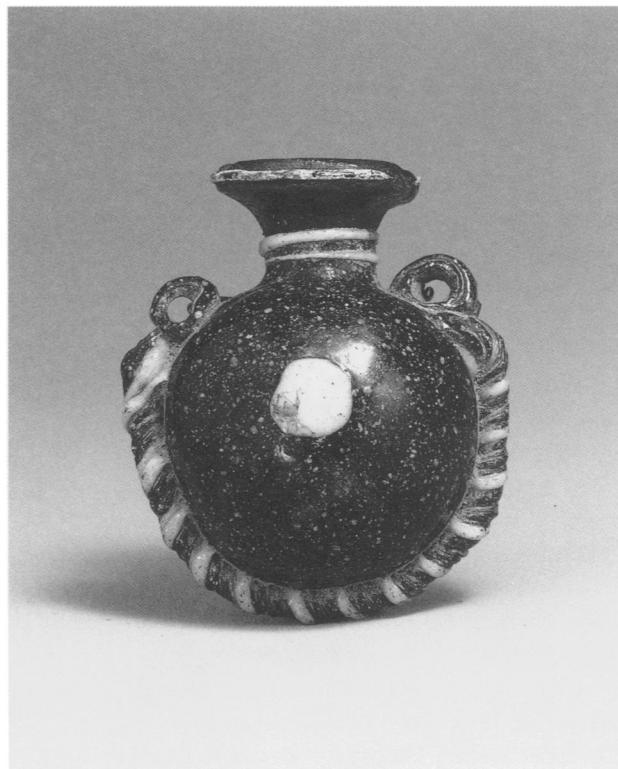


Figure 3. Core-formed glass aryballos. H. 5.1 cm. The Metropolitan Museum of Art, Gift of J. Pierpont Morgan, 1917 (17.194.309). See also Colorplate 2

blobs and the trails around the rim and neck are also opaque white glass. The uniformity of the three vessels in size, shape, and decoration indicates that they were produced at roughly the same time and probably in a single workshop.

Relatively few core-formed vessels of this distinctive type are known. Fossing referred to two examples, both in London, one in the Victoria & Albert Museum (1019-1868), the other in the British Museum (GR1856.12-26.1143).⁸ The latter was subsequently published by Harden, along with a third example, also in the British Museum (GR1867.5-8.585).⁹ The two British Museum bottles are very similar in size to the three aryballoi in the Metropolitan; the V&A piece (Figure 4) is somewhat larger, measuring just over 2½ inches (6.5 cm) in height, but it shares the same characteristics as the rest of the group. Three other examples were published by Froehner in 1903 as once forming part of the Gréau Collection.¹⁰ One of these is noted by Harden as “not in the MMA, NY, and its whereabouts is unknown.”¹¹ Froehner indicated that the piece was in the Louvre in Paris, but this seems not to be the case, and it has proved impossible to find any trace of the vessel. The second of the Gréau aryballoi certainly did pass into the Morgan Collection and from there into the Metropolitan Museum; it is one of the three pieces under discussion here (Figure 3). The present whereabouts of the third vessel illustrated by Froehner is unknown.

Harden was able to cite only three additional examples—one in Tunisia (at the National Museum, Carthage) and two in Spain (one in a private collection in Barcelona, the other in the Museo Nacional de Artes Decorativas, Madrid).¹² Five more can now be added: one is in the Corning Museum of Glass; the second formed part of the Hans Cohn collection, exhibited at the Los Angeles County Museum of Art; and the third was formerly in the Kofler-Truniger collection.¹³ Only two additional examples have come to light in the past twenty years. One, in the Alfred Wolkenberg collection, was sold at auction in 1991.¹⁴ The other has recently been published in a new catalogue of the core-formed glass collection in the Louvre.¹⁵ This makes a grand total of sixteen known examples of the type.

Other than minor variations in size and color, these vessels are remarkably similar in overall design and decoration. The majority are made of blue glass, but two of the examples in the Metropolitan are in honey brown, an unusual ground color for core-formed vessels.¹⁶ The applied trails are either opaque yellow or opaque white. Opaque yellow predominates for the marvered blobs, while the twisted thread decoration around the body is made of one thread in the ground

color combined with one yellow or white thread. Opaque turquoise blue, common on many other core-formed vessels, does not seem to have formed part of the repertoire of colors for small lentoid aryballoi. Also, the vessel said by Froehner to be in the Louvre lacks the blobs on either side.¹⁷

The distinctive characteristics of these sixteen aryballoi set them apart from the mainstream of core-formed glass production. While their uniformity may suggest a single workshop, the lack of a good provenance for most of them adds to the problem of placing them within a stylistic and chronological framework. Regrettably, no intact or fragmentary examples have surfaced on an archaeological excavation (or, if they have, they have not been recognized for what they are). Only one of the vessels cited above (BM GR1856.12-26.1143) is given a site provenance—from Ruvo (ancient Rubi) in Apulia, southern Italy. The examples now in Spain and Tunisia were presumably found in their respective countries. It is significant, perhaps, that none of the vessels can be said to have come from the eastern Mediterranean, although they are frequently described as having been produced there.

The placement of these small aryballoi in the corpus of Mediterranean core-formed glass relies,

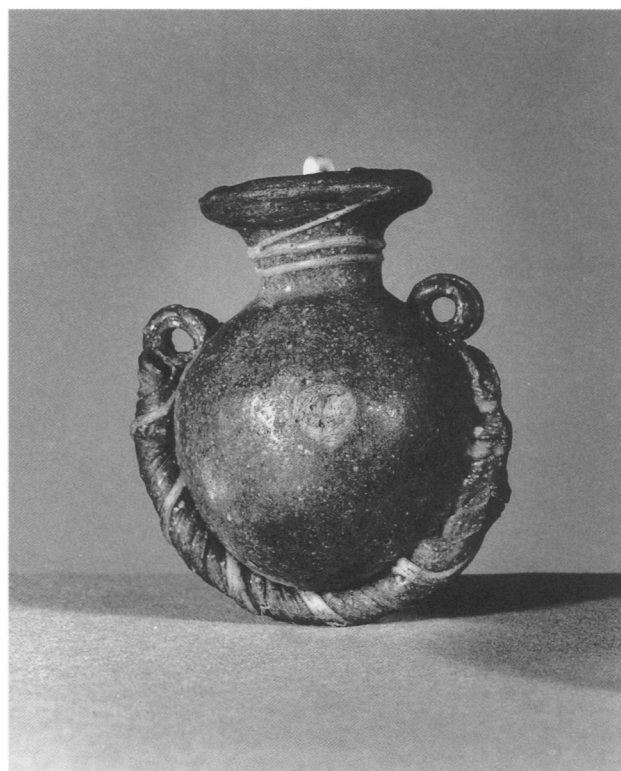


Figure 4. Core-formed glass aryballos. H. 6.5 cm. The Victoria & Albert Museum, London, 1019-1868 (photo: V&A Picture Library)



Figure 5. Core-formed aryballos. H. 8.8 cm. The Metropolitan Museum of Art, Edward C. Moore Collection, Bequest of Edward C. Moore, 1891 (91.1.1348)

therefore, on stylistic considerations and on comparison with groups of similar vessels. Fossing was the first to point out that they are most closely related to the other main group of lentoid aryballoi, both in terms of their shape and in some of their decorative features.¹⁸ In particular, there is a striking similarity in the use of twisted and applied threads down the sides of vessels in both groups—consistently in the case of our small aryballoi, but only on certain examples of the larger variety. Fossing illustrated one such example in the Staatliche Museen, Berlin, and referred to another, presumed to have been found at Carthage.¹⁹ The latter is shown in the Toledo (Ohio) Museum of Art catalogue, together with a third example, said to have been acquired in Italy.²⁰ The Metropolitan also has one of these larger aryballoi (Figure 5), but it is of unknown provenance.²¹ Such vessels all have small ring handles, which are attached to the shoulder above two twisted threads that run down the sides of the body. This decorative feature recalls the twisted thread that runs continuously under the body between the ring handles on the smaller aryballoi. Other details, however, are dissimilar—most notably, the bodies of the larger aryballoi are invariably decorated with marvered threads tooled into a feather pattern.

Grose tentatively assigned a “novel series of stamnoi

and allied hydriskai” to the same class of vessel as the lentoid aryballoi, pointing out various similarities between these vessels and the lentoid aryballoi.²² Although not found on every example, the distinctive feature that links them most closely with the aryballoi is the use of twisted bichrome threads for the handles.²³ Twisted threads are generally not found on other types of core-formed vessels, either as handles or as decorative elements.²⁴ They may, therefore, be regarded as a trademark of a particular workshop or production center. The creation of these threads would have required the glassmaker to add an extra stage to his work, and so this feature is indicative not just of a preference for one shape or style of decoration over another, but of a deliberate choice that increased the complexity of the manufacturing process. In all other cases of core-formed vessels, monochrome threads or trails were applied singly to the body. Known examples of stamnoi and hydriskai with bichrome twisted-thread handles are rare, but it is interesting to note that two of them that have provenances come from Italy: a fragmentary stamnos in the British Museum (GR1873.8-20.413) is from Tarquinia, and a fine hydriske, now in the Royal Ontario Museum, Toronto, was found near Perugia, together with an Etruscan bronze mirror.²⁵ There is no direct evidence of an eastern Mediterranean origin for any example of this group of stamnoi and hydriskai.

The stylistic links between these other core-formed vessels and the group of small aryballoi help to provide some indication of the latter’s date. However, the evidence is meager in the extreme: the Etruscan mirror associated with the hydriske just mentioned is said to be of a type dated to the fourth–third century B.C., while Fossing refers to a lentoid aryballos without twisted bichrome threads as coming from a grave in the Great Bliznitsa burial mound in south Russia, dated to about 300 B.C. or just before.²⁶ Nevertheless, it is now generally accepted that the whole class of core-formed stamnoi, hydriskai, and lentoid aryballoi belongs to Group II and dates to the early Hellenistic period. Harden was probably right to conclude that production of the lentoid aryballoi lasted for only a short time, “not more than thirty or forty years during the late 4th and the early 3rd century.”²⁷

Moreover, Harden attributed several Group II vessels, including the two lentoid aryballoi and the stamnos in the British Museum, to a production center in southern Italy.²⁸ Grose has since questioned the validity of Harden’s argument that the presence of white speckling on the surface of the glass used for these vessels is proof of Italian manufacture.²⁹ Nevertheless, in terms of their stylistic affinities and distribution, the southern Italian attribution would seem to remain convincing.

Another line of inquiry may provide new insight into both the origins and the use of the present group. As noted above, three lentoid aryballoi are to be found in Tunisia and Spain, areas that lay within the Carthaginian sphere at the time the vessels were being produced. There is good reason to believe that many of the classes of rod-formed glass head-pendants are of Carthaginian origin (see below). Some of these pendants are decorated with a headband of bichrome or polychrome twisted threads.³⁰ It suffices to mention two examples, both now in the Toledo Museum of Art; one, belonging to the Archaic period (late 7th–5th century B.C.), has a headband of twisted threads in dark blue and opaque white, and the second, dated to the third century B.C. or later, has a twisted-thread headband in dark blue and opaque yellow.³¹ As already noted, to make such colored threads required adding a special stage to the manufacturing process. There should, therefore, be some link between its use on our lentoid aryballoi and on the head-pendants.

In addition, the technique of making and applying separate spiral ringlets to form the hair and beards on larger and more elaborate head-pendants is not dissimilar to that used for the small ring handles on the aryballoi. Both display a certain dexterity in the working of small trails of hot glass.³² A fine example of a head-pendant with such curls is in the Metropolitan Museum, acquired as long ago as 1906 but previously unpublished (Figure 6).³³ Seefried dated this type of head-pendant to between the mid-fourth and the end of the third century B.C., the same period as that to which the aryballoi are attributed, and she considered it very probable that such head-pendants were produced at Carthage.³⁴ Certainly, the overwhelming majority of examples with find-spots come from the western Mediterranean.³⁵ It may also be noted that, despite the iridescent film covering most of its surfaces, the Metropolitan's head-pendant is made of translucent honey brown glass. The most obvious explanation for the technical similarities between the head-pendants and the lentoid aryballoi is that both groups were products of the same industry. As yet, however, there is insufficient evidence to prove such a hypothesis, and for the present it may be better to regard the presence of similar decorative elements on the core-formed vessels, traditionally regarded as Greek, and on the rod-formed head-pendants of "Carthaginian" manufacture as an indication of cross-cultural influences. The island of Sicily, where Greek and Punic communities lived in close, and not always hostile, proximity, may be the bridge across which these exchanges were made.

The small lentoid aryballoi, like other classes of



Figure 6. Rod-formed glass head-pendant. H. 5.2 cm. The Metropolitan Museum of Art, Rogers Fund, 1906 (06.1126)

core-formed glass, were made as containers for various sorts of rare and expensive perfumes, lotions, and medicines. As a vessel form, the aryballos was designed to be portable; many examples both in other media and from other periods have survived complete with a swing handle or chain attachment.³⁶ In the case of the core-formed glass examples, Fossing suggested that the twisted threads applied to the sides of some of the larger aryballoi represent a carrying cord that had become purely ornamental.³⁷ Fossing also referred to the twisted thread that runs around the body of the small lentoid aryballoi as a "carrying cord."³⁸ On the three Metropolitan Museum examples, the ring handles on the shoulders have all been carefully pierced with a hole through which a string or a fine metal chain could easily have been threaded. It is not inherently impossible, therefore, that these small lentoid aryballoi were meant to be carried, and it seems likely that they were intended to be worn around the neck like pendants.

Pendants shaped as miniature vessels were a popular form of Greek jewelry throughout the Classical and Hellenistic periods (5th–1st centuries B.C.). Examples of such pendants—made principally of gold, although other luxury materials such as rock crystal were also used—are widespread, and finds are recorded from sites in Italy, Greece, and Cyprus.³⁹ The fact that many



Figure 7. Gold and garnet pendant amphora. H. 3 cm. The Metropolitan Museum of Art, Purchase, Mr. and Mrs. Christos G. Bastis Gift, 2000 (2000.9a)



Figure 8. Gold and garnet pendant amphora. H. 5.9 cm. The Metropolitan Museum of Art, Gift of Mr. and Mrs. Stephen Kellen, 1999 (1999.289.9)

of these pendants were made with accompanying lids or stoppers clearly indicates that they were not just ornaments but served also as receptacles for small amounts of precious substances such as exotic oils or perfumes. Although some of the pendants are considerably smaller than the present group of lentoid aryballoi, others are of comparable size. The Metropolitan Museum recently acquired two such pieces of jewelry. A small gold amphora, decorated with patterns of twisted gold wire and a faceted garnet set into its base, measures $1\frac{1}{6}$ inches (3 cm) in height (Figure 7) and comes complete with a lid, suspension chain, and tripod stand.⁴⁰ The other piece is a larger amphora, measuring $2\frac{3}{8}$ inches (5.9 cm) in height, also decorated with garnets and twisted gold wire (Figure 8).⁴¹ An example of a rock crystal bottle that has a gold lid and suspension chain is presently on loan to the Museum.⁴² The main difference between these pendant vessels and the small glass aryballoi is that the former have full, rounded shapes, whereas the latter have lentoid bodies with the two broad faces divided by narrower sides decorated with the ring handles and the "cord" of twisted threads. This lentoid shape would naturally allow the vessels to hang flat against a surface (such as the wearer's chest), preventing them from spinning around and getting their hanging strings or chains twisted. Perhaps this shaping was the

maker's conscious attempt to ensure the safety of the glass bottles, which were more fragile than pendant vessels in other media.

It is noteworthy that head-pendants were worn principally as apotropaic amulets, and consequently size and visibility were important factors.⁴³ The type mentioned above is particularly large and attractive, comparable in size to the lentoid aryballoi. The Metropolitan's example (Figure 6) is only a fraction over the 2 inches of the bottles, but a particularly splendid head- pendant in the British Museum (GR1906.6-27.33) measures a full $2\frac{1}{2}$ inches (6.2 cm) in height.⁴⁴ The present group of core-formed aryballoi also has a special feature which may suggest that they, like the rod-formed head-pendants, had an amuletic function. All three of the Metropolitan Museum examples have a blob of opaque white or yellow glass marvered on to their front and back surfaces. Each blob stands out sharply against the dark blue or honey brown background of the vessel's body. It is easily recognizable as an "eye," a powerful symbol for warding off evil, which was popular in antiquity and remains in use today in many societies.⁴⁵ The "eye" on these vessels finds its closest parallel in the stratified eye used to decorate glass beads, some of which are attributed to the Carthaginian glass industry of the fourth–third centuries B.C.⁴⁶ Thus it may be

argued that the small bottles served a dual purpose—as containers for precious ointments and as apotropaic pendants.

The three lentoid aryballoi in the Metropolitan's collection may, therefore, be credited with a greater importance than has previously been recognized. They belong to a group of vessels that, although rare and imprecisely dated, would seem to offer a new insight into the glass industry in the early Hellenistic period. It has been suggested here that they provide a link between glass production in the Greek and Carthaginian worlds, between the use of glass for vessels and for ornaments, and between a purely functional application and a symbolic meaning. In addition, one may speculate that some details of ancient glass production—notably the use of twisted threads of glass as decoration—may have been influenced by gold working techniques. This particular group of small but fascinating core-formed glass bottles thus opens up the possibility of a wider study into the relationship between workshops making glass, jewelry, and pottery.

ACKNOWLEDGMENTS

I am grateful for the help, advice, and encouragement that I have received from numerous colleagues at the Metropolitan Museum during the preparation of this study. I wish to thank most especially Carlos A. Picón and Joan R. Mertens. Véronique Arveiller-Dulong also very kindly supplied details of the piece in the Louvre in advance of its publication.

NOTES

1. For details of the technique, see D. F. Grose, *Early Ancient Glass: Core-Formed, Rod-Formed, and Cast Vessels and Objects from the Late Bronze Age to the Early Roman Empire, 1600 B.C. to A.D. 50* (New York: Hudson Hills Press in association with the Toledo Museum of Art, 1989), p. 31; E. M. Stern and B. Schlick-Nolte, *Early Glass of the Ancient World, 1600 B.C.–A.D. 50* (Ostfildern-Ruit: Gerd Hatje, 1994), pp. 28–30, 39–40.
2. Grose, *Early Ancient Glass*, pp. 110–25.
3. M. C. McClellan, "Core-Formed Glass from Dated Contexts," Ph.D. diss., University of Pennsylvania, Philadelphia, 1984, pp. 77–79.
4. An old repair, made presumably before the vessel was acquired by the Metropolitan Museum, was dismantled, and the pieces were rejoined by Lisa Pilosi and Melpomene Yale of the MMA Sherman Fairchild Center for Objects Conservation in June 2000. This work revealed that the body of the bottle had been

broken into two unequal pieces, while a third fragment comprised the neck and rim. A small sample of the glass was retained for future analysis.

5. J. Strouse, "J. Pierpont Morgan: Financier and Collector," *MMAB* 57, no. 3 (Winter 2000), pp. 58–59.
6. D. B. Harden, *Catalogue of Greek and Roman Glass in the British Museum*, vol. 1, *Core- and Rod-formed Vessels and Pendants and Mycenaean Cast Objects* (London: British Museum Press, 1981), p. 100; Grose, *Early Ancient Glass*, p. 128.
7. In rare cases, on individual pieces one or another element is absent. For example, 91.1.1367 does not have a trail around the neck.
8. P. Fossing, *Glass Vessels before Glass-Blowing*, trans. W. E. Calvert (Copenhagen: Ejnar Munksgaard, 1940), p. 94 and fig. 63.
9. Harden, *Greek and Roman Glass*, p. 113, nos. 297, 298; see also V. Tatton-Brown and C. Andrews, "Before the Invention of Glass-blowing," in *Five Thousand Years of Glass*, ed. H. Tait (London: British Museum Press, 1991), p. 44, fig. 48 (right).
10. W. Froehner, *Collection Julien Gréau: Verrerie antique, émaillerie et poterie appartenant à M. John Pierpont Morgan* (Paris: Imprimerie alsacienne, 1903), pl. xxiii,4; p. 29, no. 135, pl. xxii,6; and p. 12, no. 46, pl. ix,3.
11. Harden, *Greek and Roman Glass*, p. 169, n. 93.
12. *Ibid.*, p. 112.
13. S. M. Goldstein, *Pre-Roman and Early Roman Glass in the Corning Museum of Glass* (Corning, N.Y.: Corning Museum of Glass, 1979), pp. 128–29, no. 266—not, apparently, one of the Gréau pieces, as cited; A. von Saldern, *Glass 500 B.C. to A.D. 1900: The Hans Cohn Collection, Los Angeles/Cal.*, exh. cat. (Mainz: Philipp von Zabern, 1980), p. 38, no. 26; *3000 Jahre Glaskunst: Von der Antike bis zum Jugendstil*, exh. cat. (Lucerne: Kunstmuseum, 1981), p. 53, no. 101 (= Christie's, London, sale cat., March 5–6, 1985, lot 305).
14. Christie's, London, sale cat., July 9, 1991, lot 181.
15. V. Arveiller-Dulong and M.-D. Nenna, *Les verres antiques: I. Contenants à parfum en verre moulé sur noyau et vaisselle moulée, VIIe siècle avant J.-C.–Ier siècle après J.-C.* (Paris: Réunion des Musées Nationaux, 2000), p. 127, no. 156.
16. The use of honey brown as a ground color is not, however, entirely without precedent; see Grose, *Early Ancient Glass*, pp. 114, 138, no. 80 (a 5th-century alabastron whose ground color is described as "golden brown").
17. This piece, as illustrated (Froehner, *Collection Julien Gréau*, pl. xxiii,4), seems to be made of an opaque green glass for the body. However, one of the honey brown examples at the Metropolitan (30.115.7) appears to have a similar green hue in reflected light. Since the ex-Gréau bottle has not been traced, it is impossible to clarify its exact color.
18. Fossing, *Before Glass-Blowing*, pp. 93–94; see also Harden, *Greek and Roman Glass*, pp. 100–101, 112—Form 1; Grose, *Early Ancient Glass*, p. 119—Form II:1.
19. Fossing, *Before Glass-Blowing*, p. 93 and fig. 62; see Harden, *Greek and Roman Glass*, p. 112.
20. Grose, *Early Ancient Glass*, p. 118, fig. 75, and pp. 164–65, no. 154. For another example, see also Arveiller-Dulong and Nenna, *Les verres antiques*, p. 126, no. 155.
21. Acc. no. 91.1.1348, The Edward C. Moore Collection, Bequest of Edward C. Moore, 1891, H. 3¼ in. (8.8 cm); unpublished. What may be a second example of the larger lentoid aryballos at the Metropolitan Museum (91.1.1327) has been excluded from the present discussion because it is very fragmentary and heavily

- restored. Until further conservation work on the piece has been completed, it is impossible to state exactly the nature of this vessel.
22. Grose, *Early Ancient Glass*, p. 119, figs. 76, 78, 79, and pp. 165–66, nos. 155–57.
 23. The hydrikske at the Toledo Museum of Art, for example, does not have this feature; see Grose, *Early Ancient Glass*, pp. 165–66, no. 157.
 24. A rare exception would appear to be an oinochoe of the mid-4th through early 3rd century B.C. that has a handle made of cobalt blue and opaque white twisted threads; see Sotheby's, New York, sale cat., December 17, 1997, lot 3A. Most other examples of this type have a plain blue handle; see Grose, *Early Ancient Glass*, pp. 161–62, nos. 146–49.
 25. Harden, *Greek and Roman Glass*, p. 114, no. 299; J. W. Hayes, *Roman and Pre-Roman Glass in the Royal Ontario Museum: A Catalogue* (Toronto: ROM, 1975), p. 12, no. 21, and pl. 43.
 26. Fossing, *Before Glass-Blowing*, p. 92; see also Harden, *Greek and Roman Glass*, p. 112.
 27. Harden, *Greek and Roman Glass*, p. 112.
 28. *Ibid.*, pp. 103, 114.
 29. Grose, *Early Ancient Glass*, p. 116; *contra* Harden, *Greek and Roman Glass*, pp. 103, 106, 112–16.
 30. Grose, *Early Ancient Glass*, pp. 82–83.
 31. *Ibid.*, pp. 88–99, no. 42, and p. 90, no. 50; see also pp. 90–92, nos. 51–62.
 32. I owe this observation to Dr. Carlos Picón. For the technique, see M. Seefried, *Les pendentifs en verre sur noyau des pays de la Méditerranée antique* (Rome: École française de Rome, 1982), pp. 18–19.
 33. Acc. no. 06.1126, Rogers Fund, 1906, H. 2 $\frac{1}{16}$ in. (5.2 cm); no provenance. It may be attributed to Tatton-Brown's Type G, and to Seefried's Type C III; V. Tatton-Brown in Harden, *Greek and Roman Glass*, pp. 147–48, 150–51, no. 423–26; Seefried, *Les pendentifs*, pp. 105–16, nos. 1–69.
 34. Seefried, *Les pendentifs*, pp. 28–29, 29. It should also be noted, however, that Tatton-Brown (in Harden, *Greek and Roman Glass*, pp. 143, 147) argued against Seefried's view that Carthage was the center of production for these head-pendants.
 35. Seefried, *Les pendentifs*, fig. 45—showing that 72 out of 79 provenanced examples come from North Africa (Carthage), Spain, the Balearics, Gaul, Illyria, Sardinia, Italy, and Sicily. *Pace* Seefried's own remark that this type is “found only on the eastern side of the Mediterranean”; M. Seefried, “Glass Core Pendants found in the Mediterranean Area,” *Journal of Glass Studies* 21 (1979), p. 20.
 36. For example, a Roman blown-glass oil flask with a U-shaped bronze handle, now in the Corning Museum of Glass (CMG 55.1.96); D. Whitehouse, *Roman Glass in The Corning Museum of Glass*, vol. 1 (Corning, N.Y.: Corning Museum of Glass, 1997), p. 201, no. 351. The Metropolitan also has two Roman glass aryballoi with metal handles (17.194.191 and 17.194.193), both unpublished.
 37. Fossing, *Before Glass-Blowing*, p. 93.
 38. *Ibid.*, pp. 93–94.
 39. For example, two amphora-shaped pendants found in Tomb 10 at Marion, Cyprus; D. Williams and J. Ogden, *Greek Gold: Jewelry of the Classical World*, exh. cat. (New York: Harry N. Abrams, 1994), p. 246, nos. 181, 182. Compare also two gold pendants described as Parthian earrings in the British Museum (WAA 135207 and 132933); *Jewellery through 7000 Years*, ed. H. Tait (London: British Museum Press, 1976), pp. 122–23, nos. 180(a)–(b).
 40. Acc. no. 2000.9a, b, Purchase, Mr. and Mrs. Christos G. Bastis Fund, 2000; unpublished. For parallels, see E. B. Dusenbery, “A Samothracian Necropolis,” *Archaeology* 12 (1959), pp. 163–70, esp. p. 167 and fig. 5; S. G. Miller, *Two Groups of Thessalian Gold* (Berkeley: University of California Press, 1979), pp. 30–31 and pls. 15a–16a; E. M. De Juliis, *Gli ori di Taranto in età ellenistica* (Milan: A. Mondadori, 1984), pp. 232–33, no. 163.
 41. Acc. no. 1999.289.9, Gift of Mr. and Mrs. Stephen Kellen, 1999; see Paul Cassirer, Berlin, sale cat., December 11, 1928, lot 101; *Ancient Art in American Private Collections*, exh. cat. (Cambridge, Mass.: Fogg Art Museum, 1954), p. 38, no. 318, pl. xc.
 42. L.1997.56, Anonymous loan, H. 2 in. (5.1 cm); unpublished. There is a similar piece in the Berlin Antikenmuseum; see W.-D. Heilmeyer, “Salbgefäß aus Bergkristall mit goldener Montage,” *Jahrbuch Preussischer Kulturbesitz* 18 (1972), pp. 165–68. For another example, see Sotheby's, New York, sale cat., December 17, 1998, lot 154.
 43. Seefried, *Les pendentifs*, pp. 56–59.
 44. Harden, *Greek and Roman Glass*, p. 150, no. 423; see also Grose, *Early Ancient Glass*, p. 82 and fig. 53.
 45. See, for example, G. Eisen, “The Characteristics of Eye Beads from the Earliest Times to the Present,” *American Journal of Archaeology* 20 (1916), pp. 1–27, esp. pp. 1–2; Ö. Küçükerman, *Göz Boncuğu* (Istanbul: Türkiye Turing ve Otomobil Kurumu, 1987).
 46. See, for example, Stern and Schlick-Nolte, *Early Glass of the Ancient World*, p. 195, no. 39, and pp. 198–99, no. 41; E. Kypraiou, ed., *Greek Jewellery: 6,000 Years of Tradition*, exh. cat. (Athens: Archaeological Receipts Fund, 1997), p. 98, no. 84; V. Karageorghis, J. R. Mertens, and M. E. Rose, *Ancient Art from Cyprus: The Cesnola Collection in The Metropolitan Museum of Art* (New York: MMA, 2000), p. 287, no. 469.