Glass, Gold, and Gold-Glasses

David Whitehouse

Fig. 1. Gold-band bottle. This bottle was made by a complex process, still not fully understood. In addition to the laminated strips of gold foil, the object has transparent blue, green, and brown stripes. Each of these stripes was made in exactly the same way as the gold, but here the strips are opaque white glass. This reflects light that passes through the outer layers, thereby enhancing the brilliance of their colors. Probably made in Italy. Early to mid-1st century AD.

The Corning Museum of Glass 41.1.7, H. 7.1 cm

Fig. 2. Blown ewer with decoration. The gilded decoration is difficult to decipher. It consists of two bands: (1) on the neck, a garland consisting of stems with opposed pairs of lute-shaped leaves, and a band of contiguous leaves; (2) on the body, two standing figures supporting with both hands, vine branches that fill the entire space between them. The form recalls a group of glass pitchers signed by Ennion and silver vessels depicted in a wall painting from the tomb of Vespasian Priscus at Pompeii. More distant, it may be compared with a silver ewer from Boethuseville, France. Ennion’s pitchers, the wall painting, and the Boethuseville ewer all belong to the 1st century AD. Mid-1st to early 2nd century AD.

The Corning Museum of Glass 76.1.8, H. 21.5 cm

Gold-glasses—objects with gold foil ornament sandwiched between two fused layers of glass—were the first category of Roman glass to attract the attention of antiquarians and collectors in the 17th century. The antiquarians were interested primarily because most gold-glasses were discovered in catacombs, the underground galleries where early Christian and Jewish communities buried their dead. Some gold-glasses have religious images such as pictures of Jesus and Christian saints, or of mourners and other Jewish ritual objects. Others depict characters from pagan mythology and secular subjects such as famous sportsmen. In many ways, therefore, gold-glasses are miniature windows that reveal some of the interests and beliefs of people in late antiquity.

The first published reference to gold-glasses was in 1632, the date of a posthumous publication of the Rome-based antiquarian Boldetti. By 1716, when Buonarroti published a study of gold-glasses, 72 examples were known; in 1858, Garacci listed 340 gold-glasses. The catalogue of the gold-glasses in the Vatican Library contains information on 460 objects in the Vatican and in museums throughout the world (Morey 1959).

Gold-glasses, however, are only part of the story of how Roman artists and artisans used gold and glass together. They also included gold foil in some of their mosaic-glass vessels, decorated the surfaces of glass objects with gold foil and, very rarely, added gold and silver to the batch to create the optical effect known as dichroism. All told, the number of known Roman glass objects that contain gold probably exceeds 700.

This survey of gilded glass objects and gold-glasses begins with a description of mosaic glass with “gold-band” inclusions (Fig. 1) and pieces with gold surface ornament (Figs. 2–5). It ends with a review of the
**Fig. 4. The Daphne Ewer.** Blown, with cold-painted and gilded decoration of Apollo pursuing Daphne. In Greek mythology, the nymph Daphne was the daughter of the river god Ladon. She spent her time hunting and resisted her father’s entreaties to take a husband. The god Apollo, wounded by an arrow shot by Desire, saw Daphne and instantly fell in love with her. She fled from him and, almost exhausted, called out to her father to save her. As Apollo caught up with her, her prayer was answered and she was transformed into a bay tree.

"Daphne" is the ancient Greek word for a bay tree and the myth explains how the name came about. Eastern Mediterranean, 3rd century AD.

The Corning Museum of Glass 51.1.16. H. 22.2 cm

**Fig. 5. Decorated Bottle.** Blown, with enamelled and gilded decoration of Apollo and Marsyas. According to myth, the goddess Athena invented the flute, but threw it away because it distorted the features of the player. Marsyas found the flute and became a skillful player. He then challenged Apollo, who played the lyre, to a music contest. In one version of the story, the competition was judged by King Midas, who rashly declared Marsyas the winner. Apollo punished Midas by changing his ears into those of an ass. Here, we see an alternative version: the Muses awarded the victory to Apollo, who punished Marsyas by skinning him alive.

Eastern Mediterranean, 3rd to 4th century AD.

The Corning Museum of Glass 78.1.1. H. 14.6 cm
four main types of gold-glasses: medallions bearing portraits (Fig. 6), vessels with inscriptions made of gilded glass rods (Figs. 7-8), vessels with gold ornament protected by blobs of colored glass (Figs. 9-10), and vessels with gold ornament in the base—the commonest type of gold-glass (Figs. 11-13). Our survey will take us from Pompei in AD 79 to the catacombs of 4th-century Rome.

**GOLD-BAND GLASSES**

In and immediately after the reign of Augustus (27 BC-AD 14), glassmakers in Italy produced a wide range of multicolored tablewares and other objects, using techniques of engraving, casting, and polishing developed in the preceding Hellenistic period. One of the specialties of the Hellenistic glassmakers was mosaic glass; the Romans imitated this, and introduced their own distinctive variants. One such product was "ribbon-mosaic" glass, in which strips of glass of different colors were fused to form a single blank, which could be reheated and molded to the desired shape. Gold-band glass is the most luxurious ribbon-mosaic glass, incorporating gold foil laminated between strips of colorless glass (Fig. 1). It was used in the first half of the 1st century AD to make perfume bottles, lidded boxes (probably for cosmetic preparations), and small items of tableware.

**GLASSES DECORATED WITH UNPROTECTED GOLD FOIL**

The earliest well-dated examples of Roman gilded glass come from Pompei—they include a bowl from the House of the Gilded Cups—and cannot be later than AD 79, when the city was buried by an eruption of Vesuvius. The earliest surviving vessels with gilded decoration include the ewer shown in Figure 2 and a vessel with a Dionysiac scene from Breganze, Afghanistan, both of which probably date from the late 1st or early 2nd century. In the 3rd and the 4th centuries, glasses with gilded decoration seem to have been made in at least three parts of the Roman Empire: the eastern Mediterranean, Italy, and the Rhineland. Glassmakers in Venice used the first technique, medieval Byzantine and Islamic glassmakers used the second. As far as we know, Roman glassmakers always applied the gold as foil, presumably with the aid of an adhesive such as pum arabic. They then worked up the design by removing unwanted foil and adding details by scratching the gold that remained with a stylus. From time to time, they used gold foil in conjunction with "cold-painting" (employing the same points that artists used on other materials) or enameling (mixing a suspension of powdered glasses that were fired at moderate temperatures and fused, and so became part of the object).

---

**Gilding Glass**

There are two traditional methods of gilding glass: applying the gold as sheets of foil (or leaf, which is thinner than foil) and mixing gold dust with a liquid and applying it with a brush as paint. Renaissance glassmakers in Venice used the first technique; medieval Byzantine and Islamic glassmakers used the second. As far as we know, Roman glassmakers always applied the gold as foil, presumably with the aid of an adhesive such as pum arabic. They then worked up the design by removing unwanted foil and adding details by scratching the gold that remained with a stylus. From time to time, they used gold foil in conjunction with "cold-painting" (employing the same points that artists used on other materials) or enameling (mixing a suspension of powdered glasses that were fired at moderate temperatures and fused, and so became part of the object).
FIG. 11. FRAGMENT OF GOLD-Glass.
The roundel encloses a horse and its rider who brandishes a whip or victor's palm in his right hand. The Greek inscription, 

MOVT. 7TE und

APPEX, means: "Aetius, drink and may you live (for many years)!" Presumably, Aetius was a celebrated sportsman, perhaps either a jockey, as the scene implies, or a charioteer, here shown on the leading horse of his team. Probably made in Rome. 4th century AD.

The Corning Museum of Glass 62:1.20. W. 9.2 cm

FIG. 12. FRAGMENT OF GOLD-Glass. When viewed from inside the vessel, the roundel shows busts of Saints Peter (on the left) and Paul (on the right), each wearing a tunic and a pallium (outer garment). The figure standing between them, with his browned arms holding a wreath over the head of each apostle, is Jesus. Probably made in Rome. 4th century AD.

The Corning Museum of Glass 62:1.20. W. 9.2 cm

GOLD-GLASSES

The first group of fused gold-glasses are medallions: small circular objects (about 4–7 centimeters in diameter), usually with a deep blue disk bearing carefully finished decoration, and a colorless cover glass (Fig. 6). The disk and the cover glass were cast separately and at least partly ground and polished. Gold foil was applied to the upper surface of the disk, sometimes accompanied by colored pigments. The picture was created and the cover glass was placed over it. The object was then placed in a kiln and heated until the glasses fused. After annealing, the top, bottom, and sides of the medallion were ground and polished. Most of the medallions have portraits and these are sometimes accompanied by Greek or Latin inscriptions. The Greek inscriptions are believed to be in the dialect current at Alexandria, Egypt. The dialect may indicate the origin of the decorators, but it does not establish that they lived in Egypt; indeed, the Italian provenance of several medallions suggests that the decorators may have worked in Italy, perhaps at Rome. The medallions are frequently dated to the late 2nd and 3rd centuries AD, but only one is known to come from an even approximately datable context. This medallion, with a portrait of a bearded man, is still embedded in the plaster surrounding a tomb in the Cimitero di Pantorio, Rome (Morey 1959–60, no. 222). It was placed there in the 4th century.

The second group consists of fragmentary vessels with, at the center of the floor, a short inscription in a circular or rectangular frame (Figs. 7, 8). The inscription and the frame are made of colorless glass rods (about 0.1 centimeters in diameter) which were softened in a flame, bent into the desired shapes, gilded on the upper surface, then attached to the parison employed to form the base of the vessel. The gilded rods may be accompanied by dots or lines of blue, green, or red pigment. Subsequently, the object was probably completed by a process similar to that described by d’Escavoir-Doicey (1959–60: 62); see also Kenneth Painter in Harlen 1987: 266–67). A second partition, which eventually became the body of the vessel, was inflated against the first partition, making contact in the area of the decoration, and the ensemble was fused. In the final stages of manufacture, the first partition was cut down and shaped to make the base and the footing, and the second partition was cut down and shaped to form the wall and the rim. In some examples, the presence of minute bubbles between the foil and the upper layer of glass confirms that the ornament was applied to the upper surface of the base and not to the lower surface of the floor; the bubbles were trapped when the second partition was pressed against the decorated surface.

Twelve objects with gilded-red inscriptions are known. A bowl found in a grave at Faro, near Río de Moinhos in Portugal, is the only specimen from a datable context; the latest associated object was made around AD 240–250. The use of gilded rods, however, invites comparison with a group of objects, the date of which is fairly well defined: the "Masterpiece" and related vessels from the Rhineland. The Masterpiece, an imposing bottle decorated with gilded glass rods and trails of opaque white, opaque red, and translucent deep blue glass, was found in a 3rd-century grave in Cologne. Similar objects, also with gilded rods, have been found at Coutil-Notremond, Belgium, associated with objects datable to around AD 200; at Nijmeggen, Netherlands, datable to around AD 250–300; and in another grave at Cologne, associated with coins of which the latest was issued by Galerius Maximianus as Caesar (AD 295–305). It appears, therefore, that throughout the 3rd century, luxury glass-
es were decorated with gilded rods that were heated until they became soft, then bent into intricate shapes. Until more precise information becomes available, we must conclude that vessels with inscriptions made of gilded rods may date from any part of that century.

The third group comprises fragments of vessels decorated with gold foil roundels under colored blobs (Figs. 9, 10). The British Museum possesses fragments of a 4th-century colorless glass bowl decorated on the outside with three horizontal bands of small gold-foil roundels alternating with two bands of even smaller gold-foil rosettes, all of which are covered with blue and bluish green circular patches that were applied as blobs of molten glass. The roundels, which were viewed from the inside of the bowl, contain figures and scenes from the Old and New Testaments. The object was found at Cologne, Germany. Although no other large fragments of this type are known, one hundred or more individual roundels, presumably from vessels, probably exist. The most prolific find-place appears to be Rome and its environs; 46 examples are in the Vatican Library, 5 are in other collections in Rome, and 1 is in the museum at Ostia.

Finally, we have the largest group of all: roundels (usually about 8–11 centimeters in diameter) with grooved edges (Figs. 11–13). Indeed, these are the objects that spring to mind when the term "gold-glass" is mentioned. A large number of gold-glasses have been recovered from Roman catacombs, where they were set in plaster surrounding loculi (niches used for burying the dead). These finds led Ausim Weerth (in 1878) to suggest that gold-glasses were made as roundels to be used exclusively to decorate graves, an hypothesis revived by Haevernick in 1962. Vopel (in 1899), on the other hand, argued that the roundels are the bases of vessels for general use. Vopel's suggestion that the roundels are parts of vessels is supported by the fact that many of them have footings and a few even retain parts of the wall. Indeed, in 1720 Boldetti illustrated an almost complete bowl decorated with a roundel depicting Saints Peter and Paul. Gold-glasses, therefore, occupied the same position on the floors of bowls as the inscriptions made from gilded glass rods.

Most gold-glasses of this type are assigned to the 4th century AD, although none come from precisely datable contexts. It is possible, however, that four examples with figures identified as pastor Damas or Damas refer to Pope Damasus (r. 366–384). Another gold glass, inscribed Pompeian et Teodora vibatis, may depict Barbarus Pompeianus, consularius of Campania in 333, or Iustusius Pompeianus, who was suffect consul in the early 4th century. A sixth example, inscribed with the names Orfitus et Constancia may refer to Memmius Vitratus Orfitus, prefect of Rome between 354 and 359 (Cameron 1996).

After the 4th century, glassmaking declined in most parts of the Roman Empire and many of the more elaborate techniques were abandoned. Among the objects that ceased to be, even in Rome, were gold-glasses.

**BIBLIOGRAPHY**


**GLOSSARY**

**Anneal:** to cool glass gradually to room temperature

**Batch:** the mixture of raw materials (often silica, soda or potash, lime, and recycled glass) that is heated in a pot or tank to make glass

**Blank:** an object that has been formed but not yet finished

**Canemaking:** the construction of canes—sticklike lengths of glass formed by bundling groups of rods of different colors so that they form a pattern when seen in cross section, and fusing them

**Dichroism:** an optical property that makes glass appear one color when seen by reflected light and another color when light shines through it

**Fusing:** (1) the process of melting batch; (2) heating pieces of glass until they bond; (3) heating enameled glass until the enamel bonds with the surface of the object

**Grose:** having the edge trimmed by clipping with a metal tool

**Parison** (French, *paraison*): a partly inflated mass of glass on the end of a blowpipe