13. Evaluating the movement of open-work glassware in late antiquity[1]

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The first impression one has when confronted with an open-work glass vessel is undoubtedly the delicately pierced outer layer. Known today as *open-work vessels*, *cage cups*, or *diatreta*, this kind of glassware may have been used as drinking-cups or lamps.[2] Although carved from a single, continuous piece of glass, these distinctive vessels were divided into an extensively carved and pierced outer layer, and a plainer inner layer that served as the container. The two layers remained connected only by a network of perpendicular glass bridges (fig. 13.1). The technical difficulties involved in this elaborate construction are related to, but surpass, the technical proficiency exhibited by contemporary forms of cut glass decoration, such as facet cut or cameo glass.

Drawing upon the extant corpus of open-work glass vessels, this paper briefly evaluates the movement of the highest form of luxury glassware produced exclusively by Roman craftsmen throughout the Roman Empire, East and West. The paper will introduce principal variations found within this category of glassware, and outline the three types of glass trade involved in the production of open-work vessels. Dating and distribution will then be discussed in order to see what trade patterns can be determined.

Three Stages of Production

Throughout Roman times, most raw glass was produced in the Levant and Egypt.[3] It was exported from the site of primary production to glass-

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[2] Some are inscribed with toasts or mottoes, while one retains its original metal collar and suspension rings; see D. Whitehouse, *Glass of the Roman Empire* (Corning, 1988), 50, fig. 21.

[3] Pliny, *HN* 36.65.190–92.

working sites throughout the Empire. Raw glass, the product of primary production, had to be purchased before secondary production, the shaping of the raw or recycled material, could begin.

According to Diocletian's early 4th-century *Edict of Maximum Prices*, each additional stage of glass production meant that the traded commodity exacted a higher price.[4] Since the *Price Edict* may have been created for market consumers rather than for elite Romans, it is likely that the third stage in glass production was usually omitted because of the intended market.[5] However, vessels like those rendered in glass open-work make it clear that there was a third stage in glass production. *Tertiary production*, engraving or extensive carving, was designed for luxury trade.[6]

Distribution Inside and Outside of the Late Roman Empire

Unfortunately, 34 of 58 glass open-work vessels and vessel fragments are of uncertain date. However, the 24 datable vessels provide a date range for production and trade of glass open-work vessels.[7] Finds are concentrated between the 3rd and mid-5th centuries, although there is a least one vessel dated as early as the late 1st century AD. The only period in which a considerable number of datable finds exist is the 4th century. This suggests a zenith in popularity and production.

At present, 55 open-work glass vessels have been provenanced within the territory of the Roman Empire, or close to its borders. The Roman Empire's boundaries understood here are based on A.H.M. Jones's map of the diocesan and provincial borders, as stated in the *Notitia Dignitatum* (fig. 13.2).[8] In addition to Italy, finds appear concentrated along the northern Roman territorial border, in modern Bulgaria, Hungary and Germany.

4 For the most complete section on glass, see K.T. Erim and J. Reynolds, 'The Aphrodisias copy of Diocletian's Edict on Maximum Prices', *JRS* 63 (1973), 99–110. For an updated discussion, see S. Corcoran, *Empire of the Tetrarchs* (Oxford, 2000), 205–33.

5 Corcoran, *Empire of the Tetrarchs*, 207–15.

6 A 4th-century law exempting craftsmen from public services lists over three dozen different types of artisans. Engravers (*diatretarii*) are differentiated from glass-workers (*vitrearii*), suggesting a late antique distinction between these two professions: *Codex Justinianus*, 10.66.1.

7 This is a conservative total. Where known, dates of burial of individual vessels are based on stratigraphic context, numismatic evidence, and inscriptions. Dates of production, however, can only be estimated. Where iconography is the only basis for dating, a vessel is considered of uncertain date.

8 Objects a great distance from the Roman Empire are not shown. This includes two vessels from Afghanistan. It should be noted that accents and diacritical marks do not appear on the map.

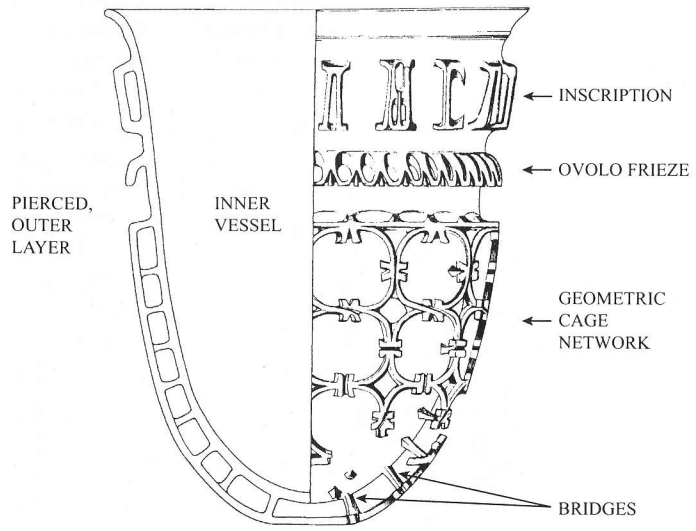

Figure 13.1 Diagram of glass open-work vessel

The vast majority of glass open-work vessels from late antiquity have been found either within or close to the Roman borders.

The majority of graves with open-work glass vessels have been identified as Roman. However, at least one *non*-Roman elite grave assemblage found in western Germany contained a Roman open-work glass vessel,[9] and east of Sasanian Persia, in modern Begram, Afghanistan, one or more open-work glass vessels were excavated in a large palatial hoard.[10] Belonging to Kushan kings, this is the only location in which a glass open-work vessel is known to have travelled any significant distance beyond the limits of the Roman Empire.[11]

9 See A. Kisa, *Das Glas in Altertume* (Leipzig, 1908); H. Eiden, 'Diatretglas aus einer spätrömische Begräbnisstäte in Niederemmel an der Mosel', *Trier Zeitschrift* 19 (1950), 26–40; F. Fremersdorf, 'Wie wurden die römischen Diatretgläser hergestellt? Eine Entgegnung', *Kölner Jahrbuch für Vor- und Frühgeschichte* 2 (1956), 27–40; K. Goethert-Polaschek, *Katalog der römischen Gläser des Rheinischen Landesmuseums Trier* (Mainz am Rhein, 1977).

10 J. Hackin, 'Recherches Archéologique à Bégram', 2, in *Mémoires de la Délégation Archéologique Française en Afghanistan 1939*, 42–44 (1937), fig. 203 a–d, pls. 16–17, figs 37–40, and no. 203, fig. e.

11 D. Whitehouse, 'Begram, the *Periplus* and Gandharan art', *JRA* 2 (1989), 93–100; D. Whitehouse, 'Begram reconsidered', *Kölner Jahrbuch für Vor- und Frühgeschichte* 22 (1989), 151–7; C. Delacour, *Arts Asiatiques. Annales du Musée National des Arts Asiatiques Guimet et du Musée Cernuschi* 48 (1993), 53–71.

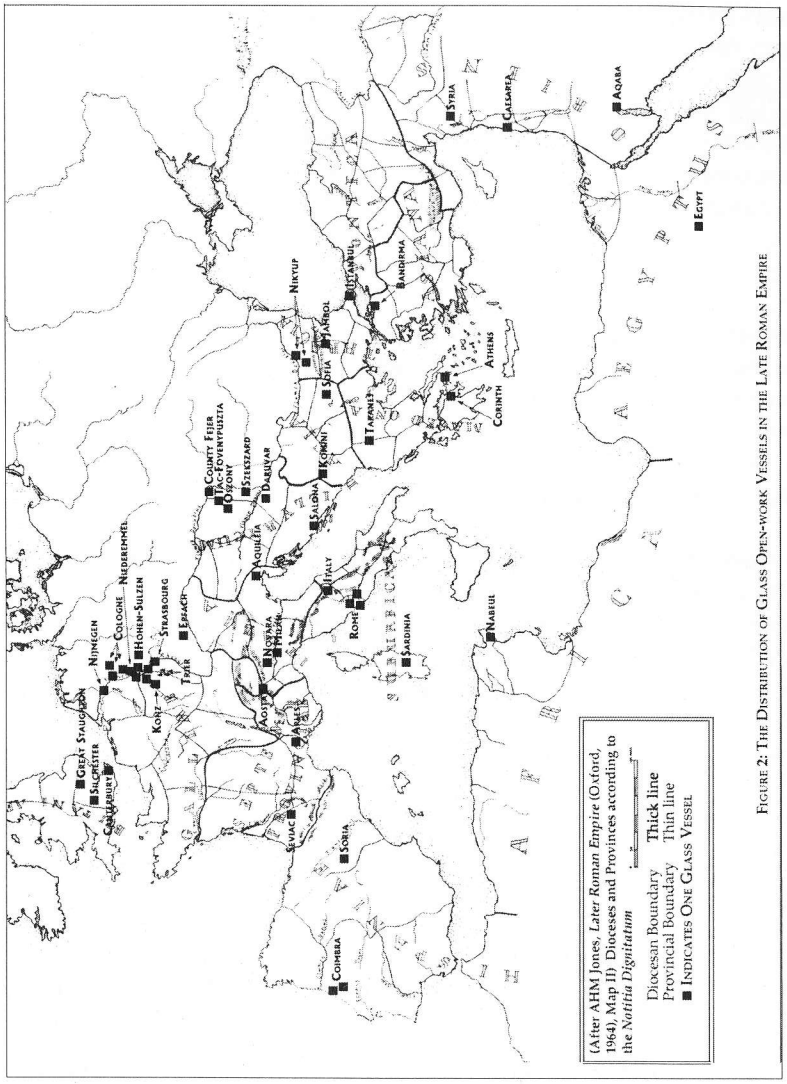

Figure 13.2 Distribution map of glass open-work vessels in the late Roman Empire.

No open-work glass vessel has ever been found in Sasanian Persia, yet these vessels have been found to either side of the Sasanian Empire, a fact which might be explained by trade patterns. Established Roman maritime trading partners were recorded c. mid-1st century AD by an Alexandrian merchant in the *Periplus Maris Erythraei*. The Parthians, precursors of the Sasanians, were not among those included, whereas ports on the Arabian peninsula and ports on the west coast of India where Romans traded raw glass are mentioned. Thus a precedent was established for maritime trading either side of what became Sasanian Persia, but not within. However, according to Pliny, *negotiatores nostri* were found at Charax on the Shatt al-Arab, suggesting ongoing trading despite a complete lack of open-work glass recorded or recovered in the Sasanian Empire.[12]

According to the present state of the archaeological record in Sasanian Persia, Sasanian burials, and thus the potential for grave goods, are virtually non-existent. Although it is possible that taste among Sasanian consumers differed considerably from that of Romans in late antiquity, the complete absence of *any* open-work glass throughout the Sasanian Empire suggests limited trade of luxury glass exports from the Romans to the Sasanians.[13] Since western Germany and Afghanistan were each communities with ongoing commercial relations with the Roman Empire, the vessels found there may have been given as diplomatic gifts.

Circulation and Consumption

Although, at present, the distribution of luxury glassware does not indicate the locations of engraving production in the 4th century, some information is revealed about the trade, circulation and consumption of late antique luxury glassware. Glass may typically have been traded twice in the course of production before it was traded a third time as a luxury product. Trade in primary raw glass and secondary shaped vessels makes it all the more difficult to follow the movements of cut luxury glassware, since it underwent an additional third stage of production and corresponding movement.[14]

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12 Pliny, *NH* 6.31.140.

13 There is no evidence to suggest that the Sasanians elected to import or manufacture glass open-work vessels. However, contemporary Sasanian glass craftsmen were producing a very popular style of facet cut glass vessel, with their basic design and technology appropriated from Roman prototypes. On distinguishing facetted glass in late antiquity, see H. Meredith-Goymour, 'Disentangling material cultures: late Roman and Sasanian facet cut glassware in late antiquity', in *SOMA* 2004, BAR International Series 1514 (Oxford, 2006), 123–9.

14 The width, depth and overall uniformity, or lack thereof, of the bridges specifically found among inscriptions can demonstrate differences in cutting practices among glass-

Unfortunately, extensive engraving does not typically leave identifiable structures in the archaeological record. Excavations in Alexandria have revealed traces of late antique ivory and rock crystal carving, in process, in the same building as glass production.[15] However, despite neighbouring workshops with ivory and rock crystal carving, there is no evidence to suggest tertiary production in glass. Unless there is a great deal of diagnostic debris remaining or other cumulative evidence of production by excision, excavations may fail to identify small-scale production activities such as piecemeal glass engraving.

In spite of this difficulty, when the corpus of glass open-work vessels is considered as a whole, the context of deposition suggests that, in antiquity, Romans considered open-work glass a luxury item. In controlled excavations, it is found only in elite assemblages, along with other high-status goods such as gold inscribed *fibulae*, silver picture plates, and other types of *largitio*.[16] With the possible exception of two non-Roman depositional contexts (the hoard in Afghanistan and a non-Roman grave in Germany), only one open-work vessel is ever found in a given assemblage, rather than pairs or sets. Based on grave goods and early church use, this suggests that users may have owned only one glass open-work vessel and that, when evaluated in relation to other grave goods, these vessels were highly valued unique possessions.

Although the number of provenanced finds may be too small a proportion of the surviving total to be statistically conclusive, the majority have been found among the presumed owner's former possessions on coastal sites or close to riverine routes. Thus, if we presume that users would not have had to travel far to acquire one of these vessels, this pattern suggests that open-work glass vessels were principally traded via maritime and riverine routes.[17]

cutters. Compare the upper bridges of two 4th-century open-work vessels, both found in Budapest, one with a Greek inscription (23.1894.2), the other with an inscription, probably Latin (96.1898.3): L. Barkóczi, *Pannonische Glasfunde in Ungarn* 9 (Budapest, 1988), 219, figs 556 and 554.

15 Room D7 in a house in Alexandria, M. Rodziewicz, *Les habitations: romaines tardives d'Alexandrie à la lumière des fouilles polonaises à Kom el-Dikka*, vol. 3 (Warsaw, 1984), 249–51, pls. 71–2.

16 See M. Ivanovski, 'The Grave of a Warrior from the Period of Licinius I Found at Taraneš', *Archaeologia Iugoslavica* 24 (1987), 81–90.

17 Open-work glass vessels were potentially transported in close-fitting leather cases or basketry, as was typically used for common glassware, as protection from breakage. This raises questions regarding associated leather or basket production designed for transport.

Glass Open-work Vessels as a Category

The overall pattern of distribution of glass open-work vessels indicates wide circulation within the Roman Empire, particularly along the northern limits, and restricted export to specific communities abroad. They reached their greatest popularity in the 4th century, and were traded as finished luxury products via maritime and riverine routes.

Although stylistically varied, the implicit relation to other grave goods within a burial assemblage suggests that late antique users held this category of luxury vessel in high esteem. Regardless of whether they were found inside or just outside the Empire's borders, grave assemblages consistently confirm the elite status of the deceased. The exceptional hoard in Afghanistan was buried by Kushan kings. This again suggests trade or diplomatic gift-giving from elite Romans to foreign leaders.

Little is known concerning trade in glass open-work vessels with Sasanian Persia, or possible trade restrictions imposed specifically upon luxury open-work glassware in late antiquity, or the mechanisms involved in imposing any such restrictions. However, when the corpus of extant open-work vessels and vessel fragments is considered as a whole, the overall pattern of distribution demonstrates that Romans in late antiquity considered open-work glass vessels as a specific category of object. Fourth-century glass open-work vessels were a luxury product produced *by* Roman craftsmen, necessitating a third stage of production, traded *to* elite consumers.