

MORPHOLOGICAL ANALYSIS OF A GROUP OF GLASS VESSELS IN THE VAN ARCHAEOLOGICAL MUSEUM COLLECTION

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Abstract

Van, one of the well-known ancient settlements in Anatolia, is situated in the Lake Van Basin of the Eastern Anatolia Region in Türkiye. From antiquity to the present day, the region has hosted numerous civilisations. The collection of the Van Archaeological Museum encompasses a wide range of artefact groups spanning a broad historical timeline. Among the existing groups of finds in the museum are glass artefacts dated to the Roman Period. The numerical abundance (934 findings) and typological diversity of the glass artefacts in the museum's collection provide significant data regarding the use of glass products originating from the Roman Period in settlement areas within the Eastern Anatolia Region. The glass artefacts considered in this study are part of the Van Archaeological Museum's collection, acquired through purchases and donations. The analytical focus is on five glass vessels: a bird-shaped bottle, a lotus beaker, and a beaker. These artefacts were studied from various perspectives, including production techniques, areas of use, and functions. Despite the limited amount of data directly associated with the Roman period from archaeological excavations and surface surveys across the Lake Van Basin, the collection provides significant evidence regarding the use and presence of Roman-period glassware in settlement areas of the region. With the discovery of the glassblowing technique during the Roman Period, the production of glass containers for daily use, for storing personal care products, and for creating glass items as accessories became a popular industry across settlements under Roman cultural influence. In this context, although the glass finds from the Lake Van Basin are locally distinct, they generally bear traces of the Roman glass industry.

Keywords: *Lake Van Basin, Roman Period, Glass Vessel, Bird-Shaped Bottle, Lotus Beaker, Beaker*

INTRODUCTION

In recent years, glass artefacts included in the collections of Turkish museums have been studied with increasing meticulousness and interest by many researchers (Atilla & Gürler, 2009; Canav, 1985; Erten, 2001; Gençler Güray, 2011; Gürler, 2000; Hanar, 2023; Lightfoot & Arslan, 1992; Lightfoot, 1989; Olcay, 2001; Özgümüş, 2000; Öztürk, 2013b; Stern, 1989). Like many other museums in Turkey, the Van Archaeological Museum also possesses a rich collection of glass objects acquired through non-excavation means such as purchases, confiscations, and donations. The museum's glass collection represents a highly diverse corpus, comprising numerous examples of advanced and distinct vessel forms of the Roman glass industry — such as unguentaria, sprinklers,

flagons, aryballoi, amphoriskoi, beakers, cups, and bottles. These glass vessels can be regarded as local reflections of the characteristic forms originating from the central regions of the Roman Empire, specifically Italy as the imperial core, along with the Eastern Mediterranean and Mesopotamian territories. Indeed, throughout the Roman Empire, aside from luxury glassware, nearly all glass vessels produced during the imperial period tend to reflect local characteristics. The general features observed in the rims, necks, bodies, bases, applied elements, and decorative components of the glass vessels in the museum's collection also support this assertion. Within the scope of this study, an evaluation is conducted on five glass vessels (namely, a bird-shaped bottle, a lotus beaker, and a beaker), which are considered

rare examples in the Roman world (Grossmann, 2002; Lightfoot, 2017). The assessment focuses on their general structural characteristics, issues of origin, potential functions, and developmental processes. In this context, the use of glass in burial rituals and the identification of glass materials in archaeological investigations conducted in the Lake Van Basin are also considered.

The abundance (934 findings), widespread use, and morphological diversity of artefacts in the Van Archaeological Museum's glass collection reveal that, as in many centres across Anatolia, the peoples of the Lake Van Basin also used glass products. This suggests that glassware had become an integral part of daily life in the region. Whether produced here or imported from other regions, the glass artefacts unearthed in this area, which lies within the cultural boundaries of the Roman Empire and includes numerous distinctive and select examples from the history of glassmaking, are significant for determining the region's place and importance in the broader history of ancient glass production. It is believed that the detailed analysis of these vessels may contribute to a better understanding of the overall repertoire of glass forms used in Anatolia, help identify their diversity and assist in determining the geographical distribution of traded perfumes and their containers.

MATERIALS AND METHODS

This study aims to shed light on the origin and function of three specific vessel types within the museum's collection — the bird-shaped bottle, lotus beaker, and beaker — each represented by a single example in terms of form and decoration and regarded as rare in academic literature. Observations made during the evaluation and dating phases of the glass vessels under study indicate the presence of a developmental process in both their production and decorative techniques, as reflected in the variations observed on the vessels themselves.

These glass vessels, acquired through non-excavation methods such as purchase, donation, or confiscation—pathways that complicate efforts to determine their origin and chronological context—have been preserved intact. Although there is no definitive information regarding their discovery or production sites, the museum's inventory records suggest that the artefacts originated from Van and its surrounding areas,

a fact confirmed by the contributors during the submission of these findings. The fact that these vessels have survived mainly intact and complete suggests that they may have been placed in graves as burial offerings. This possibility is reinforced by the likelihood that they were obtained through illicit excavations carried out in necropolis areas in the region. Furthermore, similarities in form, production techniques, decorative features, and functional characteristics, with numerous parallel examples known to be grave goods, strengthen the hypothesis that these objects also originated in funerary contexts.

Given the lack of precise archaeological context, the dating of the bird-shaped bottle, lotus beaker, and beaker vessels has been conducted through analogy. Comparable examples identified in museums, private collections, and archaeological excavations within and beyond Anatolia have served as the basis for chronological assessment. To determine their origins and functional purposes, a methodological approach involving a detailed literature review and stylistic analysis was employed. Based on formal comparisons, a chronological sequence was constructed using similar examples previously published in scholarly works. During the dating process, the parallel examples were compared based on production technique, form, decoration, colour, and size, revealing substantial similarities.

This determination indicates that these vessel forms—regarded as rare in the Roman glass industry of Italy, encompassing various settlement areas within Anatolia, the Eastern Mediterranean, and Mesopotamia, and extending as far as the Lake Van Basin — are also found in these regions.

Glass Objects in Burial Rituals

Glass is defined as an artificial material produced by fusing silica, an alkali flux, lime, and other additives into a transparent, translucent, or opaque amorphous substance that solidifies without crystallising. It is a material entirely derived from natural resources but formed through human intervention and creativity, symbolising humankind's success in harnessing nature with intelligence and innovation (Biser, 1899; Davison, 1989; Lightfoot, 2007; Öztürk, 2013a; Saldern, 1966).

In many belief systems, the cult of the dead expresses devotion to the gods through rituals associated with death. Especially considering the

belief in an afterlife, in which existence is thought to continue beyond death, the idea that the soul maintains a life in the underworld — or, in other words, in the other world — even after the body ceases to function forms the foundation of the cult of the dead. Therefore, offerings are placed in graves with the belief that the deceased, like the living, may have needs in the afterlife and would require certain items. All actions that follow the occurrence of death constitute the content of the death cult. In this context, the content of the death cult can be outlined as funeral rituals, burial customs, ritual objects placed in the grave, sacrifices, libations, funerary meals, tomb architecture, tomb typology, and posthumous commemoration rituals. Moreover, in Roman death cult practices—as seen in many ancient civilisations—an effort was made to make the deceased feel “at home” in the afterlife. Thus, ritual objects placed in graves varied according to the deceased’s gender and social status. Mirrors, jewellery boxes, cosmetic bottles, perfume flasks, needles, and spindle whorls were commonly found in women’s graves; weapons, drinking vessels, hunting and agricultural tools in men’s graves; and toys in children’s graves. Additionally, oil lamps, scent vessels, and tools used in sacrificial rituals were among the objects placed in graves during funeral rites (Akçay, 2017).

Özen (2013) categorises ritual grave objects—including those made of terracotta, metal, stone, bone, ivory, and glass—into two primary groups: offerings intended to furnish the grave based on death-related beliefs, and personal belongings used by the deceased during their lifetime. The author outlines a structured sequence of death cult procedures derived from ancient sources, involving the ceremonial confirmation of death, ritual washing and anointing of the body with fragrances such as myrrh and cinnamon, dressing and adorning the corpse, placement of a coin in the mouth, and a multi-day display accompanied by scented bowls. This practice is substantiated by literary evidence, notably in the works of Sextus Aurelius Propertius, whose poetic references to scent bowls—albeit in a context of rejection—affirm their ritual significance in ancient funerary traditions.

The Use of Glass in the Lake Van Basin

In addition to the regions of Lydia and Phrygia, there is also evidence indicating that glass was

known and used in the Kingdom of Urartu, which held significant power in Eastern Anatolia. A large number of glass beads discovered in the Karagündüz Necropolis—dated between 1000 and 800 BCE and associated with a culture considered the origin of classical Urartian culture — demonstrate that glass was a notable material even in the Early Iron Age cultures of Eastern Anatolia (Köroğlu & Konyar, 2005). In the necropolis, a total of 513 beads made from gold-glass, glass, and precious stones such as agate and carnelian were identified. A necklace with three strands, featuring a blue glass pendant, was also found around the neck of one of the skeletons. This necklace significantly differs from the well-known Urartian kingdom-period beads, typically made from stone and glass (Erten, 2004; Sevin, 2005; Sevin, 2012). Additionally, numerous glass beads were identified during excavations at the Van Kalecik Necropolis. The beads unearthed in Urartian fortresses and necropoleis suggest that bead production during the Urartian period continued Early Iron Age traditions (Çavuşoğlu, 2022). These glass beads, considered the earliest evidence of glass use in the Lake Van Basin, also indicate that glass objects played a role in Urartian funerary rituals. Another notable period-specific find is a lead figurine from Toprakkale, which includes red opaque glass and ivory inlays (Erten, 2004). Analysis of the glass fragments on this 8th-century BCE figurine revealed that they contain 25.48% lead oxide, making the artefact one of the earliest known examples of lead oxide use in the production of red opaque glass. Moreover, additional red opaque glass inlay fragments, believed to have been used as parts of furniture or on basalt slabs, were also recovered from Toprakkale. The earliest known examples of red opaque glass containing lead oxide come from Hasanlu, located on the shores of Lake Urmia in northwestern Iran, and are dated to the late 9th century BCE (Erten, 2004). These Hasanlu findings are thought not to have been locally produced but rather to have originated in Mesopotamia. Even earlier written evidence of lead use in glassmaking — specifically for red glass — comes from the second millennium BCE at Boğazköy (Erten, 2004). Besides the Karagündüz and Toprakkale finds, numerous glass beads have been documented in centres such as Van, Dilkaya, and Yoncatepe, as well as in surveys conducted in the regions surrounding Hakkari and Iğdır (Erten, 2004).

However, particularly in Eastern Anatolia and more specifically in the Lake Van Basin, there is a noticeable lack of glass artefacts from periods following the Iron Age. This makes the glass collection of the Van Archaeological Museum especially significant. The typological diversity and numerical abundance of Roman-period glass vessels in the museum suggest that glass may have had a long tradition of use in the region. However, given the production revolution enabled by glassblowing technology during the Roman period, it is worth noting that these finds do not necessarily prove uninterrupted use from the Urartian period onward, and possible hiatuses should be taken into account. Indeed, the discovery of a Roman-period glass vessel during the 2014 excavations at Ayanis Fortress (Van Archaeological Museum Archive) provides crucial evidence that glass continued to be used as a material for vessel production in the region.

Glass Vessels in the Van Museum Collection

Bird-Shaped Bottle. Registered under inventory number A-3117-07 in the Van Archaeological Museum glass collection, the bird-shaped bottle (Fig. 1/A) was produced using the free-blowing technique and shaped with tools. In terms of form, it can be classified as a type of bird-shaped bottle with open mouths, lobed clover-shaped rims, and outflow spouts. The mouth of the bottle is pulled outward and folded inward, then rounded at the top, resulting in a wide rim with a clover-like pouring spout. The light green vessel features a broad, cylindrical neck, an elongated, bird-like body with a now-broken tail, and a nearly flat base. It exhibits a dense layer of iridescence, calcareous residues, and small air bubbles throughout its surface.

The vessel, referred to in sources as a *feeding bottle* or *guttus*, has several parallels in terms of mouth and body form (Akkuş et al. 2024, Fig.4; Canav, 1985, Fig.23; Fremersdorf, 1961, PL.1-2; Hayes, 1975, PL.9/118; Höpken & Çakmaklı, 2015, No. 141-146; Isings, 1957, Form 11; Kunina, 1997, Fig.379; Lightfoot, 2013, Fig.86; Lightfoot, 2017; Cat.182, 185; Oliver, 1980, Fig.43-44; Whitehouse, 1997, Fig.189). Given the formal similarities, particularly in the rim and body, the Van specimen can plausibly be dated to the 1st century CE.

In brief, bird-shaped bottles are found in two forms: open-mouthed or closed-mouthed. Open-mouthed examples can further be divided

into those with straight rims and those with lobed spouts. In the literature, they are variably referred to as *askos*, *guttus*, or baby feeding bottles (Whitehouse, 1997). The term *guttus*, used by Latin authors, refers to various vessel types used for pouring small amounts of wine during mixing, for oils in bathing or sacrificial rituals, and even as containers for cosmetic products imported from Italy (Lightfoot, 2017). Until the 19th century, bird-shaped bottles were thought to be used by wine connoisseurs as vessels with flow-control spouts. However, later studies revealed that after filling, the tail end was resealed by melting and the vessel was opened by breaking the head end. Chemical analysis of a Locarno specimen revealed wine residue, while another from Italy contained traces of rose essence. Additionally, red and white powder or cosmetic ingredients have been found inside some specimens. In the western part of the Roman Empire, bird-shaped bottles often contain cosmetic powder, while in the Eastern Mediterranean, they are more frequently classified as sprinklers (*guttus*, *askos*, or baby bottles) (Isings, 1957; Lightfoot, 2017; Whitehouse, 1997). This form is considered unique among Roman glass finds in Cyprus (Lightfoot, 2017). Eastern examples often feature a rounded or three-lobed clover-shaped mouth instead of a bird's head. Thus, Eastern variants may represent second- to third-century CE adaptations of bird-shaped vessels, more common in the Western Empire (Akkuş et al., 2024).

Lotus Beaker. The Lotus Beaker, inventory number A-3111-07 (Fig. 1/B), is part of the Van Archaeological Museum collection and was produced by mould-blowing and tool finishing. It features a wide rim, a cylindrical and elongated body that narrows slightly towards the base, and a flat bottom. Five horizontal rows of seven budding lotus motifs each decorate the body. These motifs form protruding, stepped reliefs, with the buds decreasing in size toward the base. The light brown body exhibits an iridescence layer, calcareous residues, and fractures, cracks, and losses in some lotus buds.

The Van example shares many parallels in form, size, and decoration. Generally considered a luxury drinking vessel, the lotus beaker is represented in the Van Museum by a single specimen and is thought to be a rare, high-status item from the 1st century CE. Similar examples can be found in the works of Canav (1985, Fig. 122), Grossmann

(2002, Fig. 14), Hayes (1975, Fig. 183), Isings (1957, Form 31), Kunina (1997, Fig. 118), and Oliver (1980, Fig. 65).

Named after its characteristic bud-shaped lotus reliefs, this vessel type was popular in the Roman world, especially in archaeological sites in Italy, and is one of the best-preserved forms from the 1st

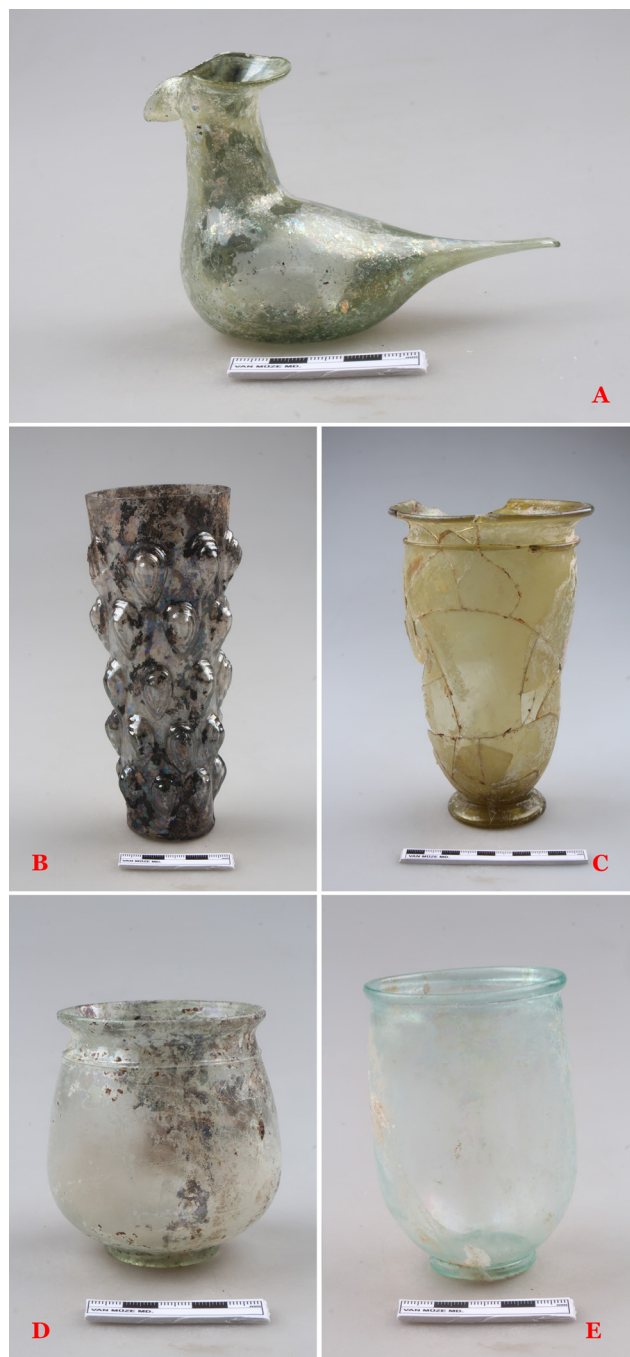


Fig. 1. A. Bird-Shaped Bottle, Env. No: A-3117-07, H/8,3 W/2,7 M/2,1, Van Museum Archive. B. Lotus Beaker, Env. No: A-3111-07, H/16,5 W/6,5 M/6,3, Van Museum Archive. C. Beaker, Env. No: 6-129-79, H/19 W/10,5 M/12, Van Museum Archive. D. Beaker, Env. No: 2015-4504-A, H/7,8 W/7,6 M/6,8, Van Museum Archive. E. Beaker, Env. No: 2015-4496-A, H/9,4 W/6,5 M/6,3, Van Museum Archive.

century CE. These mould-blown cylindrical vessels were considered expensive and rare (*toreumata*) items in antiquity. Pliny the Elder mentions such embossed glasses as imitations of metal vessels (*Naturalis Historia*, Book XXXVI). The earliest known example of this type is a find from Pompeii, dated to the eruption of Mount Vesuvius in 79 CE, suggesting even earlier production (Isings, 1957). These vessels were likely produced in workshops in Syria and Italy for luxury purposes (Grossmann, 2002).

Beakers. The Van Archaeological Museum holds three beakers in its glass collection—two with thick walls and one with thin walls. The first beaker (inventory number 6-129-79; Fig. 1/C), made by free-blowing and tooling, features an outwardly flared rim that is folded inward and rounded, a large conical body, and a high pedestal base. It is yellowish green in colour, with a decorative horizontal glass thread applied below the rim. Although the vessel is reconstructed from fragments and has missing parts, iridescence, air bubbles, and calcareous residues are preserved on the surface.

This vessel closely resembles many examples dated to the 1st century CE (Barkóczy, 1996, Taf. 39/48; Canav, 1985, Fig.119; Hayes, 1975, Fig.133; Vesberg, 1952, Taf. 5/6; Isings, 1957, Form 34; Kunina, 1997, Fig.297; Saldern, 1980, Fig.105; Whitehouse, 1997, Fig.384), suggesting a similar date.

The second example (inventory number 2015-4504-A; Fig. 1/D), also thick-walled and produced using the free-blowing technique, features an outwardly pulled and inwardly folded rim, an inwardly curved neck, an oval body, and a slightly raised base. Its light green surface features two decorative horizontal glass threads below the rim, along with iridescence and calcareous deposits.

This vessel shares many parallels in form, decoration, and function with others dated to the 1st–2nd century CE and assumed to be used as perfume bowls, lamps, or offering dishes (Hayes, 1975, Fig. 132; Lightfoot, 2017, Cat. 53; Kunina, 1997, Fig. 291; Whitehouse, 1997, Fig. 386). These similarities suggest that specimen 2015-4504-A can be attributed to the 1st century CE.

The third beaker (inventory number 2015-4496-A; Fig. 1/E) is a thin-walled, free-blown vessel with a folded and rounded rim, a long cylindrical body, and a slightly raised base. It is bluish green in colour and exhibits iridescence and calcareous deposits.

This vessel shows strong parallels in origin, function, form, and size with numerous other examples dated to the 1st–2nd centuries CE. These parallels are found in multiple sources (Çömezöğlü, 2010, Fig.9/43; Engle, 1978, Fig.652; Hanar, 2018, Cat.499; Harden, 1949, PL.49/3; Harden, 1969, PL.11/E; Hayes, 1975, Fig.471; Isings, 1957, Fig.108-A; Lightfoot & Arslan, 1992, Fig.30; Lightfoot, 2017, Cat.93; Meyer, 1992, Fig.144; Oliver, 1980, Fig.133; Tavukçu, 2007, Fig.9; Weinberg & Stern, 2009, Fig.140), confirming its date to the 1st–2nd century CE.

Beaker-shaped vessels, in general, can be dated, based on comparable examples, to the late 1st century and early 2nd century CE. They are found in various shapes, including hemispherical, cylindrical, and conical bodies, and are mainly produced with high bases. Numerous examples, even if fragmented, have been excavated and preserved in various museums across Turkey. The earliest datable finds of this form—with transparent, pale green or blue hues and skinny walls—come from Italy, mainland Greece, Syria, Egypt, and Tel el-Jelame. Some examples feature flaring rims, cylindrical bodies, and bases shaped like the letter “D” (Isings, 1957; Meyer, 1992).

CONCLUSION

The *Bird Shaped Bottle*, *Lotus Beaker*, and *Beaker*-type vessels preserved in the Van Archaeological Museum and examined in this study were acquired through non-excavation methods, which complicate efforts to establish their provenance and chronological context. The well-preserved condition of these glass vessels suggests they may have been recovered from illicit excavations and used as grave goods. Accordingly, they have been evaluated in comparison with numerous parallel

examples known to originate from burial contexts, taking into account aspects such as production techniques, forms, decorative elements, and areas of use.

This analysis suggests that vessels of this form likely originated in Syria, Palestine, or Cyprus, and, more broadly, in the Eastern Mediterranean and Italy, and that they spread from these regions. Although there is currently a lack of concrete evidence for a direct glass trade between these areas and Anatolian cities, nor any proof of local glass production in the region, recent studies have reported the presence of similar glass vessels in many settlements across Anatolia.

From a chronological standpoint, data obtained from settlements where parallel examples have been found indicate that the Van specimens were produced between the early 1st century and the 2nd century CE. Furthermore, the similarity of these vessels to counterparts from Anatolia, the Mediterranean, and mainland Italy points to the existence of an extensive trade and cultural exchange network.

Finally, the formal and decorative parallels between the *Bird Shaped Bottle*, *Lotus Beaker*, and *Beaker* vessels in the Van collection and those originating from Italy, the Eastern Mediterranean, Egypt, and Mesopotamia support the interpretation that the Lake Van Basin, in antiquity, was either a part of the trade network linking these regions or at least within the sphere of influence of such commercial interactions centred around the Roman Empire.

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