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<i>E-mail address</i>	adalya@ku.edu.tr

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An Evaluation of Glass Votive Beads at the Kastabos / Hemithea Sanctuary in the Context of Healing, Childbirth, and Postpartum

DERYA ÇIĞIR DİKİYOL – SALİH KAYMAKÇI*

Abstract

This study analyzes plano-convex glass beads unearthed during the 2022-2024 excavations at the Kastabos Sanctuary, located in the Carian Chersonesos, through a contextual and material-based approach guided by four key research questions. A total of 107 beads, primarily recovered from sacred architectural spaces such as the naiskos / stoa / abaton complex and Rock Cult Area 1, are dated mostly to the late 4th and 3rd centuries BCE. These non-perforated beads, lacking traces of wear or attachment, are interpreted not as decorative or functional items but as votive offerings. Their consistent morphology and color diversity—particularly dark blue, green, amber, and yellow—align with symbolic systems of the ancient Mediterranean, where blue was linked to healing and protection, and green and amber to fertility. The study argues that these objects formed part of a localized ritual tradition dedicated to Hemithea, a healing goddess rooted in Anatolia's Great Goddess cults. Stratigraphic data, architectural associations, and the absence of use-related marks support this interpretation. Comparative materials from regions such as Rhodes, Crete, and Egypt—although from different periods—exhibit symbolic similarities that situate the Kastabos assemblage within broader Eastern Mediterranean religious networks. Ultimately, this research contributes understanding the continuity of votive practices and protective ritual

Öz

Bu çalışma, 2022-2024 yılları arasında Karia Khersonesos'unda yer alan Kastabos Kutsal Alanı'nda gerçekleştirilen kazılarda ele geçirilen plano-konveks cam boncukları, dört ana araştırma sorusu rehberliğinde Hemithea kültürüyle bağlantıları, ritüel işlevleri, sembolik anlamları ve kültürel bağlamlarını sorgulayan bağlamsal ve materyal temelli bir yaklaşımla incelemektedir. Büyük ölçüde MÖ 4. yy.'ın sonları ile 3. yy.'a tarihlenen ve başta naiskos / stoa / abaton ile Kaya Kült Alanı 1 gibi kutsal mimari alanlardan gelen 107 boncuğa odaklanılmaktadır. Delinmemiş, aşınma ya da yapılandırma izi taşımayan bu boncuklar, dekoratif ya da işlevsel kullanım amaçlı değil, adak nesnesi olarak yorumlanmaktadır. Biçimsel tutarlılıkları ve koyu mavi, yeşil, kehribar ve sarı gibi renk çeşitliliği, özellikle mavinin kötülükten koruma, yeşil ve kehribarın doğurganlık ile ilişkilendirildiği antik Akdeniz sembolik sistemleriyle örtüşmektedir. Çalışma, bu boncukların Anadolu'nun Ana Tanrıça geleneğine dayanan şifa tanrıçası Hemithea'ya adanmış yerel bir ritüel pratiğin parçası olduğunu öne sürmektedir. Stratigrafik veriler, mimari ilişkiler ve kullanım izi eksikliği bu yorumu desteklemektedir. Rodos, Girit ve Mısır gibi bölgelerden belgelenen, farklı dönemlerde de sembolik benzerlikler taşıyan karşılaştırmalı materyal, Kastabos buluntularını Doğu Akdeniz'in daha geniş dini ağları içine yerleştirmektedir. Bu çalışma, Anadolu'da adak

* Assoc. Prof. Dr. Derya Çığır Dikiyol, İstanbul Üniversitesi-Cerrahpaşa, Hasan Ali Yücel Eğitim Fakültesi, İstanbul, Türkiye. E-mail: ddikiyol@iuc.edu.tr ; <https://orcid.org/0000-0001-9366-3011>

Assoc. Prof. Dr. Salih Kaymakçı, Erzincan Binali Yıldırım Üniversitesi, Fen Edebiyat Fakültesi, Eskiçağ Tarihi Anabilim Dalı, Erzincan, Türkiye. E-Mail: skaymakci@erzincan.edu.tr ; <https://orcid.org/0000-0002-4544-601X>

traditions in Anatolia and provides insights into the archaeological and historical integration of local Carian beliefs within the cultural landscape of the Hellenistic period.

Keywords: Kastabos, Hemithea, glass votive beads, Carian Chersonesos, healing and child-birth rituals

pratiklerinin ve koruyucu ritüel geleneklerinin sürekliliğini anlamaya katkı sağlarken, Karia'nın yerel inançları ile Hellenistik Dönem'deki kültürel entegrasyonun arkeolojik ve tarihi izlerini takip etme imkânı sunmaktadır.

Anahtar Kelimeler: Kastabos, Hemithea, cam adak boncukları, Karia Khersonesos, şifa ve doğum ritüelleri

Introduction

In ancient societies, belief systems and ritual practices played a central role in shaping social, cultural, and religious structures. Within this context, objects offered for religious purposes — especially votive artifacts found in sanctuaries — are considered tangible reflections of belief. The glass objects examined in this study, discovered at the Kastabos Sanctuary, are important both as material culture items and as carriers of religious meaning. It is worth noting that similar symbolic practices still persist in modern Anatolia. In places such as Eren sites, sacred trees, and local shrines (*yatır*), individuals—especially women seeking fertility— would tie cloths¹ or leave objects such as coins, buttons, and beads as votive offerings.² In some of these rituals, it is believed that if a stone or object adheres to a specific surface, the wish will come true. This continuity highlights the enduring significance of votive behavior as a cultural and spiritual expression.

One of the central aims of this research is to investigate the archaeological and ritual significance of these glass objects, particularly within the context of the Hemithea cult and associated beliefs surrounding healing, childbirth, and postpartum care. The sanctuary appears to have served as a center where such objects were used intensively. A typological evaluation of the beads —based on their shape, color, size, and context — suggests that colors like blue, green, and amber were associated with fertility, protection, and healing. This reveals not only their ritual value but also their potential connections to wider networks of cultural interaction in the ancient Mediterranean.

Methodology

This study adopts a contextual and typological methodology to investigate the plano-convex glass beads uncovered at the Kastabos Hemithea Sanctuary during the 2022-2024 excavation campaigns. The analysis integrates both field documentation techniques and comparative archaeological interpretation in order to explore the ritual function and spatial significance of the glass artifacts. All beads were assessed based on key typological attributes: plano-convex form, diameter, weight, color, and precise findspot. Stratigraphic and spatial distribution data were systematically recorded during excavation using standard trench-level documentation, including digital photography, profile drawings, and three-dimensional location plotting. The beads were then mapped according to their contexts—specifically within cultic architectural features such as Trench C (*naiskos*, *stoa*, and *abatón* complex) and Trench E (Rock Cult Area), and Trench F (transitional ritual space).³

¹ Alptekin and Öz 2024, 94.

² Bulut 2011, 122-30.

³ Kaymakçı et al. 2025.

The spatial consistency of these finds across sacred architectural zones supports interpretations of deliberate votive placement. Their concentration in ritual cores (Trenches C and E) and reduced frequency in liminal areas (Trench F) suggest a functional hierarchy in deposition practices (fig. 16). Although no laboratory-based compositional analyses (e.g., SEM-EDS, pXRF) were conducted, the study employs qualitative comparative analysis based on formal parallels. Most of the glass beads are well-preserved on the surface, and appropriate sample groups have been identified following post-excavation cleaning for potential future analysis. However, the actual analytical procedures are planned for a forthcoming phase of laboratory research. Future SEM-EDS and pXRF analyses may offer more definitive insights into production techniques and the provenance of raw materials. Typological comparisons were drawn with plano-convex glass objects from sites such as Nimara Cave, the Emecik Apollo Temple, Karanis, and others. Additional reference was made to published typologies such as Weinberg's classification of Rhodian Hellenistic glass (fig. 14), as well as finds from the Bodrum Museum of Underwater Archaeology (fig. 15). Spatial data were also visualized through graphic representations such as heatmaps and distribution charts, emphasizing architectural-bead relationships.

In sum, the methodology integrates stratigraphic accuracy, typological classification, contextual association, and cross-site comparison to frame a holistic interpretation of the votive glass beads within both local cultic traditions and broader Mediterranean ritual networks.

1. The Sanctuary of Kastabos and Its Archaeological Context

Kastabos (Κάσταβος),⁴ located in the Carian Chersonesos, is the site of the Hemithea Sanctuary and is situated on a natural rocky ridge on Mont Eren, in the Pazarlık (Pazaryeri) area,⁵ approximately 2 kilometers south of Hisarönü Bay in the district of Marmaris, Muğla Province. (fig. 1). The name "Kastabos" is believed to derive from the Carian language, meaning "Temple Plain."⁶ The Hemithea Temple, located within the sanctuary, was constructed on a large platform built with polygonal masonry to accommodate the structure. The platform measures 54.5 meters east-west and 34 meters north-south, with some sections reaching a height of 7 meters. The temple itself is Ionic in style, with slight Doric influences, and is dated to the second half of the 4th century BCE. However, archaeological evidence indicates that the site has a much earlier sacred history, extending back to the Archaic period.⁷ Remains suggest that the Ionic temple was built atop a preexisting cult structure. Numerous small votive finds have been recovered on the rocky slope southeast of the temple, in an area designated by the excavation team as the "Rock Cult Area." This area strongly suggests that the Hemithea cult was not limited to the Hellenistic period but was part of a much older religious tradition.⁸ The sanctuary's elevated location overlooking Hisarönü Bay (fig. 2) would have enhanced its symbolic and spatial isolation, reinforcing its suitability for healing and ritual incubation.

⁴ The new period of excavation, research and restoration works in Kastabos / Hemithea Sanctuary started in 2022 under the scientific responsibility of Assoc. Prof. Dr. Salih Kaymakçı under the presidency of Marmaris Museum and continues.

⁵ Cook and Plommer 1966, 11.

⁶ Umar 1993, 401-2.

⁷ Kaymakçı 2023, 425-41.

⁸ Held and Wilkening-Aumann 2015; See also Wilkening-Aumann 2021, 122.

The glass objects discussed in this article were uncovered during the renewed archaeological excavations that began in 2022 at the sanctuary⁹ located within the territory of the ancient city of Bybassos. Although glass is considered an important group of archaeological material—comparable in value to ceramics—it has not received equivalent scholarly attention. In particular, glass finds such as flat beads, whose functions remain unclear, have often been overlooked in the literature.¹⁰ While such objects are frequently recovered during excavations, they are rarely illustrated or photographed in publications. They are seldom inventoried, documented, or fully published, and thus remain understudied or poorly understood. This neglect may stem from the perception that these objects are insignificant or from difficulties in classification due to variations in terminology and function. In the literature, these artifacts are inconsistently referred to as ring stones, appliqués, game pieces, or generic glass items—often without detailed analysis. On the other hand, research into glass production has a long and well-established scholarly tradition.¹¹ Despite the challenges posed by limited references to similar items in the literature, the concentration of these glass finds in sacred areas of the Carian Chersonesos underscores their potential significance (fig. 1). The layout of the cultic architecture and excavation zones in the sanctuary is illustrated in fig. 3, highlighting the naiskos and Rock Cult Area, where the majority of the glass votive beads were unearthed.

Beginning in the early phases of the Hellenistic period, the Carian Chersonesos came under Rhodian control and became known as part of the Rhodian Peraea.¹² During this time, the region hosted a population composed of both Carian and Dorian communities.¹³ The cultural interaction fostered by Rhodian presence on the peninsula is particularly evident in the sphere of religious practices. However, it is important to emphasize that such interactions far predate Rhodian political dominance. Since the Minoan period, a broader trade network had already connected regions such as Egypt,¹⁴ Phoenicia,¹⁵ Crete,¹⁶ Cyprus, Anatolia, mainland Greece, and Rhodes.¹⁷ This network facilitated not only commerce but also deep-rooted cultural exchanges among these diverse societies. Therefore, rather than viewing Rhodian¹⁸

⁹ Diod. Sic. 3.5.62-63.

¹⁰ Taştemur 2018, 224.

¹¹ Brill 1970, 1988, Brill and Stapleton 2012, Henderson 2013, Turner 1956.

¹² Badoud 2011, Bresson 2003.

¹³ Hicks 1889, 50.

¹⁴ Egyptian culture, situated in a strategically advantageous position in the Mediterranean, commenced exerting an impact on Italy and Asia Minor from the 8th century BC onwards. The period during which Egyptian artefacts first appear in Italy and on the Greek mainland generally spans the interval between the 8th and 6th centuries BC. The earliest evidence of Egyptian artefacts in western Anatolia was found in Rhodes, where numerous artefacts of Egyptian origin were unearthed, particularly in the city-states of Lindos, Ialysus and the Sanctuary of Athena in Kamiros. This influence, which originated in Rhodes, persisted with the emergence of diverse Egyptian- or Egyptian-inspired artefacts in locations such as Miletos, Ephesos, Klazomenai, Erythrae, Phokaia in Ionia; Sardes in Lydia; Additionally, there are examples of Egyptian influence in Stratonikeia, Pedasa, Datça / Emecik and Iasos in Caria; and Smyrna, Kyme, and Antandros in the Troad in Aeolis See Durnagözü 2024, 22. For further information, please refer to Hölbl 2008.

¹⁵ For further information, please refer to Üçler 2022.

¹⁶ The relationship between Crete and Tenedos and the surrounding coasts is reflected in their belief systems, as evidenced by the double-headed axe and the temples dedicated to Apollo Smintheus. Farnell posits that the role of Hemithea in the foundation myth of Tenedos should be evaluated in terms of these relations. See Farnell 1907, 161-66.

¹⁷ Villing 2022.

¹⁸ From the Late Bronze Age onwards, Rhodes played an important role in commercial and, of course, cultural relations in the Eastern Mediterranean due to the strategic impact of its geographical position. See Apostola and Kousoulis 2019.

influence over Caria as a one-sided cultural imposition, it is more accurate to interpret the process as mutual and multi-layered. This complex dynamic, which can be described as acculturation, continued throughout the Hellenistic period, with political control merely adding another layer to ongoing cultural transformations. In this context, the construction of a temple dedicated to Hemithea at Kastabos during this period gains particular significance. The glass votive beads found in this sanctuary—situated on a large terrace and dated to the second half of the 4th century BCE—are evaluated in light of this broader framework of cultural interaction and religious continuity.

2. Identification of Glass Finds and Interpretative Approaches to Their Function

From prehistoric times to the present, humans have attributed sacred qualities to various objects.¹⁹ The sanctification of these items is often linked to their function as a *hierophany* (a manifestation of the sacred) or their capacity to recall a mythical act. Sacred objects are regarded as symbolic carriers of an external force endowed with profound meaning, perceived as distinct from ordinary human existence. Rituals, in this sense, serve as microcosmic reflections of a society's social and cultural accumulation. A ritual is expressed through a symbolic language, which does not necessarily need to be verbal. Objects, actions, words, relationships, events, and spaces within a ritual all serve as elements bearing symbolic meaning. These components function as carriers of meaning within the ritual process and contribute to the reproduction of social values. Cultural anthropologist Victor Turner emphasizes that the symbol is the most fundamental unit of ritual, highlighting how symbols store deeper meanings beyond the visible and serve as instruments of cultural memory.²⁰ Meteorites, in particular, occupy a significant place in the mythologies and belief systems of many cultures. These stones are considered to possess celestial origins and are imbued with magical powers, gaining meaning through their symbolic use. Within this symbolic framework, lapis lazuli—a deep blue stone—is regarded as having celestial attributes akin to turquoise or malachite and is believed to embody the magic of the starry sky²¹; hence, its color plays a crucial role. In this context, it is important to underscore that the belief in sacred stones is still present in contemporary Anatolia. As previously discussed, in Anatolia, stones that adhere to certain surfaces during wish-making rituals are called 'wish stones.' These practices are especially observed at places associated with sacred power.²² In these rituals, it is believed that if the stone sticks to the designated spot, the wish will come true.

The identification of the glass objects discovered within the Kastabos Hemithea sanctuary between 2022 and 2024, specifically in areas designated as the Rock Cult Area and the naiskos / stoa / abaton complex, presents a particular challenge. The transitional zone between the theater and the sanctuary core—excavated as Trenches D, E, F, and G—produced the highest concentration of plano-convex glass beads, suggesting intentional votive activity in a ritual

¹⁹ Eliade 1994, 18.

²⁰ Turner 1956, 39.

²¹ Eliade 2017, 161-65.

²² In the Yerkesik region of Muğla, it is still common for women seeking to conceive to visit sacred sites such as shrines (*eren*), tombs, or *yatus*. During these visits, they make wishes, tie pieces of cloth to sacred trees, and leave symbolic offerings like coins, written notes, buttons, or beads. For ethnographic accounts of this practice, see Bozdağ and Göde 2022. Similar customs are also observed in other parts of Anatolia. For example, at the "Dikili Sultankız Dede" shrine in Bergama, women place offerings on the bed located at the site as part of fertility rituals. See Eriş 2009.

passageway.²³ As shown in fig. 16, Trench C and Trench E align with core ritual areas, while Trench F occupies a transitional space within the sanctuary complex. These objects were recovered from multiple stratigraphic soundings across spatially distinct cultic zones of the sanctuary. According to excavation reports, the Rock Cult Area consists of a carved natural platform featuring steps and votive niches, while the naiskos / stoa / abaton complex is interpreted as a monumental architectural unit likely associated with healing and incubation rituals. The Rock Cult Area consists of a carved platform with votive niches and steps (fig. 5), suggesting a long-standing space of ritual practice. Most of the plano-convex glass beads were recovered from Hellenistic stratigraphic layers—especially from contexts datable to the late 4th and 3rd centuries BCE. While formal parallels exist in other archaeological contexts (e.g., Knossos, Bodrum, Olympos, Karanis, Nimara), these comparative examples span a broad chronological and geographical spectrum. Morphological comparisons can be drawn with plano-convex specimens from Hellenistic Rhodes (fig. 14), as classified by Weinberg (1969). As such, they are not directly used to establish dating but rather to highlight morphological similarities and symbolic uses. Therefore, the chronological assessment of the Kastabos beads relies not solely on stratigraphy but on a multi-layered framework, including their association with cultic architecture, the absence of wear or attachment traces, and the broader ritual context of their deposition.²⁴

Referring to these finds simply as “glass beads” would be inaccurate, as they lack the perforations characteristic of beads used in adornment, and their shape is distinct (fig. 6). These plano-convex glass pieces, with one flat side, require careful interpretation.²⁵ To determine their function, it is necessary first to understand how they might have been used. In the literature, one suggestion is that such objects may have served as appliqués.²⁶ When first discovered at Kastabos—specifically within the cultic structures such as the naiskos and the Rock Cult Area—we also considered the possibility that these might have been decorative fittings from a piece of furniture.²⁷ However, the discovery of a total of 107 such objects in varying colors and sizes but of the same plano-convex type suggests another interpretation. The large number of specimens, their standardized form, and their color variation further support the hypothesis that these were votive in nature. These objects range in color from dark blue and turquoise to amber and green, and their diameters generally fall between 1.1 and 1.4 cm, with weights ranging from 0.59 g to 2.5 g. A majority were recovered from the Rock Cult Area and the naiskos, with a smaller proportion found in the stoa and abaton, all in clearly ritual contexts. A summarized table of their typological and contextual distribution is provided in Chart 1, figs. 5-16 illustrate the color and morphological diversity of the plano-convex glass objects recovered from the Kastabos sanctuary. This visual sequence highlights not only their standardized form but also the deliberate variation in color—ranging from dark blue, light blue, and turquoise to amber, green, and yellow—suggesting that color itself played a symbolic role in their votive function. The spatial distribution of the plano-convex glass beads recovered during

²³ See fig. 4 for the spatial layout of these architectural zones and the trenches yielding the highest bead concentrations.

²⁴ Kaymakçı 2023, 428-31, figs. 5-7, 12-13.

²⁵ Selvi-Bener 2013, 75.

²⁶ Larson 2016, 77.

²⁷ In the second half of the first millennium, glass was employed in the production of funerary and domestic furniture, as well as furniture intended for use in religious contexts. The inlays were crafted in open, reusable stone or terracotta moulds. Prior to the Hellenistic period and throughout the Bronze and Iron ages, intricate polychrome glass inlays were utilized in the creation of furniture and architectural embellishments within the administrative, religious, and funerary realms of Mesopotamia, Syria, Greece and Macedonia. See Larson 2016, 76.

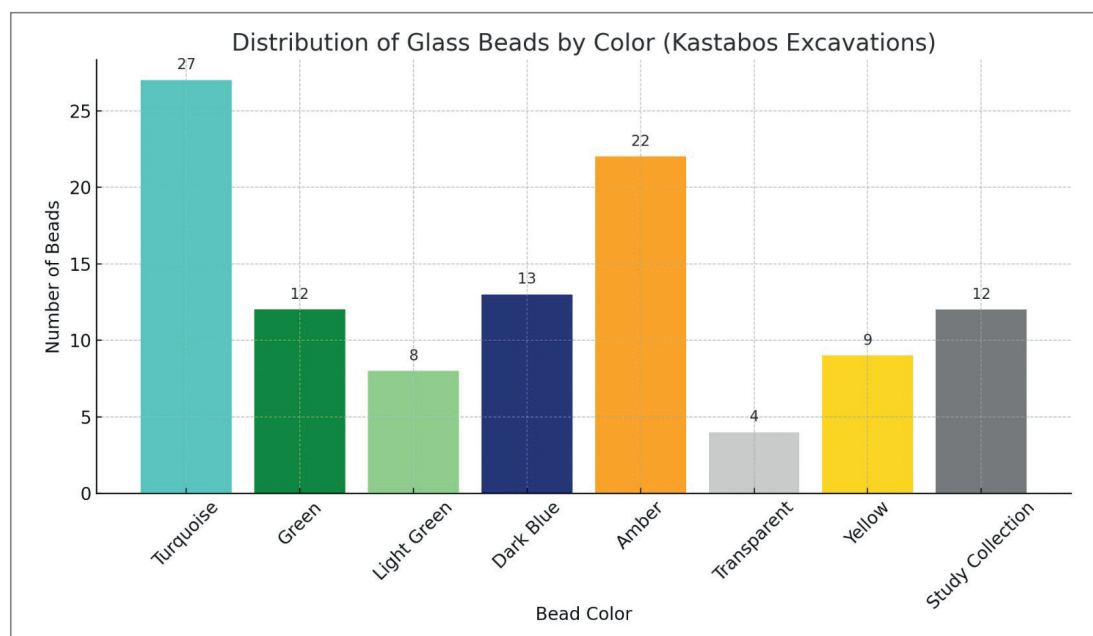


CHART 1 Distribution of plano-convex glass objects by color found at the Kastabos Sanctuary (2022-2024 excavations). The beads were discovered in two main areas: Trench D, F (naiskos / stoa complex) and Trench G (Rock Cult Area). The category “Study Collection” refers to fragmentary or damaged specimens excluded from the main classification.

the 2022–2024 excavations is illustrated in fig. 16. These beads are particularly concentrated in sacred architectural zones such as Trench C (the naiskos / stoa / abaton complex) and Trench E (the Rock Cult Area). This plan visually emphasizes the relationship between bead distribution and the sanctuary’s cultic architecture. As is well known, the study of votive offerings can provide insights into the role of a deity and its sanctuary in civic or regional religious life.²⁸

The plano-convex glass objects recovered from Kastabos are characterized by standardized dimensions, generally ranging between 1.1 cm and 1.4 cm in diameter, with weights varying from 0.59 g to 2.5 g. All specimens are undrilled and exhibit a distinct plano-convex profile, with one flat and one domed side. Based on visual inspection, the pieces appear to have been formed using a drip-casting technique rather than mold-blowing or free-blowing methods, as suggested by their irregularities and the presence of small air bubbles within the glass matrix. The plano-convex glass beads from Kastabos carry both symbolic / cultic significance and provide valuable insights into ancient glass production techniques. Based on their morphological characteristics and surface textures, these artifacts appear to have been produced either through open-face casting or, more plausibly, via a free-form drip-casting method. Due to its low technological demands, this technique was commonly employed in antiquity, especially for small-scale production. In this method, soda-lime glass is melted and carefully dripped from a glass rod onto a heat-resistant surface such as worked clay, stone, or graphite. Upon contact with the surface, the underside of the droplet naturally flattens to form the “plano” side, while the top, shaped by surface tension and gravity, assumes a domed, “convex” profile.²⁹ To

²⁸ Patera 2006, 363.

²⁹ Henderson 2013.

prevent adhesion, the surface was likely dusted with a fine layer of ash, sand, or other insulating materials. The droplets were then left to cool gradually in a controlled environment to minimize the risk of thermal shock. Given the small size of such beads, this cooling could often be achieved in basic conditions, such as within ash beds or near the edge of a kiln. The presence of air bubbles within the glass matrix reflects the technological limitations of ancient glass working practices and the nature of the raw materials.³⁰ During free-form dripping or open casting, gas bubbles could form due to residual organic matter or chemical reactions—such as CO₂ release from soda-based compounds. Insufficient homogenization, limited temperature control in ancient kilns, and the entrapment of air during deposition further contributed to the presence of these bubbles. This production method proved especially effective for creating small-scale ritual objects, including beads, votive items, and decorative components. Moreover, the inherent variability in shape and color—caused by differences in glass volume, dripping rate, and surface interaction—may have been intentionally embraced to enhance the visual and symbolic appeal of the finished objects, reinforcing their perceived ritual efficacy.

Their surfaces are uniformly matte and slightly rough to touch, lacking the glossy finish typically associated with decorative or functional glass objects. The material is semi-translucent, and the internal structure reveals varying degrees of opacity and layering. The absence of wear, adhesive residue, or mechanical shaping supports the assumption that these objects were not produced for applied functional purposes, such as mosaic inlays or decorative fittings. Moreover, in none of the 107 specimens was any indication—visible to the naked eye or through tactile examination—of bonding agents or application traces detected. Equally, no associated architectural or furniture components were recovered from the site to suggest that these objects were once affixed or mounted as appliqués. The absence of perforation also rules out their use as adornments in the traditional sense. The consistency in form, along with the distribution of colors—such as dark blue, green, amber, and light turquoise—may suggest a deliberate typology aimed more at symbolic or ritual purposes than aesthetic variety, thereby strengthening the interpretive framework proposed here. Building on this technical assessment, the following section explores possible interpretations of these objects by considering comparative material and functional parallels.

Similar objects have occasionally been identified in the literature as ring stones. As is well known, ring stones—*gemma* in Latin—are defined as engraved and polished stones, typically crafted from precious or semi-precious materials and used in jewelry. Glass imitations of these stones were likewise considered sacred. Most examples are shaped using tools—either carved in negative (intaglio) or molded in positive (relief)—though some simpler forms were valued for their color alone.³¹ However, the Kastabos examples are unlikely to have served such a function. Their dimensions are not appropriate for use as rings, and none of the specimens exhibit signs of carving or tooling. In addition, comparable unworked specimens found at other Carian sanctuaries—such as Nimara Cave and the Apollo Sanctuary at Emecik,³²—reinforce the conclusion that these objects were not intended as ring stones.³³

³⁰ Nicholson 2007.

³¹ Aslan and Yeğın 2021, 117.

³² In addition to the references to Apollo in the myths where Hemithea is mentioned, it is evident that the cult of Apollo was a prominent feature of Carian society, with its distinctive characteristics and sacred sites. The caves within the precincts of the two Apollo sanctuaries in Knidos are of particular significance in this regard.

³³ Comparable plano-convex glass beads have also been documented at other sanctuaries in the Carian region, such as the Nimara Cave and the Apollo sanctuary at Emecik. These specimens are currently housed in the repository of the Marmaris Museum, providing further evidence for the regional distribution and cultic use of this votive form.

The primary rationale for interpreting the glass objects found at Kastabos as votive beads lies in their archaeological context. These items were discovered in meaningful stratigraphic positions within the sanctuary's key ritual structures, such as the Rock Cult Area, the *naiskos*, and the *abaton*, and were found in a homogeneous distribution. Their formal features—plano-convex shape, standardized diameter, and variation in color—also indicate that they are not randomly discarded fragments but complete objects deliberately deposited. No evidence of adhesive residues, wear from use, or associated finds suggesting functions such as mosaic inlays, vessel rims, or furniture ornaments has been observed. Similar beads of comparable form and color have been found at other sanctuaries in Anatolia and the Eastern Mediterranean, where they are typically identified as votive objects. Therefore, the interpretation of the Kastabos examples as votives is consistent with both archaeological data and comparative regional parallels. This interpretation is not based solely on formal resemblance but is grounded in contextual archaeological evidence and reinforced by comparable cultic finds throughout the Eastern Mediterranean.

Comparable examples of these glass beads have been found in Roman Egypt, particularly at Karanis.³⁴ Harden³⁵ interpreted these finds as gaming pieces, drawing on references by Latin authors,³⁶ to a board game involving glass stones, described as a type of draughts played between black and white pieces. This interpretation was based on the discovery of these objects in urban and rural domestic contexts, often found in sets composed of two contrasting colors. However, Harden's theory has not been universally accepted, and alternative interpretations of similar objects appear in the literature.³⁷ Although some plano-convex glass objects from Roman contexts—such as those illustrated in fig. 6—have been interpreted as game pieces, the Kastabos specimens lack key features such as color pairing, use traces, or secular findspots that would support this function. Therefore, the contextual provenance and chronological setting of such items are of critical importance. The discovery of a large number of these glass objects within a sanctuary dedicated to a goddess associated with women and childbirth makes it difficult to accept that they were used in gaming. Ancient sources describing the game known as *Latrunculi* characterize it as a strategic game; even if the game or its precursor was known during the Hellenistic period, this does not explain the presence of these glass objects in sanctuaries, particularly in Anatolia. Beyond their sacred contexts, the fact that the examples from Kastabos and elsewhere in Caria are not limited to two color groups but instead appear in a variety of colors is another important detail that casts doubt on the gaming theory.

As previously mentioned, it is significant that similar plano-convex glass beads have also been discovered at Nimara Cave in Marmaris, a site that archaeological research has identified as having functioned as a temple and votive space in antiquity. In this context, ancient beliefs that associated caves with the womb carry symbolic relevance. Furthermore, as discussed in earlier sections, the color of the glass finds and their resemblance to imitations of natural stones, their possible use in birth-related rituals, and their association with the concept of *ap-
bidryma* all strengthen the argument that these glass objects are votive in nature and related to cultic practices. Therefore, in our view, referring to these objects found in sacred contexts

³⁴ Although the finds from Karanis date to the Roman period, their ritual context reflects a syncretic fusion of Greco-Roman and Egyptian traditions. cf. Yandek 2013.

³⁵ Harden 1936, 291-94.

³⁶ Austin 1934; *CPL* 1833; Ov. *Ars am.* 2. 208; Mart. *Spect.* 14.20; See Trowbridge 1922, 183.

³⁷ Meyer 1988, 195, fig. 7.Z.

as “glass votive beads” is a more accurate interpretation. In addition to Nimara, a comparable example has been found in the Uyuzdere Cave in Metropolis, a site known to be associated with the Mother Goddess cult.³⁸ Although this particular piece has been suggested to function as a game piece, its form and color are identical to the specimens from Kastabos. Moreover, six similar examples recovered from the Lower Bath-Palaestra complex at Metropolis have been dated to the Roman Imperial period and interpreted as game stones.³⁹ Beyond these, 68 plano-convex glass beads housed in the Bodrum Museum—reportedly discovered around Kızılağaç and Kayırlı—date to the 1st century CE. Their diameters, colors, and forms closely resemble those found at Kastabos.⁴⁰ Typically made of translucent glass in shades of light green, blue, and dark green, they were produced using the casting technique. These 1st-century beads from the Early Roman Imperial period feature a domed upper surface and a flat base.⁴¹ Notably, the publication by Harden also references similar examples.⁴²

A similar example of these glass objects has been found at Limyra in the region of Lycia, although it has not been precisely dated;⁴³ it has been interpreted either as a ring stone or an appliqué. Additionally, plano-convex glass beads have been discovered in Olympos (Episkopeion), dated between the 4th and 7th centuries CE. These artifacts have been compared to the specimens from Roman-period Egypt at Karanis, where similar forms were interpreted as gaming pieces.⁴⁴ Of course, the chronological context of these objects is critical, as it suggests that the function of plano-convex glass items⁴⁵ may have shifted over time and that they might have been repurposed for games of chance in later periods. It is also worth noting that in antiquity, certain board games were buried as offerings or gifts in royal tombs—such as those in the Royal Tombs of Ur and the tomb of King Tutankhamun.⁴⁶ This suggests that gaming pieces could serve not only as tools of leisure or social interaction but also as spiritually charged objects employed in rituals of divination or protection. Their use in religious contexts highlights the deep symbolic significance attributed to them in ancient societies. One of the most illustrative examples is the use of knuckle-bones, which fulfilled ritualistic functions in divinatory practices while also serving secular roles as toys for both children and adults.⁴⁷

Similar objects believed to be comparable were reportedly found at Knossos during Arthur Evans’s excavations in the Middle Minoan IB period. Although Evans described these finds as faience beads, he provided limited information regarding their form.⁴⁸ He mentioned that they were cobalt blue and pale green in color and included a single image—albeit not very clear—of one potentially comparable specimen on a single plate. If these objects are indeed similar

³⁸ Ekin Meriç 2007, 43, pl. 124, C2, C3.

³⁹ Akkuş Koçak 2021.

⁴⁰ See fig. 14

⁴¹ Özet 1998, 92, fig. 53.

⁴² Harden 1936, 289-94, pl. 21.897; De Juliis 1989, 459, fig. 24.

⁴³ Baybo 2016, pls. 19, 86, T-310, T-311, 94.

⁴⁴ While the Karanis finds are structurally similar, their identification as game pieces—often found in black and white sets—suggests a different functional and possibly symbolic context. The Graeco-Roman or local Egyptian religious attribution of these finds remains ambiguous, thus requiring caution when drawing parallels to Anatolian cultic objects.

⁴⁵ Erçin 2021, 291-94.

⁴⁶ See Hall 2011.

⁴⁷ See for more information Mazzorin and Minniti 2013.

⁴⁸ Evans 1921, 169, 170, fig. 120.

in form to those found at Kastabos, particularly plano-convex glass beads with a flat side, they could be considered additional evidence supporting a possible link between Crete,⁴⁹—and by extension the cult of Eileithyia—and the worship of Hemithea.⁵⁰

Beyond Anatolia, comparable glass objects have also been identified in Crete and Egypt. Their presence in Rhodes, therefore, is hardly surprising. In addition to its role in the spread of glass production, the island also exerted a significant religious influence on Caria, making it especially relevant to the present study. The cult of Rhodes' principal deity, Helios, is attested in major Carian cities such as Knidos⁵¹ and Lagina, illustrating this cultural and religious connection.⁵² Rhodian coins discovered in Carian excavations—minted after the synoikismos of 408 BCE—typically depict the head of Helios on the obverse and a rose motif on the reverse, further underscoring this influence. In the context of religious exchange, it is also worth noting the remains of a workshop at the Athenagoras A site on the island, dated to the Hellenistic period. Approximately 850 glass objects of various sizes and colors were uncovered, some featuring multicolored stripes or dots. According to Weinberg, about half of these were dark blue, more than a third were aquamarine, and the rest were in shades of brown, with a small number in green, transparent, or light blue hues. These items were interpreted as either ring stones, game pieces, or flat objects.⁵³

Given the morphological similarities between these Rhodian finds and the Kastabos specimens, it is plausible that they too were produced for use as votive glass beads. This hypothesis gains further support from the fact that the Kastabos / Hemithea sanctuary was frequented by many visitors from Rhodes during the Hellenistic period. Consequently, it is reasonable to interpret the Rhodian workshop examples as material expressions of religious belief. The plano-convex glass beads from Kastabos have been dated to the Hellenistic period, consistent with the dating of the sanctuary's monumental architecture, particularly the Ionic temple platform constructed in the second half of the 4th century BCE.

Table 1 summarizes the comparative characteristics of similar bead finds across different regions and periods. The examples included in the table were compiled based on available data, reflecting the temporal and geographical diversity of plano-convex glass finds documented across the ancient Mediterranean. While there is considerable diversity in their cultural contexts and dating, the formal similarities—particularly in shape, color, and ritual function—justify their inclusion for comparative purposes. Some of these artifacts are referenced only in limited archaeological reports or museum inventory records and have not yet been fully published; however, based on the available descriptive data, they appear to share typological similarities with the Kastabos examples. Moreover, the regions cited here—such as Caria,

⁴⁹ In Minoan culture, the absence of man-made structures such as temples suggests that natural environments and partially structured landscapes served as central spaces for religious activities. In lieu of erecting temples, the Minoans chose to monumentalize natural settings through the performance of rituals within these environments, which were already imbued with a sense of grandeur. This close association between rituals and nature serves to highlight the pivotal role that the natural world played in Minoan spirituality. Natural elements were deliberately incorporated into rituals, thereby enhancing the spiritual experiences of those participating in them. Through the veneration of nature and the performance of rituals in these organic spaces, the Minoans reinforced social identities and spiritual connections, thereby demonstrating that nature was not merely a backdrop but an integral part of their belief system.

⁵⁰ Oğuz Kırcı 2022.

⁵¹ Fraser and Bean 1954, 52-74.

⁵² HNO 679; Konuk 2020, 246. For similar examples, see Kaymakçı 2023, 425-41.

⁵³ See fig. 14; Weinberg 1969, 146, pl. 80b.

Lycia, Rhodes, Crete, and Egypt—were engaged in sustained cultural interaction throughout the Hellenistic and Roman periods, a phenomenon well-attested in both archaeological and textual sources.⁵⁴

TABLE 1 Characteristics of glass bead and stone finds from Kastabos and surrounding archaeological sites.

Discovery Site	Number of finds	Colors	Identification type	Dating Period
Kastabos Sanctuary	107	Dark Blue, Green, light green, Yellow, Amber, transparent	Glass votive beads	Hellenistic period
Nimara Cave	500	Blue, Green, Amber	Glass votive stones	Unspecified
Metropolis Uyuzdere Cave	6	Blue, Green	Game stone or votive stone	Roman Imperial period
Bodrum	68	Light Green, Dark Green, Blue	Ring stone or votive stone	1st century AD
Limyra	1	Unspecified	Ring stone or appliqué	Unspecified
Olympos	5	Blue, Green	Game stone	4th-7th century AD
Knossos	Unspecified	Cobalt Blue, Pale Green	Faience bead	Middle Minoan IB Period
Rhodos	850	Various Colors	Ring stone or game stone	Hellenistic period
Egypt/Karanis	Unspecified	Black, White (Game Stone Sets)	Game stone	Roman period
Apollon Emecik Sanctuary	Unspecified	Unspecified	Ring stone or votive stone	Unspecified

It is hypothesized that the glass beads unearthed at Kastabos were used for protective and healing purposes, particularly during critical life stages such as childbirth and the puerperium. These beads were likely offered to the goddess Hemithea as symbolic votives, invoking her protective powers. Although the precise production centers of these glass beads remain unidentified and the number of comparable sites is limited, the consistent presence of similar plano-convex glass finds in cultic contexts across regions suggests a shared symbolic function rather than isolated or coincidental use. Their presence indicates that the Kastabos sanctuary was actively engaged in the broader cultural and religious exchange networks of the ancient Mediterranean. The form and coloration of the beads reflect shared ritual traditions with surrounding societies and reveal Kastabos' participation in a wider cultural sphere. Rather than being isolated individual offerings, the glass beads served as ritual objects that embodied the collective belief of the community in divine protection, healing, and fertility. Through the cult of Hemithea, society articulated its communal desire for supernatural safeguarding and well-being.

⁵⁴ Villing 2022, Buraselis 2000, Papalexandrou 2010.

3. Healing, Fertility, and Divine Intercession: Hemithea in Cultic Practice

The broader cultural meaning of these votive objects becomes clearer when considered in relation to the goddess Hemithea and her sanctuary at Kastabos. In ancient belief systems, the quest for healing, childbirth, and postpartum care played a significant role in directing individuals—especially women—toward sanctuaries.⁵⁵ Within this framework, the cult of Hemithea stands out as one of the rare deities associated with personal healing and fertility. In Greek mythology, Hemithea appears in two different narratives, the first of which identifies her as the sister of Tennes.⁵⁶ Considered a semi-divine figure, Hemithea is described by Diodorus Siculus as a healer. He also recounts that a woman named Molpadia,⁵⁷ brought to the region by Apollo,⁵⁸ was worshipped under the name Hemithea, and a temple was built in her honor. This temple reportedly maintained its fame for a long time and attracted processions of people who offered splendid and costly votives. Beyond Diodorus' accounts, the name Hemithea has also been attested archaeologically—specifically, on the handle of a hydria unearthed during the initial excavations at Kastabos in the 1960s.⁵⁹ Additionally, the Gölenye stele, dated to the 3rd-2nd centuries BCE and discovered near Amos (modern İçmeler), provides further insight into the goddess.⁶⁰ This inscription, much like Diodorus' narrative, refers to large groups of visitors who came to seek healing from the deity.⁶¹

Diodorus also emphasizes that Hemithea, in addition to her healing attributes, possessed qualities that aided women during childbirth in Chersonesos.⁶² As is well known, pregnancy, childbirth, and the postpartum period involve many risks for both mother and child even today.⁶³ In antiquity, these dangers often resulted in the loss of young lives. These stages were considered vulnerable times during which women were believed to be especially susceptible to the influence of malevolent supernatural forces.⁶⁴ Newborns and young children were likewise viewed as defenseless against spiritual, magical, and otherworldly threats.⁶⁵

⁵⁵ Çiğır Dikyol 2021.

⁵⁶ Plut. *Quaest. Graec.* 28; Oğuz Kırca 2022.

⁵⁷ Diod. Sic. 5.62-63.

⁵⁸ Apollo is known to have been worshipped in Sparta under the epithet Karneios in the same sanctuary as Artemis Hegemone and Eileithyia. See Baur 1902; Pingiatoglau 1981.

⁵⁹ Bresson 1991, nos. 39, 66

⁶⁰ Bresson 1991, nos. 44, 68-72.

⁶¹ Fraser and Bean 1954, 170-71; Bresson 1991, nos. 44-45, 68-74.

⁶² Hemithea's association with childbirth and maternal figures can be elucidated through the lens of the mother goddess concept. The mother goddess represents a powerful and pervasive imaginative phenomenon that underlies the relationship between humans and their environment. It is widely accepted within the academic community that the female figurines, commonly referred to as 'Palaeolithic Venus Figurines' in the literature, which often feature prominently displayed fertility organs, symbolize the goddess. The initial depiction of fertile women gradually evolved into the image of a goddess assisting in childbirth. From the Early Bronze Age onwards, this image transformed into that of a goddess who nurses and raises her child and protects the family. The figurines found in the sanctuary of Kastabos similarly include examples depicted in the form of a nursing child. See Kaymakçı 2023, 425-41.

⁶³ Hippoc. *Nat. puer.* 30.11; *Mul.* 1.1, 36, 42, 46, 72; Dierichs 2002, 87.

⁶⁴ In a passage, Euripides emphasises the pain and difficulty Medea endured while giving birth to her children, stating that her efforts were in vain: "I see that it was in vain that I brought you up, in vain that I laboured and struggled with difficulties, in vain that I endured severe pains in childbirth" (Eur. *Med.* 1029-30). This sentiment is echoed by Hippocrates in his treatise Hippoc. *Nat. puer.* 18.2. For further accounts of the pain associated with childbirth, see Plaut. *Aul.* 692-93; Ter. *Ad.* 486-87; Ter. *An.* 473.

⁶⁵ It is now established that a number of rituals and practices are associated with these beliefs, particularly in Anatolia.

It appears that ancient belief systems incorporated healing practices to mitigate these risks. Women seeking to give birth safely and raise healthy children often turned to divine intervention. At least nine major deities in the Greek pantheon were venerated in connection with fertility, pregnancy, and childbirth.⁶⁶ These included Artemis,⁶⁷ Aphrodite,⁶⁸ Asclepius, Athena, Demeter, Eileithyia,⁶⁹ Hera, Leto, and Zeus. In addition, goddesses of Egyptian origin, such as Isis⁷⁰ and Bastet,⁷¹ were also invoked in prayers and offerings for similar purposes.

It is noteworthy that among the deities listed, Artemis and Eileithyia—while associated with aiding childbirth—were also feared for their potential to inflict pain and difficulty during labor.⁷² Given the inherently dangerous nature attributed to deities who controlled fertility and childbirth, rituals were often designed to gain their favor and ensure their continued benevolence. However, Hemithea stands apart from these deities in a significant way. Her status as a semi-divine figure and her reputed ability to communicate through dreams distinguish her in this context. Much like Asclepius,⁷³ Hemithea was believed to deliver healing in dreams. It is understood that priests or priestesses serving in her sanctuary interpreted these dreams and guided the therapeutic, fertility-enhancing, and birth-supporting practices accordingly.⁷⁴

The sanctuary of Kastabos should be regarded as the spatial embodiment of this cultic context. The glass beads found at the site are thought to be especially associated with rituals of healing, fertility, and postpartum care. These objects, dedicated to the cult of Hemithea, not only reflect religious affiliation but also embody the individual pursuit of protection and spiritual support.

In addition to the worship of the aforementioned goddesses, certain natural stones believed to be sacred were used—especially for their colors and material properties—as protective items by sick and pregnant women. Pliny speaks at length about the magical properties of stones

⁶⁶ Soykal Alanyalı 2005, 299.

⁶⁷ The cult of Artemis was frequently associated with those of Eileithyia and Hecate, the goddesses of childbirth. For an examination of the relationship between Hemithea, a local goddess, and Eileithyia and Artemis, see Oğuz Kırca 2022; Işık 2020, 439.

⁶⁸ Additionally, Aphrodite was occasionally venerated as Kourotropfos, particularly in Cyprus, where a considerable number of children were dedicated to her sanctuaries. Ulbrich 2010.

⁶⁹ Although Eileithyia is traditionally regarded as the daughter of Zeus and Hera in Greek mythology, archaeological evidence suggests that she was in fact a goddess worshipped in Crete from the Bronze Age onwards. For further details, see Betancourt 2022.

⁷⁰ Isis was associated with a temple in Alexandria that was constructed with the specific purpose of protecting pregnant women (Delia 1999, 547). It is also pertinent to note that Herodotus reports that pigs were not sacrificed to the gods in Egyptian worship and were considered unclean (Hdt. 2.47). Indeed, the sacrifice of pigs was also proscribed in the worship of Hemithea. In the section of his account where Herodotus describes the practices of the Egyptians during the festival of Isis, he also mentions the Carians who settled in Egypt during this festival. He states that, in contrast to the Egyptians, they cut their faces into slices with knives (Hdt. 2.65). Additionally, Isis was identified with the Greek moon goddesses, particularly Eileithyia.

⁷¹ Associated with Isis by the ancient Egyptians, Bastet's cat-headed image was thought to be related to her being a goddess of pregnancy and childbirth. The Greeks sometimes identified her with Artemis. See here: Delia 1999, 545-46.

⁷² Hom. *Il.* 11.265-70.

⁷³ See Askitopoulou 2015.

⁷⁴ It is documented that in the Asclepieion in Pergamon, the priests were responsible for interpreting the dreams of those seeking healing in the temple and assisting with the treatment. A comparable practice was observed in the village of Akharaka (Salavatlı), situated in close proximity to the cave designated as Kharonion, located between the ancient cities of Tralleis and Nysa. This is corroborated by Strab. 14.1.44. Additionally, the Hittite texts contain references to practices in Anatolia that involved seeking healing through dreams. See Erginöz 2022. Other temples outside Anatolia where similar practices are known to have been carried out include the Asclepius temple at Epidaurous and the Amphiareion at Oropos on the Greek mainland. Lupu 2003.

while critically addressing the claims of Persian magi regarding superstitions.⁷⁵ For example, agate was believed to protect against bites from spiders and scorpions; hematite was thought to be beneficial for eye and liver ailments, and amethyst was believed to ward off drunkenness.⁷⁶ In the Archaic and Classical periods, stones played an important role in the ancient Mediterranean both as material objects involved in ritual practices and as symbolic elements in mythological narratives.⁷⁷ Among the stones believed to have healing power, the most commonly used were agate, amethyst, garnet, chalcedony, carnelian, hematite, and jasper.⁷⁸

At this point, it is important to highlight the term *apbidryma*,⁷⁹ mentioned in a passage by Strabo related to Artemis. This term refers to an object believed to carry divine power, enabling the reproduction or transmission of a cult from one location to another.⁸⁰ In this context, it is plausible to suggest that the aforementioned stones—and by extension, the glass votive beads studied here, which are known to have been made as imitations of such stones—may have served this function. Moreover, *apbidryma* was believed to create an invisible link between a main sanctuary and its affiliated cultic spaces. As a condensed representation of divine presence,⁸¹ it was imagined to contain the “DNA” of the deity, facilitating a spiritual connection between the divine and the worshipper.

In a similar vein, color itself was considered sacred in antiquity, and colors were often used for healing purposes.⁸² The use of color in healing practices led to the emergence of a method known as chromotherapy, which was employed in ancient Egyptian (especially Ptolemaic Egypt), Greek, and even Chinese and Indian civilizations.⁸³ In chromotherapy, specific colors—particularly red, yellow, white, and blue—were believed to correspond to distinct illnesses, and healing was thought to be achievable only by using an object of the same color as the ailment. This symbolic application of colors for healing purposes is also evident in Hittite Anatolia. In a well-documented ritual,⁸⁴ red and white wool threads were used in a gender-transformation incantation to treat impotence, indicating that colors had a performative and therapeutic value beyond their visual significance.⁸⁵ Although the symbolic meanings of colors could vary across regions and historical periods, several general associations are traceable across ancient cultures. In ancient Egypt, for instance, black and green symbolized growth and renewal, while blue and turquoise were closely associated with sacred beings and places.⁸⁶ In some cases, colors such as red and blue were believed to ward off disaster and evil. These colors were thought to draw in misfortune and illness, contain them within, and thereby neutralize their effects.⁸⁷

⁷⁵ Plin. *Ep.* X.74.

⁷⁶ Konuk and Arslan 2000, 13.

⁷⁷ Marruci 2008.

⁷⁸ Aslan and Yeğin 2021, 117.

⁷⁹ Strab. IV.1.4.

⁸⁰ Bonnet and Bricault 2023, 66.

⁸¹ Bonnet and Bricault 2023, 75.

⁸² Gürgen 2022, 267.

⁸³ For a historical overview of chromotherapy in ancient civilizations, see Gage 1999.

⁸⁴ CTH 406; KBo 25.184

⁸⁵ CTH 406; KBo 25.184 II 60-63; Goetze 1955, 347.

⁸⁶ Gürgen 2022, 263.

⁸⁷ Kılıç and Başol 2014, 57; Bard 1999, 464.

The color blue, in particular, held significant importance in the ancient worlds of Mesopotamia, Egypt, Phoenicia, and the Mediterranean.⁸⁸ It was commonly used in personal ornaments such as jewelry, primarily for protection against the evil eye.⁸⁹ This practice reflects the belief that the color blue could absorb and neutralize misfortune and illness. This special association with blue bring us to lapis lazuli, one of the earliest known sacred stones originating in Mesopotamia. Lapis lazuli was regarded as a sacred stone by Mesopotamian societies, symbolizing the starry night sky and the Moon god.⁹⁰ It was believed to possess magical properties and protective powers. Consequently, the use of blue-colored beads resembling lapis lazuli was thought to invoke divine aid for the wearer. In Mesopotamian culture, stones in shades of blue were considered to have talismanic qualities and were widely used in amulets and charms to ward off evil and misfortune.⁹¹

Cuneiform tablets from Mesopotamia contain numerous rituals related to childbirth. These rituals often focus on the moment of birth and describe certain actions through metaphorical language. Expressions within these rituals commonly reference symbolic acts or objects, such as “steering the rudder,” “the carnelian stone,” and “the lapis lazuli stone.”⁹² One particularly notable metaphor depicts the pregnant mother carrying the baby as a boat loaded with carnelian and lapis lazuli.

There was also a belief that such stones could reveal the unborn child’s gender—lapis lazuli was associated with male infants, while red-colored carnelian was thought to signify a female child.⁹³ In this context, the colors of the glass votive beads unearthed at the Kastabos excavation site gain added significance. The plano-convex glass beads discovered there appear in colors such as dark blue, blue, green, light green, yellow, clear, and amber, which align with the symbolic meanings attributed to these stones in ancient beliefs. As previously noted, the plano-convex glass beads from Kastabos—while technically simple—gain layered symbolic meaning when examined through the lens of ancient color-based therapeutic systems. Furthermore, the production technique of these glass beads—specifically the drip-casting method—may have contributed to their symbolic potency. Unlike mold-blowing, drip-casting allows for subtle irregularities and natural tonal variations in color due to the way molten glass settles and cools. This variability could have been intentionally embraced by ancient artisans to enhance the beads’ visual and symbolic resonance. Thus, the unpredictability of the technique may not have been a flaw but a feature, offering a spectrum of hues that carried distinct ritual or protective connotations. It is also worth noting that the drip-casting technique has a long archaeological history, with early examples found in Late Bronze Age sites in Egypt and Mesopotamia. The continuity of this technique across centuries suggests that its use in sacred contexts may have carried not only technical convenience but also traditional legitimacy. In ritual practice, preserving the authenticity of ancient methods was often valued, and the retention of such techniques may have reinforced the perceived spiritual efficacy of the votive object. The ritual significance of the beads is further contextualized when the history of glass production and technological dissemination is taken into account.

⁸⁸ Plin. *HN*. 39-37.

⁸⁹ Evecen and Ölmez 2014, 377; Gürgen 2022, 264.

⁹⁰ Eliade 2009, 416-19; Arslan 2022, 145.

⁹¹ Rosen 1988, 33; Arslan 2022, 146.

⁹² Dilek 2019, 160-62.

⁹³ Arslan 2022, 150.

4. Historical Development of Glass Production and Its Cultural Dissemination

The ritual significance of the beads can be more clearly contextualized when the historical development of glass production and its cultural dissemination are taken into consideration. Glass has always been a highly valued material due to its brightness, smoothness, and reflectivity. It is known that glassmaking began in Mesopotamia toward the end of the 3rd millennium BCE.⁹⁴ During this period, there was a strong demand for colored stones imported from Mesopotamia, which seems to have influenced the production of colored glass in the 2nd millennium BCE. Stones such as lapis lazuli, azurite, and turquoise were also part of this development. This transition from natural stones to artificially colored glass is further demonstrated by chemical analyses of Late Bronze Age cobalt and turquoise glasses from sites such as Nuzi, Thebes, and Elateia. These objects exhibit deliberate control over soda (Na₂O) and lime (CaO) content to achieve desired colors, indicating a mature and sophisticated glass industry.⁹⁵ Especially in cases where access to lapis lazuli was limited, glass emerged as a prominent substitute. Consequently, glass began to replace genuine stones as an imitation material, leading to its widespread use.⁹⁶

After the second millennium BCE, glassmakers continued to produce imitation materials resembling precious stones, particularly lapis lazuli.⁹⁷ This practice marked a significant advancement in glass craftsmanship.⁹⁸ Cuneiform tablets from this period even distinguish between natural and kiln-made (artificially produced) lapis lazuli, indicating how widespread glass imitations had become.⁹⁹ Glass recipes from these tablets refer to the production of carnelian and other colored stones.¹⁰⁰ Around the same period, the first glass vases appeared under the Mitanni, helping to spread glass art.¹⁰¹ In the Aegean, the use of the term *kyanos* (“glass”) in Linear B tablets indicates early awareness of glass,¹⁰² while beads and pendants from mainland Greece and western Anatolia reflect early production techniques.¹⁰³

The glass ingots discovered in the Uluburun shipwreck confirm that glass was already a traded raw material in the Eastern Mediterranean during the second millennium BCE.¹⁰⁴ In the Carian region, glass artifacts—including beads—found at Mūsgebi near Bodrum are dated between 1400–1250 BCE.¹⁰⁵ Similar Mycenaean-style beads have been unearthed at multiple sites in western Anatolia.¹⁰⁶ Moreover, the presence of pendants and beads points to early cultural and trade connections between Rhodes and Caria.¹⁰⁷

⁹⁴ Hamell 1983, 12–24.

⁹⁵ Henderson 2013, 214, fig. 6.1

⁹⁶ Liverani 2014, 277.

⁹⁷ Çınardalı Karaaslan 2013, 22; Thavapalan 2019, 263; Dardeniz and Öztan 2020, 843.

⁹⁸ Herrmann 1968, 21–23; Liverani 2014, 277; Arslan 2022, 153.

⁹⁹ Oppenheim 1973, 262; Erten Yağcı 1993, 33.

¹⁰⁰ Arslan 2022, 154.

¹⁰¹ Barag 1985, 39.

¹⁰² Dillon 1907, 34.

¹⁰³ Nightingale 1995.

¹⁰⁴ Bass 1985, 635.

¹⁰⁵ Boysal 1964.

¹⁰⁶ Erkanal 1998, 461

¹⁰⁷ Harden 1981, 51.

After the disruptions caused by the Late Bronze Age collapse, glass production declined significantly, with the exception of beads and small ritual items, which continued to be made—likely due to their persistent religious significance.¹⁰⁸ From the 6th century BCE onward, glass objects became increasingly widespread. In this period, the Carian region exhibits strong evidence of Persian influence in glassware,¹⁰⁹ while Rhodes is believed to have played a major role in spreading glassmaking techniques across the Aegean. The distribution of small vessels produced in local workshops illustrates this cultural transmission.¹¹⁰

Between the late 8th and early 6th centuries BCE, Rhodes produced a wide variety of small artifacts made of bronze, gold, bone, ivory, faience, and glass, many of which were intended as votive offerings.¹¹¹ During the Archaic and Classical periods, Rhodes' material culture was shaped by extensive maritime trade.¹¹² Finds from Kamiros show that the island's sanctuaries were enriched with imported goods between 700 and 400 BCE. By 500 BCE, a specialized votive industry had emerged on the island, supplying objects for temples and graves. This development was supported by the sanctuaries at Kamiros, Ialysos, and Lindos.¹¹³

The Hellenistic period marked a significant phase in the advancement of glassmaking techniques. Although glass became more widely used than in previous eras, it still retained its status as a luxury material, often associated with elite consumption and religious symbolism.¹¹⁴ Glass continued to be regarded as sacred, echoing its earlier associations with the divine.¹¹⁵ During this time, production centers such as Sidon, Cyprus, Rhodes, and Syria introduced new forms and methods.¹¹⁶ Rhodes, in particular, emerged as a major hub for both raw and finished glass products during the 4th and 3rd centuries BCE.¹¹⁷ Rhodian glass differed in composition, often displaying a greenish hue due to its high lime content. These innovations influenced Caria, where glass production was active in cities like Kaunos,¹¹⁸ Nysa, and Labraunda.¹¹⁹ The presence of Rhodian-style glass,¹²⁰ artifacts across Lycia and Caria suggests strong cultural links between these regions.¹²¹ The glass beads found in a sarcophagus near the Milas Gate in Halicarnassus are known to be dated to the 4th century BCE.¹²² In Kastabos, this influence

¹⁰⁸ Taştemür 2017, 74.

¹⁰⁹ Tek 2005, 113.

¹¹⁰ Harden 1981, 53; Tek 2005, 112.

¹¹¹ Salmon 2019, 125, 142.

¹¹² Among the more than 2000 imported artefacts recovered from Kamiros and now housed in the British Museum and the Archaeological Museum of Rhodes are pottery, bronze, and limestone statuettes from Cyprus, Samos, Phrygia, Assyria, Miletus, Knidos, Ionia, Kos, and many other places.

¹¹³ Salmon 2019, 360-65.

¹¹⁴ The main reason for this spread is related to the cultural and economic developments in the Hellenistic period rather than the change in glass production technology.

¹¹⁵ The invention of glass blowing, the production model that began in the Roman period, has almost always been described as a 'revolution' in the literature. This is because glass blowing, invented in the first century BC, enabled glass to be produced more cheaply, efficiently, and quickly than had previously been possible. In fact, by the end of the first century AD, glass had become a common household item in areas dominated by the Roman empire. See Larson 2016.

¹¹⁶ Flarska 1972.

¹¹⁷ Tek 2005, 113.

¹¹⁸ Larson 2016, 145, fig. 11.

¹¹⁹ Blid 2009, 139.

¹²⁰ Triantafyllidis and Karatasios 2012, 32.

¹²¹ Weinberg 1969, 145.

¹²² These beads, which are now in the Bodrum Museum of Underwater Archaeology, are in the shape of a barley, a lover, or a double-faced axe. These glass beads are thought to have served a religious purpose, and based on the

should be seen as part of a broader network of acculturation, extending not only from Rhodes but also through earlier interactions with Crete, the Aegean, and inland Anatolia.¹²³ Furthermore, Hellenistic-era imports of glass and beads from North Africa and Syria found at Kastabos underscore its role in regional exchange networks.

Conclusion

This study examined the plano-convex glass beads unearthed at the Kastabos Sanctuary, located in the Carian Chersonesos, through a contextual and material-based approach. A total of 107 beads were recovered during excavations conducted between 2022 and 2024, primarily from sacred architectural settings—namely the *naiskos / stoa / abaton*, and Rock Cult Area 1. These beads, plano-convex in form, range in diameter from 0.6 to 2.4 cm and exhibit no perforations, attachment traces, wear marks, or residues indicative of secondary use. Based on their physical properties and the ritual contexts in which they were found, it appears that these objects were not used for decorative or functional purposes but rather were deliberately deposited as votive offerings within the sanctuary. While similar items in the literature have been interpreted as gaming pieces, appliquéés, or ring settings, the morphological consistency, lack of wear, and strong association with ritual architecture in the Kastabos finds render their interpretation as votive objects linked to the cult of Hemithea more convincing. Although some plano-convex glass forms have been interpreted as game pieces (see fig. 6 for a modern reconstruction of the Roman ‘latrunculi’ board), the Kastabos examples lack wear or contextual evidence for such use.

The beads exhibit a wide range of colors, most notably dark blue, green, amber, and yellow. These colors reflect symbolic systems associated with healing, protection, and fertility across the ancient Mediterranean, particularly in Mesopotamia and Egypt. The chromatic range of the beads—including dark blue, amber, turquoise, aquamarine, and transparent (figs. 7-13)—suggests that color symbolism played a ritual role, especially in the context of healing and fertility. However, within the Kastabos context, their uniform shape, absence of use marks, and connection to sacred structures strongly support their interpretation as part of a localized votive tradition tied to the cult of Hemithea. Originating from Tenedos and connected to the Great Goddess traditions of Anatolia, Hemithea was a deity associated with healing, childbirth, and protection. This interpretation is further supported by ancient textual sources that describe Hemithea as a healing goddess and Kastabos as a renowned sanctuary, especially during the Hellenistic period.

In conclusion, the Kastabos glass bead assemblage offers significant insights into ritual practices and religious continuity in Anatolia. It positions Hemithea not merely as a Hellenistic cult figure, but as part of a deeper regional goddess tradition specific to Caria. The typological and chromatic diversity documented in figs. 7-13 suggests that these beads had standardized roles within ritual performance. Future stratigraphic analyses and comparative typological studies may better define the chronology of this votive practice and broaden interpretive possibilities. While these beads are securely dated to the Hellenistic period based on their stratigraphic contexts—particularly from layers attributable to the late 4th and 3rd centuries BCE—the chronological attribution is further supported by

double axe-shaped examples, they are thought to be associated with the cult of Zeus Labraundos. See Sina 2002, 243.

¹²³ Uyguç 1992, 100-3.

their association with cultic architecture and the absence of reuse indicators. Comparative examples cited in this study serve not as dating tools but as contextual parallels to highlight typological and symbolic patterns across different regions and periods. Although the Kastabos beads point to a localized votive tradition tied to the Carian cult of Hemithea, their symbolic attributes—particularly regarding color, healing, and ritual deposition—resonate with broader patterns observed across the eastern Mediterranean. This suggests that such practices may have been embedded within wider religious and cultural networks that transcended regional boundaries. Moreover, plano-convex glass beads—despite dating to different periods—have been found in diverse eastern Mediterranean contexts, including Rhodes, Crete, and Egypt. This broader distribution supports the idea that such objects were embedded within a long-standing network of ritual and symbolic practices that transcended regional boundaries. Similar plano-convex glass beads are also recorded in the Bodrum Museum of Underwater Archaeology (fig. 15), highlighting the typological diffusion across coastal sanctuaries. The beads' formal simplicity and their direct placement in natural or sacred spaces show striking parallels with modern votive acts still performed in parts of Anatolia today—such as tying cloth or depositing beads and stones to make wishes. This cultural continuity underscores the enduring place of ritual behavior in individual and collective memory. In summary, this study addressed four core research questions concerning the ritual function, symbolic meaning, typological context, and cultural significance of the Kastabos beads. The first question confirmed their role as votive objects rather than utilitarian artifacts. The second highlighted their color symbolism within broader healing and protective systems. The third, informed by formal consistency and stratigraphy, demonstrated their typological coherence. The fourth question situated these objects within both a local Carian cult and a wider eastern Mediterranean ritual network, underlining their value in tracing patterns of religious continuity. Thus, the Kastabos beads should be understood not as decorative or functional items, but as material embodiments of a ritual practice dedicated to Hemithea. In this context, they also invite a reevaluation of similar objects previously interpreted with secular or utilitarian functions, particularly through the lens of contextual and typological evidence. In summary, this study addressed four core research questions concerning the ritual function, symbolic meaning, typological context, and cultural significance of the Kastabos beads. The first confirmed their role as votive offerings rather than utilitarian objects. The second highlighted the color symbolism rooted in healing and protection across the ancient Mediterranean. The third, based on formal consistency and stratigraphic integrity, established their typological coherence. Finally, the fourth question positioned these objects not only within the ritual sphere of a local Carian cult but also as echoes of broader religious traditions that transcended regional boundaries. Through these beads, we gain a rare and tangible perspective on how local devotional practices in Hellenistic Caria were embedded in, and contributed to, the symbolic and ritual continuities of the eastern Mediterranean world.

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CTH Catalogue des textes hittites, 2nd ed. - Paris 1971.

KBo Keilschrifttexte aus Boghazköi, (Heft 1) Leipzig 1916- 23; (Heft 7 ff.) Berlin 1954 ff.

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FIG. 1 The Carian Chersonese and the location of the Kastabos / Hemithea Sanctuary.



FIG. 2 Drone view of the Kastabos / Hemithea Sanctuary overlooking the Hisarönü Gulf.

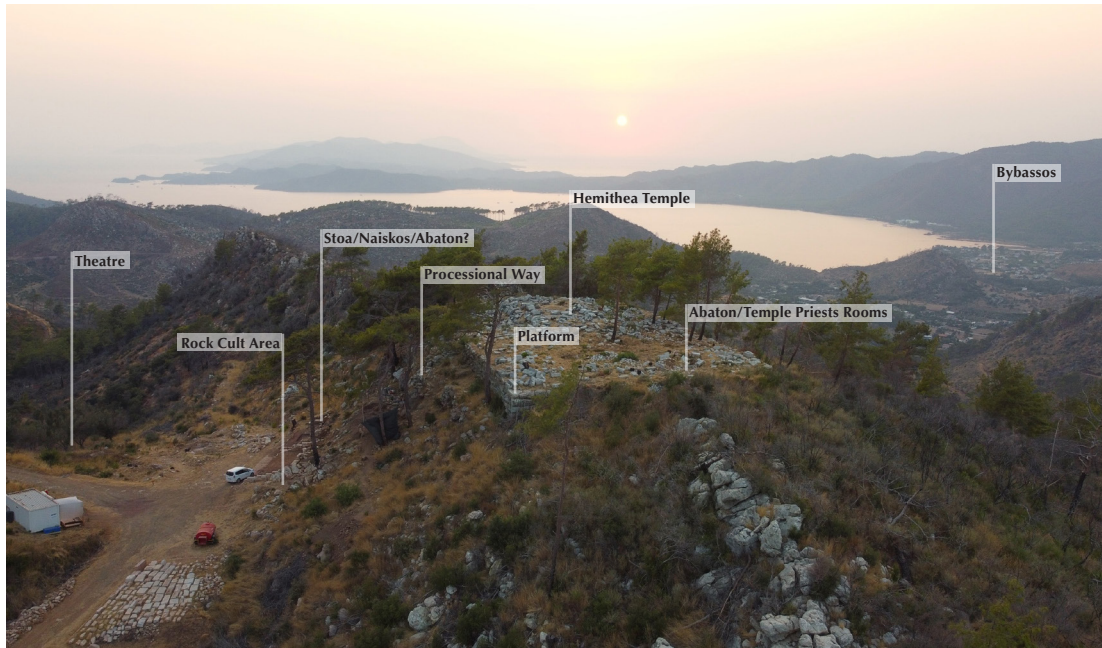


FIG. 3 Drone view of the Kastabos / Hemithea Sanctuary showing cultic structures and primary excavation areas where glass votive beads were recovered.



FIG. 4 Aerial view of the Kastabos Sanctuary showing the spatial arrangement of major cultic structures—*naikos*, *stoa*, *abaton*, and the Rock Cult Area.



FIG. 5 General view of Rock Cult Area 1 at Kastabos during excavation. The prominent natural rock formation and associated architectural features suggest a space of ritual significance. Several plano-convex glass beads were recovered from this area.

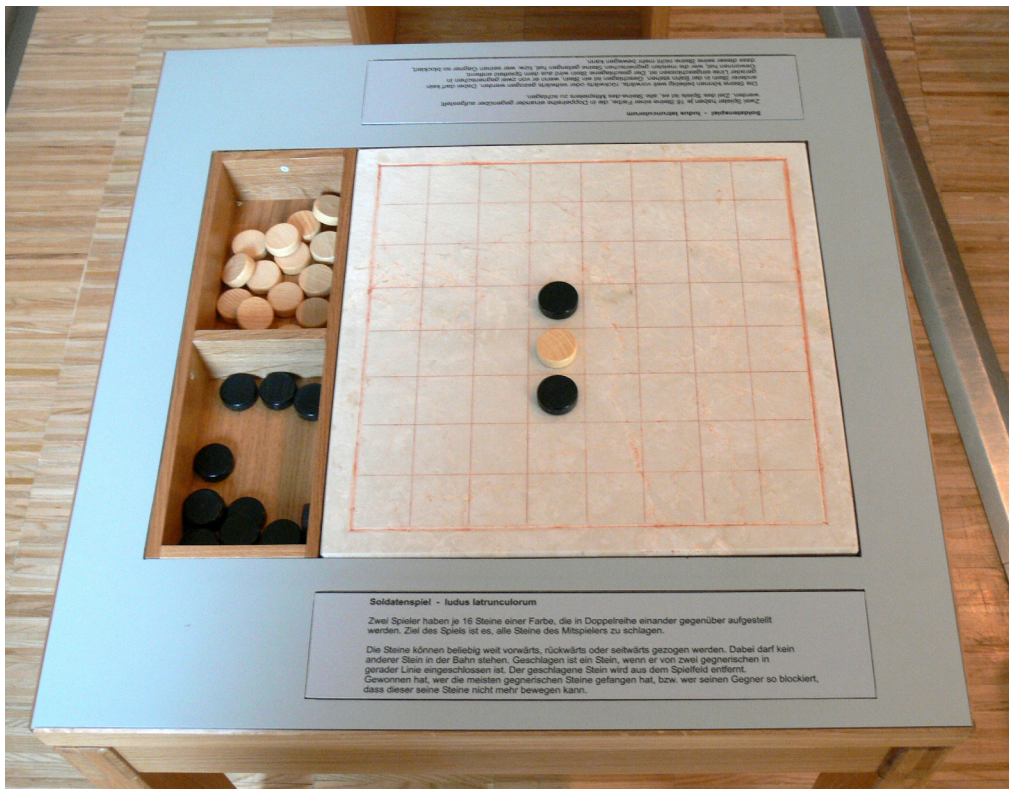


FIG. 6 A modern depiction of the game of 'latrunculi' in the Quintana Museum in Künzing, Germany (https://en.wikipedia.org/wiki/Ludus_latrunculorum).



FIG. 7 Plano-convex yellow glass object from the Kastabos / Hemithea.



FIG. 8 Plano-convex dark blue glass object from the Kastabos / Hemithea.



FIG. 9 Plano-convex aquamarine glass object from the Kastabos / Hemithea Sanctuary.



FIG. 10 Plano-convex transparent glass object from the Kastabos / Hemithea.

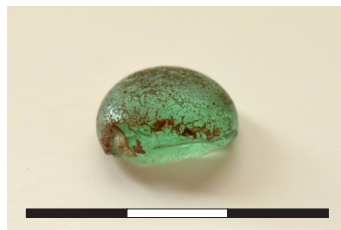


FIG. 11 Plano-convex green glass object from the Kastabos / Hemithea Sanctuary.

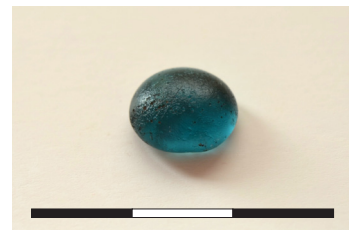


FIG. 12 Plano-convex turquoise glass object from the Kastabos / Hemithea Sanctuary.

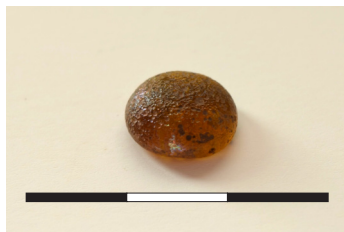


FIG. 13 Plano-convex amber glass object from the Kastabos / Hemithea Sanctuary.

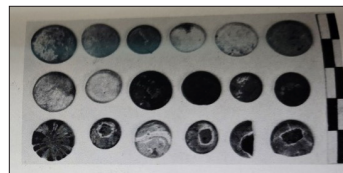


FIG. 14 Weinberg's classification of flat glass examples from the Hellenistic period in Rhodes (Weinberg 1969).

FIG. 15 Plano-convex glass finds from Bodrum Museum of Underwater Archaeology (Özet 1998).





FIG. 16 Aerial plan of the Kastabos / Hemithea Sanctuary showing labeled excavation areas, including Trench C (Naiskos / Stoa / Abaton), Trench E (Rock Cult Area), and Trench F (Transition Zone), which yielded the plano-convex glass beads analyzed in this study.