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A Typological and Chronological Assessment of The Glass Artifacts From The Hypostyle Fountain at Labraunda

Labraunda, Hypostyle Çeşmesi Cam Buluntuları Üzerine Tipolojik ve Kronolojik Bir Değerlendirme

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A TYPOLOGICAL AND CHRONOLOGICAL ASSESSMENT OF THE GLASS ARTIFACTS FROM THE HYPOSTYLE FOUNTAIN AT LABRAUNDA

ABSTRACT

This study examines the glass artifacts recovered from the Hypostyle Fountain, situated within the sanctuary of Zeus Labraundos in the Caria Region, which is recognized as one of the most significant structures of the site. The excavation and documentation of the Hypostyle Fountain, recognized as the largest, possibly the earliest, and most monumental fountain house at Labraunda, were completed between 2013 and 2015. Architectural techniques and archaeological evidence suggest that the fountain was constructed during the Hecatomnid satrapy (c. 395-330 BC). The chronological range of the building's use spans a considerable period, commencing in this period and extending into the Middle Byzantine Period.

The work presented herein constitutes a significant advancement and a critical component of the Labraunda Glass Project conducted from 2014 to 2017. This project encompasses the documentation and typological evaluation of all glass vessels uncovered at Labraunda from the start of the excavations in 1948 until 2016. Hence, it was feasible to assess the glass artifacts from the Hypostyle Fountain in relation to those from other sectors of the sanctuary. The quantity and quality of the glass finds are sufficient to elucidate the character of the building. These artifacts exhibit a diverse range of construction and decorative techniques, as well as various forms and colors. The findings include typologically characteristic examples; however, there are also instances that can be regarded as unique, both within the region and across other find centers from the same period. It is also possible to trace the periods of the building's use in parallel with the glass artifacts.

Keywords: Labraunda, Caria, Anatolia, Glass, Hecatomnid, Byzantine.

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LABRAUNDA, HYPOSTYLE ÇEŞMESİ CAM BULUNTULARI ÜZERİNE TİPOLOJİK VE KRONOLOJİK BİR DEĞERLENDİRME

ÖZ

Çalışmamızda, Karia Bölgesi'nde Zeus Labraundos kutsal alanında yer alan ve kutsal alanın en dikkat çekici yapılarından birini oluşturan Hypostile Çeşmesinden ele geçen cam buluntuları ele alınmaktadır. Labraunda'daki en büyük, olasılıkla en erken ve en anıtsal çeşme evi olarak kabul edilen Hypostile Çeşmesi'nin kazı ve

belgeleme çalışmaları 2013-2015 yılları arasında tamamlanmıştır. Mimari teknikler ve diğer arkeolojik veriler çeşmenin Hekatomnid satraplığı (MÖ y. 395-330) himayesinde inşa edildiğini büyük ölçüde göstermektedir. Yapının kullanımına ilişkin kronolojik yelpaze, bu dönemden başlayarak Orta Bizans Dönemi içlerine kadar süren geniş bir dönemi kapsamaktadır.

Burada sunulan çalışma 2014-2017 yıllarında gerçekleştirilen Labraunda cam projesinin bir basamağı ve önemli bir bileşenidir. Bahsi geçen proje, Labraunda kazılarının başlangıcı olan 1948 yıllarından 2016 yılına kadar Labraunda içerisinde tespit edilen tüm cam kapların dokümantasyonunu ve tipolojik değerlendirmesini içermektedir. Dolayısıyla Hypostile Çeşmesi cam buluntularını, kutsal alanının diğer sektörlerinde tespit edilen buluntularla karşılaştırmalı olarak değerlendirmek mümkün olmuştur. Yapının cam buluntuları yapının karakterini ortaya koymaya yetecek nicelik ve niteliktedir. Yapım ve dekorasyon teknikleri, farklı formlar ve renkler açısından zengindir. Buluntular arasında tipolojik olarak son derece karakteristik örnekler olmakla birlikte hem bölge hem de dönemin diğer buluntu merkezleri açısından tekil kabul edilebilecek örnekler de söz konusudur. Dahası, yapının kullanım dönemlerini de cam buluntularla paralel olarak takip etmek mümkünüdür.

Anahtar Kelimeler: Labraunda, Karia, Anadolu, Cam, Hekatomnid, Bizans.

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INTRODUCTION

Labraunda, the site of the Sanctuary of Zeus Labraundos, is located in present-day Kargıcak Village, within the historical confines of ancient Mylasa (Mugla-Milas) in the southwestern region of Asia Minor. This site is acknowledged as one of the most well-preserved areas within the Ancient Caria Region. The earliest datable evidence regarding the cult of Zeus in Labraunda can be traced to the 7th century BC; however, it is suggested that the origins of the cult may extend considerably further back in time[1]. It was unequivocally the Hecatomnid dynasty that transformed the sanctuary from a modest place of worship into a Hellenized and expanded, magnificent site of religious significance. The beneficence of the Hecatomnid dynasty (392-333 BC) towards the sanctuary commenced during the reign of Hecatomnus (392-377 BC), the dynasty's founder, and reached its zenith during the satrapy of his son and successor, Maussollos (377-352 BC)[2]. During their reign, extensive construction activities were undertaken in Labraunda; the sanctuary was restructured, the temple was re-

[1] Hellström 2007, 17; Karlsson 2010, 54.
[2] Blid 2019, 113.

constructed, and the area was enhanced with numerous monumental edifices[3]. Following the identification of seven structures (Stoa of Maussollos, Andron of Maussollos, Andron A, Temple of Zeus, the Oikoi, the South Propylon, and the Doric House) documented to have been constructed during the reign of Maussollos and Idrieus (351-344 BC), as evidenced by preserved dedicatory inscriptions[4], recent excavations have led to the identification of an impressive fountain complex known as the Hypostyle Fountain (hereafter HF), thereby expanding the inventory to eight buildings[5].

Labraunda experienced a decline in prominence during the Hellenistic period; however, it regained significance during the Julio-Claudian period (early 1st century AD). Its function as a sanctuary persisted, and emerging logistical requirements prompted the construction of new edifices[6]. The precise date of the cessation of the cult of Zeus in Labraunda remains uncertain; however, the tradition of repurposing ancient sanctuaries for Christian worship during Late Antiquity persisted in this location. Labraunda maintained its status as a site of sanctity through the establishment of churches during this period, ultimately emerging as a significant center for Christian pilgrims.

Another feature of Labraunda that should be remembered is its water resources. The water of Labraunda had a privileged importance with both its functionality and its sanctity. During the Hecatomnid period, the Sacred Road connected Milas and Labraunda and was adorned by various water structures, particularly fountains, situated at regular intervals to facilitate the distribution of the region's sacred natural spring water. These fountains and wells may have also served as areas for rest and relaxation for the construction workers and pilgrims journeying to Labraunda[7].

3 Baran 2010, 123.
4 Blid 2019, 114.
5 Rojas et al. 2015, 383; In her doctoral dissertation on the comparative analysis of Roman mortars in Spain and Anatolia, Duygu Ergenç identified four layers beneath the floor of the fountain, which she attributed to the Hellenistic period, based on her mortar analysis (Ergenç 2015, 306).
6 The Eastern and Southern Bath complexes represent the principal Roman edifices referenced above. A dedicatory inscription unearthed in 1951 indicates that Tiberios Klaudios Menelaos was responsible for the construction of the Eastern Baths complex (Blid 2010, 81).
7 Baran 2011, 52.

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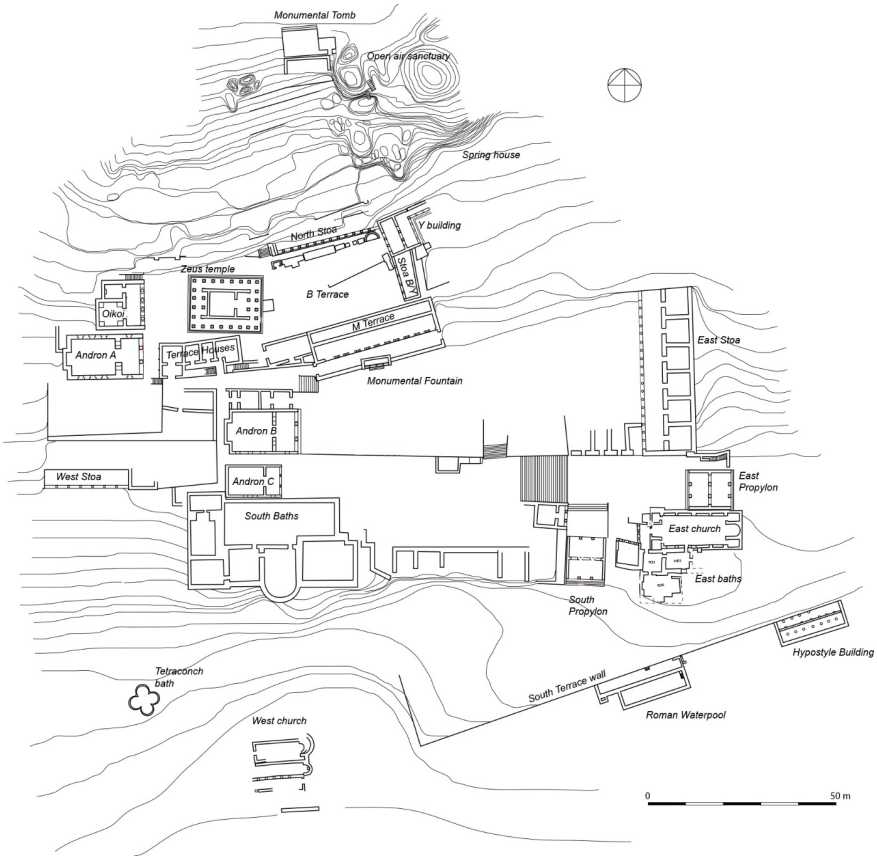

Fig. 1. General Plan of Labraunda (2017, Labraunda Excavation Archive).

Given the aforementioned social, cultural, and political context, it is reasonable to assert that Labraunda held a pivotal position, particularly within Caria. HF, which serves as the focal point of this study, enhances our understanding of the Hecatomnid perspective on the sanctuary owing to its construction date and provides significant archaeological data regarding its architecture. This remarkable fountain structure, constructed entirely from gneiss blocks, represents one of the initial edifices encountered by pilgrims from various centers as they pass through the marble entrance gates into the sanctuary. Furthermore, the significance of this structure should be evaluated in the context of its connection to Labraunda and the sacred water. As a monumental fountain structure, HF contributes to the comprehension and interpretation of the sanctuary through its archaeological data, spanning from the time of its construction to the final period of its use. As part of this interpretive endeavor, this research

analyzes the glass artifacts, which constitute a significant category of the small finds uncovered at HF.

Although the history of excavations at Labraunda is extensive, and the wealth of artifacts discovered at the site is well-documented in existing research, the glass assemblages have been relatively overlooked. The history of excavations at Labraunda is as extensive as the site's own historical narrative, with systematic archaeological work commencing in 1948 and continuing to the present day. Despite over 60 years of excavation efforts, research focused specifically on glass artifacts remains relatively limited[8]. While evaluations of glassware have been conducted occasionally within the framework of broader studies pertaining to Labraunda, these investigations have proven insufficient for the development of a comprehensive glass typology or for clearly delineating the general characteristics of Labraunda's glassware. Conversely, archaeological evidence regarding the notable transformation of Labraunda during the Hecatomnid satrapy, particularly in the 4th century BC, is reflected in the studies of architecture and pottery. Labraunda retained its significance even in Late Antiquity despite shifts in its social context. This emphasizes the significance of Labraunda within the region, particularly from the period of the Hecatomnids onward. Thus, it is imperative to accord similar attention to the research on glass. The "Labraunda Glass Project"[9] was initiated with this motivation, and the study presented herein, which examines the glass artifacts from HF, constitutes a significant component of this initiative.

During the 2013, 2014, and 2015 excavation seasons, HF, Labraunda's largest and possibly earliest monumental fountain house[10], was excavated and documented by a team from Brown University led by Felipe Rojas. The architectural techniques, pottery fragments and small finds recorded in the foundation trenches provide substantial evidence that the fountain was constructed under the auspices of the Hecatomnid satrapy. The precise timeline of the abandonment of HF remains unclear; however, the site was probably vacated abruptly, potentially due to a seismic event or a landslide before the Middle Byzantine period[11].

8 Hellström 1965, 84-87; 120-121; Blid 2009, 139-150; Blid 2016; Çakmaklı 2017, 279-297.

9 "Labraunda Glass Project" presents an evaluation of the glass artifacts recovered from all excavation sectors from the start of the Labraunda excavations up to the 2016 excavation season. This evaluation encompasses documentation methodologies, including drawing, photography, and cataloging, in addition to typological and analogical analyses. Such a methodological approach facilitates a comprehensive evaluation of the finds within the sanctuary, thereby enabling the determination of the contextual relationships of the glass artifacts with their locations of discovery and the interpretation of their functional areas.

10 Rojas et al. 2014, 305.

11 Rojas et al. 2015, 383.

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Fig. 2. Aerial view of HF (Rojas et al. 2014, 368, fig. 118).

This study analyzes glass artifacts from the pre-Roman Imperial Period to the Early Byzantine period, which represent the final phase of glass use in the HF context. The glass artifacts addressed within this framework will be presented with an emphasis on their morphological development and chronological dating. Furthermore, the relationships of these glass artifacts with their respective areas of usage will be evaluated in a contextual manner, taking into account the various phases of the building's utilization.

The glass assemblage from this excavation yielded a total of 130 glass fragments, of which 66 are diagnostic. As a result of our typological study, the artifacts were chronologically classified as "Pre-Roman and Early Roman," "Middle Imperial Period," and "Late Roman and Early Byzantine Period"[12]. The study revealed that approximately 45.5% of the artifacts could be classified as dating to Late Antiquity and 44% to the Early Roman period, whereas the Middle Roman Imperial period is the least represented, comprising only 10.5%.

The glass artifacts recovered from HF were predominantly produced subsequent to the discovery of the blowing technique, which aligns with the overall characteristics of Labraunda glass. Only one of the glass vessels was produced using

[12] When evaluating these results, it is essential to consider that the artifacts were partially mixed chronologically within the layers due to the subsequent reuse of the building. Moreover, the production and utilization of certain popular glass vessel forms experienced a gradual decline following their initial introduction, yet their presence persisted, albeit at a diminished rate. Consequently, it is important to recognize that some vessel forms from the Early Roman Empire continued to be utilized during the Middle Roman Empire, while certain vessels that emerged during the Middle Roman Empire gained prominence in the Late Roman period.

the casting method (plate 3.1), whereas the remaining artifacts were created through free blowing and subsequently shaped with glass-forming tools. All the vessels identified in various forms, including bowls, beakers, plates, jars, bottles, and goblets, were utilized as table vessels. The most prevalent vessel form within the Pre-Roman- Early Roman artifact group is the beaker, represented by 16 artifacts. In contrast, the Middle Roman (7 artifacts) and Late Roman-Early Byzantine (24 artifacts) periods are characterized predominantly by bowl forms. The trenches from which identifiable glass fragments were recovered have been designated as Trenches A, B, C, D, E, F, G, and H. An analysis of the period densities of the vessels in relation to the trenches revealed that Trench D produced the highest density of glass vessel groups across all periods[13].

While the majority of these vessels remain undecorated, an inscribed vase fragment (Fig.5.1) was uncovered, which holds particular significance as it represents one of only three inscribed examples found among all artifacts from Labraunda[14]. All the tableware demonstrate a moderate level of quality. No high-quality items that could be classified as imports were identified. This observation applies to Labraunda as a whole, with the exception of a limited number of luxury or semi-luxury glass vessels[15]. The predominant colors of the vessels are shades of olive green. Pale blue and green tones, along with colorless glass, were also identified; however, these colors represent a minor subset within the overall spectrum. Shades of olive green make up 66% of all color groups in the glass artifacts. When these features are synthesized, and the secondary evidence pertaining to the production at Labraunda is assessed[16], it becomes evident that, despite the absence of discovered kiln remains, the sanctuary's potential as "a glass working center" for the local production of glass vessels warrants serious consideration.

1. Pre-Roman and Early Roman Glass (1st century BC- 1st century AD)

The glass assemblage from Labraunda, with very few exceptions, primarily dates to a period following the invention of the blowpipe. The bowl from Trench F, characterized by linear cut lines and produced using traditional glass casting techniques, represents a singular artifact in HF (Plate 3.1) associated

[13] In Trench D, a total of 13 fragments from the Pre-Roman to Early Roman Period, 7 fragments from the Middle Roman Period, and 9 fragments from the Late Roman to Early Byzantine Period were identified.

[14] See page 12.

[15] Labraunda is a site where glass vessels, regarded as luxury or semi-luxury items, have been discovered, albeit in limited quantities. Examples of this group include imported bowls adorned with blue glass drops dating from the 4th to 5th centuries AD (Blid 2016, 171. Fig. 193. 17), as well as millefiori vessels (Hellström 1965, no.5) that gained popularity in the 1st century AD. In the context of Late Antiquity, the fragment of a lamp featuring an inscription, along with temple architecture, exemplifies imported goods characterized by fine craftsmanship. The lamp, adorned with sophisticated cut decoration, likely arrived in Labraunda as a votive offering (Blid 2016, 120-121, cat. no. 124. 10).

[16] Blid 2016, 120, fig. 124; Çakmaklı 2017, 288-289.

with this minority group. The casting technique is notably rare in Labraunda overall[17]. The forms vary between bowls characterized by rounded profiles and those that are shallower. The fragment from HF exemplifies the category of cast-deep bowls. S. Jennings classifies this category as "Group 2" and dates it approximately from the 1st century BC to the mid-1st century AD[18]. Regrettably, the additional artifacts discovered in Trench F, where the cast bowl was documented, do not provide sufficient information to date the artefact accurately. This observation is based on the discovery of African red slipped pottery from the 4th century AD[19], terracotta stamps featuring cross decorations from Late Antiquity[20], and a cast artifact believed to have gone out of use in the Early Roman period, all found within the same trench and layer.

The origin of the presence of this minority casting group in Labraunda, which acquired heightened significance during the Hecatomnid period, is a subject of scholarly debate. There is limited evidence of workshops utilizing the casting technique from the 2nd century BC to the 1st century AD, which enabled the efficient and economical production of bowls[21]. Among these production centers, Rhodes holds significant importance for Caria in terms of cultural interaction. Considering Carian-Rhodian relations, the Rhodian affiliation of numerous Carian cities is substantiated by diverse archaeological evidence, including glass artifacts[22].

All fragments that can be classified within the Early Roman group (Fig. 3.2 – 9; Fig. 4) manifest as variations of standard forms disseminated throughout the Empire. The initial group, identified exclusively as rim and base fragments, consists of fragments of bowls and beakers, which represent one of the most prevalent categories of domestic glass artifacts in the Roman world.

Bowls with rounded-flared rims (Fig. 3.2-5) represent one of the most dominant vessel types from the Early and Middle Roman Imperial Period. These artifacts may have served dual purposes, functioning both as everyday tableware and as containers for cosmetic products[23]. O. Vessberg contends that this form,

17 A fragment of a bowl produced through casting was recovered from the East Bath excavations.

18 Jennings 2004-2005, 32-35.

19 This pottery group, which disseminated eastward during the 4th and 5th centuries AD, expanded its geographical reach to encompass the entirety of the Mediterranean Basin (Hayes 1972, 455-457).

20 Rojas et al. 2014, 373-374.

21 These workshops were situated in Alexandria, Antioch, the coastal cities of Syria-Palestine, Rhodes, and subsequently, Rome (Tek 2005, 113).

22 It is believed that glass workshops were established on the island of Rhodes, likely from the onset of the Archaic Age, and that the art of glassmaking disseminated from this location to the Aegean and the Black Sea during the 6th century BC (Harden 1981, 52-53).

23 In the archaeological site of Metropolis, instances of bowls with thickened rims were discovered in various locations, including the bathing areas of the Baths, specifically the caldarium and frigidarium, as well as in the "North Mosaic Hall" of the structure. Dr. Emine Akkuş Koçak, a specialist analyzing the glass artifacts

along with similar examples displaying the same bodily features and cut-rim counterparts, is of Cypriot origin, having emerged from a specific workshop in Cyprus and subsequently disseminated from that location[24]. Similar examples were identified in the structure of the Water Complex, later referred to as the Roman Pool, located in Labraunda and dated to the 1st-3rd centuries AD, while considering the stratigraphic characteristics of the structure[25]. One artifact from this collection of finds (Fig.3.2) associated with HF originates from a trench and stratum characterized by a high density of Cnidian vessels[26], dating to the Early Roman Imperial period, thereby substantiating the chronological framework of the assemblage. This bowl type is categorized into two subtypes: undecorated vessels and those adorned with thread decoration. Following the Roman Pool, which comprises 11 specimens representing both subtypes, HF is represented by four undecorated fragments (Plate 3.2-5). Notably, all vessels within this group are composed of blue-colored glass and exhibit identical morphological characteristics. The artifacts recovered from the excavation of the Roman pool exhibit similar characteristics as well. It can be hypothesized that they were produced in the same workshop. Nevertheless, even if this identification is accurate, it remains inconclusive as to the precise location of the workshop.

The bowl type exhibiting typological similarity to the "Bowl with Outsplayed Sides" (Figure 3.6-9) identified by C. Isings with designation "41 b"[27] represents another significant bowl group within the HF. It is represented by a total of four samples from Trenches A and D. The rim profile, recognized during the Early Roman Imperial Period, is also documented in Late Roman layers in Anatolia[28]. The rim diameters of the vessels exhibit variability, ranging from 7 cm to 10 cm. A comparable rim fragment was discovered in the Roman Pool, which houses the most extensive collection of Early Roman Imperial glass in Labraunda.

recovered from the site, has emphasized, considering the diverse contexts of these finds, that this particular type of vessel served dual purposes: it was utilized both as tableware and for the application of cosmetics, such as fragrant creams and other cosmetic products. Koçak dates the artifacts from Metropolis to the late 3rd to early 4th century AD, based on the contextual analysis of their stratigrapy. (Akkuş Koçak 2021, 24, cat. No. 176-202).

24 Vessberg- Westholm 1956, 139, pl. 4. 4, 9-12.

25 Çakmaklı 2017, 282, pl. 1.1-1.3.

26 Rojas et al. 2015, 369.

27 Isings 1957, 57, form 41b.

28 Aksaz (Taştemür- Dinç 2024, 174, fig. 4, cat. no. 1-4); Klaros (Taştemür 2007, 137, cat. no. 45, fig. 45).

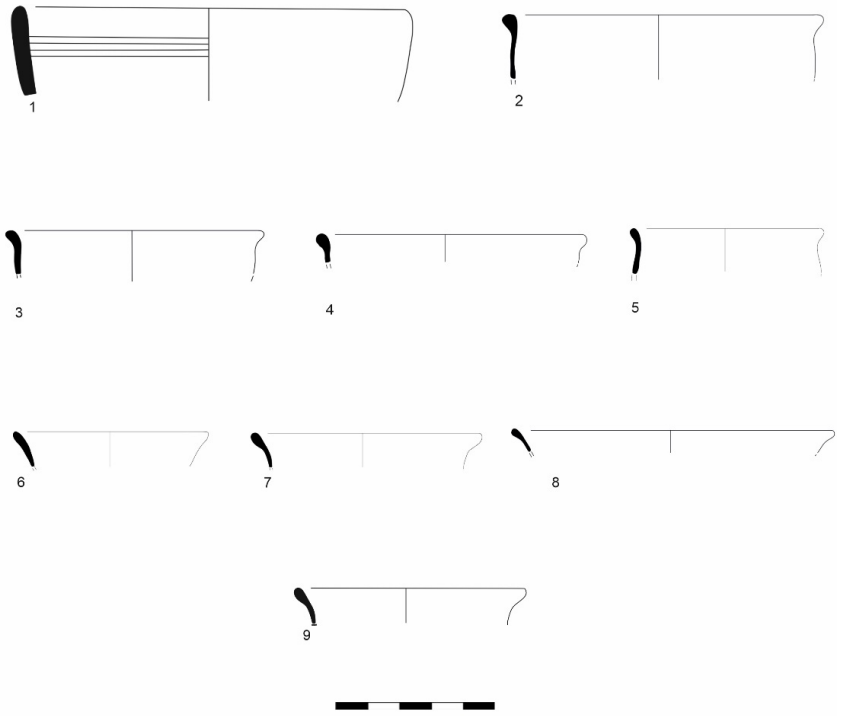

Fig. 3. Pre and Early Roman Glass.

The vase type characterized by C. Isings as the "Carinated Beaker" (Fig. 4.1-16) dated to the period between late-Augustan and early-Tiberian, as exemplified by a find from Locarno[29], also presents the largest category among the glass vessels discovered within the HF structure. These samples were recorded in Trenches A, D, F, and G. Deep beakers, typically characterized by a concave base and a curved profile, emerged in the western provinces during the 1st century AD and subsequently proliferated throughout the Empire by the 2nd and 3rd centuries AD[30]. There is no identifiable group within the HF structure that can be confidently classified as the base fragments of this type of vessel. It can be posited that vessel groups characterized by robust and thick bases, particularly those depicted in Fig. 4.17-20, are more prevalent in Cyprus and Anatolia compared to other regions within the Empire[31]. It is noteworthy that the base fragments represented by four specimens, with a diameter range of approxima-

[29] Isings 1957, form 4.
[30] Höpken-Çakmaklı 2015, 38, cat. no. 50; Ç. Gençler-Güray has attributed the artifacts from Magnesia ad Meandrum to the 3rd century AD. at the latest (Gençler-Güray 2013, 173, fig. 2. 2.).
[31] Gorin Rosen - Israeli 2023, 320, G53.

tely 4 to 7 cm, may be associated with the beakers recovered from HF[32]. This proposition is substantiated by the commonality of the light olive green color observed among the artifacts.

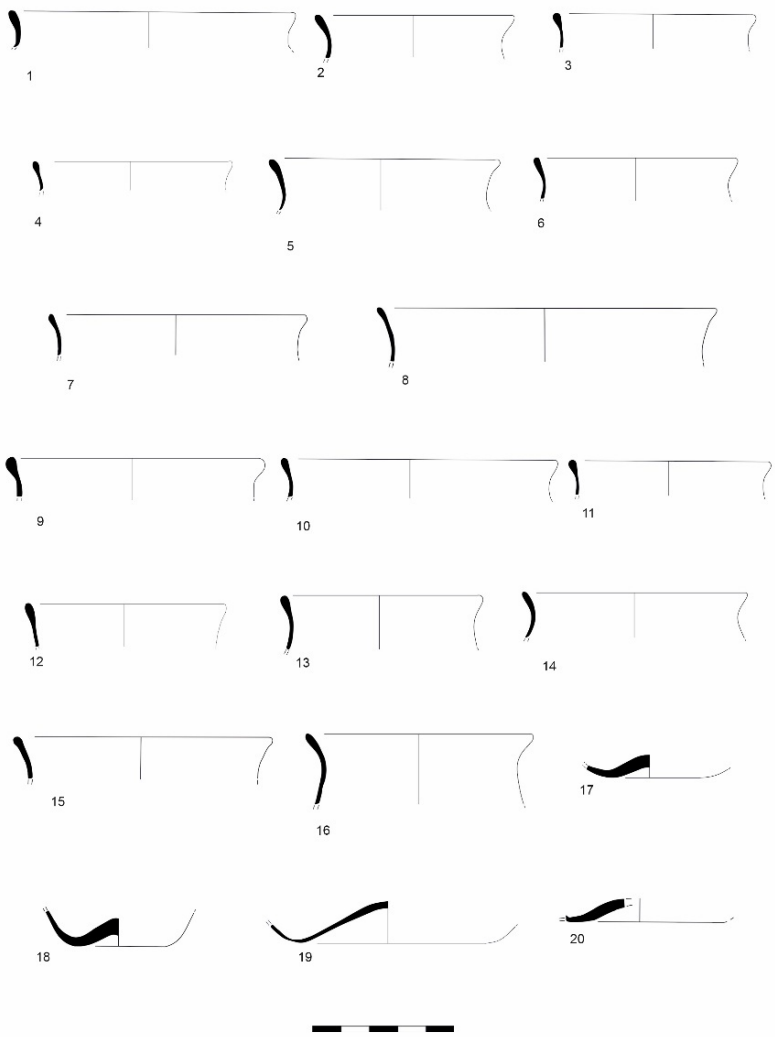

Fig. 4. Early Roman Glass.

[32] These base fragments can fundamentally serve as base components for a variety of forms, includings jars, jugs, and similar vessels. Our recommendation is predicated on the evidence provided by the beaker specimens recovered from the Roman Pool, which were found near-complete condition, as well as the compatibility of the diameters of the base fragments discovered at HF with the beaker form.

Abbreviations: H.: Height; RDm.: Rim Diameter; mxDm.: Maximum Diameter; BDm.: Base Diameter

Fig.	No	Vessel	Trench	Lot	Fragment	Diam. (cm.)	Color and Weathering	Description and Notes
3	1	Bowl	H-7	4	Part of rim	RDm.12 H.2.9	Dark olive green. No iridescence.	Casting. 4 cut lines interior below the edge.
3	2	Bowl	D-A4	10	Part of rim	RDm. 10 H. 2.1	Light blue. No iridescence.	Rounded rim. Bubbles.
3	3	Bowl	F	13	Part of rim	RDm. 8 H. 1.7	Light blue. Iridescent.	Rounded rim. Bubbles.
3	4	Bowl	C	13	Part of rim	RDm. 8 H. 0.9	Light blue. Iridescent.	Rounded rim. Bubbles.
3	5	Bowl	G-6	14	Part of rim	RDm. 6 H. 1.4	Light blue. Iridescent.	Rounded rim. Bubbles.
3	6	Bowl/ Beaker	D Con.5	8	Part of rim	RDm.6 H.1.8	Light green. Iridescent.	Bowl/Beaker with out-splayed sides and rounded rim. Bubbles.
3	7	Bowl/ Beaker	D Con.5	8	Part of rim	RDm.7 H.1.1	Dark olive green. No iridescence.	Bowl/Beaker with out-splayed sides and rounded rim.
3	8	Bowl/ Beaker	D Con.5	8	Part of rim	RDm.10 H.0.7	Dark olive green. No iridescence.	Bowl/Beaker with out-splayed sides and rounded rim.
3	9	Bowl/ Beaker	A	12	Part of rim	RDm.7 H.2.2	Dark olive green. No iridescence.	Bowl/Beaker with out-splayed sides and rounded rim.
4	1	Beaker	F	11	Part of rim	RDm.5 H.1.1	Dark olive green. No iridescence.	Deep beaker with rounded rim and curved profile.
4	2	Beaker	D	10	Part of rim	RDm.8 H. 2.6	Dark olive green. No iridescence.	Deep beaker with rounded rim and curved profile.
4	3	Beaker	F	3	Part of rim	RDm.7 H. 1.2	Dark olive green. No iridescence.	Deep beaker with rounded rim and curved profile.
4	4	Beaker	G	14	Part of rim	RDm.7 H. 1	Colorless. Iridescent.	Deep beaker with rounded rim and curved profile. Bubbles.
4	5	Beaker	D	8	Part of rim	RDm.8 H. 1.8	Dark olive green.	Deep beaker with rounded rim and curved profile
4	6	Beaker	D Con.4	9	Part of rim	RDm. 7 H. 1.5	Dark olive green.	Deep beaker with rounded rim and curved profile.
4	7	Beaker	F-3	7	Part of rim	RDm. 12 H. 2	Dark olive green. Iridescent.	Deep beaker with rounded rim and curved profile.
4	8	Beaker	F-3	7	Part of rim	RDm. 9 H. 1.5	Colorless. Iridescent with sand deposits.	Deep beaker with rounded rim and curved profile.

4	9	Beaker	A-4	18	Part of rim	RDm. 9 H. 1.5	Light olive green. No iridescence	Deep beaker with rounded rim and curved profile. Bubbles.
4	10	Beaker	D Con.4	9	Part of rim	RDm. 7 H. 1.5	Light olive green. No iridescence	Deep beaker with rounded rim and curved profile. Bubbles.
4	11	Beaker	F	3 (from shifting 4/7 soil)	Part of rim	RDm. 7 H. 1.2	Light olive green. No iridescence	Deep beaker with rounded rim and curved profile. Bubbles
4	12	Beaker	D Con.5	8	Part of rim	RDm. 7 H. 1.5	Light olive green. No iridescence	Deep beaker with rounded rim and curved profile. Bubbles.
4	13	Beaker	D Con.5	8	Part of rim	RDm. 7 H. 1.9	Light olive green. No iridescence	Deep beaker with rounded rim and curved profile. Bubbles.
4	14	Beaker	D Con.5	8	Part of rim	RDm. 8 H. 1.8	Light olive green. No iridescence	Deep beaker with rounded rim and curved profile. Bubbles.
4	15	Beaker	F	7	Part of rim	RDm. 9 H. 1.5	Light olive green. No iridescence	Deep beaker with rounded rim and curved profile. Bubbles.
4	16	Beaker	D A-4	10	Part of rim	RDm. 8 H. 2.5	Light olive green. No iridescence	Deep beaker with rounded rim and curved profile. Bubbles.
4	17	Beaker/ Bowl	F	14	Part of base	BDm. 3.6 H.0.8	Dark olive green.	Thick, massive base fragment. Blowing spirals.
4	18	Beaker/ Bowl	F	2	Base	BDm. 3.2 H. 1.4	Dark olive green.	Thick, massive and complete base and beginning of wall. Bubbles. Blowing spirals.
4	19	Beaker/ Bowl	D Con.5	8	Part of base	BDm. 7 H. 1.5	Light olive green.	Base fragment. Blowing spirals.
4	20	Beaker/ Bowl	G	10	Part of base	BDm. 5 H.0.9	Light olive green.	Base fragment. Blowing spirals.

2. Middle Roman Imperial Glass (2nd – 3rd century AD)

During the HF excavations, seven artifacts suitable for dating were identified (Fig. 5). These artifacts exhibit form characteristics pertinent to the chronological category of the Middle Roman Imperial Period and reflect the glassmaking tradition of the period. Bowls, beakers, and plates recovered from HF constitute a collection of glass vessels associated with the Middle Roman Imperial Period.

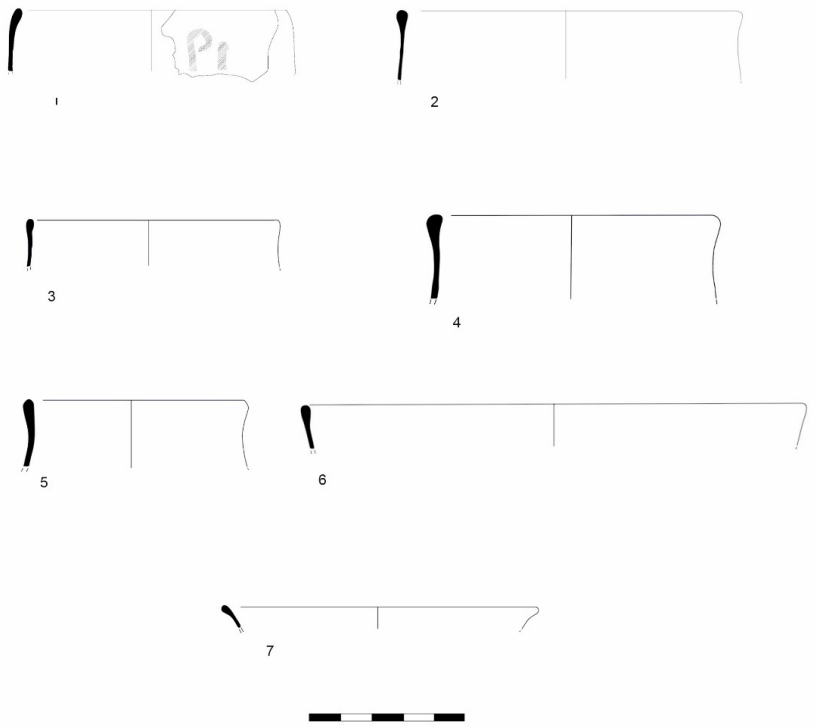

Fig. 5. Middle Roman Imperial Glass.

One of these bowls holds particular significance for comprehending the framework of glass utilization in Labraunda. Three inscribed glass fragments have been recovered from Labraunda to date. One example, an oil lamp, was recovered from the excavations of the Western church during earlier archaeological investigations and is dated to Late Antiquity[33]. Of the two bowl or bowl/

[33] Although the examples from HF and East Bath are representative of the same period, the Middle Roman Imperial Period, the third and final inscribed cup found in Labraunda to date points to the Byzantine Period, circa 5th century AD. J. Blid, during his excavations in the West Church, identified two bowl-shaped lamps, which represent a rare category for Labraunda. One of these items bears a significant inscription. The item was analyzed by Jesper Blid in his doctoral thesis, in which he notes that the inscription in Greek reads u(pe\r[ ]to?[, positioned between the rim and the handles. At present, it is not possible to form a complete reading of this text. However, votive epigraphs in the eastern provinces of the Roman Empire often contain the formula hyper ton idiom (for the benefit of his/her own). Thus, the lamp found in the West Church Complex was most likely offered as a votive (Blid 2016, 121-122, fig. 125. 10).

beaker fragments that are nearly identical in terms of period, form, color, and inscription, one originated from the East Bath, while the other was uncovered from the HF (Fig. 5.1). A small fragment of the HF bowl has been preserved, featuring a Greek inscription that reads "Pi." However, it is currently not feasible to provide a comprehensive analysis of this text, as no close parallels to this fragmentary inscription have been identified. The same holds true for the East Bath example from which the other inscribed fragment originated[34]. The absence of comparanda suggests that these glass beakers may have been locally produced artifacts, with the inscriptions holding contextual significance within the Caria region. Both examples can be identified as variations of the plain bowls that C. Isings attributes to the 2nd century AD[35]. While these examples originated in the 1st century AD, they continued to be utilized until the 3rd century AD[36].

Another category of beaker or bowl is represented by four specimens within the HF structure (Fig. 5.2-5), originating from Trenches C and F. This type features a rounded, incurving rim, which is typically slightly thicker than the wall. It has a cylindrical or hemispherical body and concludes with either a concave or flat base. It is a recognized form in Anatolia, as well as across the entirety of the Roman Empire[37]. This form is documented in 2nd and 3rd century AD contexts in the Roman Pool. However, it can be asserted that the rims were shaped in various manners, either by rounding or cutting, and that these examples were also utilized during the Early Roman period[38]. The specimens from the HF were dated by considering the contextual finds from the excavation sectors within Labraunda.

The colorless plate form (Fig. 5.6), one of the most prevalent types of vessels, particularly during the 2nd century AD and subsequently, represents an additional category of vessels for HF. The most significant characteristics of the dishes include their decolorized contents, rounded rims, thin walls, minimal presence of tiny air bubbles on the surface, and the fact that these dishes were polished by fire, resulting in a smooth surface akin to that of ground rock crystal[39]. The plate in question has a diameter of 16 cm and is a single specimen of considerable size originating from Trench A.

The wide-open rim fragment discovered in Trench D may complement a range of bowl or plate forms (Fig. 5.7). Conversely, it possesses a profile that closely re-

[34] The fragment from East Bath contains a partially preserved inscription in Greek that reads «ΠΙΟS».
[35] Isings 1957, 96, form 81; 101, form 85b.
[36] Rütti 1991, form AR 98.1, Nr. 1692-1713; Baybo 2016, 52-53, B85.
[37] Zeugma (Grossman 2013 227, G.23); Metropolis (Akkuş Koçak 2021, 88, cat. no. 162-171).
[38] Gorin Rosen - Israeli 2023, 320, G49-50.
[39] Taştemür 2021a, 295, fig. 3. 32; Price – Cottam 2001, 170-176.

sembles a rim fragment of a plate retrieved from the Herulian destruction debris in Athens, which is dated to a 3rd-century context[40]. This plate type is represented by a singular specimen within the HF structure.

Plate	No	Vessel	Trench	Lot	Fragment	Diam. (cm.)	Color and Weathering	Description and Notes
5	1	Bowl	D	7	Part of rim	RDm. 8.8 H. 2.	Light green. No iridescence.	Rounded rim and part of body with Greek inscription that reads "Pi".
5	2	Bowl/ Beaker	C Con.6	10	Part of rim	RDm. 11 H. 2.2	Light blue. Iridescence and sand deposits	Bowl with a flat-angled body profile and rounded rim.
5	3	Bowl/ Beaker	F	12	Part of rim	RDm. 8 H. 1.5	Olive green. No iridescence.	Bowl with almost a flat-angled body profile and rounded rim.
5	4	Bowl/ Beaker	F Con.5	13	Part of rim	RDm.9 H.2.8	Dark olive green. No iridescence.	Bowl with almost a flat-angled body profile and rounded rim. Bubbles.
5	5	Bowl/ Beaker	D	10	Part of rim	RDm.7 H.2.2	Colorless. Iridescence and sand deposit.	Rounded rim and thin wall. Relatively small bowl.
5	6	Plate	A	26	Part of rim	RDm.16 H.1.4	Colorless. No iridescence.	Wide-open mouth, rounded rim and thin wall. Bubbles.
5	7	Bowl	D Con.5	8	Part of rim	RDm.10 H.0.7	Dark olive green. No iridescence.	Shallow bowl with out splayed and rounded rim.

3. Late Roman Imperial (3rd-4th century AD) and Early Byzantine Glass (5th-7th century AD)

A total of 30 examples of Late Roman Imperial and Early Byzantine glassware were identified during the HF excavations. This category encompasses bowls, bottles, plates, jars, and goblets (Fig. 6-7).

[40] Weinberg - Stern 2009, 99-100, fig. 212.

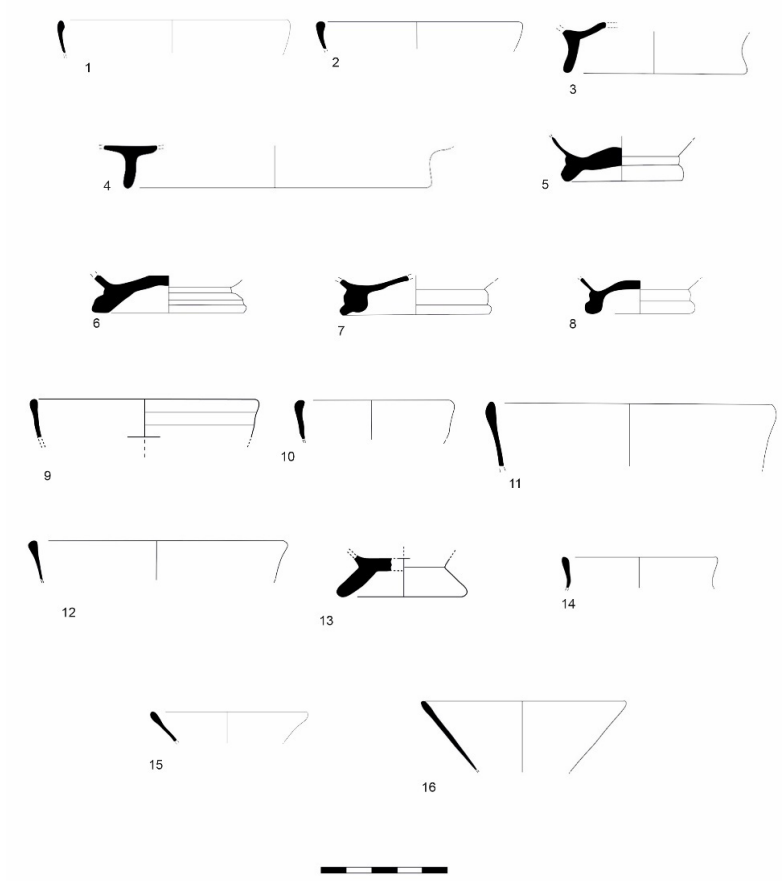

Fig. 6. Late Roman and Early Byzantine Glass.

In the context of Late Antiquity, the most prominent examples of glass vessels recovered from the HF structure are represented by bowl types. The first of these is the "Bowl with Rounded Rim" (Fig. 6. 1-2), characterized by a rim diameter of 8-9 cm. This particular type closely resembles the "Semi-spherical Bowl with Thickened Rim" unearthed at the Metropolis glassworks, which can be dated to the second half of the 4th century AD and the 5th century AD based on its archaeological context[41]. Additionally, there are undecorated examples from Üçtepe (Diyarbakır) that date to the Late Roman and Early Byzantine periods[42]. This vessel type was identified as comprising two fragments that belong to two distinct vessels within the HF structure.

[41] Akkuş Koçak 2021, 111, cat. no. 370-377.
[42] Lightfoot 1993, 91, fig. 1. 1.

The artifacts categorized as "High Base Plate/Bowl with Attached Base"[43] (Fig. 6.3- 4) have been documented in the excavations at Labraunda, particularly within the Roman Pool[44]. These bowls were produced by applying a glass trail to the vessel's base, resulting in a solid ring base[45]. Among these artifacts, which are also known in Caria, the sole example in complete condition is documented as a discovery from Marmaris[46]. Although this type of vessel has been identified as early as the 2nd century AD[47], it is predominantly recognized from the 3rd and 5th centuries AD[48]. Two distinct vessel bases associated with this group were discovered at HF. The classification of these specimens as Late Roman period vessels is also based on their analogical proximity to similar artifacts discovered in the Roman Pool excavations, one of the nearest excavation sectors to HF.

Another form can be characterized as a "Deep Bowl on an Applied Base" (Fig. 6.5-8). Another definition of this group is "Coil-wound Bases". This form is well-documented from the 2nd to the 4th century and exhibits numerous variations, including those that are taller, shallower, and more splayed, among others. Likewise, they may belong to distinctly different categories of vessels, such as jugs, bowls, or flasks. They were utilized as tableware. This type of base was historically considered to be the product of Egyptian glasshouses during the Late Roman period[49]. They were also a prominent group in numerous centers of the empire[50]. This form is widely recognized throughout Labraunda. Specifically, there are 15 fragments from the East Church[51], two from the Roman Pool, and four from the HF structure. Moreover, the artifacts recovered from the Roman Pool comprise rim and base fragments that enable the classification of the form as a "Deep Bowl". Conversely, the Labraunda finds are associated with two distinct chronological frameworks. The specimens from the Roman Pool are dated to the 3rd and 4th cen-

43 One of the two specimens of this form identified within the HF structure may represent a bowl group characterized by a narrow diameter of 7 cm, whereas the other specimen may represent a plate group with a broader diameter of 12 cm.

44 Examples from Roman Pool were identified in strata that date to the 3rd and 4th centuries AD. (Çakmaklı 2017, 287, pl. 4. 19.)

45 Gorin Rosen - Katsnelson 2022, 115.

46 Özet 1998, 138, cat. no. 92.

47 Jalame (Weinberg 1988, 58, fig. 4. 20); Royal Ontario Museum (Hayes 1957, 63, fig. 6, no. 176, pl. 170). C. Isings asserts that this form (form 80) dates to the second half of the 2nd century AD. (Isings 1957, 113-115); The researcher, who selected the glass finds from Neo Paphos, Cyprus, as the focus of his doctoral dissertation, indicates that such bases are predominantly located in the Eastern Mediterranean. Furthermore, she notes that the historical development of this form extends from the 1st to the 5th century (Rowe 2004, 271, fig. 138. 8-10). Ç. Gençler-Güray conducted an analysis of the bowls recovered from Magnesia ad Meandrum, categorizing them within the context of the "Middle Roman Empire" (Gençler-Güray 2013, 172, fig. 1.5-6)

48 Sardes (von Saldern 1980, 29, no. 88), Metropolis (Akkuş Koçak 2021, 218, cat. no. 126; Klaros (Taştemür 2007, 40); Nea Paphos (Rowe 2004, 134, pl. 129. 7, 10, 11); Zeugma (Semiz 2021, 425-426, pl. XXXXVI, cat.no.433); Royal Ontario Museum (Hayes 1975, 119, Fig. 13, 467.) Hammat Gader (Gorin Rosen - Katsnelson 2022, 115, Fig. 1. 8-9); Alexandria (Majcherek 2018, 44, fig. 9.5).

49 Kucharczyk 2004, 52, fig. 3: 13.

50 Carthage (Sternini 1999, 98-99, fig. 9: 116,118,119,120-130,132); Kom-el Dikka (Kucharczyk 2004, 52, fig. 3: 13.); Rome (Sternini 2001, 68-70, fig. 20: 204-219.)

51 Blid 2016, 171, fig. 193. 1-8.

turies based on their typological characteristics and contextual evidence, whereas the specimens from the East Church are assigned to the 4th and 5th centuries[52].

The "Semi-Globular Bowl" type (Fig. 6.9-10) identified in Trench B, consisting of two fragments from distinct bowls characterized by a consistent olive coloration, represents a vessel form that has been documented in similar 4th and 5th-century contexts associated with the East Church[53].

The "Bowl with Conical Body" type (Fig. 6. 11-12), represented by two fragments, both excavated from Trench F, is characteristic of the 4th and 5th centuries AD[54]. Starting in the 3rd century AD[55], this group began to appear in Anatolia; however, it remains a rare assemblage in Labraunda.

Another challenging category of bowls is the "Deep Bowl" (applied base-ring) type (Fig.6.13), which O. Dussart situates chronologically between the 3rd and 7th centuries AD[56]. Since the specimens from the Metropolis Plaestra constitute a mixed group, they were dated utilizing the Dussart chronology[57]. R. A. Grossmann dated the two similar examples found in Zeugma to the Middle Roman Empire and Late Roman Empire periods, respectively, based on their contextual characteristics[58]. This type is exemplified by a solitary instance from the HF.

Serving vessels appear to have become more prevalent at Labraunda during the Late Imperial period than in earlier periods. This generalization remains applicable to the findings of the HF glass vessels. A jar form (Fig. 6.14), characterized by its narrow neck and bulbous body, represents a single specimen from HF. Another identical jar from East Church has been dated to the 4th and 5th centuries AD[59]. These jars were prominent in the eastern Mediterranean from the 3rd to the 5th centuries AD[60].

"Bottles with Short Funnel Mouth" (Fig. 6.15-16) represent one of the most dominant types of vessels from the Late Roman period and onwards. This type of vessel, represented in the HF structure by two fragments from Trench D, is frequently encountered both in Anatolia and in other regions[61].

52 Blid 2016, 170-171, fig. 193. 1-4.
53 Blid 2016, 171, fig. 193. 13.
54 Sardes (von Saldern 1980, 79, no. 584), Sagalassos (Lightfoot 1993, 175, cat. no. 19. Fig. 121-19); Medusa Museum (Höpken- Çakmaklı 2015, 155, cat. no. 348).
55 Aksaz (Taştemür-Dinç 2024, 176, fig. 5, cat. no. 17-20); Klaros (Taştemür 2007, 83-162, no. 127).
56 Dussart 1998, 68, 69, Bl. 4222b1 (3rd-4th cen.AD), Bl 4222a2 (5th-7th cen.AD).
57 Akkuş Koçak 2021, 114, cat. no. 390-399.
58 Grossmann 2013, 227, 241 (Fig. G21, G64).
59 Blid 2009, 140, cat. No. 11.
60 Symrna (Savur-Yıldız 2016, ek.s.11, cat. no. 11), Zeugma (Grossmann 2013, 242, G.69).
61 Zeugma (Grossmann 2013, 243, G.72), Medusa Museum (Höpken- Çakmaklı 2015, 59, cat. no. 100); Metropolis (Akkuş Koçak 2021, 97-98, cat. no. 261; Symrna (Savur-Yıldız 2016, ek.s.12, cat. no. 12), Necropolis of Silifke (Erten 2018, 63, cat. no. 20); Hammat Gader (Gorin Rosen - Katsnelson 2022, 120, Fig. 2.4); Samaria (Crowfoot 1957, 408-409).

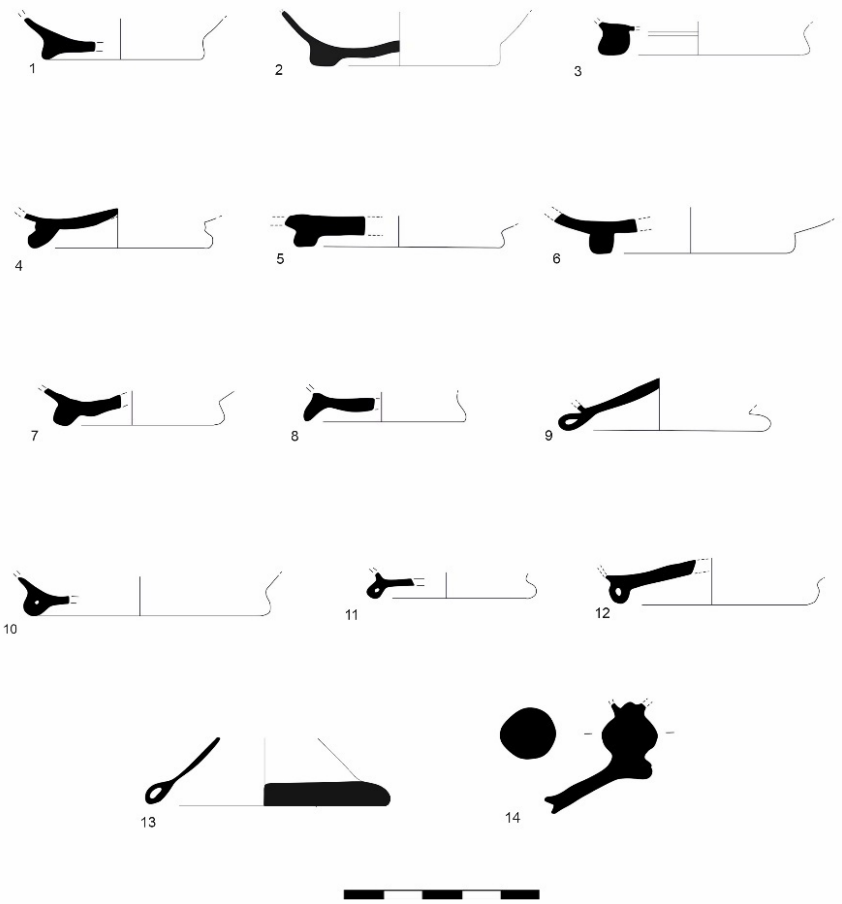

Fig. 7. Late Roman and Early Byzantine Glass.

"Ring Bases" represent another category of vessels (Fig. 7.1-12) recovered from HF, exemplified by two sub-types. In both subtypes, the bases were created during the vessel's formation. This particular type of base was used in various forms across different periods throughout the Roman Empire; unfortunately, a typological study does not permit precise dating. The first group can be defined as "Low Ring Base" (Fig. 7.1-8). This group is represented by eight fragments, all displaying nearly identical typological characteristics. Given the narrow diameters of their bases and the side walls extending from the base to the body, it can be inferred that these vessels represent bowl, jar, or beaker forms. They were utilized as table vessels. The second category is "Folded Ring Base in Tube Form", represented by four fragments (Fig. 7.10-12). This group of vessels, which experienced an extensive period of usage

during the Roman Period, may have served as table vessels associated with beaker or bowl forms, taking into account the transitional profiles from the narrow diameter bases to the body. The evaluation of these two subtypes within the context of Late Antiquity (4th-5th century AD), specifically regarding HF structure, is inferred from the contextual dating of analogous examples from the Roman Pool[62] and East Church[63] buildings in Labraunda. However, it is important to acknowledge that the dating of the HF samples may precede this period. The average diameter of the vessels ranges from 5 to 6 cm, and except for one, all exhibit similar morphological characteristics along with a colorless glass structure. Although there is an absence of sufficient quantitative data to ascertain definitively whether these vessels originate from the same workshop, this possibility should not be discounted.

In the context of HF, the "Goblet" form constitutes the final vase group of Late Antiquity (Fig. 7.13-14). The intended uses of the goblets are diverse; they serve as drinking vessels owing to their formal similarities with contemporary wine goblets, and they are also employed for lighting purposes, particularly in religious spaces, due to their transparency. Glass goblets with varying forms of body, stem, and base were produced throughout the Roman world from the 4th century AD onwards[64]. This group is not extensively documented, with two fragments from two goblets identified as originating from Trenches A and D in the HF. Although the stem parts of the goblets were not recovered, drawing upon the stem portions of comparable goblet discoveries from Labraunda, it can be inferred that the HF fragments should be classified as "Stemmed Goblets." When considered in this manner, the HF fragments represent two distinct subtypes of stemmed goblets.

The "Goblet with a Tubular Base Ring," a notable example from Late Antiquity, exemplifies the first category (Fig. 7.13). In Sardes, a city in Anatolia renowned for its extensive collection of goblet artifacts, A. von Saldern classified these goblets based on the shapes of their rods, foot forms, and the combinations of rods and feet[65]. However, the HF find lacks the completeness necessary to be classified within any of these established categories as a representative sample.

The second category is "Goblets with Knobbed Stems" (Fig. 7.14), which is prevalent and recognized in both Labraunda[66] and Caria[67]. Von Saldern describes this stem shape as "with a knob that can vary from a pronounced central swelling to a ball," which is characteristic of Sardis glass. Similar to other goblet types identified at Sardis, this handle shape is predominantly associated with Early Byzantine

62 Çakmaklı 2017, 292, pl. 3.18.
63 Blid 2016, 171, fig. 12, cat. no. 12.
64 Erten 2003, 147.
65 von Saldern 1980, 53-60, pl. 12, pl. 24.
66 Hellström 1965, 85, pl. 30.29.
67 Pedasa (Çakmaklı 2021, 217); Iasos (Contardi 2009, 130, cat. no. 5-6).

layers[68]. As a rare goblet type identified in Pergamon, examples have been recovered from the archaeological levels dating to the 5th to 7th centuries[69]. Numerous Anatolian centers, including Iasos[70], Perge[71], Patara[72], Amorium[73], Ephesos[74] and Hierapolis[75], present similar examples. The sole identified example of this type at HF is derived from Trench A. This trench, which offers significant insights into the construction and abandonment of HF, produced both a stamped Attic black-glazed ring base dating to the 3rd century BC and a bronze coin from Miletus dated to 313/2-290 BC. These findings should be interpreted as evidence of the reuse of HF during various phases within Trench A, which also yielded glass artifacts from the Early Roman Imperial period[76].

Plate	No	Vessel	Trench	Lot	Fragment	Diam. (cm.)	Color and Weathering	Description and Notes
4	1	Bowl	E	1	Part of rim	RDm. 9 H. 1.3	Light olive green. Iridescent with sand deposit.	Shallow bowl with rounded rim.
4	2	Bowl	F	12	Part of rim	RDm. 8 H. 1	Olive green. No iridescence.	Shallow bowl with rounded rim.
4	3	Bowl?	G	7	Part of base	BDm. 7 H.1.7	Colorless. Iridescent.	The high base ring is conformed in conjunction with the vessel's form. Bubbles.
4	4	Plate?	C	22	Part of base	BDm. 12 H. 1.7	Dark olive green. No iridescence.	The high base ring is conformed in conjunction with the vessel's form.
4	5	Bowl	A	14	Base	BDm. 4.6 H. 1.4	Light olive green. No iridescence.	Applied Base. Pontil mark.
4	6	Bowl	A	14	Base	BDm. 6 H. 1.3	Dark olive green. No iridescence.	Applied Base. Pontil mark.
4	7	Bowl	D	10	Base	BDm. 6 H.1.6	Light olive green. No iridescence.	Applied Base. Pontil mark
4	8	Bowl	D Con.5	8	Base	BDm. 4 H. 1.4	Olive green. No iridescence.	Applied Base. Pontil mark.
4	9	Bowl	B Con.5	8	Part of rim.	RDm. 9 H. 1.5	Dark olive green. No iridescence.	Semi-globular bowl with rounded rim.
4	10	Bowl	F	16	Part of rim	RDm. 6 H. 1.6	Dark olive green. No iridescence	Semi-globular bowl with rounded rim.
4	11	Bowl?	F	9	Part of rim	RDm. 11 H. 2.4	Light olive green. No iridescence.	Rounded and thickened rim. Slightly conical body. Bubbles.

68 von Saldern 1980, 53.
69 Schwarzer – Rehren 2021, 173-174, pl. 9.93-94.
70 Contardi 2009, 124-125, fig. 5-6.
71 Buluç 2023, 147-148, cat. no. C4.
72 Baybo 2003, 71.
73 Gill 2002, 170, F.2/3/61.
74 Schatzchock 2009, 116, fig. 3.
75 Gençler 2000, 240, fig. 3.52.
76 Rojas et al. 2014, 311-312, fig. 89-90.

4	12	Bowl	F	13	Part of rim	RDm. 10 H. 1.6	Light olive green. No iridescence.	Rounded and thickened rim. Slightly conical body. Bubbles.
4	13	Bowl?	A Con.1	-	Part of base	BDm. 5 H.1.6	Light green. No iridescence.	Miniature bowl with high base. Bubbles.
4	14	Jar	A	20	Part of rim	BDm. 6 H. 1.2	Light green. No iridescence.	Small jar with rounded rim.
4	15	Bottle	D Con.5	8	Part of rim	BDm. 6 H. 1.2	Light olive green.	Rounded rim and short-funnel mouth. Bubbles.
4	16	Bottle	D Con.5	8	Part of Rim	BDm. 8 H. 2.8	Light olive green.	Rounded rim and short-funnel mouth. Bubbles.
5	1	Bowl?	D	10	Part of base	BDm. H.	Light blue. Iridescent.	Low Ring Base. Bubbles.
5	2	Bowl?	D Con.5	8	Base	BDm. 4.6 H. 1.4	Olive green. No iridescence.	Low Ring Base. Bubbles.
5	3	Bowl?	D Con.5	8	Part of base	BDm. 5 H. 1.4	Dark olive green. No iridescence.	Low Ring Base. Bubbles.
5	4	Bowl?	E	8	Base	BDm. 4.4 H. 0.9	Olive green. No iridescence.	Low Ring Base. Pontil mark.
5	5	Bowl?	G	19	Part of base	BDm. 5 H. 1.3	Light olive green. Iridescent with sand deposit.	Low Ring Base. Pontil mark.
5	6	Bowl?	A	8	Part of base	BDm. 5 H. 1.2	Light blue. Iridescence.	Low Ring Base. Bubbles.
5	7	Bowl?	C Con.9	12	Part of base	BDm. 4 H. 09	Light olive green. Sand deposit.	Low Ring Base. Bubbles.
5	8	Bowl?	G	1	Part of base	BDm.4 H. 0.8	Olive green. No iridescence.	Low Ring Base. Bubbles.
5	9	Bowl?	A Con.1	-	Part of base	BDm. 5 H.1.2	Colorless. Iridescence.	Folded Ring Base in Tube Form. Bubbles.
5	10	Bowl?	D	10	Part of base	BDm. 6 H. 1	Colorless. Iridescence.	Folded Ring Base in Tube Form. Bubbles.
5	11	Bowl?	G	18	Part of base	BDm. 4 H. 0.7	Light blue. No iridescence.	Folded Ring Base in Tube Form.
5	12	Bowl?	A	20	Part of base	BDm. 5 H. 1.1	Colorless. Iridescence.	Folded Ring Base in Tube Form. Bubbles.
5	13	Goblet	D Con.5	8	Part of base and stem	BDm. 6 H. 1.9	Light olive green. No iridescence.	Goblet with folded base. Bubbles.
5	14	Goblet	A	10	Part of base and stem	mxDm.2.8	Light olive green. No iridescence.	Goblet with knobbed stem.

Concluding Remarks

While conducting typological and chronological studies of HF glasses, it was possible to evaluate all archaeological data obtained during the excavations within a contextual framework. The completion of excavations within the sector also facilitated a comprehensive assessment of the glass artifacts from HF. Although all glass groups from HF were recorded in fragments, these artifacts could be comparatively analyzed with finds from other sectors, benefiting from the completed "Labraunda Glass Project." The earlier "Carian Glass Typology" served as a foundational reference point for evaluating these results[77].

The earliest glass vessels recovered from the HF can be traced to the Hellenistic/Early Roman period, whereas the most recent and abundant finds originate from the Late Roman and Early Byzantine periods. The quantitative density of Late Antiquity artifacts is comparable to that observed in other sectors of the Labraunda sanctuary. This observation is predictable, as it is well-established that Labraunda, a site that maintained its sanctity, continued to attract visitors during the Late Roman period and beyond. This era was characterized by the construction of new edifices, and it is posited that the site may have transitioned to new production organizations in response to the heightened demand from visitors[78]. Therefore, local production in Labraunda during this period is highly probable[79]. Conversely, when assessing the period of construction and primary utilization of HF, it can be anticipated that the periodic density of glass vessels reflects a significantly earlier timeframe. At this point, it is essential to consider the capacity of glass materials to be melted and reformed. Furthermore, it was established and documented during the excavations that the building underwent reuse in various phases.

However, there is insufficient data to determine the existence of an organized system for glass production during the Early Roman period. Particularly when analyzing the HF structure, the quantity and density of Early Roman glass materi-

[77] The typological study referenced in this discourse is grounded in the PhD thesis entitled "Roman Glass Vessel Typology of the Caria Region," which was completed by the author of this article in 2012 (Çakmaklı 2012).

[78] The East Church, constructed between the South and East Propylons around 400 AD, along with its associated artifacts, indicates that Labraunda experienced renewed activity during this period. Furthermore, there are more than 200 glass artifacts among the discoveries, which are presumably votive objects (Blid 2010, 87). The Tetraconch building, proposed to serve as the residence of the Roman governor or bishop residing in Mylasa, along with the prominent structure characterized by four apses, suggests that Labraunda was more than a modest settlement during Late Roman times. Therefore, it can be inferred that both the vital and cultic needs of Labraunda likely intensified during this period.

[79] It should not be dismissed that the glass ingot findings from the West Church may suggest production during this period (Blid 2016, 120, fig. 124). This is attributable to the fact that, during Late Antiquity, not only Labraunda but also numerous other centers in Anatolia were compelled to address their local needs in response to demand, successfully executing this production process utilizing their existing technology and organizational structures (For detailed information on the aforementioned centers, see. Taştemür 2018, 203-229; Çakmaklı 2021; Taştemür 2021b).

als are notably significant. Indeed, the studies conducted thus far indicate that the HF yielded the highest concentration of artifacts from this period in Labraunda[80].

When evaluating the repertoire of glass vessels, it is noteworthy that, regardless of the period, all can be characterized as tableware. Nearly all of the vessels exhibit a significant deviation from high-quality production standards. Many base fragments of HF glass groups exhibit noble marks and blowing spirals. Their workmanship is predominantly of average quality. Considering both the identifiable glass vessels and the unidentifiable fragments—predominantly body fragments—it becomes evident that the majority of the artifacts lack decoration. Instances of decorative elements are limited to simple wheel cut lines and applied coils, both of which are singular examples. Notably, with the exception of one artifact (Fig.5.1), none of the cataloged items exhibits any form of decoration. Given that the predominant color in the HF glass color spectrum is olive green (66%), it is plausible that the Late Roman-Early Byzantine period glassware with the highest frequency of finds was likely produced by a single workshop. The hypothesis that this workshop was local or regional gains strength when one considers that the vessels produced were characterized by their simplicity and plainness, which would have resulted in a minimal trade value.

Thanks

The present study represents a substantial contribution to the "Labraunda Glass Project," undertaken during my tenure as co-director of the Labraunda excavations from 2013 to 2017. I would like to express my sincere gratitude to the students of Karabuk University for their collaborative efforts throughout the project. I am especially appreciative of Felipe Rojas, the director of the Hypostyle Fountain excavation, Olivier Henry, the head of the Labraunda Excavations, as well as the distinguished team from Brown University for their willingness to share their data.

Conflict of Interest

Within the scope of the study, there is no personal or financial conflict of interest between the authors.

Ethical Statement

Regarding the Ethics Committee authorisation; the author of this study has declared that there is no need for Ethics Committee authorisation.

[80] For instance, in the Roman Pool structure, which was constructed during the Early Roman period, glass artifacts represent a relatively minor category of discoveries when contrasted with the significantly higher numerical density of Early Roman pottery finds. The glass ingots and glass drops retrieved from this sector could not be dated, but they were interpreted as artifacts indicative of production during Late Antiquity (Çakmaklı 2017, 288-289).

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