



New Evaluations and Restitution Suggestions for the Phaselis Small Bath Structure

Phaselis Küçük Hamam Yapısına Ait Yeni Deęerlendirmeler ve Restitüsyon Önerileri

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Abstract: Phaselis, located within the administrative boundaries of the Kemer District of Antalya Province, was founded on a promontory extending towards the sea on the eastern coast of the Teke Peninsula. The Phaselis Small Bath is one of the public buildings located on the main street between the north-south harbours in the city plan. The objective of this article is to analyse and interpret in conjunction with other examples from Eastern Mediterranean port cities the building, which was first identified as a bath by the director of Antalya Museum (head of the excavation) Kayhan Dörtlük in 1980. The initial studies conducted under the direction of Cevdet Bayburtluoğlu between 1981 and 1985 were subjected to analysis, and the architectural design of the building was re-documented utilising contemporary technologies. The position, typology and construction technique of the bath structure in Phaselis settlement archaeology was examined, and restitution proposals have been prepared with the intention of supporting the interpretation of the period characteristics of the bath structures by making use of digital archaeology.

Keywords: Phaselis, Roman Bath, Architecture, Water Supply, Hypocaust, Digital Archaeology

Öz: Antalya'nın Kemer İlçesi idari sınırları içinde bulunan Phaselis, Teke Yarımadası'nın doğu sahilinde denize doğru uzanan bir burun üzerinde kurulmuştur. Phaselis Küçük Hamam yapısı da kent planında kuzey-güney limanları arasındaki ana cadde üzerinde karşılıklı olarak konumlanmış olan kamu yapılarından biridir. Bu makale, ilk kez 1980 yılında Antalya Müze Müdürü (kazı başkanı) Kayhan Dörtlük tarafından hamam olarak tanımlanan yapıyı Doğu Akdeniz Liman kentlerinden örneklerle birlikte analiz edip yorumlamayı amaçlamaktadır. Kuzey-güney doğrultuda sıralanmış dikdörtgen planlı mekanlara sahip olan hamam yapısının ilk olarak 1981-1985 yılları arasında Cevdet Bayburtluoğlu başkanlığında gerçekleştirilmiş olan çalışmaları incelenmiş, sonrasında yapının mimarisi güncel teknolojiler kullanılarak yeniden belgelendirilmiştir. Hamam yapısının Phaselis yerleşim arkeolojisindeki konumu, tipolojisi ile inşaa tekniği mercek altına alınmış ve dijital arkeolojiden de faydalanılarak hamam yapılarının dönem özelliklerinin yorumlanmasına destek olacağı düşüncesi ile restitüsyon önerileri de hazırlanmıştır.

Anahtar sözcükler: Phaselis, Roma Hamamı, Mimari, Su Temini, Hypocaust, Dijital Arkeoloji

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Introduction

In antiquity, as today, man's path has somehow crossed with water, the source of life, sometimes to quench thirst, sometimes to satisfy the need for purification. This necessary unity, under certain conditions and depending on the construction methods and systems employed, has led to architectural changes at different intervals in different cultures throughout antiquity, after the Prehistoric age. The activity of bathing has led to the emergence of functional spaces of different materials, plans, types and sizes within the framework of differing geographies, climates, cultures and beliefs about bathing. In particular, the architectural change from the Classical Period to the Roman Imperial Period can be easily observed in the baths of many cities in the Mediterranean basin. The aim of this article is to present the Small Bath, one of the three baths from the Roman Imperial period that have been excavated at Phaselis, one of the most important emporium centres in the Eastern Mediterranean. What is already known about the bath and the new finds resulting from our investigations are presented together with archaeological material culture remains and architectural documentation studies employing the latest technologies.

In Hellenic and Roman societies, baths are among the most important public structures where social, cultural and economic life pulses. Phaselis, one of the most important trade centers (emporion) of the Eastern Mediterranean from the Archaic Period onwards, hosts many public buildings such as agora, baths and latrina that will attract the merchants in the Mediterranean in public and civil terms. The city, which became rich due to intense trade traffic, attracted merchants, commanders, kings, emperors and tourists from different regions and climates as a center of attraction in every period of antiquity¹. In this context, when we look at the settlement archeology of the city in terms of the city plan, it can be seen that it is emporion-centered and public buildings are particularly important². The existence of the bath, one of the most important public buildings of social life in Phaselis, has been known since the Classical Period. This is documented due to a passage quoted by Athenaios, who is known to have lived in the IInd-IIIrd centuries AD. The passage concerns Stratonikos, one of the famous kitharists and humorists of antiquity, who lived in the IVth century BC³.

The first field studies on the Phaselis Small Bath (Fig. 1) structure, also called the Theater Bath, were carried out in 1980 by a team led by Kayhan Dörtlük; In 1981, cleaning and excavation works were started by a team under the direction of Cevdet Bayburtluoğlu⁴. The building was defined as a bathhouse by the first team that carried out only archaeological surface surveys in the area in 1980, and this definition was confirmed in the 1982 excavations. The works, which were suspended after the archaeological excavations and documentation studies carried out in the bath structure between 1982 and 1985, were restarted in 2017 under the chairmanship of Murat Arslan⁵. No excavation activity was conducted in the building in question, which was re-examined within the scope of the master's thesis titled "An Example of Washing and Cleaning Architecture in Eastern

¹ We learn from the narrations of Plutarch, who stated that Alexander, an important figure of the Hellenistic Period and world history, stayed in Phaselis for about 1 month in the winter of 334/3 with the lightly armed soldiers of his army. Tüner-Önen 2008, 222, TLit. 42.a: ... *He says that he built the road called Klimaks and came here after leaving Phaselis. Because of this (road construction), he stayed in the city for a long time. ...*,

² Arslan & Tüner-Önen 2016, 301-304.

³ Ath. *Deipn.* VIII. 45. 6-13. (Stratonikos visited a bathhouse in Phaselis) and when the bathkeeper engaged in a dispute with his slave over the entrance fee (due to the slave's assertion that they were also from Phaselis and thus entitled to enter the bathhouse at a reduced price): the individual in question reprimanded his slave, stating, "You nearly made me a Phaselian for a penny".

⁴ Bayburtluoğlu 1983, 185.

⁵ For 2017 studies, see. Arslan & Tüner-Önen 2018, 321.

Mediterranean Port Cities: Phaselis Small Bath and *Latrina*⁶, only superficial cleaning work was carried out, the plan was concentrated and the overlooked points were highlighted. It seems inevitable that new information about the building will be obtained in the future, should the excavation of the sections at the lower level of the theatre building, where are thought to be the apodyterium and furnace, be completed. However, prior to any archaeological excavation in this area, it is imperative to reinforce the stage section of the theatre building, which currently due to static issues presents a security risk.



Fig. 1. Aerial View of Phaselis Small Bath Building, *Latrina* and Theater

The documentation of the Phaselis Small Bath structure commenced with the archiving of previous work conducted on the structure. Concurrently, the structure was transferred to the digital environment in greater detail and in a multidimensional manner, utilising current technologies. In this study, the building was reconsidered from a holistic perspective, employing a combination of remote sensing, photogrammetric examinations and digital documentation systems, in addition to classical methods. Each space was studied in detail, documented and perspective drawings were prepared, as well as possible restitution and stone plans. Three-dimensional visuals were also created. The data obtained as a result of this documentation has enabled the formulation of two distinct restitution proposals for the structure. This article presents an evaluation of the architectural elements of the bath structure from a variety of perspectives, employing current technologies to address previously undefined points. The objective is to highlight the significance of the outcomes of digitalisation, which has permeated every aspect of our lives, and to demonstrate how it can be employed in the documentation and preservation of our cultural heritage, involving the contributions of various disciplines.

Location of the Bath Building in the City

Located on three hills extending from east to west between the *Acropolis* and the Northern Settlement, Phaselis city center covers an area of approximately 10 hectares surrounded by the city's three ports and lagoons. The public, religious and civil architectural structures located in this

⁶ For more detailed information about Phaselis *Latrina*, see. Öner 2019b, 379-390.

area are arranged in a systematic plan order on the main street extending in a north-south direction⁷. The Phaselis Small Bath structure is located in a relatively flat open area on the main street connecting the city port and the south port. The building, which dates from the Roman Imperial Period⁸, has the theater stage building to the east, the acropolis and the stairs leading to the theater building in the south, the square and the *Tetragonal* Agora in the west, and *Latrina* to the North (Fig. 2). It can be said that there are several reasons why this location was preferred for the bath structure, which is located on one of the liveliest squares of the city with these buildings around it. The first of these is that it is in a central location preferred for public buildings, the other is that it is topographically flat and thus provides easy construction opportunities, and the last is that it is sheltered against winds due to the surrounding structures. Furthermore, the structure was designed to optimise the utilisation of natural light. These architectural elements align with the recommendations set forth by Vitruvius regarding the ideal placement of baths⁹.



Fig. 2. Location of Phaselis Bath and *Latrina*

As evidenced by numerous ancient coastal cities in the Eastern Mediterranean, maritime trade played a pivotal role in the economic and urban development of Phaselis. When examining the settlement archaeology of the city, it becomes evident that the three ports, the lagoon and the commercial and public structures are integrated within the city's master plan. Due to its sheltered topography, the port facilities and associated commercial buildings in the city appear to have been built around the port areas. It is thought that one of the main entrance points of the city is Hadrian's Gate, located in the South Harbour Area¹⁰, which was built in memory of Emperor Hadrian's visit to Phaselis¹¹. The fact that the direction of the inscription dedicated to the emperor is towards the

⁷ Arslan & Tüner-Önen 2016, 304.

⁸ Tüner-Önen 2008, 152 ve 177.

⁹ "First of all, a place as warm as possible should be chosen for baths, that is, a place away from north and northeast winds. Hot and warm bath rooms (caldaira, tepidaria) should receive light from the southwest or, if the nature of the place is not suitable, at least from the south; Because the best time to wash is between noon and evening." Vitruvius, *De Arch.* V. 10. 1.

¹⁰ See for South Harbour, Orhan 2024, 1-21.

¹¹ Two eastern travels of Emperor Hadrian, dated to 121-122 AD and 131-132 AD, are known. It is thought that he visited Phaselis on his second trip. For more detailed information see. Schäfer, 1981: 36; Tüner-Önen, 2008: 156-158; Arslan & Akçay 2022, 179; Orhan 2023, 8; Orhan 2024, 13.

South Port area supports this view¹². The Agora, Bath Structure and Latrina, situated in close proximity to the main thoroughfare connecting the South Port and the Central Port of the city, represent a significant architectural ensemble that serves to fulfill the social needs of the populace. The Phaselis Small Bath building is strategically located to the east of the aforementioned thoroughfare, at the centre of this region, where a high concentration of commercial and social activity was undertaken.

Architecture and Construction Technique of the Small Bath Structure

The eastern boundaries of the Phaselis Small Bath structure cannot be determined clearly since archaeological excavations have not yet been completed in that area. However, it can be suggested that the border in that direction is the line where the stage building of the theater begins. Accordingly, the bath structure covers an area of approximately 600 m², including service areas. According to the surviving plan scheme, it consists of rectangular spaces arranged one after the other in a north-south direction, and its area measures 21.07 x 19.60 m (approximately 413 m²)¹³ (Figs. 3-4).

The *frigidarium*, *tepidarium* and *caldarium* spaces of the Phaselis Small Bath structure are arranged from south to north, bordering the square on the west of the building. The *caldarium*, the northernmost space, is connected to the *tepidarium* in the middle section. There is a transition from the *tepidarium* to the *laconicum* in the east. In order to prevent heat loss in the bath, the doors connecting the *tepidarium* with the *caldarium* in the north and the *frigidarium* in the south were not made opposite each other¹⁴. The bath structure ends with the *frigidarium* in the south, and the *apodyterium* is reached through the door in the east of the space. In the northeast of the building, there is the *praefurnium* section, which is the section where the hot water needs of the bath connected to the *caldarium* are met¹⁵ (Fig. 4). The building plan is defined as “Single Axis Array Type”¹⁶ and the rooms are arranged from unheated areas to heated areas¹⁷. It is observed that a partial excavation was carried out by removing excess soil for the construction of a *hypocaust* in the *caldarium*, *tepidarium* and *laconicum* spaces of the building, and a pool in the *frigidarium* space (Fig.



Fig. 3. Phaselis Small Bath Structure

Fig. 4). The building plan is defined as “Single Axis Array Type”¹⁶ and the rooms are arranged from unheated areas to heated areas¹⁷. It is observed that a partial excavation was carried out by removing excess soil for the construction of a *hypocaust* in the *caldarium*, *tepidarium* and *laconicum* spaces of the building, and a pool in the *frigidarium* space (Fig.

¹² For the work done at Phaselis Hadrian's Gate, see. Akçay 2021, 1-15; For the latest evaluations and results on the subject Arslan & Akçay 2022, 179-180.

¹³ Öner 2019a, 87.

¹⁴ Examples of doors that are not placed on the same axis to prevent heat loss can also be seen in the Kibyra and Rhodiapolis baths. For Kibyra Bath Özüdoğru & Tarkan 2018, 178; For Rhodiapolis Bath Çevik *et al.* 2009, 244.

¹⁵ Öner 2019a, 88.

¹⁶ Yegül 2006, 60-61.

¹⁷ The Phaselis Small Bath structure is similar to Krencker's row type bath structures (Yegül 2006, 161-163), Farrington's plan type consisting of rows of volumes (Farrington 1995, xxi) and Brödner's row type (Brödner 1977, 38-39). It also has a plan diagram.

that every part of the building was covered with a barrel vault in an east-west direction (Fig. 7a).

The tile fragments unearthed during archaeological excavations in the area indicate that the barrel vault roof cover was covered with tiles. The internal height of the building is measured as 4.82 m from the stirrup level and the *laconicum* floor, which has survived to the present day, albeit partially, with all its layers (Fig. 7b).

There is a bench starting from the northern corner of the Phaselis Small Bath building and continuing along the western facade¹⁹. It is thought that this section with two steps was used for seating purposes for those wandering around. There is a 250 cm corridor between the bath structure and the latrina structure to the north. From this corridor, you can both enter the latrina and access the service area of the bath. However, the presence of ruins of the northern wall of the caldarium and the stage building of the theater in this area makes it difficult to understand the dimensions and function of this corridor (Fig. 1).

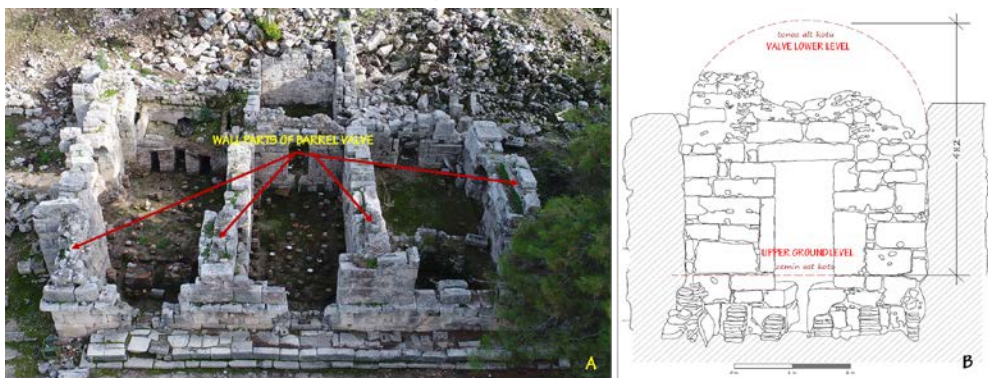


Fig. 7. a. Parts of the Barrel Vault b. Floor-Vault Dimensions

The main building material, which was used in large size and similar dimensions especially on the outer walls of the Phaselis Small Bath structure, is travertine breccia. However, in the repairs of the damaged walls of the building due to earthquakes and other natural disasters of the region, it is observed that smaller stones and spolia, demolished material was used instead of new stones²⁰. Although the main wall material was travertine breccia, it was determined that materials such as serpentine, gabbro and kalkarenite, which are the local building blocks of the ancient city, as well as marble of Afyon, Muğla or Marmara origin, limestone and breccia materials of Limyra origin, were brought from different geographies, and were sometimes employed as spolia and sometimes as coating material²¹ (Fig. 8).



Fig. 8. Phaselis Small Bath Building Blocks

¹⁹ The width of the bench is 115 cm.

²⁰ Phaselis and many ancient settlements around it have experienced devastating earthquakes in different periods. The earthquakes that caused the partial or complete destruction of cities in the historical process were 60-68 AD, 141 AD, 240 AD, 529-530 AD and VII century AD, respectively. For more detailed information, see: Softa-Turan 2013, 1-8.

²¹ For more detailed information about the Phaselis Small Bath building blocks, see: Öner 2018, 351-360.

Apodyterium (Part I)

Since archaeological excavations have not been completed in the section of the bath structure proposed as the *apodyterium*, the area covered by this section cannot be measured exactly.



Fig. 9. Apodyterium Aerial View and Door Pillars

However, since the traces of the southern and northern walls can be followed, it can be said that the theater ended with the stage building and its approximate dimensions are 5,04 x 13,00 m. The western and northern borders are evident due to the places where they have common walls. When we examine it in plan, the west direction is limited to the *frigidarium* section, which is entered through a door²². The northern border is determined by a preserved wall, some of which is shared with the *laconicum*, with a length of 9,79 m and an average height of 2,5 m²³ (Fig. 4).

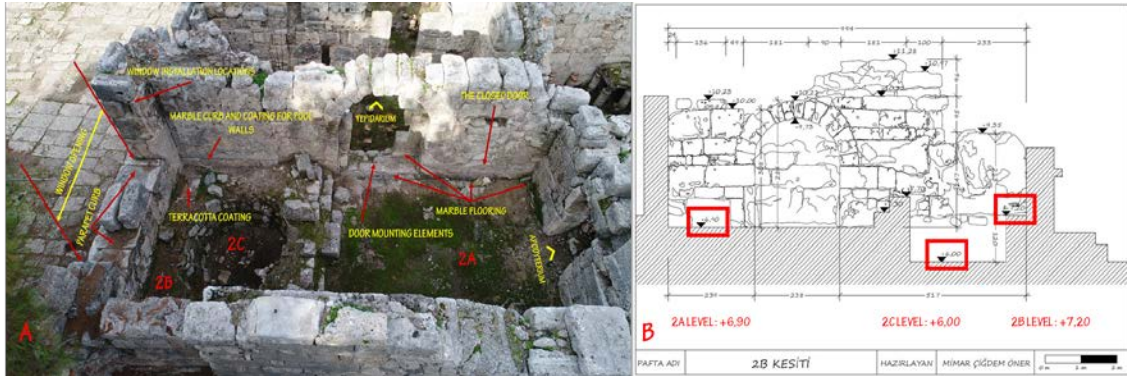


Fig. 10. a. *Frigidarium* North Wall b. Floor Levels

The presence of three jambs on the south wall, which we can associate with the small square where the stairs leading to the theater and the acropolis are located, and which we can say from their dimensions and positions that they belong to two doors side by side, allows us to think of this space as an *apodyterium*. The fact that there is no more suitable section that could be the main entrance to the building on the western and northern walls of the bath structure supports our view (Fig. 9). The fact that the archaeological excavations in this area have not been completed does not allow us to comment on the flooring of the place²⁴.

²² The entrance opening of the door is 1,09 m and the height is 1,86 m.

²³ Due to the obvious difference in masonry, it can be said that the part of the northern wall of the *apodyterium* following the eastern wall of the *laconicum* was built in a second phase. However, if the excavations in this area can be completed, it will help us obtain more accurate information on this.

²⁴ Since the floor coverings of both the *frigidarium* and *laconicum* of the Phaselis Small Bath and the *apodyterium* of the Great Bath, another bath structure in Phaselis, have survived, at least partially, we can say that the floor of the Small Bath *apodyterium* may have been furnished with a similar material. Arslan & Tüner-Önen 2016, 305.

Frigidarium (Part II)

This room was defined as *frigidarium* due to the absence of the *hypocaust* system in this space, the connection between the *apodyterium* and *tepidarium*, and its location within the building²⁵. The *frigidarium* section has a rectangular plan measuring 9.79 x 4.56 m and covers an area of 44.64 m². When entering the *frigidarium*, three different levels of flooring are visible (Fig. 10a-10b).

The first level (Fig. 10a-10b, Area 2A), where the surviving data indicates that the flooring material was marble, measures 5.84 x 4.56 m. The second level (Fig. 10 Area 2B) measures 4.33 x 4.56 m and is 1.30 m deep. It is thought to have been used as a pool during the first construction phase of the bath (Fig. 4). The marble coating of the side walls of the pool and its border have survived to the present day, supporting this opinion. This section was filled in a later phase of the bath, leaving an area of 2.70 m in diameter in the middle (Fig. 10a-10b, Area 2C). It can be concluded that it was not used as a pool since no material for waterproofing was observed in the circular-shaped area left empty²⁶. The terra cotta pavements of area 2B, which was later filled, can also be seen *in situ* (Fig. 10b, Area 2B).

The connection with the *tepidarium* in the north of the *frigidarium* is provided by a door whose metal mounting elements have survived to the present day²⁷ (Fig. 10). This door ends with an arch with a diameter of 2.32 m and a middle axle height of about 3 m. In the north wall of the *frigidarium* there is a doorway that was closed at a later stage. However, we do not have sufficient data on why and when it was closed (Fig. 10a). The connection of this place with the *apodyterium* to the east is also provided by a door²⁸.

There is a 3,00 m wide opening on the western wall of the *frigidarium*. At the lower level of this opening, a 20 cm high border can be observed that continues continuously on the western facade of the bath building (Fig. 11).



Fig. 11. Border and *Frigidarium* Window Opening Along the Entire Facade

On the border, which we think may have been built to determine the exterior window elevation of the bath structure and for the aesthetics of the facade, the narrow faces of integral stones with an average size of 0,80 x 1,00 m are placed side by side. This border, which was built to protrude 10 cm from the main body of the wall, must have served as a parapet for possible windows on the western facade of the building. There is no surviving data indicating that there were windows in the

²⁵ Bayburtluoğlu 1983, 184.

²⁶ During archaeological excavations, intense mercury findings were detected in the 2C area. For more detailed information, see. Bayburtluoğlu 1983, 184.

²⁷ The door entrance opening is 1,40 m. The lintel of the door has not survived to the present day. However, since we have clear data about the door heights of other spaces, we can say that the height of this door is approximately 2 m.

²⁸ The entrance opening of the door is 1,09 m and the height is 1,85 m.

caldarium and *tepidarium* spaces. Although it is recommended that all spaces of the Roman Imperial Period baths be exposed to sunlight and bright²⁹, the topographic conditions of the place where bath structures are located and the urbanistic features of the city may cause differences in their designs³⁰. Moreover, the presence of joinery assembly points identified in the stone fabrications on the right and left of the 3,00 m opening in the *frigidarium* space also supports the view that this gap is a window opening (Fig. 10).

On the south wall of the *frigidarium*, there is another arched section, similar to the north wall but serving a different function, 2,38 m wide, 2,83 m in middle height and 40 cm deep. On the central axis of the arched section, there is a faucet outlet 1.26 m above the floor of 2A. The main walls of the south of the *frigidarium* are preserved at some points from level 2A to the stirrup level (approximately 3,40 m), and at some points up to the parts of the barrel vault placed on the wall³¹ (Fig. 12).

The double-walled construction technique, which includes a filling of crushed stone and mortar used throughout the bath structure, was used for the *frigidarium* walls. After the construction of the wall, mortar was used to lay the marble slabs preserved *in situ* on the wall in some areas of the interior walls and especially at the bottom of the arched passage in the transition section to the *tepidarium*. It is also seen that the mortar surface under the marble was deformed by hammer blows in order to keep the marble material healthier, similar to today's practices.

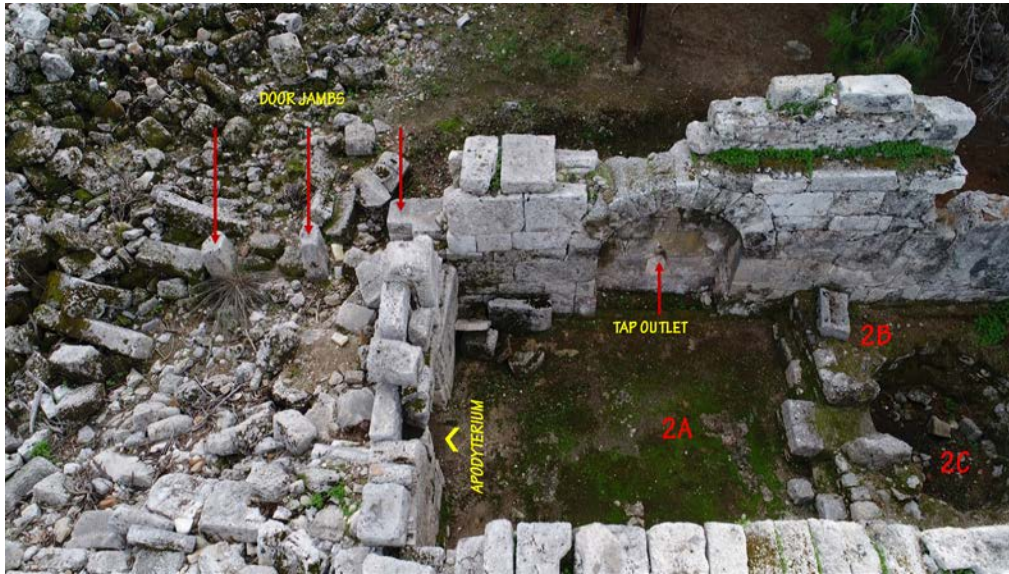


Fig. 12. *Frigidarium* South Wall

Tepidarium (Part III)

The section of the bath structure with dimensions of 8,99 x 3,96 m and an area of 35,60 m² is the *tepidarium*. This area is accessed from the *frigidarium* and has both floor and wall heating systems. The *tepidarium* is connected to the *caldarium* by a door³² placed in the middle of an arched section with a diameter of 2,90 m and a central axis height of 3,00 m, and to the *laconicum* space with a

²⁹ See. Fn. 12: Vitruvius, *De Arch.* V. 10. 1.

³⁰ Çevik 2014, 224; For the factors shaping bath structures and techniques, see. Boersma 1999, 191.

³¹ For a more detailed survey section for the south wall of the *frigidarium*, see. Öner 2019a, 94, fig. 102.

³² The entrance opening of the door is 0,91 m. Although the data regarding the height of this door are insufficient, we can say that this door is also 2,19 m, since the upper floor level of the *laconicum* space and the lower level of the door lintel are known.

straight door without an arch³³ (Fig. 4).

There are two different forms of terracotta pillars (*pilae*) in the *hypocaust* system in the *tepidarium*. However, it can be seen that they were partially or completely destroyed between the state revealed during the first excavations (Fig. 13a) and the state that has survived to the present day (Fig. 13b)³⁴. In the field, two types of piers were used: square with an average side size of 0.29 m and round in form with an average diameter of 0.26 m. It is evident that square-shaped bricks were used adjacent to the walls at an average of 50 cm intervals, while bricks of the round shape were used at an average of 50 cm intervals, both in the east-west and north-south directions, on both axes, but only in the middle section. The height of both types of piers is 80 cm. The flooring on which the piers sit is also made of terracotta material. This floor, consisting of squares measuring 29x29 cm, has survived *in situ* (Fig. 14).



Fig. 13. *Tepidarium* images dated 1982 (a) and 2023 (b)

It is understood from the slots on the walls of the *tepidarium* and the remains of terracotta nails that the heating system also continued on the walls. As a requirement of the *hypocaust* system, air channels were left between the *tepidarium*, *caldarium* and *laconicum* sections for comfortable horizontal and vertical circulation of hot air.

Two of the horizontal channels were placed diagonally, with widths varying between 33-49 cm, at an average height of 75 cm from the terracotta floor, corresponding to the bottom of the doors³⁵. The other two provide both horizontal and vertical hot air circulation and rise approximately 1 m to the right and approximately 2 m to the left from the door on the north wall of the *tepidarium*, from a 35 cm wide terracotta floor to an average height of 1,30 m (Fig. 14).

The north and south main walls of the *tepidarium* have been preserved down to the stirrup level, and the double-walled construction technique, which includes a filling of crushed stone and mortar used throughout the bath structure, was also used in this section.

³³ The door entrance opening is 1 m and the height is 2,19 m.

³⁴ For the *hypocaust* system of the *tepidarium*, information obtained through surveying and photographic studies carried out in previous periods is used. From the sources obtained, the square shaped pillars measuring 29x29 cm are placed adjacent to opposite walls at 80 cm height at intervals of 40 to 45 cm, while the round pillars with a diameter of 29 cm are 80 cm high with 11 rows in the east-west direction and 4 rows in the north-south direction in the middle section. It can be said that it is placed at a height. Bayburtluoğlu 1982; Phaselis Excavation Archive.

³⁵ Inscribed House Bath in Arykanda, Küçük Hamam-V. Bath, Pierios Bath-VI. Bath, Naltepesi Bath, VII. Similarly, diagonal or straight air channels are seen in the Turkish Bath and Rhodiapolis Bath. For Arykanda baths, see. Sevic 2022, 100; For Rhodiapolis Baths see. Çevik *et al.* 2009, 243.

While there was a niche on the west side of the north wall in the first construction phase of the building, it is seen that this niche was canceled in a later phase by building a wall. The fact that 2,5 m of this new wall in the niche has been preserved is not enough for us to comment on its function. First of all, it can be suggested that there may be a bench in this niche and that it may have been used for seating purposes. Or it can be said that this niche was closed for strengthening purposes after the earthquakes in the region (Fig.14).

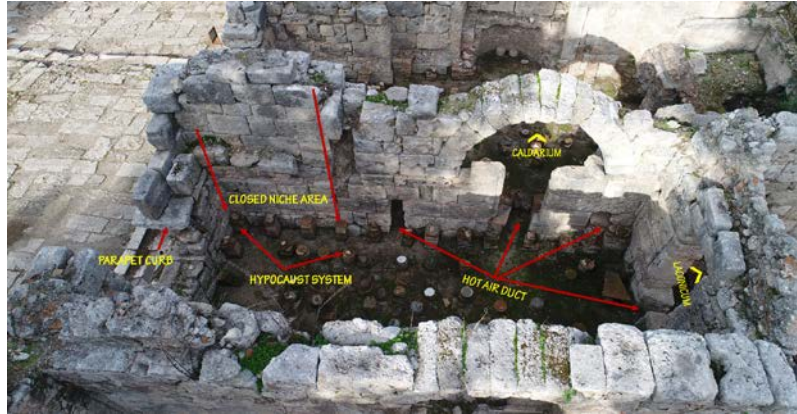


Fig. 14. *Tepidarium* North Wall

When the building is considered in terms of its architectural construction system, the roof of the *tepidarium* should have been covered with a barrel vault, as in the *frigidarium* space. This view is supported by both the form of the eastern wall, which is common with the *laconicum*, a part of which has survived *in situ*, and the traces of vaults that appear to start opposite each other on the northern and southern walls of the *tepidarium* (Fig. 14).

Laconicum (Part IV)

Section 4 of the bath structure is *laconicum* with dimensions of 5,92 x 3,83 m and an area of 22,67 m². This place, which is also compatible with Vitruvius' description³⁶, is entered through a door from the *tepidarium*³⁷ (Fig. 4). The fact that a part of the *hypocaust* system of the *laconicum* was preserved *in situ* helps us to clarify the heating system of the Phaselis Small Bath structure³⁸. All of the *pilae* used in this section are made of terracotta bricks, 5 cm thick, with varying diameters of 26-21-15 cm and round in shape. There is a 2 or 2,5 cm thick mortar layer between them and it is 80 cm high³⁹. The *pilae* sit on the ground created by laying square terracotta slabs measuring 29 x 29 x 5 cm with neat workmanship. Terracotta slabs measuring 40 x 40 x 6 cm were placed on each of the *pilae*, which were placed more frequently at the bottom of the walls. Rectangular shaped terracotta slabs measuring 65 x 80 x 10 cm were placed on these *pilae*, which reached approximately 0,86 m in total. While placing the *pilae* in the middle section, care was taken to ensure that one of these large-sized slabs coincided with the four pillars. The last layer was the mortared marble coating⁴⁰

³⁶ Vitruvius, *De Arch.* V. 10. 5: Vitruvius defines *laconicum* as a domed dry steam room, and adds that it should be adjacent to the warm bath room (*tepidarium*) and its width should be up to the stirrup level of the semi-round dome. The *laconicum* space of the Phaselis Small Bath structure also fits this definition, as it is adjacent to the *tepidarium* and has a width close to the stirrup level.

³⁷ The door has a 1 m entrance opening and a height of 2,19 m.

³⁸ A similar situation exists in *laconicum* as in *tepidarium*. The pillars of the *hypocaust* system are damaged and disordered today. For this section, information obtained through surveying and photography studies carried out in previous periods is employed. From the sources available, it is said that all of these pillars were in round form and were placed opposite each other at the bottom of the walls and in the middle section, 8 rows in the east-west direction and 4 rows in the north-south direction. Bayburtluoğlu 1982; Phaselis Excavation Archive.

³⁹ The elevation line etched into the plaster to ensure that the *pilae* are at the same level can be easily seen today.

⁴⁰ Vitruvius, *De Arch.* V. 10. 2: According to Vitruvius, when building suspended floors, the first 1.5 square feet (0.444 m²) of square tiles, which is approximately 22 cm, should be laid on the base in an inclined manner. Furthermore, eight-inch brick pillars with a height of two feet (0.592 m), or 20.32 cm, should be constructed and placed at a distance where

(Fig. 15-16).

There is an air channel for hot air circulation on the north wall of the *laconicum* and a few terracotta nail places have survived to the present day. Due to this situation, it can be said that there is a heating channel only on this wall. It is understood from the material traces that have survived *in situ* that the walls of the *laconicum* were also covered with marble, similar to the floor covering (Fig. 15).

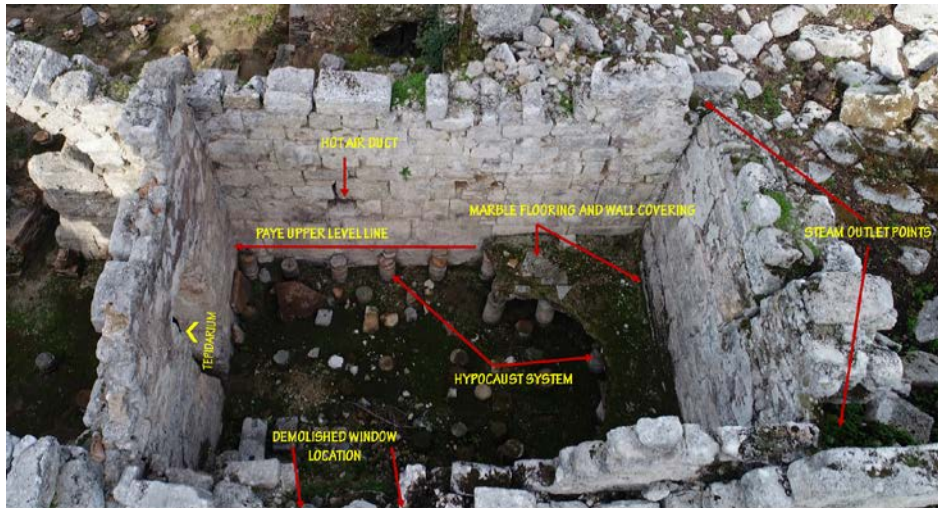


Fig. 15. *Laconicum*

Chimney outlets, from which the hot air vapor circulating in the *hypocaust* system would be evacuated, were identified in the northern and southern corners of the eastern wall of the *laconicum*. Although there is only a trace of the exit in the north, the upper elevation exit of the terracotta pipe in the south corner, which begins at the lower level of the floor and continues to the stirrup level, can be observed (Fig. 15-16).



Fig. 16. *Laconicum Hypocaust System*

Although there is no clear evidence that has survived to the present day as to whether there was a window in the Phaselis Small Bath *laconicum*, it can be said that there may have been a window in this section from the lintel piece that fell in front of a collapsed section of the wall common with the *apodyterium* and the smooth wall finish (Fig. 15). It is known that ancient Roman bath structures

two-foot tiles (0.592 m) can be placed. Although there are some differences in the construction of the suspended floors of the Phaselis Small Bath structure, particularly in terms of the sizes and forms of the baked bricks, they were built in a similar way in terms of the ordering of the layers.

were used not only during the day but also in the evening, and illumination in the evening was provided by oil lamps. The fact that many oil lamps were identified as a result of archaeological excavations in bath structures supports this⁴¹. Although we do not have sufficient data on window openings, we can say that artificial lighting was used in this structure due to the presence of oil lamps unearthed in the Small Bath structure⁴².

The partially preserved vault section of the *laconicum* - *tepidarium* common wall allows us to suggest that the roof covering of this part of the bath structure, if not the entire bath structure, was a barrel vault (Fig. 7b)⁴³.

Caldarium (Part V)

The *caldarium*, which is the last space in the north of the bath structure, is accessed from the *tepidarium* through a door placed in the middle of an arched section with a diameter of 2,90 m and a central axis height of 3,00 m⁴⁴. It is the largest part of the building with an area of 67,38 m² (Fig. 4).

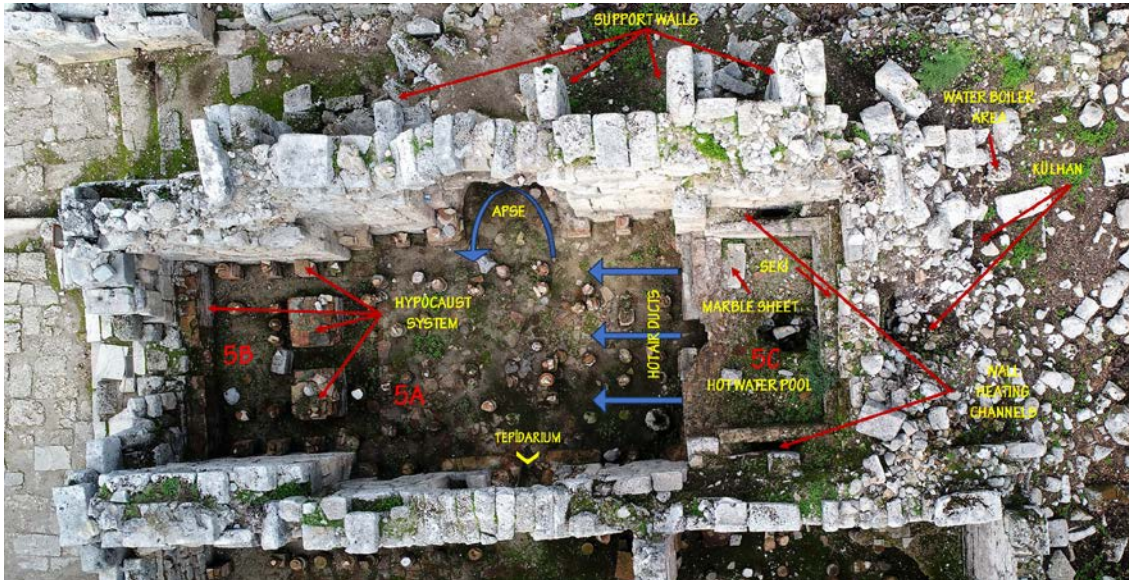


Fig. 17. Caldarium Aerial View

The *caldarium* floor is also covered with square-shaped terracotta slabs of similar sizes, like the *tepidarium* and *laconicum*. However, there are breaks, cracks, distortions and collapses in the slabs (Fig. 17, Area 5A). Particularly, the collapse in front of the western wall of the *caldarium* is more evident and a level difference of 20 cm was detected in the 3,14x4,09 m section (Fig. 17, Area 5B). The settlement patterns of the *pilae* in the *hypocaust* system of this section are different from other places. It is reported that the reason for this may be the renovation and repair works carried

⁴¹ Seviç 2022, 33.

⁴² For Phaselis Small Bath Finds, see. Demirel 2019, 61-85.

⁴³ This vault form dates back to Arykanda VI. The *caldarium* of the bath is similar to the preserved section of the vault of the north wall, and the roof cover of this structure is referred to as a barrel vault. Seviç 2022, 75; 318, Lev.70.

⁴⁴ The door entrance opening is 0.91 m. While the data regarding the height of this door is incomplete, we can estimate that it is also 2.19 m, based on the known upper floor level of the *laconicum* space and the lower level of the door lintel.

out after an earthquake⁴⁵ in the city⁴⁶. The square-shaped *pilae* on the north and south walls are placed similarly to the other sections. However, the square-shaped *pilae* on the western wall were built continuously along the wall to form a whole. In the middle section, in addition to the round-shaped *pilae* placed at certain intervals, there are also two almost square-shaped terracotta carriers measuring approximately 1 x 1 m. It can be said that such reinforcement is intended to support the marble-covered bath floor from below. It is thought that the square-shaped 1 x 1 m supporting feet may have served a different purpose than just supporting the bath floor. It is proposed that they may have been used as bases for the basins to be placed on the legs. The positioning of the supporting legs in front of a possible window on the west wall and the presence of areas around them suitable for people to stand or sit, support this hypothesis⁴⁷. (Fig. 17).

To the east of the *caldarium* space, there is a section (Fig. 17, Area 5C) that is 1,60 m higher than the current floor (Fig. 17, Area 5A). In this section, which we think is the hot water pool of the *caldarium*, there are air ducts providing wall heating in front of the north and south walls, and a bench in front of the east wall. Although the western wall of the pool has not been completely preserved, its existence can be traced from the wall teeth at the corner points and the wall remains that have survived to the present day. The ground level of the hot water pool is 60 cm higher than the marble floor of the bath. Although no finds were mentioned in previous archaeological excavations, several steps must have been used to reach this level. On the central axis of the bench to the east of the pool, there is an arched passage made of terracotta brick, approximately 70 cm in diameter, that continues through the entire wall thickness to the *praefurnium* section. It can be said that the function of this transition is to deliver hot water from the water heating boilers on the *praefurnium* to the east of the *caldarium* to the pool⁴⁸ (Fig. 18a-b, 19a-c).



Fig. 18. a. *Caldarium Hypocaust System*, b. *Hot Water Pool Water Inlet*

The floor of the *caldarium* hot water pool (Fig. 17, Area 5C) is covered with marble cut in smooth

⁴⁵ For more detailed information about earthquakes, see. Brandes 1989, 176-181. Especially the earthquake that took place in 529 was very destructive for Lycia. Brandes 1989, 97; Foss 1994, 23.

⁴⁶ Cevdet Bayburtluoğlu also highlighted this situation in the excavation results report published in 1983, suggesting that the fractures, deterioration and collapses may have occurred after a possible earthquake. He further proposed that the final state may have been reached as a result of the repair and strengthening works carried out after the earthquake. Bayburtluoğlu 1983, 185-186.

⁴⁷ Vitruvius, *De Arch.* V. 10. 4: In his guidance on basins, Vitruvius recommends that basins be positioned under windows to avoid shadows from people standing around them blocking the light. He also suggests that the niches in which the basins are located should be spacious and comfortable for those using them.

⁴⁸ There are similar hot water passages in the Stabia in Pompeii (Fig. 19A-B) and the Southern baths of Perge (Fig. 19C).

lines, measuring 90 x 40 x 5 cm, with 15 x 5 cm recesses at the four corners. Since no archaeological excavation work could be carried out in the Phaselis Small Bath structure within the scope of the thesis⁴⁹, it is currently unclear how the recessed parts of a single marble slab identified were combined with other similar slabs (Fig. 17). The lower part of the marble-lined hot water pool is connected to the furnace, and 1,20 m high carriers were built from terracotta to distribute the hot air into the bath. Its approximate dimensions are 75 x 65 cm and there are eight carriers in total, four of which are placed in the middle section and the others are placed at the bottom of the walls. The hot air distributed from the floor through channels divided into three compartments provides heating from the wall through the air channels (Fig. 17, Area 5C)⁵⁰.

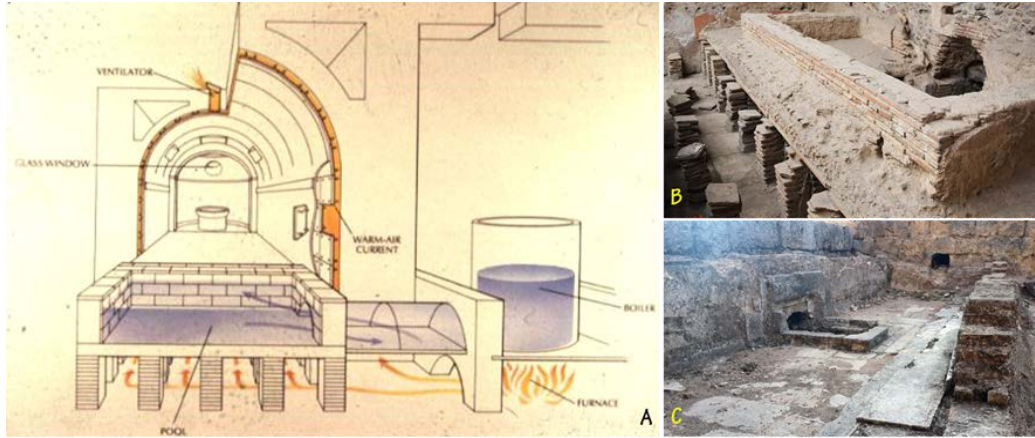


Fig. 19. a-b. Pompeii Stabia Baths Hot Water Pool Detail⁵¹, c. Perge Southern Bath

The presence of reinforced terracotta feet to the east of the *caldarium* also supports our view that there may be a hot water pool here⁵² (Fig. 18a). The 6,85 m section of the northern wall of the *caldarium* was built 70 cm further north. There is a niche ending with an arch with a diameter of 2,30 m in the middle of this wall. The *hypocaust* section of the niche under the bath floor ends with a 2 m diameter apse made of baked brick⁵³ (Fig. 20).

The upper part of the apse has been largely destroyed and since archaeological excavations have not been carried out in this area, the wall connections of the niche cannot be followed. Apart from this section, there are wall teeth on the north wall of the *caldarium*, placed perpendicular to the main wall of approximately 80 cm. The masonry and plasterwork integrated with the northern wall of the teeth show that they were built at the same time as the bath structure (Fig. 17).

The northern and southern body walls of the *caldarium* room have survived, albeit partially, together with the wall remains of the barrel vault. Therefore, we can confirm that the roof cover was a barrel vault, similar to the other parts of the Phaselis Small Bath structure (Fig. 17).

Water Supply and Sewage Waste System

During the archaeological excavations and surface surveys conducted in the city of Phaselis, it was determined that the people of the city met their water needs from nearby clean water sources and

⁴⁹ Master's thesis entitled Example of Washing and Cleaning Architecture in Eastern Mediterranean Port Cities: Phaselis Small Bath and *Latrina*.

⁵⁰ Bayburtluoğlu 1983, 186.

⁵¹ <http://www.geschkult.fu-berlin.de/e/klassarch/forschung/projekte/pompeji/index.html>

⁵² In *hypocaust* systems, this type of reinforced terra cotta support legs are also seen in bath structures in different cities. Both the *tepidarium* and *caldarium hypocaust* systems of the Perge South Bath structure are examples.

⁵³ It can be said that the function of the apse section in the *hypocaust* system is to direct the hot air coming from the furnace.

with water accumulated in cisterns during the Archaic-Classical periods. However, during and after the Hellenistic Period, due to the expansion of city borders and the accompanying population increase, water resources must have become insufficient and alternatives must have been sought.

As a result of the research conducted in the city and its surroundings, it was understood that the increasing water need was met from the water sources at the foot of Tahtalı Mountain, waterfalls, caves on the northeastern and southeastern foothills of the Northern Settlement, and water reservoir areas in the direction of Alacasu⁵⁴.

When the Phaselis settlement was brought to the agenda again by Captain Francis Beaufort in 1811, only the aqueducts (*aquaeductus*) located in the center of the city drew attention to the city's water.

Jorg Schäfer determined that the city's water needs were met by water carried to the city from cisterns. It has been claimed that the process of transporting water to the city started from a cave and artificially created rock reservoir known as the Source Cave, at the foot of the Hellenistic acropolis located in the north of the city⁵⁵. Despite limited progress on the city's water infrastructure during the 1980 excavations led by Kayhan Dörtlük, Cevdet Bayburtluoğlu's 1982 season saw a concentration on the main street. This resulted in the discovery of inclined stones used to carry waste water in the north of the agora structure in the city centre. The location of clean water pipes and the path they follow were identified on the wall. During the bath excavations carried out in the same season, a water inlet from the southwest of the bath and a connection to the waste water channel on the main street were found in the *latrina* structure.⁵⁶ The existence of a fountain south of the water entrance in the southeast corner of the bath structure could be identified from the foundation ruins, although archaeological excavations in the area have not been completed.

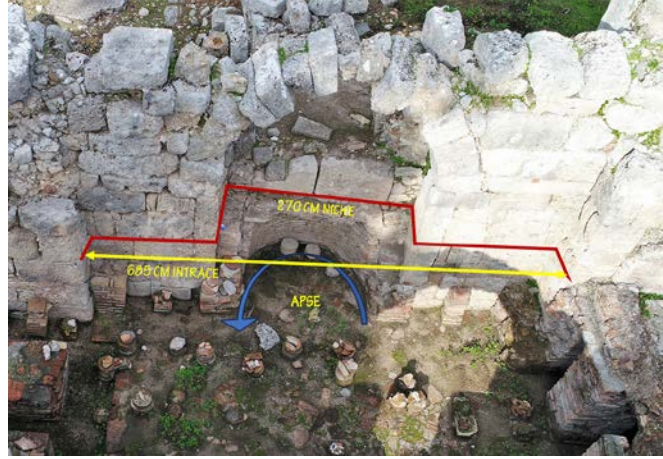


Fig. 20. Caldarium Apse and Niche Section

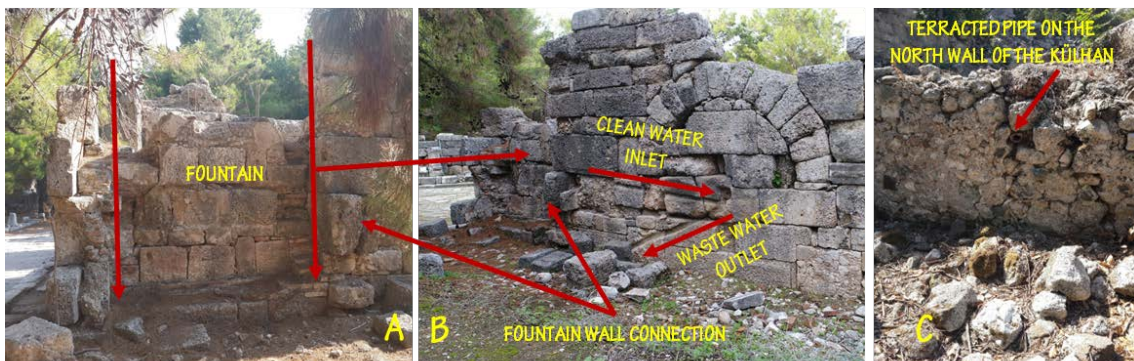


Fig. 21. a. Çeşme Department, b. Clean-Waste Water Installation, c. Külhan Terracotta Water Pipe

In addition, traces of pipes belonging to the clean and waste water connections of the fountain in the *frigidarium* can be seen on the side of the south wall facing the theater square. While the

⁵⁴ Tüner-Önen & Akçay 2014, 280; also for this Kürkçü 2015, 69-79.

⁵⁵ Kürkçü 2015, 70.

⁵⁶ Bayburtluoğlu 1983, 183-187.

clean water connection follows a slightly inclined path, the waste water connection follows a much more inclined path for easier flow (Fig. 21a-b). It cannot be established how the water reaches the water boilers located in the east of the *caldarium*. However, it can be said that the hot or cold water here was also delivered to the *latrina* through the terracotta pipes that have survived *in situ* at the lower level of the level where the boilers were located⁵⁷ (Fig. 21c).

The water resources in the region were brought to the Phaselis settlement via a terracotta pipeline (Fig. 22). According to this map, the spring exits at a point near Tahtalı Mountain, Tamtır Area, Cave Hole. The water is transported to Sızgılı Kaya, Ak Boyun, Haruplu Boyun and Yerleştir Sirtı regions via pipes. The waterway continues from the southwest of Kale Mevkii towards Phaselis. However, the continuation of the waterway, which can be followed from

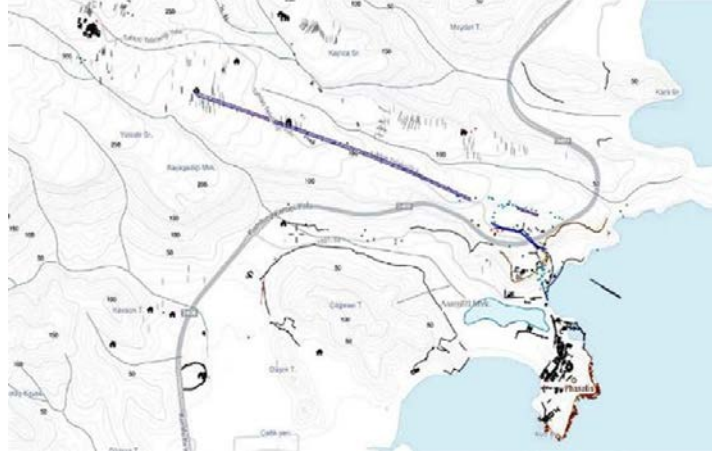


Fig. 22. Map Showing Coordinate Points of Phaselis Waterway (Tüner Önen & Akçay 2014, 286, Map 1)

Yerleştir Sirtı to the Telefon Gediği Area, cannot be followed due to road construction. It is evident that the waterway, which was interrupted by the highway, turns towards the North Port when you pass to the south of the highway. The water collected from various points is delivered to the aqueduct via pipes, where it is distributed to the city via pipes⁵⁸.

Heating System

As a result of the archaeological excavations carried out in the Phaselis Small Bath structure, it is seen that the *caldarium*, *tepidarium* and *laconicum* spaces have a *hypocaust* system. The hot water and air needs of the bath must have been provided by the furnace built adjacent to the eastern wall of the *caldarium* and the hot water boiler placed above it (Fig. 17). The heated air in the furnace is distributed to the *caldarium*, *tepidarium* and *laconicum* respectively through air ducts. The *pilae* used in the *hypocaust* system of heated spaces are terracotta bricks with 29 x 29 cm square and 29 cm diameter round forms. Although square forms were preferred at the bottom of the walls in *tepidarium* and *caldarium* and round forms were preferred in the middle sections, only the round form was used in the *laconicum*. In the *caldarium hypocaust* system, unlike other spaces, reinforced support legs were built using multiple piers in the eastern part, where the hot water pool is located, and in the western part, where the collapse occurred. The entrance of hot water to the bath is provided through an arched passage located to the east of the *caldarium*. The upper level of this arched passage provided water to the hot water pool, while the lower level transfers the hot air to the channels. While there are traces of terracotta nail residues or cavities that provide wall heating on all the walls of the *caldarium* and *tepidarium*, which are heated spaces, these traces are seen only on the northern wall of the *laconicum*⁵⁹. T-shaped holders used on both vertical and horizontal

⁵⁷ Öner 2019a, 108.

⁵⁸ Tüner-Önen & Akçay 2014, 287-288; Arslan 2018, 33-34.

⁵⁹ Following the archaeological excavations conducted at the Phaselis Small Bath structure, it was established that the gaps required for the wall heating system were created using both terracotta nails and metal nails with spacer pins. Yegül 2006, 95, Fig. 84c-d. The use of terracotta nails is evident in the Patara Small Bath, Rhodiapolis Bath, Andriake

sides, seen in the Rhodiapolis, Typallia and Andriake baths, as well as the Phaselis Small Bath, should be a preferred local solution for Lycian baths⁶⁰ (Fig. 23). In addition, traces of bath steam output were detected on the right and left of the eastern wall of this place. While the outlet on the left can be seen as a trace of plaster, the steam outlet on the right can be traced from the *hypocaust* system to the upper elevations. The channels on the north and south walls of the section where the *caldarium*'s hot water pool is located must have been used as steam outlet chimneys in a similar manner.



Fig. 23. Phaselis Small Bath Wall Heating System⁶¹

Since the archaeological excavations in the area between the Phaselis Small Bath structure and the stage building of the theater could not be completed, the function of this area could not be clearly determined, but it must have been used for the service areas required for the furnace⁶². The floor level that emerged after the partial cleaning in this section is close to the lower level of the *hypocaust* system of the bath, and even lower at some points. Both the low ground level and the absence of another more suitable place around the bathhouse may indicate that this area was used to store wood for the furnace or to serve similar side functions.

Architectural Evaluation of the Building

Phaselis continued its existence in antiquity as a port city between the 7th century BC and the 11th century AD⁶³. In particular, the 225 m main street extending from the South Port to the North Port became a center of active use in this process. The Phaselis Small Bath took its place among the agoras, theatre, *latrina* and bathhouses, which formed the stage of social life, located on this main street. The Phaselis Small Bath structure is located to the east of the square, which is elevated by steps on both sides, on the main street connecting the South Port and the Central Port, where the city's public buildings are located. Although it is spread over an area of approximately 600 m², the washing units cover an area of approximately 413 m². When the total area covered by the bathing sections is compared to other Lycian baths, it can be said that it is a medium-sized bath. For example, Rhodiapolis Bath has an area of 446 m², Xanthos B Bath has an area of approximately 420 m², Simena Bath has an area of 150 m², Trebenna Bath has an area of 423 m², and Apollonia Bath has an area of approximately 200 m²⁶⁴. The location of the building is similar to the location of many bath

Eastern Bath, Arykanda Naltepesi and Yazıtlı Ev baths. Arykanda VI. There are also traces of the use of metal nails in the bath. Sevic 2022, 101.

⁶⁰ Çevik *et al.* 2009, 244.

⁶¹ Bayburtluoğlu 1982 and Phaselis Excavation Archive.

⁶² It is stated that a service courtyard without a roof is sufficient for small-sized baths such as the Phaselis Small Bath. Yegül 2006, 102.

⁶³ Tüner-Önen 2008, 15.

⁶⁴ Çevik *et al.* 2009, 241; Çevik & Varkıvanç 2004, 233.

structures of a city dating from the Roman Imperial Period in Anatolia. For example, Andriake Eastern Bath⁶⁵, Patara Harbour Bath⁶⁶ and Kibyra Late Antique Bath⁶⁷ were built in the areas where the public buildings of the cities they belonged to were located or in locations close to these areas. Especially Andriake Eastern Bath⁶⁸, Patara Central Bath⁶⁹, Patara Small Bath⁷⁰ being close to the port and being on one of the main streets leading to the port, can be considered as the closest examples to the Phaselis Small Bath structure.

The Phaselis Small Bath structure is a good example that reflects the bath architecture of its period, with its architectural plan preserved in a clearly identifiable manner, except for the *apodyterium* section. It has a plan consisting of rectangular spaces arranged from south to north. These spaces were respectively functionalized as *apoditerium* (I), *frigidarium* (II), *tepidarium* (III), *laconicum* (IV) and *caldarium* (V). Except for spaces I and II, all other spaces are heated from both the floor and the walls. The layers of the underfloor heating system can be easily identified because they are preserved *in situ* in a part of the *hypocaust* system in the *laconicum* space. In the light of this data, it can be said that 29 x 29 cm square and 29 cm diameter round terracotta bricks were used in the *hypocaust* system, and the top floor material of the bath was marble. A double-walled construction technique consisting of a filling of crushed stone and mortar was used in almost all of its walls. The outer surfaces of the walls are plastered with red ocher lime mortar, and the inner faces are covered with marble slabs. The roof covering of all units of the bath, except the *apodyterium*⁷¹ is tile with a hipped roof and a barrel vault⁷² orientated in an east-west direction⁷³. Wood and tile roofing over vaults is a common practice. It is reported that the roof coverings of Patara Nero-Vespasian Bath, Hurmalık Bath and Küçük Bath⁷⁴, Andriake Eastern Bath⁷⁵, Rhodiapolis Bath⁷⁶, Sardis bath-gymnasium complex⁷⁷ were covered with wood and tiles on barrel vaults.

The building can be described as a typical Roman Period bath, especially with its plan consisting of rectangular spaces lined up side by side on a south-north axis. There are many similar bath structures dating back to the Roman Period in the Lycia Region, which includes the ancient city of Phaselis. This main design, which has three rectangular units lined up side by side, called the "Lycian Bath Plan"⁷⁸ is also seen in the baths of Rhodiapolis⁷⁹, Arykanda⁸⁰, Xanthos⁸¹, Patara⁸² and Tlos⁸³.

⁶⁵ Çevik & Bulut 2014, 223-224.

⁶⁶ Erkoç 2018, 240.

⁶⁷ Özüdoğru & Tarkan 2018, 177.

⁶⁸ Çevik & Bulut 2014, 223-224.

⁶⁹ Patara Central Bath has common features with the Phaselis Small Bath structure, both in terms of location and plan. Kalinka 1920, 142 Plan no.F.

⁷⁰ Gülşen 2007, 224.

⁷¹ Although our data about the roof cover of the *apodyterium* is insufficient to comment, it is suggested that the barrel vault of the *frigidarium* may have continued in this space, instead of the suggestion of a barrel vault in a perpendicular form to other spaces made by Cevdet Bayburtluoğlu. Bayburtluoğlu 1982, 186.

⁷² The barrel vault roof cover of rectangular planned baths was frequently preferred due to basic functions such as the advantage of indoor use and the ease of technical processing of heating and water systems. Çevik & Bulut 2014, 238.

⁷³ Yegül 2006, 239, Fig. 243.

⁷⁴ Gülşen 2007, 454-455-456.

⁷⁵ Çevik & Bulut 2014, 237.

⁷⁶ Çevik *et.al.* 2009, 242.

⁷⁷ Yegül 1992, Fig. 298.

⁷⁸ Çevik-Bulut 2014, 237.

⁷⁹ Çevik *et.al.* 2009, 231-260.

⁸⁰ Bayburtluoğlu 1982, 277.

⁸¹ *F.Xanthos* VII . 67, 7-10.

⁸² Erkoç 2018, 241.

⁸³ Gülşen 2007, 223.

However, since the Pompeii Stabia Baths, dating from the 2nd century BC, are accepted as the pioneer of this design, its use was common in the Roman Period rather than being specific to Lycia. This plan type, whose most distinctive feature is the side-by-side arrangement of rectangular units, is known as the “Pompeii-Kampania Type”⁸⁴. This design was also a preferred plan in the bath structures built in the ancient cities of Kibyra⁸⁵, Andriake⁸⁶, Limyra⁸⁷, and Sillyon⁸⁸ in Anatolia in Late Antiquity.

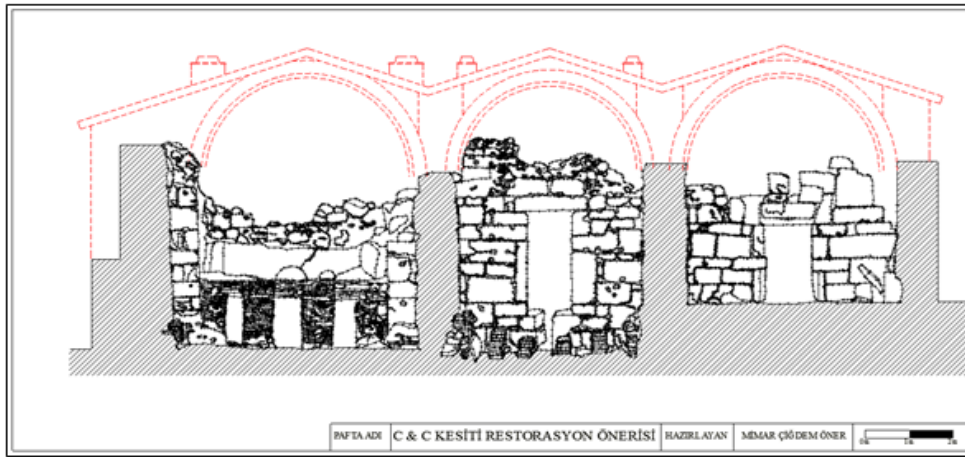


Fig. 24. Bath Structure C-C Section Restitution Proposal 1

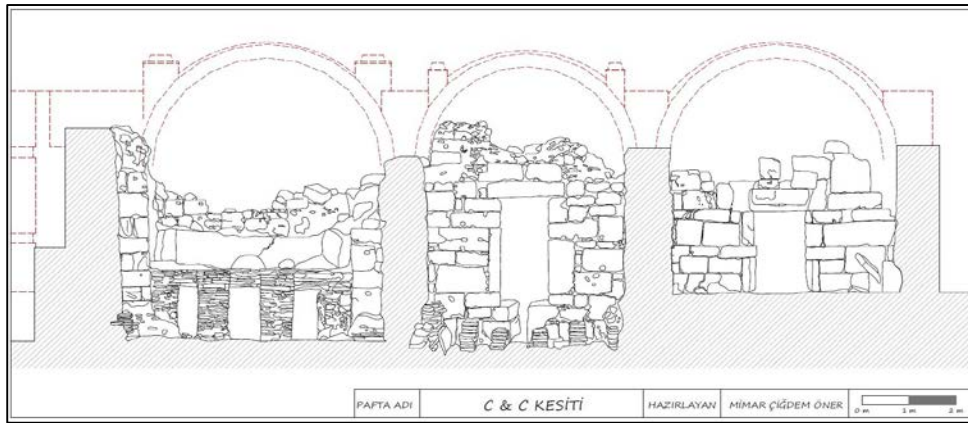


Fig. 25. Bath Structure C-C Section Restitution Proposal 2

The only remains of the window system of the Phaselis Small Bath structure that have survived to the present day are the prominent parapet level on the western wall of the *frigidarium* and the remains of window mounting elements. Since the bath buildings are intended to benefit from sunlight to the maximum extent, the *tepidarium* and *caldarium* spaces on the west side of the building should also have a window system. Among the bath buildings dating to the same period

⁸⁴ Yegül 1992, 66.

⁸⁵ Özüdoğru & Tarkan 2018, 187.

⁸⁶ Çevik & Bulut 2014, Res. 4.

⁸⁷ Seyer & Schuh 2010, Res. 2.

⁸⁸ Taşkıran 2021, 332.

and extant are: the Sillyon Bath⁸⁹, Patara Harbour Bath⁹⁰, Arykanda Grand Bath-VII Bath⁹¹. When the window systems of the bath structures are examined, it is thought that the Phaselis Small Bath structure may have a window system consisting of two parts, the first part of which is located from the parapet level to the stirrup level of the western wall of the building, and the second part in the vault.

After these studies defining the Phaselis Small Bath structure, at the stage of making a restitution proposal, an attempt was made to collect as much data as possible about the structure with the contribution of current technologies. During the data collection process, the building was photographed, drone shots were taken, and detailed surveys were prepared. After all these preliminaries, the structure was transferred to the digital environment with the support of Agisoft, Archicad and Autocad programs. Buildings with similar features, contemporary with the Phaselis Small Bath structure, were examined for architectural elements that were insufficient for the restitution phase after digitalization. It is certain that the roof cover of the building is a barrel vault. Although it is thought that there is a tiled hipped roof after the vault, two different options for the roof cover have been proposed due to a lack of data (Fig. 24-25).



Fig. 26. Possible Restitution Proposal of the Bath Building, Viewed from the Southwest

However, when the Lycian and Pisidian bath structures are taken into consideration, and especially when we look at the construction technique in the Great Bath complex and dock buildings in Phaselis, it can be stated that the roof system was in the form of a vault and the possibility of a hipped roof on it is quite low.

The goal to be achieved as a result of the documentation, digitalization and restitution works of the Phaselis Small Bath structure is to ensure that our cultural material remains, which are destroyed day by day for a variety of reasons, are permanently transferred to the next generations. The use of three-dimensional visual materials while making this transfer will make the ancient structures more understandable (Fig. 26).

Finds and Dating

During the excavations carried out in the Phaselis Small Bath structure, there were three finds recorded as inventory. The first of these is a bronze coin with a diameter of 18 mm and dated to the Period of Roman Emperor Constantius II (337-361 AD), registered with the number Pha.82.1 (Fig.

⁸⁹ Taşkıran 2021, 334.

⁹⁰ Erkoç 2018, 247.

⁹¹ Seviç 2022, 337, Lev. 82A-89-90.

27a). One of the other pieces is a bone fragment dated to the Roman Imperial Period, numbered Pha.82.5, which was probably used as a hairpin (Fig. 27b).

The last find is a silver cross dated to the Eastern Roman Period, registered with the number Pha.82.4 (Fig. 27c). The silver cross and chain with agate stones, which were discovered during the cleaning and repair of the building, may be related to the Arab raids or the Crusades. They were found in the Phaselis Small Bath in the VIIIth century AD. It is believed that they were used until the end of the century. Although not

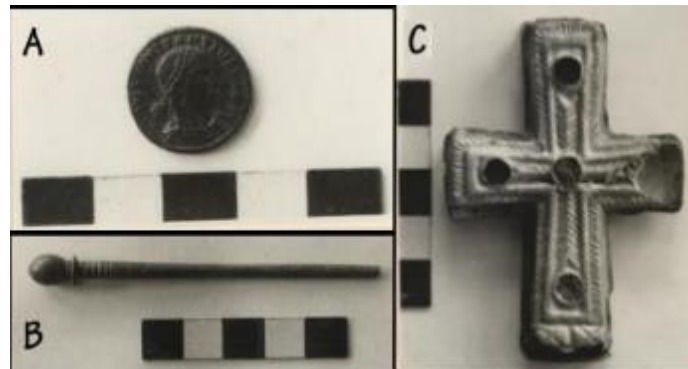


Fig. 27. Phaselis Small Bath Inventory Finds

included in the inventory due to the limitations of the excavation, other notable finds included architectural elements of marble and limestone, terracotta lamps, metal artefacts and coins dating from the Roman and Eastern Roman periods⁹².

Phaselis was punished by Publius Sevilus Vatia Isauricus in 77 BC and was unable to recover until the 1st century AD during the Imperial Period, numerous official buildings were constructed in the city centre, in a style similar to other Asian cities. The majority of the structures that have survived to the present day date from this period, namely the Roman Imperial Period.⁹³ The oldest building in the city is the city's public agora, which was dedicated to Emperor Domitianus between 14 September 93 and 13 September 94.

The inscription on the building's dedication states that although the building's function is not specified, it could have been an agora and was effective in the planning of the main street both to the south and north. In light of the aforementioned circumstances, it is proposed that the northern section of the main street may have been constructed during the 1st century AD⁹⁴.



Fig. 28. Phaselis Küçük Hamam, B. Tetragonal Agora

As with many other Anatolian cities, Phaselis was influenced by the trend towards monumental architecture during the Imperial Period, at the end of the second century AD and in the third century AD during this period, a number of new buildings were constructed and existing buildings were refurbished⁹⁵. The main street between the Central Port and the South Port and the buildings around it are located around the theater structure in accord with the topography⁹⁶ and are dated

⁹² Bayburtluoğlu 1982, Phaselis Excavation Archive.

⁹³ Tüner-Önen 2008, 176.

⁹⁴ Schäfer 1981, 102.

⁹⁵ For more detailed information about the effects of the level of prosperity reached in this period, defined as *Pax Romana*, on the development of cities, see. Hanfmann 1975, 41-46; Woolf 1997, 1-14.

⁹⁶ It is reported that the theater building had a predecessor dating back to the Early Imperial Period and the new theater was built upon it. Frederiksen 2002, 118.

to the second century AD⁹⁷. The street connecting the Central Port and the South Port forms a square elevated with two steps on both sides in front of the *Tetragonal* Agora and the Small Bath structure. The main street in the south of this square ends with Hadrian's Gate, which was completed in 130/131 AD. It was dedicated to the second trip of the Roman Emperor Hadrian⁹⁸. An inscription⁹⁹ at the entrance of the *Tetragonal* Agora, located in the same square as the Phaselis Small Bath structure, dates from the emperor's XVth *tribunica potestas* (10 December 130-9 December 131 AD). The Phaselis Small Bath structure, which shares the common square, must have been built within the scope of construction activities in this same period. It is thought that its first construction was during the Imperial Period, influenced by the tendency towards monumental architecture at the end of the IInd and in the IIIrd centuries AD. However, there is no written document regarding the exact construction date of the Phaselis Small Bath structure. Although there is no written document that can give us precise information about when the bath was built, a relative dating suggestion can be made based on the plan and architectural features of the building, as well as masonry and comparative examples. The fact that the steps in front of both buildings located in the east and west of the square are designed similarly supports our view (Fig. 28).

The double-walled construction technique (*opus emplectum*¹⁰⁰) which includes a filling of crushed stone and mortar, which we encounter in buildings dating from the second century AD, was used on the main walls of the bath structure¹⁰¹. The engraved blocks, especially emphasized on the exterior surfaces, which we encounter in many buildings dating from the second century AD, are not seen in the bath structure, except for a few reused blocks. Due to this, it can be said that the first construction phase of the building was in the mid-second century AD¹⁰².

In the settlement of Phaselis, surrounded by belts such as the Aegean-Cyprus tectonic arc and the Fethiye Burdur Fault Zone, many destructive earthquakes dating from 60-68, 141, 240, 529-530 and VIIth centuries have been experienced due to the fact it is in the 1st degree earthquake zone¹⁰³. The evidence for the damage to the structure of the Small Bath at Phaselis following the earthquakes of 141 and 240 AD, which occurred after the first proposed date of construction, can be seen from the traces of repair work on the main walls of the building. While large travertine blocks were used in the first phase of construction, small blocks were favoured in the next phase of repairs¹⁰⁴.

The presence of the melting pool in the *frigidarium* of the Small Baths of Phaselis is important, as it shows that it was used for different purposes in Late Antiquity. In the Xth century AD, Phaselis served as a quarry for the urban buildings of Attaleia, and it is not known how this situation affected the city's Small Bath structure. However, the conquest of Phaselis by the Seljuk Turks in 1158 AD marked the end for both the city and the bath structure.

⁹⁷ Schäfer 1981, 169; Tüner-Önen 2008, 177.

⁹⁸ Tüner-Önen 2008, 313-314.

⁹⁹ TAM II/3 1194. For translation cf. Tüner-Önen 2008, 317, Nr. 15: "Tyndaris, daughter of Diotemos Rufinus, son of Gnaius Licinius, adopted by Marcus, built this *Tetragonal* Agora, son of the late Traianus Parthicus, grandson of the late Nerva, Emperor Caesar Traianus Hadrianus Augustus, pontifex maximus, XVth time *tribunica potestas*, 3 times *consul*, *Olympios*, the father of the homeland, had it built as a dedication to the savior of the entire universe, the boule and the city of the people of Phaselis". Arslan & Akçay 2022, 179.

¹⁰⁰ Vitruvius. *De Arch.* V. 2. 8.

¹⁰¹ The same wall type is also seen in the *Tetragonal* Agora (Karahan 2021, 59), *Latrina* (Öner 2019, 382) structures in the common square and the farm settlements in the hinterland of the city (Kızgüt 2017, 199-215).

¹⁰² A similar wall construction technique is also seen in the Sillyon Bath, which dates back to the same period as the Phaselis Small Bath structure (Taşkıran 2021, 336).

¹⁰³ Softa & Turan 2013, 1.

¹⁰⁴ Öner 2019, 127.

BIBLIOGRAPHY

- Akçay A. 2021, "Phaselis Hadrianus Kapısı: Arkeolojik Alanlarda Yerinde Sergilemeye Bir Örnek". *Mediterranean Journal of Humanities XI*, 1-15.
- Arslan M. 2018. "Phaselis ve Territoryumunun Yol ve Savunma Sistemleri: Tekirova-Çamyuva Arası". *Phaselis IV*, 15-46. DOI: 10.18367/Pha.18002
- Arslan M. & Akçay A. 2022. "Phaselis Hadrianus Kapısı: Belgeleme, Koruma, Sağlamaştırma ve Yerinde Sergileme Çalışmaları". *Phaselis VIII*, 179-196. DOI: 10.5281/zenodo.7344989
- Arslan M. & Tüner Önen N. 2016, "Phaselis". Eds. E. Dünder & H. Işık, *Lukka'dan Lykia'ya: Sarpedon ve Aziz Nikolaos'un Ülkesi*. İstanbul, 300-317.
- Arslan M. & Tüner Önen N. 2018, "Phaselis, 2017 Yüzey Araştırmaları ve Kazı Çalışmaları". *Phaselis IV*, 295-323.
- Baland A. 1981, *Inscriptions d'époque impériale du Létôon*, Fouilles de Xanthos 7.
- Bayburtluoğlu C. 1983, "1982 Phaselis Kazısı Raporu". *KST VI*, 181-189.
- Boersma J., 1999, "Designing and constructing Roman baths". Eds. J. DeLaine & D. E. Johnston, *Roman Baths and Bathing*. Proceedings of the First International Conference on Roman Baths (JRA 37). England 1992. 191-198.
- Brandes W. 1989, *Die Städte Kleinasiens im 7. und 8. Jahrhundert* (BBA 56). Berlin.
- Brödner E. 1977, "Zur Entwicklungsgeschichte des Bades". *Antike Welt* 8, 47-56.
- Çevik N. & Varkıvanç B. 2004, "An Evaluation of the Roman Rural Baths of Lycia". *Adalya VII*, 223-249.
- Çevik N. & Kızıgüt İ. & Bulut S. 2009, "Rhodiapolis Baths: The First Evaluation Following the Excavations and Its Contribution to the Knowledge on Lycian Baths Architecture and Technique". *Adalya* 12, 231-260.
- Çevik N. & Bulut S. 2014, "Andriake Doğu Hamamı: Bölgenin Hamam Mimarlığına Işık Tutan Yeni Bir Örnek". *Adalya XVII*, 221-262.
- Demirel, M., 2019, *Antalya Arkeoloji Müzesinde Bulunan Phaselis Antik Kentine Ait Materyal Kültür Kalıntıları*. Yayımlanmamış Yüksek Lisans Tezi, Akdeniz Üniversitesi, Akdeniz Uygarlıkları Araştırma Enstitüsü. Antalya.
- Dörtlük K. 1981, "1980 Yılı Phaselis Arkeolojik Çalışmaları". *KST III*, 80-81.
- Erkoç S. 2018, "Patara Liman Hamamı: Mimarisi ve Yapı Evrelerine Dair İlk Gözlemler". *Phaselis IV*, 239-258.
- Farrington A. 1995, *The Roman Baths of Lycia. An Architectural Study*. Ankara.
- Foss C. 1994, "The Lycian Coast in the Byzantine Age". *DOP* 48, 1-52.
- Frederiksen R. 2002, "The Greek Theatre, A typical building in the urban centre of the polis?". *CPCPapers* 6, 65-124.
- Gülşen F. 2007, "Patara'daki Roma Dönemi Hamamlarında Planlama ve Mimari". Eds. Haz. B. Can & M. Işıklı, *Atatürk Üniversitesi 50. Kuruluş Yıldönümü Arkeoloji Bölümü Armağanı. Doğudan Yükselen Işık Arkeoloji Yazıları*. İstanbul, 453-470.
- Gülşen F. 2007, "Wall Heating Systems of Roman Period Lycian Baths". *Adalya X*, 223-258.
- Hanfmann G. 1975, *From Croesus ton Constantine: The Cities of Western Asia Minor and Their Arts in Greek and Roman Times*. Ann Arbor. 41-46.
- Kalinka E. 1920, *Tituli Asiae Minoris II*. Vindobona.
- Karahan T. 2021, "Phaselis'in Devlet Agorası: Tetragonal Agora". *Phaselis VII*, 55-71.
- Kızıgüt İ. 2017, "Antalya Tahtalı Dağ Çevresi Yerleşimlerine İlişkin Yeni Bulgular ve Öneriler". *Cedrus V*, 199-215.
- Korkut T. 2003, "Zur lykischen Bearchitektur im Lichte der Thermen von Patara". *IstMitt* 53, 445-459.
- Krencker von D. & Krüger E. & Lehmann H. & Wachtler H. 1929, *Die Trierer Kaiserthermen. Abteilung I. Ausgrabungsbericht und grundsätzliche Untersuchungen römischer Thermen*. Augsburg.
- Kürkçü M. 2015, "Phaselis Su Sistemleri ve Hidrografisi Üzerine Genel Değerlendirme". *Phaselis V*, 69-79.
- Orhan U. 2023, *Amphora Buluntuları Işığında Phaselis'in Akdeniz Ticaretindeki Yeri* (Phaselis Suppl. Ser. I). Antalya.
- Orhan U. 2024, "Recent Studies on the South Harbour of Ancient Phaselis, Türkiye: A Newly-Discovered

- Breakwater, Amphorae and Trade". *International Journal of Nautical Archaeology* 53/1, 1-21. <https://doi.org/10.1080/10572414.2024.2315202>
- Öner F. 2018, "Phaselis Antik Kenti Küçük Hamam'ı ve Latrina'sında Kullanılan Yapıtaşları ve Bu Yapıtaşların Bozuşmaları". *Phaselis IV*, 351-360.
- Öner Ç. 2019a, *Doğu Akdeniz Liman Kentleri'nde Yıkanma ve Temizlik Mimarisine Örnek: Phaselis Küçük Hamam ve Latrinası*. Yayınlanmamış Yüksek Lisans Tezi, Akdeniz Üniversitesi, Akdeniz Uygarlıkları Araştırma Enstitüsü. Antalya.
- Öner Ç. 2019b, "Phaselis Latrinası ve Antikçağda Tuvalet Kültürü". *Phaselis V* (2019) 379-390.
- Özüdoğru Ş. & Tarkan D. 2018, "Kibyra Gec Antik Çağ Hamamı". *Adalya* 21, 175-210.
- Schäfer J. H. Schläger, D. J. Blackman, H. Bremer, J. Christern & P. Knoblauch 1981, "Phaselis Beiträge zur Topographie und Geschichte der Stadt und ihrer Häfen". *IstMitt.* 24, 542-561.
- Seviç F. 2022, *Arykanda Antik Kenti'ndeki Geç Antik Dönem Hamamları*. Yayınlanmamış Doktora Tezi, Hacettepe Üniversitesi Sosyal Bilimler Enstitüsü Sanat Tarihi Anabilim Dalı, Ankara.
- Seyer M. & Schuh U. 2010, "Limyra 2009". *ANMED* 8, 50-55.
- Softa M. & Turan M. 2013, "Demre ve Çevresini Etkileyen Tarihsel Depremler". 2. *TDMSK Hatay*, MKÜ, 1-8.
- Taşkıran M. 2021, "Son Araştırmalar Işığında Sillyon Roma Hamamı". *OLBA XXIX*, 313-348.
- Tüner Önen N. 2008, *Phaselis Antik Kenti ve Teritoryumu*. Yayınlanmamış Doktora Tezi. Akdeniz Üniversitesi, Eskiçağ Dilleri ve Kültürleri Bölümü. Antalya.
- Tüner Önen N. & Akçay A. 2014, "Phaselis Antik Kentinin Su Teminine İlişkin Gözlemler ve Digital Teknolojinin Epigrafi Çalışmalarına Katkısı". *MJH IV.2* 279-292.
- Vitr. de Arch. 2017, *Vitruvius, Mimarlık Üzerine*. Çev. Ç. Dürüşken, İstanbul.
- Woolf G. 1997, "The Roman Urbanization of the East". S. E. Alcock, *The Early Roman Empire in the East*. Oxford, 1-14.
- Yegül F. K. 1992, *Baths and Bathing in Classical Antiquity*. New York.
- Yegül F. K. 2006, *Antikçağ'da Hamamlar ve Yıkanma*. Çev. E. Erten, İstanbul.
- Yegül F. K. 2011, *Roma Dünyasında Yıkanma*. İstanbul.
- Yurtsever A. 2023, "Heykellerin Yolculuğu: Roma Paganizminden Hristiyan Toplumuna Geçişte Uyum ve Direniş Sorunsalı". *ARMA III*, 61-79.