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Bodies in Pile: Osteological and Archaeological Analysis of Skeletal Remains from Phaselis Infrastucture

Yığın Halindeki Cesetler: Phaselis Altyapısından Çıkan İskelet Kalıntılarının Osteolojik ve Arkeolojik Analizi

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Abstract: Phaselis is located within the borders of Tekirova neighborhood of Kemer district. It is an important port city on the Mediterranean trade route. The ongoing excavations in the city reveal important features of the city. One of these excavations is being carried out on the main street connecting the southern harbor of the city with the central harbor where the trade function was intensively carried out. During the 2023 field season in the northern part of the main street, sewage systems were found under the *summun dorsum* (paving bloks) blocks of the main street of the city. The drainage system starts from the crepis in front of the western wall of the latrina and continues from north to south under the eastern crepidoma (stairs) to the central harbor and ends with a channel through which water flows into the sea. Four skeletons were recovered from the large bath channel during the drainage excavations. All of the individuals are adult males and exhibit similar physical characteristics. The location and morphological characteristics of the skeletons, together with the archaeological record, indicate that they cannot be considered as burials. Furthermore, the detailed examination did not reveal any trauma-related lesions, thus ruling out a possible homicide scenario. The strongest hypothesis explanation for the case is that these individuals drowned during a failed escape attempt.

Keywords: Phaselis, Main Street, Osteoarchaeology, Drowning

Öz: Phaselis, Kemer ilçesine bağlı Tekirova mahallesi sınırları içerisinde yer almaktadır. Akdeniz ticaret yolu üzerinde önemli bir liman kentidir. Kentte devam eden kazılar, kentin önemli özelliklerini ortaya çıkarmaktadır. Bu kazılardan birisi de, kentin güney limanı ile ticaret işlevinin yoğun olarak yürütüldüğü merkez limanını birbirine bağlayan ana caddesinde yürütülmektedir. Ana caddenin kuzey kesiminde 2023 yılı arazi sezonu sırasında, kentin ana caddesinin *summun dorsum* (taş bloklardan yapılmış antik yürüyüş yolu) yüzeyinin altında yer alan kanalizasyon sistemleri bulunmuştur. Drenaj sistemi, latrina yapısının batı duvarının önündeki krepisten başlayıp kuzeyden güneye doğru devam ederek doğu krepidomanın (basamakların) altından merkezi limana kadar devam etmekte ve suyun denize aktığı bir kanal ile son bulmaktadır. Drenaj kazıları sırasında büyük hamam kanalından dört iskelet çıkarılmıştır. Bireylerin hepsi yetişkin erkektir ve benzer fiziksel özellikler sergilemektedir. İskeletlerin konumları ve morfolojik özellikleri arkeolojik kayıtlarla birlikte düşünüldüğünde, gömü olarak değerlendirilemeyeceğini göstermektedir. Ayrıca, detaylı incelemede travmaya bağlı herhangi bir lezyona rastlanmamıştır ve bu nedenle olası bir cinayet senaryosu da elenmiştir. Vakaya dair en güçlü hipotez açıklaması başarısız bir kaçış girişimi sırasında bu bireylerin boğularak hayatlarını kaybetmiş olduklarıdır.

Anahtar sözcükler: Phaselis, Ana Cadde, Osteoarkeoloji, Suda Boğulma

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The ancient city of Phaselis, which is located within the boundaries of the Tekirova district of the present day Kemer district, is an important city that has had a place on the Mediterranean trade routes since the Bronze Age. The geographical features of Phaselis, which are not found in other cities on the Mediterranean trade route[1], are an important factor that distinguishes Phaselis from other cities. The city has three natural harbours and a lagoon, and in fact Phaselis is a peninsula between these harbours. Just west of the city is Tahtalı Mountain, which rises 2600 metres above sea level. Between Tahtalı Mountain and the sea level there is a mountain range called Klimaks. All these geographical features; mountains, hills, bays and valleys have increased the diversity of the region and this diversity has led to the diversification of Phaselis' export products. This situation allowed the people of Phaselis to get the lion's share of the trade and the city prospered especially in the Archaic and Classical periods and its name is often mentioned in very important places on the stage of history[2].

It was revealed during the surveys that Phaselis, whose hinterland extends from Beycik to Boğaçay on the north-south axis and Hisarçandır and Üçoluk on the east-west axis, had many workshops in these regions[3]. In contrast to the mountainous structure of the region, these areas have wide plains and agricultural areas. In addition to the main products such as wood, olive oil and wine, the people of these regions also produce and export various products such as rose oil, medicines and perfumes made from lilies, saffron, fish and various seafood[4].

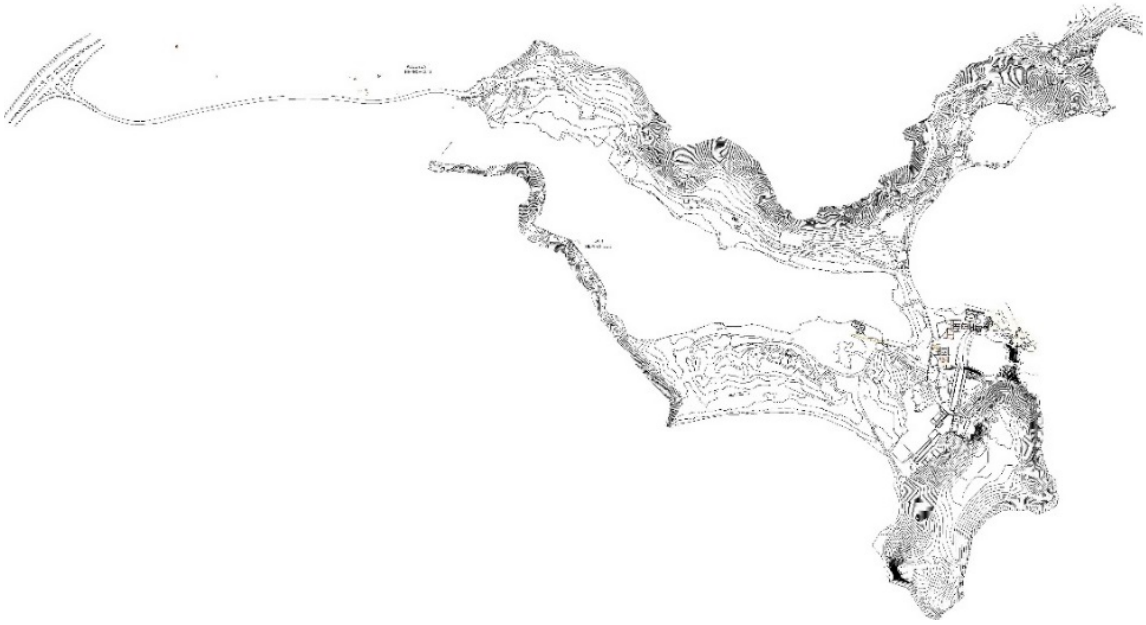

Fig. 1. Phaselis General Settlement Plan (Phaselis Project Archive)

Bu makale birinci yazarın doktora tezinin bir bölümünden üretilmiştir.

1 For Mediterranean trade routes see Braudel 1990, 69.

2 For the early history of Phaselis see Tüner-Önen 2008, 84. For export products of Phaselis see. Tüner-Önen 2008, 60. Also for the role of Phaselis in the foundation of Naukratis see Hdt. II 178.

3 Attila 2019, 14.

4 Tüner Önen 2008, 60.

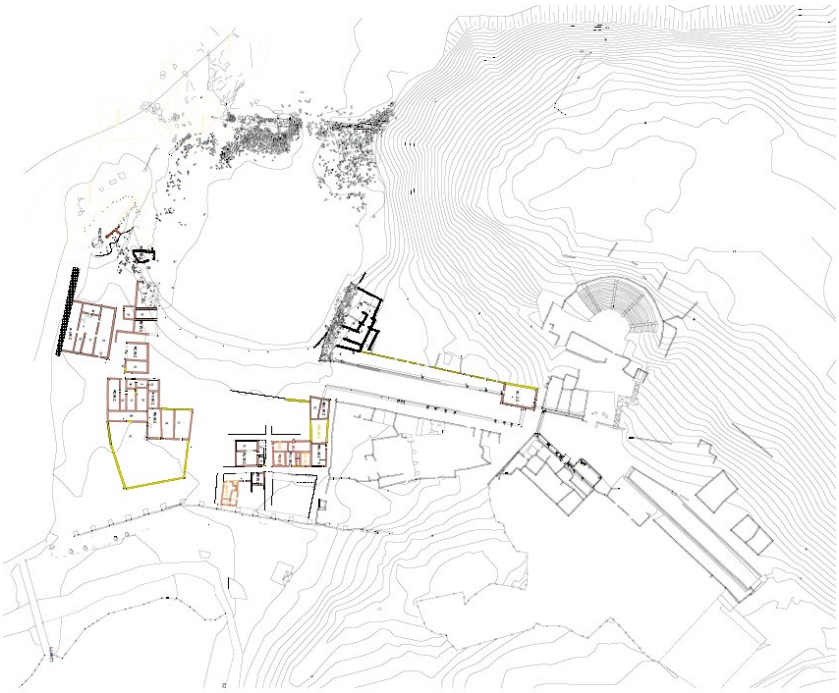

Fig. 2. Phaselis Polis Settlement Plan (Phaselis Project Archive)

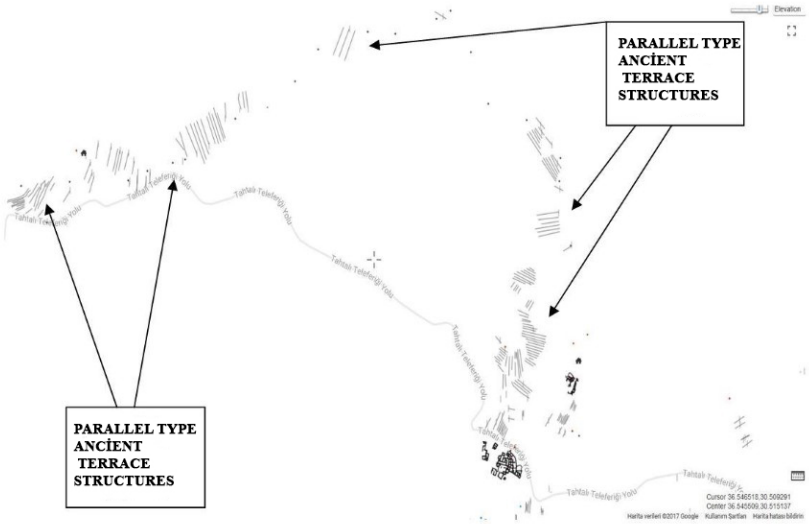

Fig. 3. Farm Settlements in the Phaselis Hinterland (Phaselis Project Archive)

The most important element in a city with such intensive and varied production is undoubtedly the existence and function of commercial areas. From this point of view, Phaselis is almost surrounded by commercial centres. There are two state agoras on the main road of the city, one dedicated to the Roman emperors Domitianus and the other to Hadrianus[5]; there are groups of shops and warehouses, one in the northern part[6] and the other in the southern part; there are groups of commercial

5 Karahan 2021, 58.
6 Karahan 2023, 369.

buildings in the central harbour[7] and a Late Antique agora in the area of the southern harbour; while a Hellenistic Period agora[8], the location of which has not yet been precisely determined but is known from ancient sources, is located on the acropolis. This situation clearly shows that Phaselis was a commercial city with the characteristics of an emporium.

When the city's production and trade is so dense, it is important to ensure the mobility of the merchants coming into the region, as well as the population and goods living in the city. Therefore, the fact that the harbours are connected by roads, which is common in port cities, is also evident in Phaselis[9]. The Main Street of Phaselis, which was built in the form of *cardo maximus* on the north-south axis, connecting the southern harbor and the central harbor where the trade function was intensively carried out, is 225 meters long and has a width varying between 9 and 12 meters in places. The city center is located at the junction of the northern and southern sections of the street[10]. Structurally, the street has crepidoma (stairs) on both sides and porticoes at the back of the crepidoma. These porticos are as high as the crepidoma above the pavement of the street. The porticoes were probably covered with a single hipped roof system between the piers on the uppermost crepis of the crepidoma and the façade walls of the shops. While the façade walls of many of the buildings on the avenue have been preserved close to the ground, the Agora of Domitianus has been preserved in places up to approximately the level of the roof, and on this preserved façade wall beam entrances are visible. It is therefore assumed that the beams of the skeleton of the roof system extending towards the pillars entered these holes and provide us with the most concrete information about the roof systems of the porticoes. The buildings on the street face these porticos. The earliest building on the main road is the Agora of Domitianus. The Agora of Domitianus, together with the trade building located to the east of the southern main street and the Gate of Hadrianus[11] at the starting point of the southern part of the main street, constitute the building group located on the southern part of the street. In the center of the city there is the Tetragonal Agora dedicated to Hadrianus and the Small Baths[12] just opposite. In the southern part of the small bath, there are steps leading to the theatre and the acropolis. Continuing northwards from the town centre, there is a latrina on the crepidoma, which descends from the centre to the street. On the eastern portico of the northern part of the main road there were warehouses and shops, and on the western portico the Great Baths. The Great Bath is located at the back of a row of shops on the portico, so that when looking at this area from the main street, the shops are seen first and the Great Bath is seen immediately behind the shops, in connection with the shops. By analysing the relationship of these buildings to the main street, it is very clear whether their relationship to the street is organic or inorganic. Firstly, analysing the buildings to the south of the street, it can be said that they were built from the first phase of the construction of the main street, because if we look at the lines and planes of the buildings, there is no plane in the opposite direction of the street, the crepidoma or the portico. Moreover, the widths of the porticoes have approximately the same distances between the uppermost crepis of the crepidomas and the façade walls of the buildings. The eastern portico of the southern section is between 4.90 and 5.00 metres wide, while the western portico is between 5.00 and 5.10 metres wide. However, this situation changes when it comes to the city centre and the northern section of the street, and this change is

7 Arslan & Tüner Önen, 2022, 257.

8 Plut, *alex*. XVII 9. see Schäfer 1981, 165; Tüner-Önen 2008, 112.

9 To Soloi-Pompeipolis harbor street see Yıldırım 2017, 76; Side main street see Mansel 1963, 17; Knidos main street see Büyüközer 2013, 143; Patara main street see Aktaş 2013, 55.

10 Phaselis main street see Schäfer 1981, 86.

11 Arslan & Akçay 2022, 180.

12 Öner 2019a, 130.

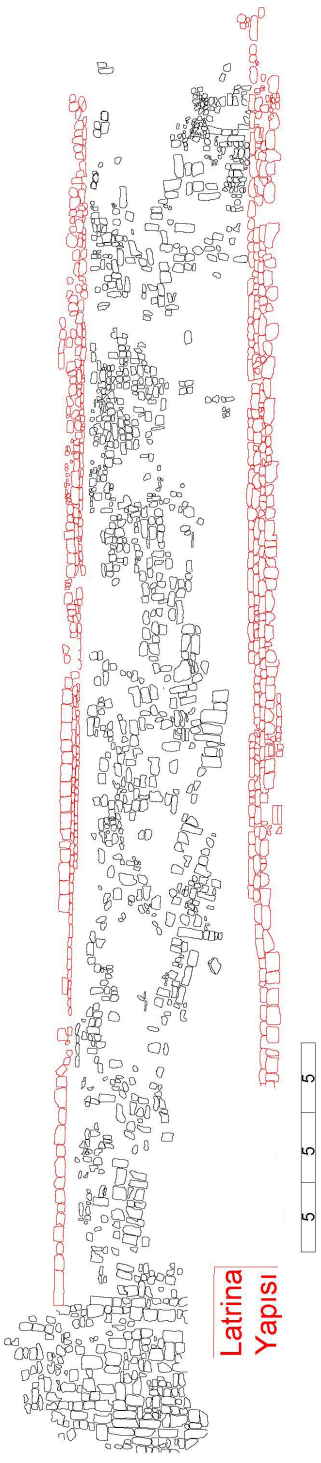

Fig. 4. Drawing of Phaselis Main Street North Section Pre-Conservation Plan

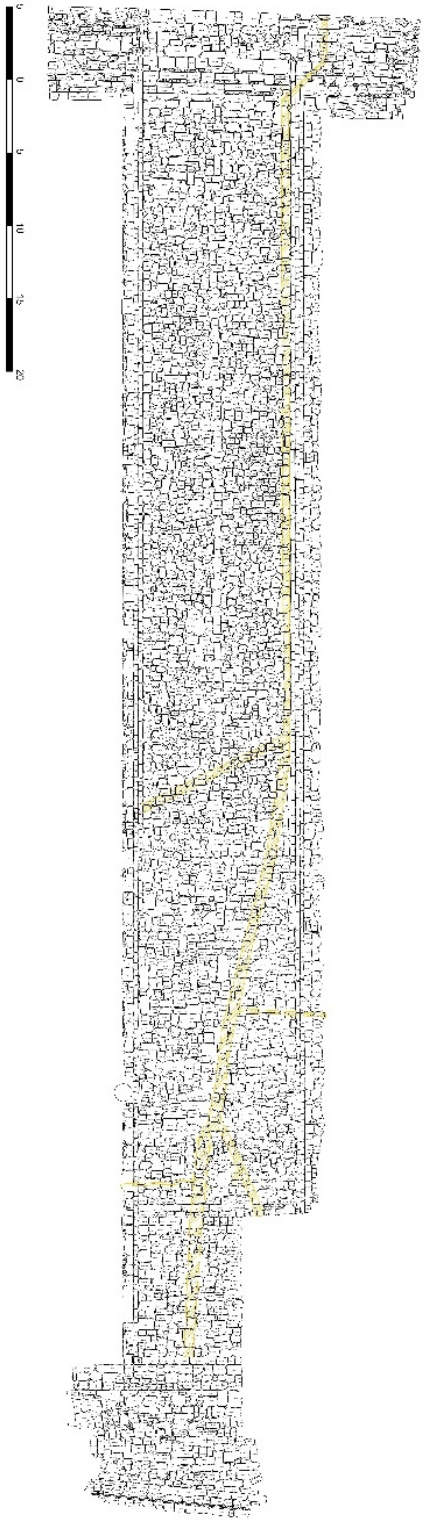

Fig. 5. Drawing of Phaselis Main Street North Section Stone and Drainage (infrastucture) Plan After Conservation

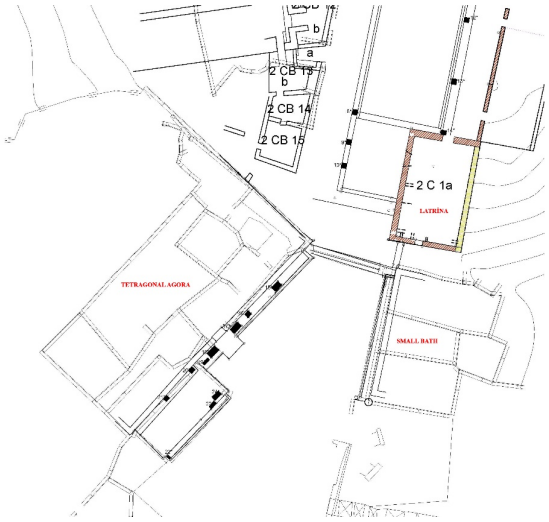

Fig. 6. Deployment Status of Buildings on Streets and City Center

very clearly visible both visually and on the plan. If we look at the tetragonal agora, the small bath and the latrina structures in the town square, we can see that these structures are inorganic with the main street and the town centre.

The eastern crepidoma (stairs) of the northern part of the main road ends at the crepidoma where the city centre is accessed from the north. While the steps leading to the city centre should have continued in this direction to the west, the Tetragonal Agora was built on this crepidoma and the floor blocks by levelling these blocks[13]. The northern end of the wall of the tetragonal agora faces east, while the southern side of the wall faces west. It therefore breaks the plane of the street and the city centre. Similarly, the structure of the Small Bath on the opposite side was built in the area of the floor slabs of the city centre. It is clear that the floor slabs in the town centre were removed and the building was placed here. The latrina structure on the crepidoma that descends from the city centre to the northern main street in the northern part of the small hamam, on the other hand, was built directly above the eastern portico of the northern main street and the crepidoma crepis, suggesting that these three

Fig. 7. Main Street View from the North before Conservation Work

Fig. 8. Main Street View from the South before Conservation Work

[13] To see the help of Q. Voconius Saxa Amynttias and Q. Voconius Saxa Fidus for the Tetragonal Agora and other urban structures after the earthquake AD 141. see Tüner-Önen 2008, 250; 326.

Fig. 9. Current View of the Main Street as a Result of Conservation Works

buildings were connected to the main street by an inorganic bond and were therefore built after the main street. However, evidence that the road was in use before the Roman construction was found after the restoration of the main road. After the street *summun dorsum* (paving) blocks were removed, a sounding was carried out in front of the front wall of the latrina structure and early floor blocks of about 1.00 to 1.20 metres were found. This situation proves the existence of an early road in the same area and probably in the same direction, linking the southern and northern parts of the city in the early period.

The main street of Phaselis has been severely damaged by the effects of time and nature, both in the paving and the crepis blocks in the crepidomas. In addition to mechanical and chemical degradation, the axes are subject to slippage, collapse and fracture due to the pressure of earthquakes and tree roots from the ground. There is lichenisation, moss, fungal growth, burning, fractures and cracks on the blocks.

As part of the projects carried out in 2023 on the northern part of the main road, conservation work was carried out using the anastylosis method. The northern section of the road, which is 90 metres long and 9.00 to 12.00 metres wide in places, was conserved both on the surface and in the crepidomas. First, the crepis blocks in both the eastern and western crepidomas of the main road were dismantled. The dismantled blocks were stacked on the main road and on the porticoes of the main road in the order in which they were dismantled. Then the demolition work began in the crepidomas descending from the town centre to the northern part of the main street.

The dismantled blocks were stacked on the road in the order in which they were dismantled. The blocks that were damaged and degraded during the dismantling process to such an extent that they could not be reused were replaced with blocks of the same quality and type that were taken to the reservoir area within the boundaries of the Southern Harbour by Prof. Dr. Cevdet Bayburtluoğlu in the 1980s and by the Antalya Museum in the 1990s. Before the blocks were reinstalled, the blocking material under the dismantled blocks, which had lost its function and bearing capacity, was excavated and cleaned. In place of this cleaned material, rudus and statumen layers were prepared and laid. The rudus layer was made up of rubble stones up to 0.15m in size, while the statumen layer was made up of a mixture of gravel and lime 0-12mm in size. Once the rudus layer was in place, a statumen layer was placed to fill the gaps between the two layers. In this way, the two layers are integrated to form a single layer, and the lime, with its binding properties, increases the bearing capacity. These two layers also consolidate the soil and prevent the formation of cracks and slides in the consolidated soil. Once the floor was formed, the crepis blocks of the eastern crepidoma and the crepis blocks of the western crepidoma were put in place. The crepidoma has four rows in the east and three rows in the west. As the crepidoma blocks were placed and the work progressed northwards, the blocks belonging to the walking floor of the main road were placed back in the order in which they had been removed. At this stage, IDs were created for each block and all information about the block was added to these IDs.

As work continued on the pavement of the main road, on the south-north axis from the steps of the town centre to the central harbour, and as the non-functional blockage areas were excavated, the drainage systems located under the *summun dorsum* blocks of the main road of the town were reached. The drainage system starts from the crepis in front of the western wall of the latrina structure and continues from north to south, passing under the eastern crepidoma to the central harbour and ends with a channel through which the water flows into the sea. The main drainage system has a width of approximately 0.60 to 0.80 metres and a depth of 0.60 to 1.00 metres. The side walls of the main drainage system are made of rubble stones in some places and cut blocks in others. There is a small

rubble slab on the floor. It is possible that there is binding material on these pavements, but the intensity of the destruction on this surface makes it impossible to be certain. As the excavation of the main sewer continued, lateral sewers connected to the main sewer and coming from the buildings on the street were discovered. These systems are relatively smaller than the main sewer. Some of the systems were formed by terracotta funnels rather than canal systems. In particular, the drainage system coming from the large bath structure consists of terracotta funnels.

The main sewerage system starts from the steps leading to the centre of the latrina and runs for 92.40 metres. The first lateral system added to this main system starts at the bottom of the front wall of the latrine building and joins the main system after 6.20 metres and is about 0.50 metres wide. Then there is another lateral system coming from the large bath and connected to the main system starting from the western crepidoma and this system consists of funnels. It has a length of 4.90 metres from the bottom of the crepidoma. The next lateral system occurs 12.45 metres after the latrina front wall of the eastern crepidoma and is 6.02 metres long and approximately 0.30 metres wide. The last lateral system to be added to the main system is the channel system coming from the large bath and connecting to the main system under the eastern crepidoma. It started 37.20 metres north of the starting block of the southern part of the western crepidoma, is 10.40 metres long and 0.70 metres wide and connects to the main system. The excavations revealed the drainage system of the northern part of the main road, with three channels and a funnel line connected to the main system. According to the archaeological finds, the main road cannot be dated later than the first half of the first century BC, as the earliest building on it is the Agora of Domitianus. The earliest date seems to be the second half of the first century BC.

Fig. 10. Main Drainage System Excavation Aerial View

Fig. 11. Main Sewerage Excavations on South-North Axis

Fig. 12. Funnel Channel System from the Great Bath

Fig. 13. Lateral Sewer Line Under Latrina Façade Wall

Fig. 14. Aerial View of Main and Lateral Drainage Line

Fig. 15. Moment of Discovery of Skeletons Before Removal of *Summun Dorsum* Blocks

Fig. 16. Skeletons from the Lateral Drainage Line from the Great Bath

Fig. 17. Skeletons from the Lateral Drainage Line from the Great Bath

Fig. 18. Discharge Area of Drainage to Central Harbor

During drainage excavations, four skeletons were recovered from the large bath channel. The age and sex of the individuals were determined by using the methods described in the literature on the appropriate preserved parts of the bones. Sex determination was made on the hip bone and pelvic region according to the preauricular sulcus, incisura ischiadica major, angulus pubis, arc compose, foramen obturatum, corpus ossis ischii, crista iliaca, fossa iliaca, pelvis major and pelvis minor, subpubic angle and concavity, ventral arch, ischiopubic ramus, ischippubic proportions, acetabulum and sacrum[14]. In the skull; glabella, processus mastoideus, frontal and parietal eminence, nuchal crest, processus zygomaticus, orbital shape, external occipital protuberance, mental eminence, gonial angle, mandibular ramus angle and palate shape were used for sex determination[15]. All of the individuals were classified as males. Age at death was determined using the pubic symphysis, changes in the auricular surface of the coxae, cranial sutures, ageing of the medial epiphysis of the clavicle and cortical section, proximal part of the femur and complex ageing methods[16]. The age of death of the 3 individuals was determined to be around 20's (individual 1), 30-35 (individual 2), 40-45 (individual 3) while one of them couldn't be determined (individual 4).

Fig. 19. Cross-Shaped Pendant Recovered from Skeletons

The height of the individuals was calculated from the length measurements of the femur and tibia bones using the height calculation formula of Trotter and Gleser (1952). The calculated heights of 3 individuals are around 170 cm and one individual is around 160 cm (individual 4). After these fundamental analyses, the bones were examined for possible pathological lesions. Three dental carries and one vertebral hernia were detected on individual 3.

A burial under the main street in the centre of the city is generally unexpected, especially in a drainage system. Although disposal of the bodies in to the wells is known from the archaeological record[17], a drainage system is unfamiliar. The nature and position of the burials also reduce the possibility of a proper burial as well. However, unusual burials are also seen in archaeological sites. Tsaliki commented on these deviant burials and suggested five criteria for identification. These are; (1) burials in unusual places, (2) mass burials of a crisis, (3) signs of ritual process, (4) evidence of torture and (5) unusual type of burials for the region[18]. Except unusual place of the individuals, none of the criteria is met in this case and therefore it can't be classified as burial. Besides, after detailed examination, any kind of trauma related pathology couldn't be detected on the bones and thus a possible homicide scenario is ruled out.

The fact that the drainage system is large enough for a person to walk in by bending or crawling, and that one end of it flows into the sea at the central harbour, suggests that people were trapped and died while trying to escape from the central harbour by entering the canal. Furthermore, as they were found in more or less anatomical positions, it is not the case that the bones were thrown into the canal.

A cross-shaped steatite pendant found in the same area as the skeletons indicates that these burials date from the Christian period. At the same time, the fact that the skeletons were left here shows that the event took place at a time when the city, and especially the city centre, was losing

14 Buikstra & Ubelaker 1994; Washburn 1948; Workshop of European Anthropologist 1980; Bruzek 2002.
15 Workshop of European Anthropologist 1980; Buikstra & Ubelaker 1994.
16 Ubelaker 1989; Walker & Lovejoy 1985; Buckberry & Chamberlain 2002; Albert *et al*. 2007.
17 Papadopoulos 2000; Weerasinghe 2008; Bourbou & Themelis 2010; Liston & Rotroff 2013.
18 Tsaliki 2008.

its function and becoming less used.

After excluding trauma-related deaths scenarios and considering the locations of the skeletal remains, the most likely couse of death is drowning. As drowning generally doesn't significantly affect the bones, it is difficult to prove this hypothesis. On the other hand, histopathologicial analysis of the temporal bone[19] or diatom tests[20] could provide evidence of drowning. Unfortunately, these analyses can't be conducted for these skeletons because of lack of organisational reasons.

Of course, drowning is not only caused of hypoxia. Inhalation of some kind of gases and smoke can also an important cause of death. Their effects could be seen in the soft tissues, but not on the bones because of their biology. Bone would not react quickly enough to show smoke inhalation. Therefore, it is impossible to draw a clear conclusion for this type of death.

After all, the osteological and archaeological record shows that it wasn't a deliberate burial, the individuals were not victims of a homicide, they were not afflicted with a disease. They were simply victims of an unsuccessful attempt to escape. Ongoing excavations will provide more details about the living and the dead in the ancient city of Phaselis.

19 Kumar & Kamalaannan 2020.
20 Dervišević *et al*. 2024.

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