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THE ROMAN BATH AT PARION: HISTORICAL DEVELOPMENT AND THE DATING BY ^{14}C OF ITS REUSED PHASE

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ABSTRACT

Parion Roman Bath discussed here were built in the first quarter of the 2nd century AD, but new halls were added to the building and other major renovations were made during the last quarter of the 2nd century AD. After these changes, the building remained in use until the 5th century AD, with bathing activities coming to an end at some time after the middle of the 5th century AD. Later, the building was used for different purposes. During the excavation of the praefurnium of the Roman Bath in 2015, an oval-shaped lime kiln was found that was believed to have been built after the bathing activities ended in the building. The remains of wood used to burn marble were found in the firing chamber of the kiln. Samples taken from burnt wood were analyzed by the radiocarbon dating. Radiocarbon dates have been calibrated using the Extended 14C Database and the Revised Calib 3.014C Wet Calibration Program. The analysis revealed the not calibrated date of 1493 +/- 67, which indicated the last phase of use of the lime kiln. The calibrated date is between 534 and 641 AD, which also constitutes the date of the finds evaluated in the study.This date constituted a "terminus ante quem" for the lime kiln. The present case study aimed to compare the date obtained as a result of the analysis and the date of the archaeological context and investigate whether the analysis results were compatible with the excavation context.

KEYWORDS: Archaeology, Archaeometry, Radiocarbon, Roman Architecture, Roman Bath Architecture, Parion, lime kiln, praefurnium

1. INTRODUCTION

Parion, one of the important cities of Anatolia during the Roman period, is now located within the boundaries of Kemer Village in the Biga District of Çanakkale Province. It is located at the exit of the Dardanelles Straits, known as Hellespont in ancient times, to the Propontis (the Sea of Marmara) (Figs. 1,2). The ruins of the city are concentrated in the valley, which starts from Cape Bodrum, looking like a peninsula extending toward the sea to the north-northeast of Kemer Village, and expands like a fan toward the south. It is believed that Parion was founded in 709 BC during the "Ionian colonization" period (Hammond and Scullard, 1970: 782; Boardman and Hammond, 1982: 119; Avram, 2004: 991; Prêteux, 2009: 335). Since its foundation the city has attracted settlers during every period of history owing to its important location and has been at the centre of significant political events (For detailed information about the foundation of Parion and its history until the Roman Period, see Keleş, 2011; Başaran and Ergürer, 2012: 246-250; Yılmaz, 2022: 15-20). The Romans, wanting to benefit from the city's advantageous location, gave the city a special status in the 1st century AD and made it more prosperous with the "Ius Italicum" (Italian Rights) given by Augustus, the city was exempted from taxes, and the people of the city were regarded as Roman citizens (Yılmaz, 2022: 26). Furthermore, the city had already been given the status of a Roman colony during the reign of Julius Caesar, and this status was renewed during the reign of both Augustus and Hadrian (Keleş and Çelikbaş, 2014; Keleş and Oyarçin, 2021: 393; Kasapoğlu, 2022: 264). With these special grants, Parion gained various economic benefits, which undoubtedly constituted an important element in financing the transformation of Parion from a Greek to a Roman city.

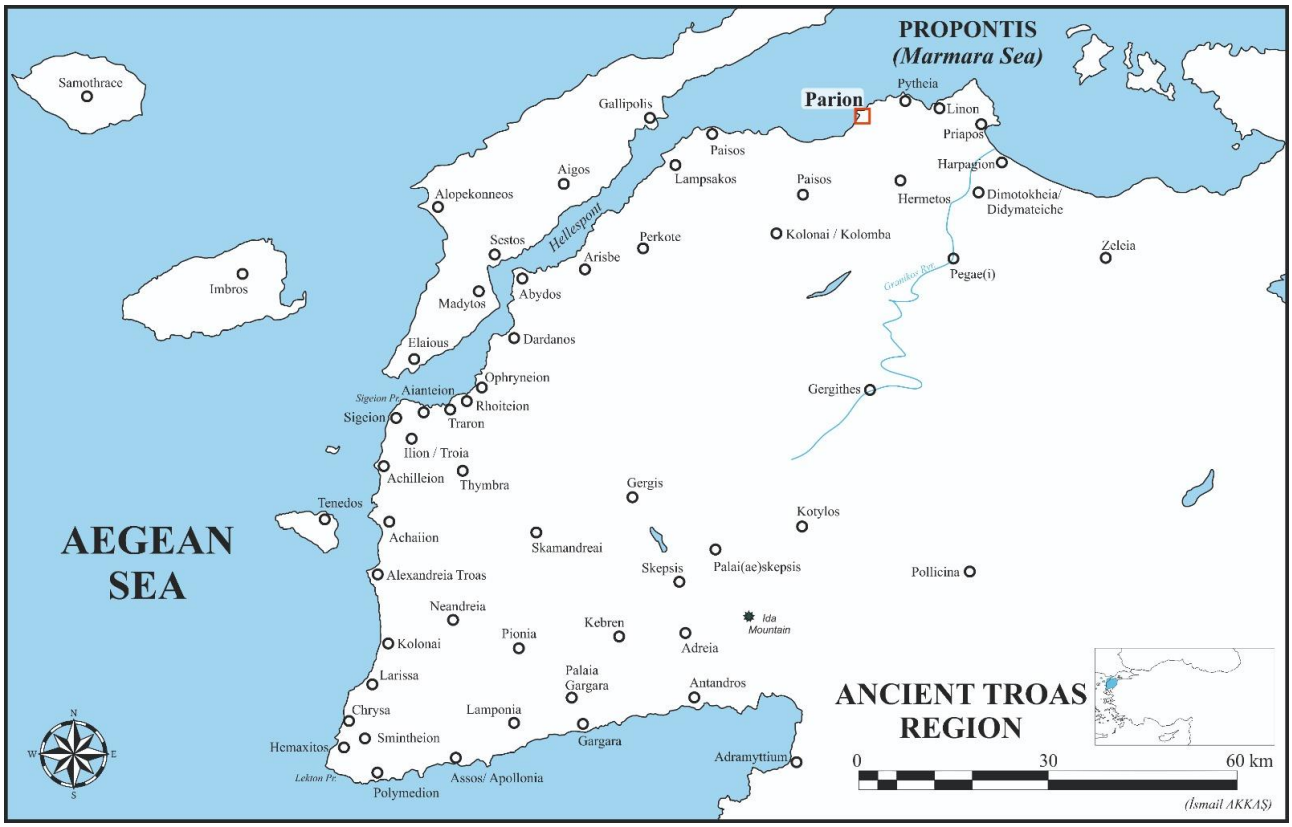

Figure 1. Map showing the ancient cities in the Troad Region and the location of Parion (Parion excavation archive).

Bathing has been based on various rituals since the beginning of human's settlements, and bathing architecture developed to the extent allowed by these rituals. Bathing activities began to take a secular rather than a ritualistic form with the Greeks. This evolution became institutionalized in the Roman period and, over time, it formed the habits of bathing that deeply affected the social life of the community. Baths were built as costly large establishments, and they included priceless works of art such as sculptures, busts, mosaics, and wall paintings. Thus, these structures became an important tool in showing the power and wealth of the Roman Empire to the people (Yegül, 2010: 23-28). Baths undoubtedly had an important role in the formation of the Roman lifestyle. The Roman administration considered baths as a propaganda element promoting Romanization by building one or more baths in each Roman city (DeLaine, 1999: 7; Nielsen,

1999: 35). This bath culture, which became a social phenomenon that involved going to the baths as a routine behaviour for an ordinary Roman citizen, also started to manifest itself in Parion. The baths built in the city became important complementary elements in the Roman identity that Rome wanted to give to the people of Parion (Başaran and Yılmaz, 2021: 122). Three Roman baths have been found in Parion since 2005 in the course of the ongoing excavations (Fig. 2). They are named, and will be referred to here as, the Slope Bath, Roman Bath, and the Great Bath. The Slope Baths are the earliest found in Parion and are the only ones that have been almost completely excavated. The Roman Bath were the second building to be found, whereas the Great Bath was the latest to be located. The former, the subject of this paper, has been uncovered to a great extent whereas the latter is only at the status of a "newly discovered building." Of the two excavated buildings, the Slope Bath were built in the 1st century AD and the Roman Bath in the 2nd century AD. The Great Bath are tentatively dated to the 2nd century AD as well, but the validation of this date still awaits much fieldwork that will be followed by detailed study. The plans of the three buildings, on the other hand, are still far from being totally and accurately understood as the archaeological excavations in all three have not yet been completed. Nevertheless, the baths in Parion stand out, having increased the diversity and number of known baths in the Troad. The Roman Baths at Parion have some similarities and some differences with other baths in the region (For the Herodes Atticus Baths from Alexandria Troas, see Yegül, 1992: fig. 355; for the Roman Bath at Skepsis, see Başaran et al., 1998: plan 1, figs. 1-9; for the baths from Smintheion, see Kaplan, 2018; for comparison of the Parion Baths with these examples, see recently, Yılmaz, 2022: 202-203).

Figure 2. Aerial view of the city centre of Parion and the three Roman bath complexes (Parion excavation archive).

In addition to the baths, the architecture of the theatre, odeion, and agora of the city and the finds obtained from these structures are the most important indicators of the urban transformation of Parion into a Roman city (Başaran and Yılmaz, 2021: 121; for epigraphic documents, see Frisch, 1983; Sayar, 2015 and 2016). Last but not least both the Roman burials, both in terms of their architecture and their funerary traditions, supply us with valuable information on Parion's urban transformation into a Roman city (Kasapoğlu, 2012: 126-134; Kaba et al., 2019: 487-506; Kasapoğlu and Kasapoğlu, 2022: 491-524).

One result of the economy crisis that the Rome Empire suffered during the 3rd century AD was that there were problems in meeting the expenses of maintaining baths (McDavid, 2019: 2). Furthermore, with the end of paganism in the 4th century AD baths were no longer as popular as they had been, which caused

monumental bath buildings to be abandoned or some parts of them to be converted for other purposes. Since baths that were still standing in the 4th century AD could no longer fulfil their function as public places for bathing, they were transformed into areas for light industrial use with sections of baths being turned into various work spaces for producing pottery, glass, or even metal objects, and their furnaces together with water channels were used for burning and melting activities (Mango, 1981: 338; Berger, 1982: 1–172; Bouras, 2002: 525–26; Russell, 2002: 221–28; Lavan et al., 2008: 159 and 320). This change is also observable in the baths at Parion (For the functional change in the Slope Bath, see. Keleş et al., 2018). The lime kiln, which is included within the overall subject matter of this paper, can be considered one of the changes, maybe even the leading one, in the case of the Roman Bath. The architectural remains unearthed during excavations in the west praefurnium indicate that this place was used as a small industrial facility for turning marble into lime by burning (Keleş et al., 2017: 28; Yılmaz and Acar, 2018; Yılmaz, 2022: 193).

The radiocarbon analysis of the burnt wood pieces taken from the kiln revealed the last date of use of the lime kiln. It was aimed to compare the date obtained from the analysis and that from the archaeological context and determine the time that the function of the Roman Bath changed.

Studies and scientific publications on the architectural remains and materials from Parion had always relied on orthodox methodologies of archaeology especially for dating, i.e. establishing analogies based on critics on style or parallels. Other than these methodologies, epigraphic documents and numismatic data constituted the basic and main materials used in dating. Before now no absolute dating has been done on any material from Parion by any technical or metric methodology, such as radiocarbon analysis. Therefore, this study is a novelty for the scientific publications of the Parion excavations. Although the lime kiln does not belong to the original phase of use of the bath, the radiocarbon analysis results of the pieces of wood obtained from there will still offer researchers a different perspective on its dating (actually post-dating). The analysis results will become a mainstay for determining the accuracy of the date given by archaeological materials in identifying especially the later/final phases of the Roman Bath.

2. THE ROMAN BATH OF PARION

The Roman Bath of Parion were built at the focal point of the city's social centre between the Theatre and the Agora (Yılmaz, 2022: 173), (Fig. 3). As stated previously, the plan of the bath has not yet been fully revealed (Fig. 3). The excavations done so far were carried out in an area of 1800 m2 and a total of 13 sections of the building were revealed (Fig. 4). The excavation of three heated halls and the praefurnia serving them have been completed, while the excavations in the other 7 halls are still continuing. The halls of the building were planned, and are named in this paper, in relation to the well-known order of the rooms in Roman bath. So, Hall 1 stands for the vestibulum, Hall 2 for the porticus and impluvium, Halls 3-4 for the frigidarium and piscina, Hall 5 for the frigidarium, Hall 6 for tepidarium I, Hall 7 for tepidarium II, Hall 8 for the caldarium, Hall 9 for the north praefurnium, Hall 10 for the west praefurnium, Hall 11 for a private hall, Hall 12 for the south praefurnium, and Hall 13 for the latrina. Although the plans of some halls have been determined by following the walls in the past excavation seasons, the interior architectural features remain unexcavated and, as a result, could not be determined exactly.

Figure 3. The Roman Bath, orthophoto (Yılmaz, 2022: Lev. 41a, orthophoto by Sedat Biçer).

The arrangement of the heated main halls of the bath in a rwo parallel to each other constitutes an important element in determining the plan type of the baths. Furthermore, consideration of the connections between these spaces in the Roman bathing tradition constitute another important point in determining the plan type. This order reflects the "row type baths,", known as the most familiar form of Roman baths (Krencker et al., 1923: bb 237 a, b, 238 a-f; Nielsen, 1990: Fig. 1; Yegül, 1992: Fig. 142). However, the fact that the excavations in the baths have not been completed yet raises some questions in understanding the plan type. None of the Roman baths are alike apart from their principal traits in the plan. These differences are known to occur mainly because of regional practices. Especially the geographical traits and topographies of different cities stand forward as the leading elements that played a role in the differentiation among plans within different cities. As witnessed in the Parion Roman Bath the axial arrangement of the different halls and realization of the bathing process in accordance to this array is an overall reflection of the row type baths (For similar plans to the Roman Baths, see Yılmaz, 2022: 116-117).

Since no epigraphic evidence has been found so far in the bath, only the in situ finds, stratigraphy and differing construction techniques were used as criteria for dating. Thus, it was determined that the building had two important construction phases. Among the in situ finds the groove-fluted acanthus capitals are especially helpful as a means of architectural dating. These capitals, found in piscina, reflect the decoration traits and characteristics of the Hadrianic period (Yılmaz, 2022: 190, pl. 72b). When the statues and reliefs, none of which were found in situ but were surely used in the interior decoration of the bath, are evaluated stylistically, it shows that they too reflect characteristics of the Antonine period (Yılmaz, 2022: 190, pls. 118-119a).

Examination of the construction techniques used in the baths shows that "opus mixtum" was the main masonry technique that was used in the construction of its walls. This type of wall construction, the first examples of which are dated to the Augustan period, is known to be used extensively in the 2nd century AD and became almost the official masonry technique of the Roman world (Adam, 1999: 277; Yegül and Favro, 2019: fig. 3.19). Although the Hadrianic period is understood to be the primary construction phase of the bath, a major change was made to the building during the Severan period in the late 2nd-early 3rd century AD. This constitutes the second major construction phase of the bath (Yılmaz, 2022: 192). In this phase, the building was enlarged, taking in a wider area than in the first phase. The spaces in the eastern wing of the bath were added to the structure during this period. The entrance of the first phase was changed too, and the vestibulum was built with a more monumental entrance. The central courtyard with impluvium (Section 2) and the latrina were also added to the bath

during this period Heated hall number 11 and the southern praefurnium were other additions to the building during this period. Hall number 8 was added to the west block where the bathing areas were located and constituted the caldarium of the secondary period of use. Thus, the caldarium of the first phase (Hall number 7) was transformed into tepidarium II in the second phase. Since there was a need for a new praefurnium with the new caldarium, the northern praefurnium was added to the bath. So, a major change was made during the Severanperiod and the structure was expanded further to the north, south, and east (Fig. 4). In addition to these changes, the bath is understood to have undergone various minor repairs at regular intervals owing to its constant exposure to water and humidity.

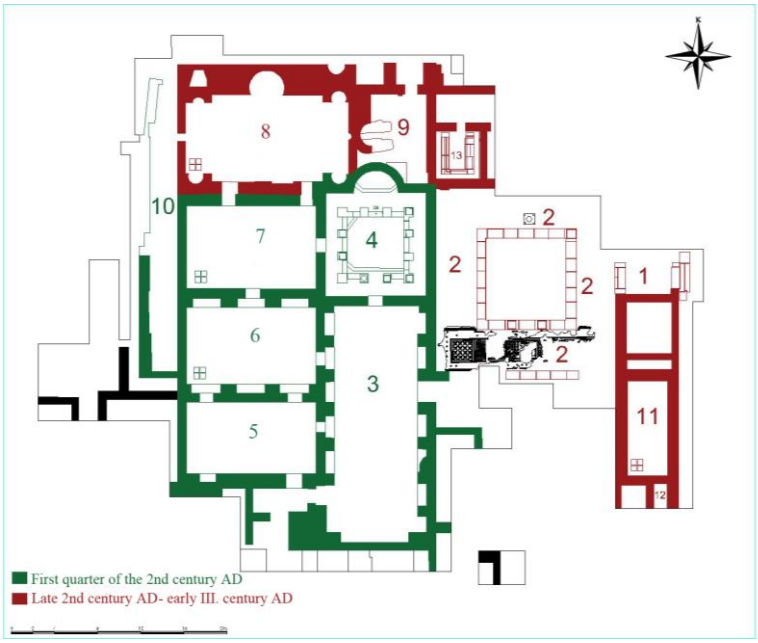

Figure 4. Plan of the Roman Bath. 1: vestibulum, 2: porticus and impluvium, 3-4: frigidarium and piscina, 5: frigidarium 6: tepidarium I, 7: tepidarium II, 8: caldarium, 9: north praefurnium, 10: west praefurnium, 11: private hall, 12: south praefurnium, 13: latrina (Yılmaz, 2022: Lev. 41b, drawing: Tilbe Şaşmaz)

The earthquake that occurred in the Propontis region in the second half of the 2nd century AD caused great destruction in the cities in the region (Doğancı, 2019: 535-555). It is believed that the functional change in the Roman Bath building took place sometime after this earthquake. It is understood that the latest phase of use of the Roman Bath occurred after the mid-5th century AD when all bathing activities ceased (Yılmaz, 2022: 193). Following this period, various changes were made to the plan of the bath, and it started to serve different purposes. It is not surprising Interestingly, most of the small finds found from the building belonged to the period when the building was no longer used as a bath (For pottery, see Ergürer, 2012 and 2019; Ergül, 2019; Pekgöz, 2020; Yılmaz and Keskin, 2020; Keleş et al., 2021; for metals, see Çelikbaş, 2016; for coins, see Keleş et al., 2014; Keleş et al., 2015; Yılmaz and Oyarçin, 2017; Oyarçin and Yılmaz, 2021; for bone artefacts, see Özkan, 2020)

3. THE LIME KILN IN THE ROMAN BATH

During the fieldwork carried out in the western praefurnium in 2015, an oval-shaped lime kiln built with irregular stones without any use of binding mortar was found. It was understood that this structure was built after the praefurnium had fallen out of use (Figs. 5, 6), (Keleş et al., 2017; 28). Marble fragments that were to be used for making lime by exposure to fire were found in the kiln (Fig. 7). Since the western half of the kiln was located within the trench section, the excavation of the entire kiln could not be completed during the 2015 excavation season. However, samples for radiocarbon analysis were taken from the burnt wood remains of in the firing chamber of the lime kiln (Fig. 8). The excavations in the western praefurnium, where the lime kiln is located, could only be continued in 2017 by expanding the trench to the west. In the end, the whole structure of the lime kiln, roughly oval in shape, was revealed. The thickness of the north and east walls of the kiln, which is 3.20 m from the outside to the outside on the north-south axis, is 0.50 m, and the thickness of the south wall is 0.60 m. The oval-shaped chamber in which the marble was burnt is 2.10 m in the north-south direction and 2 m in the east-west direction. The upper elevation and

the lower elevation of the limestone kiln were measured as 5.90 m and 5.25 m, respectively, relative to sea level. Due to the lack of space to work at the west end of the kiln, the entire west wall was not uncovered, and the west wall was left in the trench section. Since the main purpose of the excavations in this area was to reveal the plan of the west praefurnium, the lime kiln was removed after documentation.

A scroll-pattern/rinceau marble block was found under the lime kiln, at an elevation of 3.65 m relative to sea level. This block, especially when the Gorgon Medusa head carved on it as a central motif is taken into consideration, reflects the stylistic features of the Late Hellenistic-Early Roman period (Fig. 9).

Figure 5. Parion Roman Bath lime kiln (Parion excavation archive).

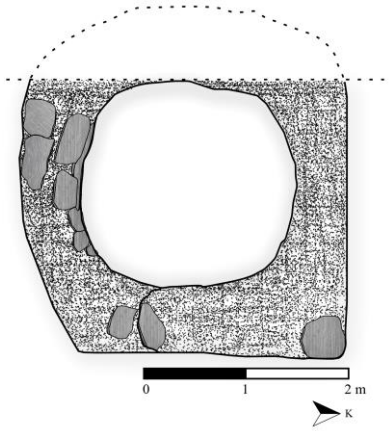

Figure 6. Plan of the lime kiln at the Parion Roman Bath (Parion excavation archive drawing: Hasan Öztürk).

Figure 7. Burnt marblein the lime kiln (Parion excavation archive).

Figure 8. Burnt wood in the lime kiln (Parion excavation archive).

During the excavations carried out in the lime kiln, several Late Roman red slip pottery, Late Roman coins, various metal objects, and fragments of glassware were found. Among this corpus of finds only examples whose profiles could be determined or whose areas of use could be understood are included in this study. The first group, with the largest number of finds, comprised the Late Roman red slip pottery (Fig. 10). Together with the radiocarbon analysis, the Late Roman red slip pottery constitutes the most important source of information for dating the context of the lime kiln. The dating of the other finds from the context was based on this pottery. There are three separate groups. African red slip pottery (Late Roman A-B) is the first group of pottery that has been evaluated. The pottery examined by Hayes (1972: 13-211) under 200 main forms has a colour scale from orange-red to brick colour. They remained in use only with some minor changes in their forms from the 5th century AD to the 7th century AD (Hayes, 1972: 288-292). The pottery found in the lime kiln was classified according to Hayes's form grouping. Some specimens (Fig. 10.1) have the features of Hayes Form 82B (AD 460-500), others of Hayes Form 87B (early 6th century AD) (Fig. 10.2), whereas some reflect the features of

Hayes Form 99A (late 5th-early 6th century AD) (Fig. 10.3). Phocaean red slip pottery (Late Roman C) is another group of Late Roman red slip pottery. The variety of forms and decoration is less when compared to African pottery. Hayes (1972: 324) divided this group into 10 different forms and divided them into subgroups. This pottery, which started to be produced at the end of the 4th century AD, became dominant in the 5th-6th centuries AD, and its production ended in the middle of the 7th century AD (Hayes, 1972: 368, 369, 459, 460). A sherd from this group reflects the form features of Hayes Phocaean form 3C (late 5th century AD) (Fig. 10.4), another sherd reflects the form features of Hayes Phocaean form 3D (late 5th -early 6th century AD) (Fig. 10.5), and another specimen the features of the ware with stamp decoration (late 5th -early 6th century AD) (Fig. 10.6). Late Roman Light-Colored Ware (LC) is the last group of Late Roman red slip pottery from the kiln. Ertuğ Ergürer (2014) has made a comprehensive typology for the examples of this pottery from Parion. Among the sherds found a specimen reflects the features of Ergürer Form 3A (late 5th -early 6th century AD) (Fig. 10.7), whereas another example of Ergürer Form 5 (late 5th -early 6th century AD) (Fig. 10.8). Late Roman red slip pottery constituted the majority of the pottery found throughout the bath in the period after the change of the building's function. (The pottery belonging to this group in the bath has been published by Ergürer, 2012 and 2014; Gözde Ergül, 2019; Salih Pekgöz, 2020 and Alper Yılmaz with Ahmet Levent Keskin 2020).

Figure 9. Marble block with the head of the Gorgon Medusa as its central motif (Parion excavation archive).

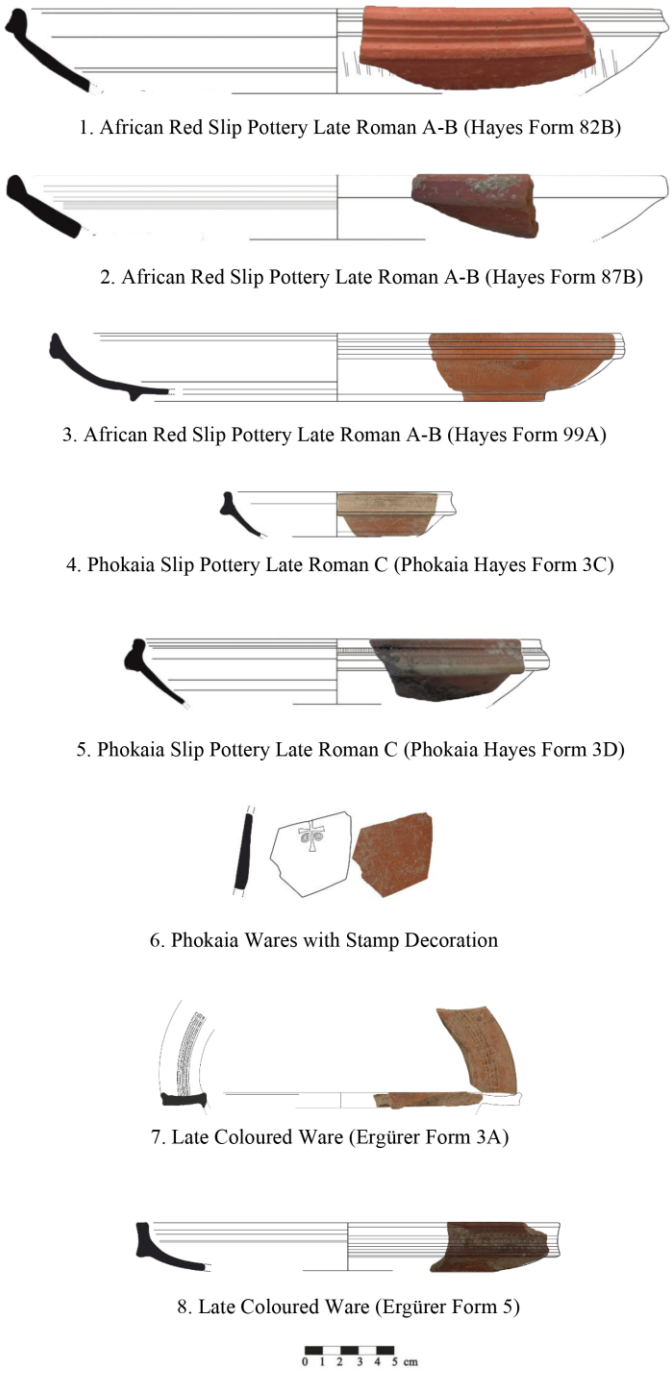

Figure 10. Figure 10. Late Roman red slip pottery found in the lime kiln (Parion excavation archive).

Metal finds constitute another important group of material. The first example is a cone-shaped lead plumb made by the casting technique (Fig.11.1). Plumbs, which were used as a vertical weight tied to a string to create a vertical plane in architectural activities, were used for many centuries without any change in their form (Bunch and Hellemans, 2004: 123). Other examples made by the casting technique have been found in Ephesos (Pülz, 2020: Level No. G 147, Farbtaf 73) and Pergamon (Gaitzsch, 2005: 183 Level LO 3 Taf. 30.) and have been dated between the 4th and 7th centuries AD. Since it is impossible to date plumbs by only examining their forms due to their long-term use without stylistic changes, the overall context date of the lime kiln needs to be taken as valid for dating this specific find.

Figure 11. Other finds from the lime kiln (Parion excavation archive).

An iron knife (Fig. 11.2) is another small find retrieved from the lime kiln. The blade is one sided and narrows towards the tip. The short stud was made on the same axis as the back of the knife. Ersin Çelikbaş has examined eight knives of this form all found in Parion and included these types of knives in group Type 1 categorized by Alptekin Oransay (2006: 104) (Çelikbaş, 2016: 213). Another example of this type of knife from Parion was found during the theatre excavations. The knife from the theatre was dated to the 4th-6th century AD according to the context of the level where the knife was found (Çelikbaş 2016: Level No P2).

A copper alloy cast object (Fig. 11.3) is among the other finds from the lime kiln. Although a large part of it is missing, it is clear that the object is part of a "disc-shaped" mirror. This type of mirror represents the mirror group with the highest number of plain and undecorated examples (Çelikbaş, 2016: 118). From the 4th century BC until the Byzantine period, the same form remained standard and was used extensively (Çelikbaş, 2016: 118). Thus, as a result of this, the form of the object is not a very useful for its dating. Therefore, the date of the associated pottery will also be appropriate for dating this find. Dozens of copper alloy mirrors of this type, all intact and well preserved, have been found during the excavations in the city (Çelikbaş, 2016: Level No. E1- E9).

A poorly-preserved bronze coin (Fig. 11.4) is another metal find that helps to establish the dating of the context of the lime kiln. Although the legend and mint of the coin cannot be read because of its poor condition, it can be tentatively dated to the Late Roman Period due to its size and weight: it measures 11 mm diameter and weighs 1.27 g. A study by Kasım Oyarçin (2020; tab. 5) on the periodic distribution of coins in the city showed that the coins dated to the first quarter of the 5th-6th century AD were abundant in the Roman Bath (For the coins found in the Roman

Bath, see Keleş et al., 2014; Keleş et al., 2015; Yılmaz and Oyarçin, 2017; Oyarçin and Yılmaz, 2021).

A glass jug handle (Fig. 11.5) is another find constituting the context of the lime kiln. Based on similar handles and the shape of the handle, it should probably belong to a single-handled jug with a long neck and a bulbous body. The lower part of the handle must have been applied to the shoulder and drawn up onto the rim of the jug. Clasina Isings (1957: 150-158), who conducted studies on Roman glass, dates such jugs between the 4th and 6th centuries AD. The handle from the lime kiln reflects a form close to the handle samples of jug forms 120-129 from Isings's typology of (Isings, 1957: forms 120-129).

The last find from the context of the lime kiln is the head of a bone hairpin, although the rest of the pin was missing. Despite its incompleteness (Fig. 11.6), it has the distinctive features of a hairpin. Bone pins were used in various forms and for different functions. The most common of these uses is as hair pins (Beldiman et al., 2014: 226). Among the bone objects from the Roman period, there are many types of hairpins and various forms belonging to this type. They have been divided into two main types and various sub-types by Ergün Karaca (2017: 294) as "Knobbed Pin" and "Flat Pin." The majority of the bone finds from Parion are hairpins. Based on the head, which was found intact, this specific pin can be included under the "Knobbed Pin" type. This hairpin, which is represented by a single example, was dated to after the middle of the 5th century AD or the first quarter of the 6th century AD taking into account the overall context of the lime kiln.

The "traditional" method of dating was combined with the results of C14 dating analysis and, as explained before, this interdisciplinary methodology was a first in the investigation of the archaeological site at Parion. The analysis made by the Turkish Atomic Energy Institution revealed a date of AD 534-641, indicating the date when the lime kiln fell out of use, that is, the last date of use of the lime kiln. This result strongly coincides with the date obtained from the evaluation of the archaeological finds from the lime kiln, namely, the 6th century AD. Therefore, it not just revealed a positive result match for the latest use of the Roman Bath obtained through material analysis but also showed how such methodologies can supply usual methods of dating with more reliable results.

4. RADIOCARBON DATING

The calibrated date of around AD 534-641 which emerged as a result of the radiocarbon analysis of the burnt wood taken from the chamber of the lime kiln closely coincides with the date obtained from the archaeological comparanda (Fig. 12).

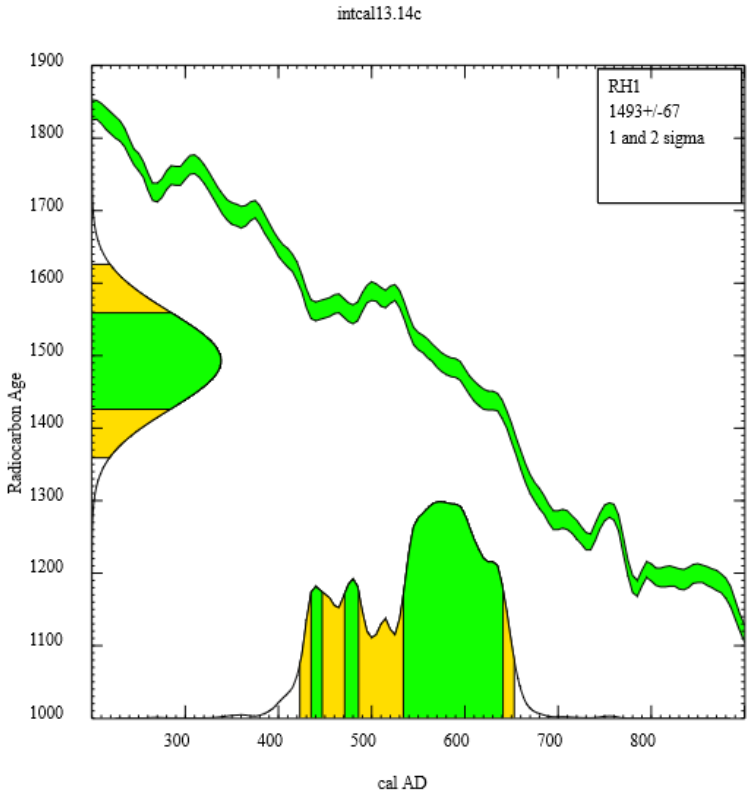

Figure 12. Radiocarbon date of the burnt wood recovered from the lime kiln.

Table 1. Calibrated radiocarbon date of the burnt wood recorved from the lime kiln.

68.3 (1 Sigma)			95.4 (2 Sigma)		
cal AD	435 - 447 472 - 486 534 - 641	0.065 0.085 0.850	cal AD	424 – 623	1.000
Median Probability AD 558					

The sample's age was calculated as 1493±67. The age obtained from the analysis can be seen in the range of 1 sigma and 2 sigma on the left plane of the diagram in figure 12. Calibrated dates are on the bottom plane of the diagram. The calibrated dates were arranged within Table 1, and the date 534 - 641 AD, which lies within the 1 sigma range, meets the expectation with the probability of 0.850. In other words, it is compatible with the date obtained from the find context of the kiln. The date 558 AD was obtained by calculating the average of the calibrated dates in the range of 1 sigma and 2 sigma. The pottery, analyzed within the study, also supports the accuracy of the carbon analysis as especially the Late Roman red slip pottery found around the lime kiln dates back to the 5th-7th centuries AD thanks to its general form traits.

5. DISCUSSION AND CONCLUSION

Baths, especially following the transformation of Parion from a Greek polis to a Roman city, became the leading symbol of Roman social life and especially of the bathing tradition of the Romans. Among the Parion examples specifically, the Roman Bath, which was built during the transformation of the city from a Greek polis to a Roman city at the time of the Emperor Hadrian, became the leading representative of this "Roman" way of living. Toward the end of the 2nd century AD, some changes were made by adding new spaces to the bath (Yılmaz, 2022: 192). The Hadrianic period and the end of the 2nd century AD were the two important phases of the development of the baths. The archaeological data testifies to a date after the middle of the 5th century AD as the time when the bathing activities ended in the Roman Bath (Yılmaz, 2022: 192). After this period, the building was used for other purposes; a change that is further emphasized by the modifications made in the overall architecture of the bath.

The lime kiln evaluated within this paper was the result of this change that happened related to the use of the building. Upon examining the finds found in the layers where the lime kiln was located, the context could be dated to the 5th -7th century AD. In particular, the Late Roman red slip pottery constituted the most important data in determining the date of the context.

Among other clues related to the changes in the function of the building can be counted the piles of discarded seashells (Mussels and oysters) which were found extensively in tepidarium II (Yılmaz, 2022: pls. 96b, 97a-b). Furthermore, animal bones with traces of butchering which were extensively found on the floor of the piscina and the frigidarium can be counted among other indications of functional changes (Yılmaz and Keskin, 2019: fig. 13). Both the seashells and animal bones indicate that these sections of the building were used as rubbish dumps by the end of the 5th century AD. The fact that the walls of the porticoes in the eastern part of the bath were demolished and replaced by new spaces built for storage purposes is another indication that can be added as an example of secondary use in the Roman Bath (Yılmaz, 2022: pls. 62-64). A merble bust of Commodus, which was used as spolia in the construction of the walls of the new phase, and two fragmentary building inscriptions, possibly belonging to another building, are important evidence for the abandonment of the use of the building as a bath and destruction related to that (Yılmaz and Sulan, 2019: figs. 5, 6; Yılmaz, 2022: pls. 63-64).

In addition, five tile graves that were found within the building, providing other clues related to the secondary use of certain portions of the building. Among these graves, grave number 3, which was found in the north portico, also provides important data in determining the date when the bath changed its function. The grave covered with two convex tiles was dated to the end of the 5th- early 6th century AD because of a coin that was found in it (Yılmaz and Acar, 2018: 1415, fig. 7).

To sum up, it is worth mentioning that the context date of the finds located in all areas of secondary use mentioned above was contemporary with the context of the lime kiln. Thus, we can firmly state that all secondary use began after the middle of the 5th century AD, and this date constitutes a "terminus post quem" for its secondary use.

A great hiatus exists between the time following the abandonment of the lime kiln and the next sign of human activity in the building, for which evidence suggests a date in about the 10th century AD. It is understood that a large part of the bath was buried by the 10th century AD. Three graves and their finds, dated between the 10th and 13th centuries AD, provide important information in determining the state of the bath during this post-hiatus period

(Yılmaz and Acar, 2018; The coins found in the graves see, Oyarçin, 2019: 455, 463; Keleş and Oyarçin, 2019: 335-358). Of these three graves, Grave 4 is included in this study because it was located in the same area as the lime kiln. Grave 4, located 1.75 cm to the north of the lime kiln, was found at an elevation of 5.45 m relative to sea level, close to an surface level (Figs. 13, 14). A piece of pottery found in the grave was identified by Umut Büyüme (2018: Level No. 194) as red-paste ware of closed shape and dated between the middle of the 12th century AD and the early 13th century AD. Considering the burial pit, it was clear that this was dug down from a higher surface level. The fact that the burial pit was created by doing so means that the Roman Bath were completely buried by the early 13th century AD. The fact that the other two graves, dated to the 12th-13th century AD, were found almost at the present surface level further strengthens the view that the bath was completely buried at that time.

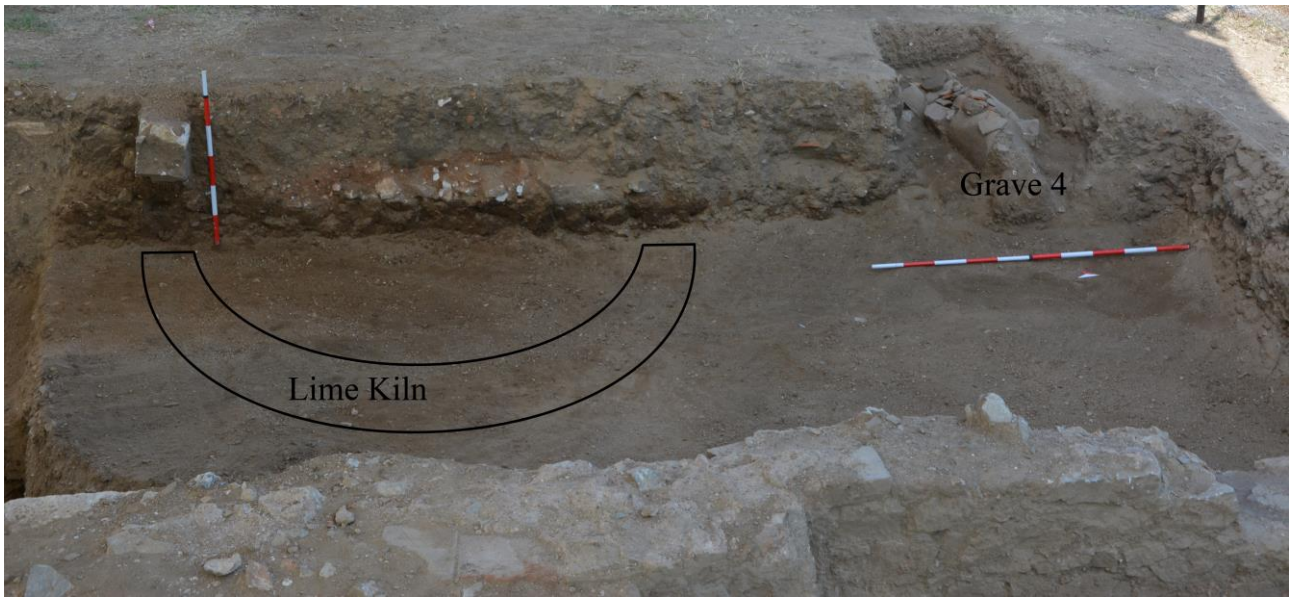

Figure 13. Lime kiln and Grave 4 (Parion excavation archive).

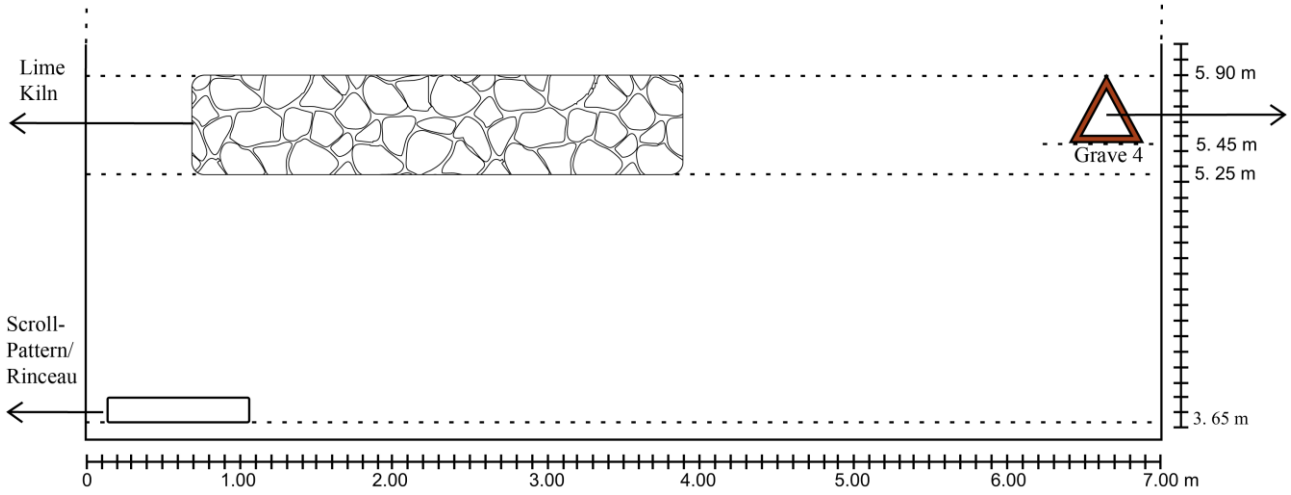

Figure 14. Section view of the lime kiln (Parion excavation archive; drawing: Sadık Tuğrul).

The date of AD 534-641 revealed in the radiocarbon analysis indicated the date when the lime kiln was abandoned, thus the last date of use of the lime kiln. Considering that the latest date of the lime kiln context is the 6th century AD, all archaeological materials found in the bath confirmed the radiocarbon result. Therefore, the age determination analysis performed by the Turkish Atomic Energy Institution has revealed a correct result for the Roman Bath. This result is important in that archaeological materials and analysis results are compatible to each other. The lime kiln suggests not only demolition of older, no longer used buildings but also the need for lime mortar for new construction. The fill also suggests that other areas were cleared and the material from them was dumped in this abandoned industrial area.

The lime kiln is not the sole evidence that can be related to the phenomenon of the change of function of the Roman Bath at Parion. The most important of these is another industrial structure similar to the lime kiln which was identified as a workspace for iron smelting that was built in the northeast corner of the frigidarium. This structure, oval in shape similar to the lime kiln, was formed with irregular stones and found filled with an abundant amount of iron slag. This furnace was dated to the mid-5th century AD. (Çelikbaş, 2016: pl. 6).

AUTHOR CONTRIBUTION

Alper Yılmaz: Monitoring the excavations in the praefurnium and lime kiln as well as coding and evaluating the finds. Establishing the methodology, comparing the dates of the finds with the carbon 14 analysis results and evaluating them. Writing the bulk of the body text (75%).
Zeynep Yılmaz: On-site sample collecting, carrying out sample analysis procedures, detailing the analysis results and integrating them into the body text. Contributing to the process of pre-publication by carrying out the conservation and repair works on the finds evaluated within the scope of the study (25%).

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