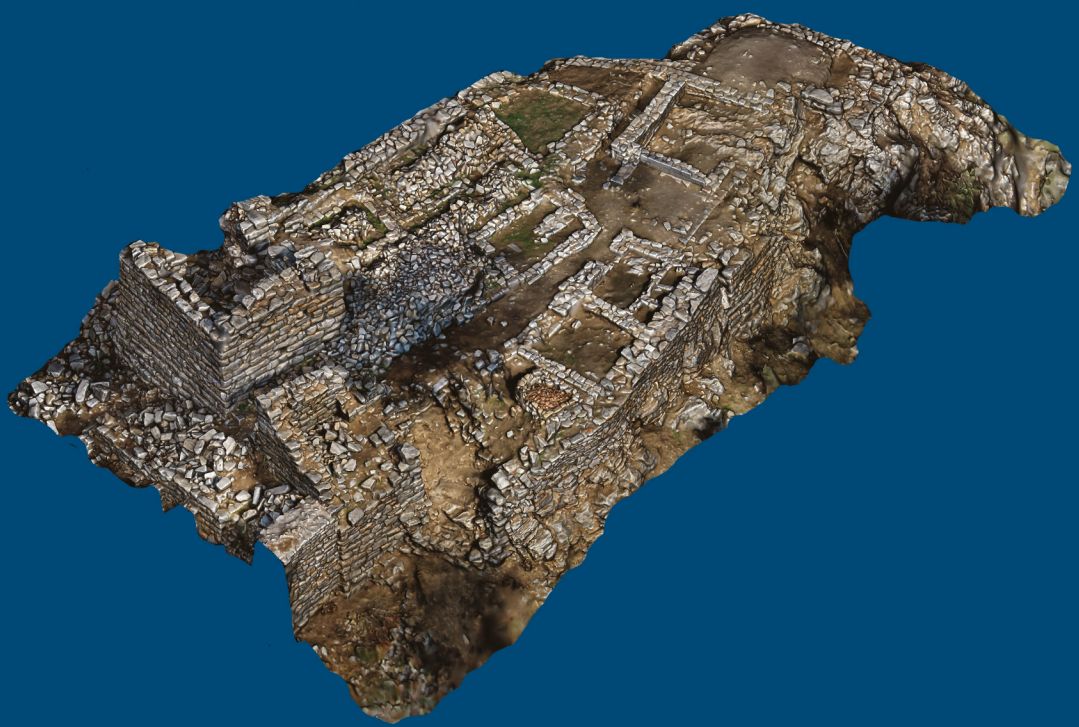
Historica occidentalis et orientalis 2

Befestigungsbauten im westlichen Kleinasien
Fortifications in western Anatolia

Beiträge des internationalen Kolloquiums in Kaunos 2019
Contributions to the International Colloquium in Kaunos 2019

Herausgeber / Editors
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Inhaltsverzeichnis / Contents

Vorwort
Soner Özen 1

Preliminary Evaluation of the Fortification and Defence Structures of the Lelegian Peninsula in Karia
Adnan Diler – Şahin Gümüş 1

Neue Forschungen zur Stadtmauer von Kaunos
Soner Özen 51

Studies on the Southern Outer Fortifications of Pedasa Acropolis
Gözde Adıgüzel – Sevilay Zeynep Yıldız 81

Die Befestigungsanlage Prienes als Spiegelbild der Stadtgeschichte
Ulrich Ruppe 103

The Outer Defenses of the City Wall of Halikarnassos – Ditches and Escarpments
Poul Pedersen 121

New Research at Knidos City Walls: Initial Outcomes
Aytekin Büyüközer 139

The Karasis Kalesi (Kozan, Adana)
Mustafa H. Sayar 161

Archaeometric Analyses of Keçi Kalesi/Castle
Ali Akın Akyol – Yusuf Kağan Kadıoğlu 175

Gadara und das westliche Kleinasien – Wissenstransfer in der Fortifikationsarchitektur
Brita Jansen 191

Vorwort

Der vorliegende Band geht auf eine Tagung zu Fortifikationsbauten in Westanatolien zurück, die im Herbst 2019 in Dalyan / Kaunos stattgefunden hat. Anlass waren eine erstmals systematisch durchgeführte Dokumentation und Analyse der kaunischen Befestigungsbauten, die einen wissenschaftlichen Austausch und eine neue Zusammenschau der jüngsten Forschungen an westanatolischen Fortifikationen lohnenswert erscheinen ließ.

Nach wie vor stellt die Erforschung der Verteidigungsbauten einer antiken Stadt die Wissenschaft vor besondere Herausforderungen. Die oftmals enormen Dimensionen – häufig sind die Mauerringe mehrere Kilometer lang – und der regelmäßig schlechte Erhaltungszustand der Bauten erschweren eine umfassende Dokumentation und benötigen in der Regel einen großen Zeit-, Finanz- und Personalaufwand. Ist die Dokumentation abgeschlossen, erweist es sich oftmals als problematisch, die komplexen Entstehungs- und Entwicklungsprozesse der Fortifikationsbauten, die in der Antike zumeist Zerstörungen und Reparaturen sowie verschiedenste Modifikationen erfahren haben, zu analysieren und in eine chronologische Abfolge zu bringen. Da Sondagen und Grabungsschnitte an Befestigungsbauten regelmäßig nur bedingt für die Datierung des Baus verwendbares Material hervorbringen, bleiben als Hinweise auf die Chronologie oftmals nur die Analyse des Mauerstils und der Mauertechnik. Dies jedoch birgt, wie bereits vielfach betont, methodische Gefahren in sich und kann zu Zirkelschlüssen in der Fortifikationsforschung führen.

Dennoch ist die umfassende Erforschung der Fortifikationsbauten einer Stadt sowie ihre chronologische, strukturelle und entwicklungstechnische Erschließung ein äußerst lohnenswertes Ziel, denn diese Bauten stellen eine zentrale Quelle für die Geschichte einer Siedlung, für ihre Entwicklung, ihren Aufstieg und Niedergang dar. Ferner kann die Analyse und chronologische Einordnung der an den Befestigungen verwendeten Mauerstile auch bedingt Aufschluss über die Datierung anderer Großbauten desselben Ortes geben.

Neue digitale Dokumentationsmethoden haben dazu geführt, dass die Aufnahme der Bauten und die Gewinnung auch großer Datenmengen mit geringerem Zeit- und Personalaufwand möglich ist. Erste Projekte zur Klassifizierung von Mauerstilen unter Einsatz digitaler Verfahren haben begonnen. Es bleibt zu hoffen, dass sich diese Entwicklungen positiv auf den Forschungsstand zu Befestigungsbauten in Westanatolien auswirken. Denn nach wie vor sind umfassende Abhandlungen zu den Fortifikationssystemen einzelner Städte in der Region eher rar. Der vorliegende Band, der Beiträge zu Befestigungen in Kaunos, Knidos, Priene, Selçuk (Keçi Kalesi), Halikarnassos, Pedasa, Termera, Theangela, Alazeytin, Kaplandağ, Kozan (Karasis) und Gadara (Umm Qays) enthält, möchte einen Beitrag zur Erweiterung des Kenntnisstandes dieser so wichtigen Bauten leisten.

Zahlreiche Institutionen und Personen haben zur Entstehung dieses Bandes beigetragen. Mein besonderer Dank gilt der Universität des Saarlandes in Saarbrücken, der Universität Sıtkı Koçman in Muğla und der Başkent-Universität in Ankara, die nicht nur die Tagung im Grabungshaus von Kaunos logistisch und finanziell ermöglichten, sondern auch die Druckkosten des Bandes übernahmen. Danken möchte ich ferner der Universitätsgesellschaft der Universität des Saarlandes und dem Sprach- und Übersetzungszentrum in Kassel (SUZ), die unsere

Arbeiten in Kaunos mehrfach unterstützt haben. Für die logistische Organisation der Tagung danken wir herzlich dem Grabungsteam von Kaunos und hier ganz besonders M. Doyran. Für die Übersetzungen und Korrekturen der deutschen und englischen Texte des Bandes schließlich gilt unser Dank B. Özen-Kleine, S. Akerdem, N. Schnorr, J. Geisthövel und L. Braun. Für die Gestaltung des Layouts bedanken wir uns schließlich bei Frau Hülya Tokmak und bei Herrn Ahmet Boratav herzlich.

Saarbrücken, November 2022
Dr. Soner Özen

Preliminary Evaluation of the Fortification and Defence Structures of the Lelegian Peninsula in Karia

Adnan Diler – Şahin Gümüş

Abstract

Although Karia has been geographically limited as a core region stretching from Miletos in the north to Kbid/ Kaunos to the south, and from the Aegean Sea to Phrygia in the east, it culturally extends over a much wider region from west of the Aegean to Egypt. Karia, which lies in the Bronze Age Hittite/Luvi cultural region, was already settled by Lelegians from the beginning of the Early Iron Age. The Lelegians are referred to as the ancestors of the Kariens in written sources. Although the Karian identity can be explained in the context of their written language and partly in terms of architecture and belief traditions, many controversial issues regarding Karian archeology remain to be unraveled. The relations of the Karians and Leleges, who share the same common cultural region, in the chronological process are among those controversial issues.

In addition to the surveys, we carried out on the Halikarnassos Peninsula (Modern Bodrum) / Lelegian Peninsula, the data we obtained from the long-term excavations focused on Pedasa and Termera indicate that the Iron Age settlements of the Halikarnassos Peninsula can be considered as a special cultural region. The fortification and defense structures, which are evaluated in general terms below, are a preliminary evaluation of the data obtained in our Lelegian research on the peninsula[1].

Keywords: *Fortification, Pedasis, Theangela, Alazeytin, Kaplandağ, Pedasa, Termera, Dirmil*

The Lelegian settlements on the peninsula, that are the subject of this study, cover the period beginning from the Early Iron Age until the first quarter of the 4th century BC. At that time the synoecist Maussollos united the Lelegian settlements of the peninsula with Halikarnassos. This process, in which Maussollos re-planned Halikarnassos not only as the new capital of Karia, but also as the largest metropolis on the western border of the Persian Empire, started a new era in which the cultural material of the settlement's history was gradually changed by external influences.

One of the most important features of Lelegian settlements is that they are located on inland high hills that dominate the topography, away from the coast[2]. Their distance from the coastline varies between 2–4 km (Fig. 1)[3]. Taking the main settlement Pedasis as the geographical center, the

[1] The results of the long-term surveys conducted on the settlements of the peninsula will comprehensively be evaluated in the book, which is being prepared as a separate publication.

[2] Oyuklu Tepe to the west of the territory of Pedasa is 689 m high. Due to the difficulty of transportation and the rocky terrain, other settlements, except Theangela, lie below 550 m, and mostly in the altitude range of 200–300 m. Although many Lelegian settlements seem to have been completely abandoned, the finds from these settlements show that rural life continued, but with a lower density.

[3] Even so, these settlements have a connection with the sea, reached by ancient roads that follow the tombs and valley beds. Diler 2015 a, The only Archaic Period settlement in the city scale closest to the coastline in terms of location

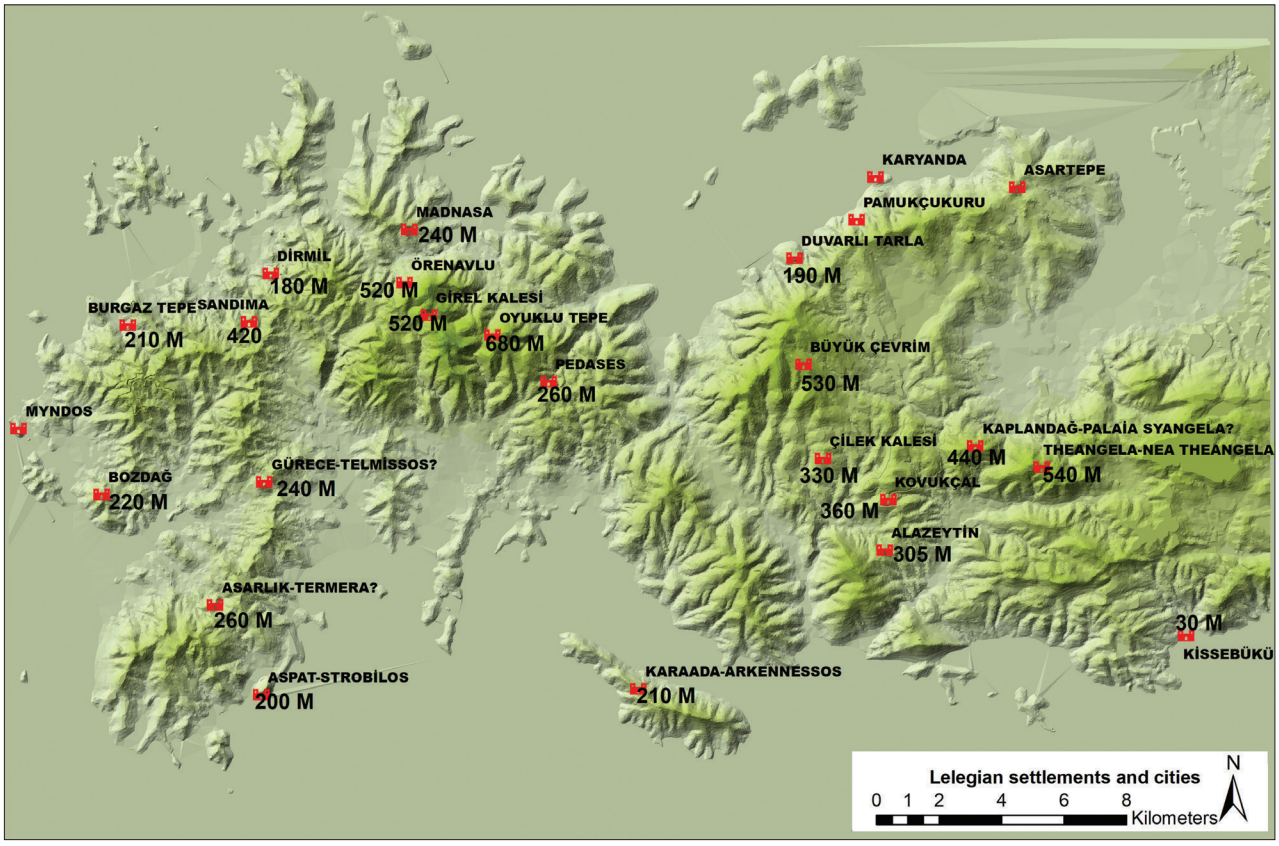


Fig. 1: Topographical map of Lelegian Peninsula (A. Diler – Ş. Gümüş)

Lelegian Period fortifications and defense structures on the peninsula were investigated in three parts covering the east and west of this center:

The East of Pedasis

The inner road connecting the transportation network stretching from Mylasa to the peninsula and the territory of Pedasis passes through the Etrim plains between Tırmandağ (Lide Mountain)[4] in the north and Kaledağ in the south. Theangela on Kaledağ in the south, which was later restructured after Maussollos' policy of synoecism, and Kaplandağ in its east are two large Lelegian settlements that border the Lelegian peninsula from the east. Kaplandağ[5] is among the Lelegian cities which were evacuated by Maussollos' policy of synoecism.

Kaplandağ /Palea Souengela (Syangela) consists of settlements spread over three separate hills on Kaplandağ. On Kaplandağ, which is one of the most densely populated settlements on the

is in present-day Kissebükü on the southeastern coast of the peninsula and Myndos in the west. Archaic Halikarnassos, on the other hand, was a coastal Karian city populated by Karian, Ionian and Dorian colonists (Strab. 14, 2, 16 [C 656]; Paus. 2, 30, 9).

[4] Radt 1970, 262.

[5] According to our research, the Lelegian settlements in the east of the peninsula were spread over the small hills of Kaplandağ, Alazeytin and Kale Mountain. Strab. (13,1,59, [C 611]) states that Maussollos united six of the eight Lelegian cities with Halikarnassos, referring to Kallisthenes. Maussollos must have strengthened Theangela in the east and Myndos in the west, which he excluded from the synoikismos, by combining them with the Lelegian settlements in their vicinities, as the inhabitants of Kaplandağ must have been forced to migrate to the nearby Theangela. No finds nor architectural data that can be assigned to the post-Maussollos era was found during the research in Kaplandağ. The latest dateable examples of mostly Archaic pottery are from the early 4th century BC.

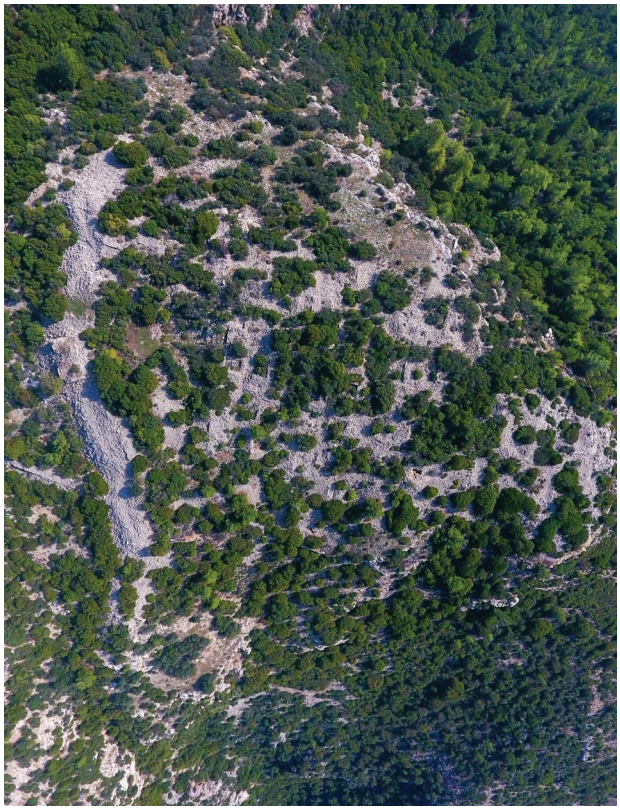


Fig. 2: Kaplandağ, aerial view (A. Diler – Ş. Gümüş)

Halikarnassos Peninsula, the main settlement is on Yıkıklı Hill to the south of the hilltop plain. In addition, there is a group of farmhouses with enclosure walls on Zeytin Tepe, about 1 km north-east of this hill, and scattered farmhouses on Karakaya hill in the middle of the plain. On the northern valley and hill closer to the plain, which we call Kuzey Tepe, within the territory of the settlement, there is another group of farmhouses with enclosure walls.

Yıkıklı Tepe is the main settlement area due to its fortification and density of ruins (Fig. 2–3). The eastern slope of the settlement has a steep inclination, so there are no traces of fortification in this area. The walls adjoin to the unfortified natural defense line in the eastern part and surround the hill on three sides. The structures within the

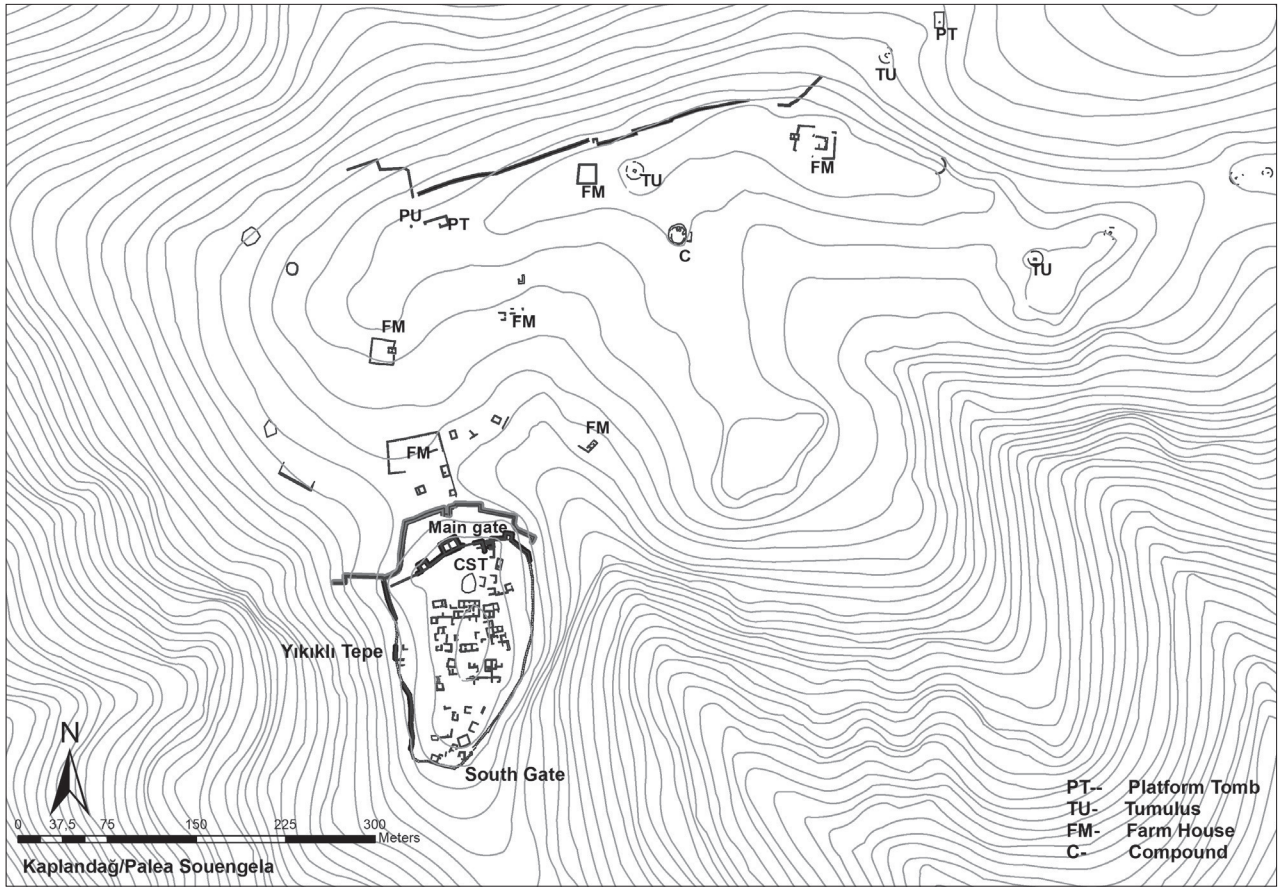


Fig. 3: Kaplandağ, settlement plan (A. Diler – Ş. Gümüş)



Fig. 4: Kaplandağ, northern main gate (A. Diler – Ş. Gümüş)



Fig. 5: Kaplandağ south gate (A. Diler – Ş. Gümüş)

fortified area start in the centre of the hilltop and spread outwards towards the walls. The plateau on the hilltop, on which the fortified settlement lies, extends mainly from south to north. This area, as chosen due to the difficulty of access from the east and west and was therefore easier to defend. The settlement is surrounded by a single-wall fortification. However, on the north side, where the slope of the land is relatively low, a second front-defense barrier was built approximately 50 m away from the first walls. This barrier narrows to the east and west by elbows and connects to the main wall on both sides. The entrance in the middle of the outer enclosure and the parts of the inner defense line that project outwards on the east and west sides have been strengthened with bastions.

The main entrance of Kaplandağ Yıkıklı Tepe citadel is on the north side, which is protected by a bastion (Fig. 4). There is also a smaller entrance to the south of the citadel, which is accessed by steps of stairs. The access from the fertile plain in the south to the settlement was probably through this gate (Fig. 5). It is clear that there is no need for a tower or bastion for this small entrance.

Having the main entrance in the north is related to the fact that the plateau in front of the settlement was used for the necropolis and rural structures. Among these, besides the stone tumuli[6] introduced by W. Radt, the pithos, and the platform tombs[7] that we have recently identified, indicate that the wide plain, extending about 1 km east to Zeytin Tepe, was used as necropoleis.

During the surveys we have carried out in recent years, an east-west oriented defense line of 360 m in length has been identified on the ridge that borders the plain in front of the acropolis from the north. The outer defense line, which has been preserved to a height of 1.50–2.00 m in some places, must have served for the purpose of defending the plain where farmhouses, dwellings, and tombs are located (Fig. 3). It has not been fully clarified why the northern outer wall does not continue on the west and east sides along the ridges of the plain[8]. All of the pottery that we identified during the Kaplandağ surveys are dated to the Archaic Age and earlier[9].

6 Radt 1970, 223.

7 Diler 2019, 514, 537 fig. 25.

8 It is thought that the extension of the wall, whose eastern and western extensions could not be determined, was built as a front barrier wall to prevent access to the lower settlement with farmhouses and tombs on the western side, which seems to be weak in terms of defense.

9 The architectural decoration with the Ionic kymation in front of the tower by Radt is dated to 545–540 BC. See: Radt 1970, 262 Pl. 42, 3–4. Although Radt associated it with the building, which may be a temple in front of it, we think that this building is a kind of two-room gate tower. According to Radt, the settlement was probably abandoned after the Persian invasion.



Fig. 6: Alazeytin, aerial view (A. Diler – Ş. Gümüş)



Fig. 7: Alazeytin, settlement plan, (after Radt 1970, Beil. 1 with revision)



Fig. 8: Alazeytin, view of west bastion
(A. Diler – Ş. Gümüş)

The Alazeytin Kalesi on Kaletepe to the southeast of the peninsula is 3.5 km away from the sea. Although the outer walls of the citadel, which surround an area of 150 x 100 m and have not been localized until recently[10] are weak on the west side, they have been fortified with solid towers on the eastern, southern, and northeastern sides, which are open to external attacks from the sea (Figs. 6–7). The bastions that reinforce the radial-planned outer wall line have cyclopean stones and irregular polygonal masonry, unlike the walls made of flagstone in the tradition of Lelegian stonemasonry (Fig. 8). The main gate of the city, which is located on the south part of the wall, has a guard room on the side and a deep anteroom. The entrance from the east was strengthened with semi-round bastions and the other with rectangular bastions. The city can be reached through narrow passages in the form of corridors from the main gate in the south (Fig. 7). The settlement has a citadel supported by control and watchtowers. The wall, which isolates the inner castle from the lower/outer city, also includes the civilian living spaces to the south of the hilltop, possibly belonging to the lord or ruler. W. Radt[11], with good reason, states that the smaller spaces behind the main entrance gate in the south and towards the empty areas to the east may have been used by the soldiers, craftsmen, and merchants defending the castle. The tower, which measures 10.85 x 7.95 m and 1.30/1.35 m thick walls at the top of the settlement, was built in the time of Maussollos. Its orientation does not match the urban texture and the stonework is not seen in any other building. The narrow streets separating the civil and public buildings and those areas, that are defined by independent ownerships, spread towards the eastern and northern parts of the city and do not allow direct access to the city center from the outside. W. Radt proposes the date of the 7th–4th century BC for the Alazeytin Kalesi[12], which constitutes an important part of his research and publications on the Lelegian settlements of the peninsula.

The Çilek Kalesi, which is one of the Lelegian settlements in the east of the peninsula, is on a hilltop to the northeast of Kızılağaç village[13]. The settlement forms a rough rectangle with rounded corners on the east-west axis in accordance with the topography (Figs. 9–10). The northwest of the fortified area shows a higher building density. The residential type spaces, which are joined to the city wall in the north and west, open to the courtyard in front of them. In the northwest of the citadel, there are peculiar ruins lined up on the same axis, isolated from other buildings by the surrounding courtyards – perhaps related to a privileged use[14] and an oval-shaped apsidal

[10] Pimouguet-Pédarros says that neither Alazeytin nor any other Lelegian settlement has a preplanned example, but rather shows an ever-expanding plan with additions around a central core, and Alazeytin was rebuilt after the Persian destruction. See: Pimouguet-Pédarros 2000, 141.

[11] Radt 1970, 22–23.

[12] Radt 1970, 17.

[13] Radt, 1970, sup. 4.

[14] Radt 1970 sup. 4 no. 16–18a.



Fig. 9: Çilek Kalesi, aerial view (A. Diler – Ş. Gümüş)

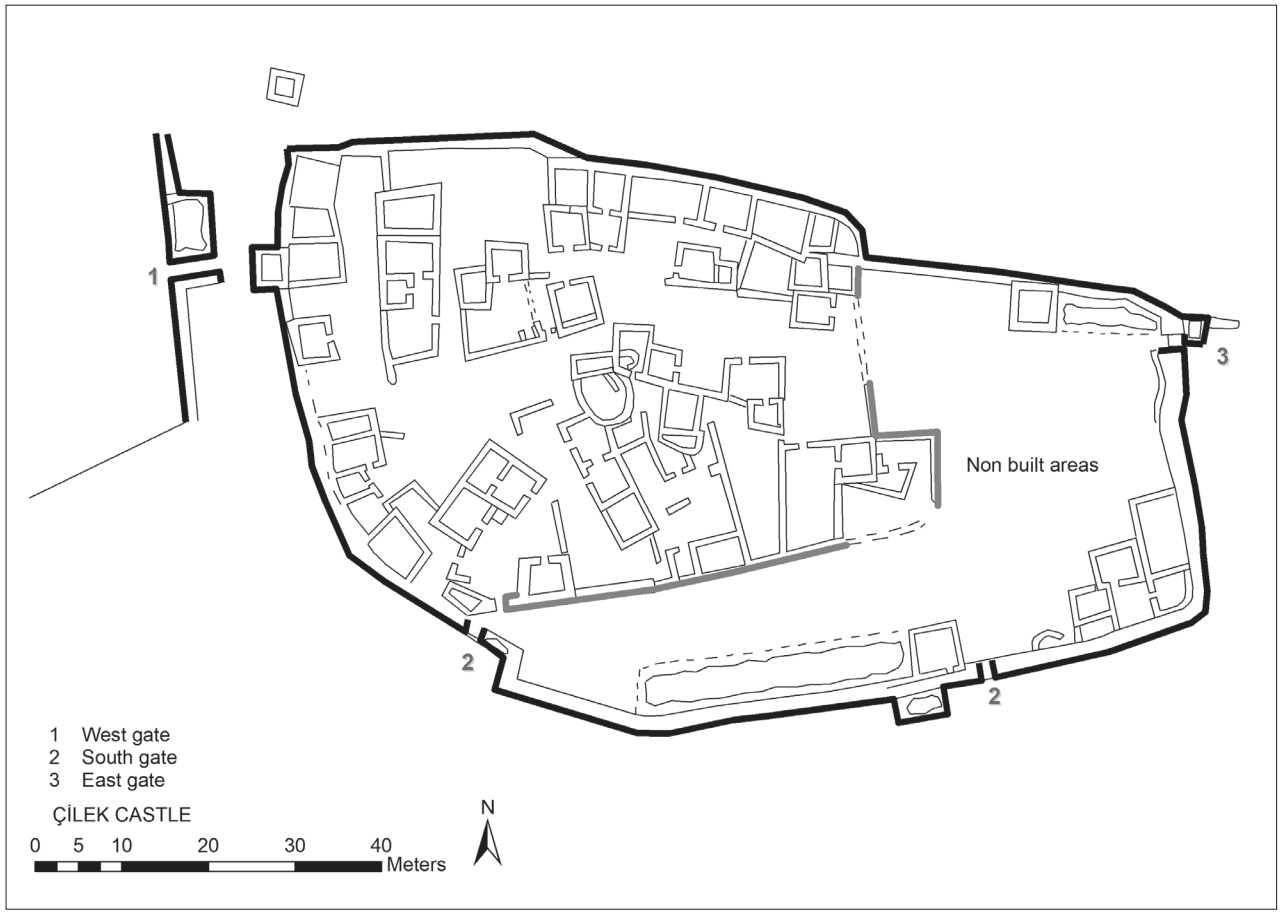


Fig. 10: Çilek Kalesi, settlement plan (after Radt1970, Beil. 4 with revision)

structure[15] in the center whose function could not be determined. Streets, filling the spaces in the citadel organically, were created between the dwellings. Although the barrier walls surrounding the buildings from the east and south are not as thick as the fortification walls, they give the settlement a citadel feature. The space between the citadel/inner settlement and the eastern and southern city walls, approximately 40 m wide in the east and 20 m in the south, is a non-built area known from most Lelegian settlements. The structures lined up in front of the outer city walls consist of a single row in the south and several rows in the eastern corner of the southern section.

The citadel has three separate entrances supported by bastion/gate towers (Fig. 10). The main entrance is on the west[16]. Another important gate of the settlement is at the corner where the eastern walls meet the northern walls. The 1.50 m wide gate, which is at a critical point for defense here, was blocked during antiquity, apparently against the danger of an attack. A small tower/bastion was built in front of it[17]. The thinning of the northern walls towards the west is related to the natural inclination of the slope in this area and the advantage of the rock formation. This is typical for a Lelegian defense system. The third gate in the citadel is on the east side of the bastion, built in the middle of the south walls. Here, the series of rooms on the west side of the door were interpreted by Radt as casemates[18].

The Çilek Kalesi is similar to Örenavlu in terms of the settlement pattern. The location of the dwellings, the streets, and non-built areas as well as the location of the city walls, gates, and towers show common planning features. Çilek Kalesi lies underneath macro vegetation today, compared to the 1970s when it was explored by W. Radt. The researcher dates the citadel to the late Geometric Period and the first quarter of the 4th century BC, the time of the synoikismos of Maussollos, according to the ceramics he found in those years[19].

To the west of Kissebükü bay on the southeast coast of the Halikarnassos Peninsula, there is an acropolis settlement, which is built on a low hill, with the highest point 54 m above sea level. The city walls, which were made up of irregular/rough polygonal techniques from cyclopean stones surrounding the hill, are in sawtooth form in the north as in the old Anatolian Bronze Age tradition. A special tomb built inside the fortified area in the center of the settlement is similar to the dynastic tombs[20] seen in the Alazeytin, Termera, and Theangela settlements on the Lelegian Peninsula from the Archaic/Classical period, which is a 6th–5th century BC dynastic practice. The citadel has at least two entrances, one from the east and the other from the west. At the summit, another small enclosure was built, bounding a limited area. When the Acropolis walls at Kissebükü are compared with the walls seen on the Halikarnassos peninsula, we can say that it must have been built in the Archaic Age or earlier. The blocks used here show a technique that is not widely used on the peninsula with their large, rough forms and cyclopean dimensions. This kind of technique can be seen at

15 Radt 1970 sup. 4 no. 42–43. Radt explains that the building, in which no traces of plaster can be seen, could be a cistern or a tomb due to its location, or a warehouse building by comparing it with the examples of Smyrna and Megiddo. Due to its irregular design, the building may be the type of cistern similar to which we have seen in Kaplandağ and Theangela.

16 Radt compares the square-shaped tower outside the settlement to the north of the west gate, numbered 65 on the plan, with the Alazeytin Castle and Büyük Keneli Tepe outer-wall towers and interprets them as having a similar function. See: Radt 1970, 90–91.

17 This may have been during the expedition of Harpagos, one of Darius' generals, to Karia, after Ionia in 546 BC.

18 Radt 1970, 90. It is possible that these rows of chambers were used as part of the defense system.

19 Radt 1970, 91.

20 Diler 2019, 517–518.

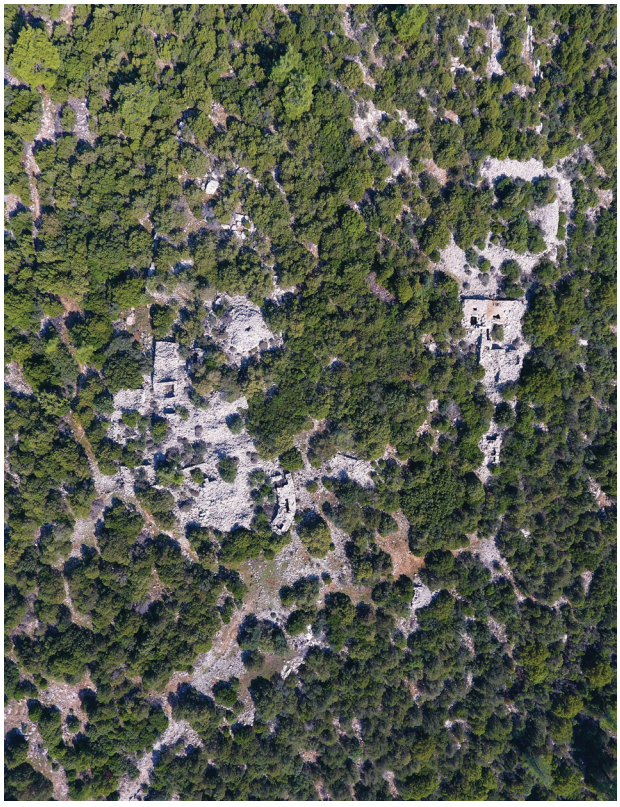
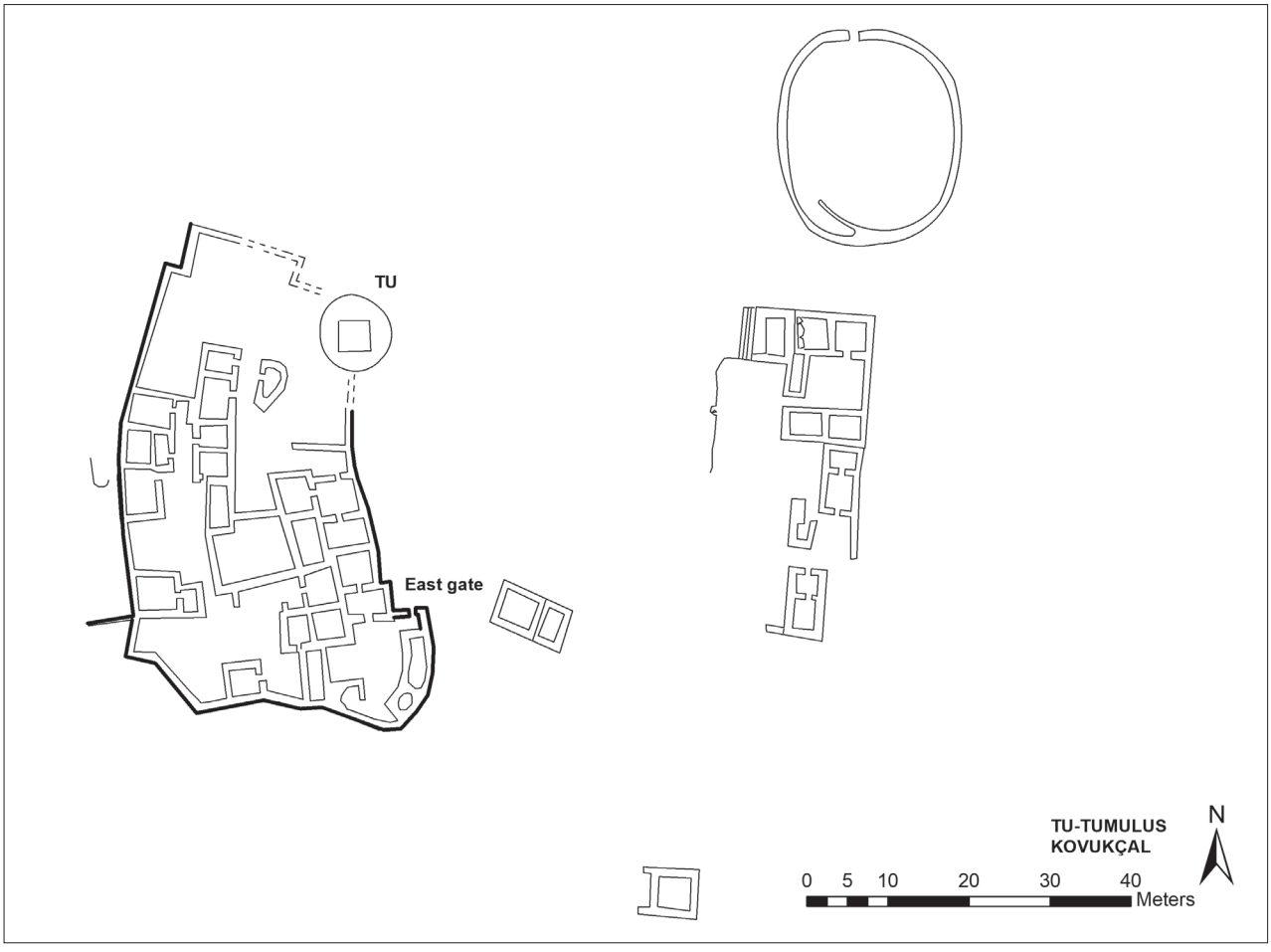


Fig. 11: Kovukçal. aerial view
(A. Diler – Ş. Gümüş)

Fig. 12: Kovukçal settlement plan
(after Radt1970, Beil. 5 with revision)



the walls of Myndos, Gürece, Dirmil, Alazeytin, and Termera.

Kovuçal is located on Andızçukuru Tepe, which overlooks Theangela in the east of the peninsula and Kaplandağ in the west[21]. It consists of a fortified settlement on the hilltop plain, with a combined farmhouse/compound to the east of it and a monumental open/defenseless complex to the south (Figs. 11–12). The main settlement with fortification walls reflects a typical Lelegian pattern. The wall lacks towers and bastions. The layout of the settlement is shaped by the landscape. The buildings consist of groups of rooms that are integrated in the fortification wall or lined up side by side around a courtyard. The northern part of the citadel was probably reserved for keeping animals and agricultural products, comparable to Girel Castle, Örenavlusu, and many other Lelegian settlements[22]. The main entrance of the settlement in the southeast is similar to the east gate of Alazeytin; it was controlled with a round bastion (Fig. 12).

Reflecting the structural features of the small-scale Lelegian settlements on the Peninsula with its 30 enclosed spaces, Kovukçal creates a closed defense system with the outer walls of these independent and adjacent spaces. The open structures in the east lack any defensive walls. Having built those buildings outside of the fortification might be related to the fact that the fortified settlement allowed only a limited number of buildings within its walls. However, this explanation is insufficient for this unique example. The round structure that joins the city wall in the northeast is most likely a tumulus tomb. It is possible that when the wall was built, it was joined with the crepis walls of the tumulus[23].

Pamukçukuru, to the south of Güvercinlik district in the northeast of the peninsula, is similar to Bozdağ in the east of the peninsula, with its small citadel enclosure and the structures inside. Most of the residential structures are connected to the enclosure wall (Fig. 13). One of the gates providing access to the settlement was found on the north side. Where it can be measured, the enclosure wall is 1.00–1.20 m thick. A rock cistern was found outside the eastern enclosure wall of the settlement. Overlooking the surroundings from the summit, there is a watchtower measuring 4.70 x 7.80 m. The north-facing wall is 0.90–0.80 m thick and was preserved to a height of 1.50 m. With its roughly cut stones, it shows the characteristics of the Archaic Period. The straw-tempered pithoi fragments, which were found in a rectangular building with thick walls that could be a residence, possibly from the Bronze Age, are of particular importance for the history of the settlement. Early Archaic and Classical Period pottery fragments visible on the surface are important evidence for the construction process of the Lelegian Period.

The decision of Maussollos to rule Karia from Halikarnassos after the death of his father, Hekatomnos, meant that the Archaic coastal city of Halikarnassos was to be restructured as a new capital. While this underlying fact of uniting the Lelegian cities on the peninsula in Halikarnassos caused the social life of all Lelegian settlements and people, except Myndos and Theangela, to disappear. It led to the establishment of a new city model and a new defense system in Theangela on the eastern border and in Myndos on the west, both of which were excluded from Halikarnassos and its synoikismos.

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21 Radt 1970, 91–97, Sup. 5, fig. 24, 1–2. 184 fig.16.1.

22 This tradition has been in practice since the Bronze Age in settlements with livestock-based livelihoods. It is otherwise not possible to explain the wide enclosures seen in non-built areas, which are frequently seen in Lelegian settlements.

23 The settlement may have probably been founded in an earlier necropolis area. (Radt 1970, 92) proposes that the tumulus may belong to Kaplandağ Necropolis. He says it may have been lying in the hinterland of Kaplandağ.

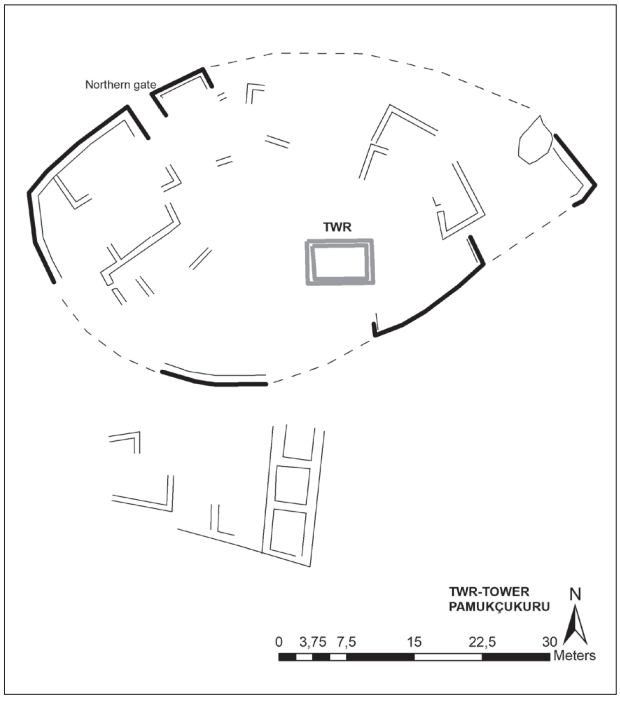


Fig. 13: Pamukçukuru, settlement plan (A. Diler – Ş. Gümüş)

Theangela (Nea Syangela)[24] was localized by Bean on Kaledağ, south of Etrim[25]. Theangela is the eastern one of the two settlements that Maussollos excluded from the cities he joined to Halikarnassos. The settlement has strategic importance due to its special location, which controls all roads from Mylasa to Halikarnassos by land and sea. The city was ruled by a ruler named Pigres, who paid 1 talent tax to the Delian Confederacy in the 5th century BC[26].

The city walls of Theangela follow the natural lines of the topography and surround a large area in an east-west direction over the rugged valley and steep hills (Fig. 14). The walls were crossed over the ridges to defend a wide area, including the old Lelegian settlements on Manastır Tepe in the east and Çukur Tepe to the northwest, the tetrapyrgon on the west peak and public buildings and water resources. The city walls, which are reinforced with bastions, widen towards the east beginning from the summit of Kale Tepe in the west. The walls, which surround three separate hills, constitute separate defense zones in the form of a citadel at the summit of each hill. Thus, the city was divided into three separate defense zones with two barrier walls (diatekhismata) in the north-south direction in order to use the topographical features given by the hilltops as a defensive advantage. The thickness of the walls is approximately 2.60/2.70 m; the eastern walls have an average thickness of 3 m. Bastions and towers were built with wide-angle views at weak points of the rampart line that are open to attacks with sieges, especially catapults[27].

The eastern walls extend over the highest line of the topography. The outcrops of the bedrock were used as parts of the city wall architecture. The terrace-fortification wall extending in north-south direction merges with the city wall in the north. It is possible to date the walls, which are more than 2 meters high, to the pre-Maussollean period. In the northern part of the eastern walls, those walls were strengthened with bastions and towers. On the south side, which is the weakest part, this issue was partly taken care of by increasing the number of towers and using the topographical breaks. The terrace wall of the eastern hill of Theangela, which

[24] Varinlioglu 1992, 19; Paton – Myers 1896, 204. Syangela's name was also changed to Theangela. According to Radt, who said that the Archaic Period data on Theangela were insufficient, Syangela should be located in Kaplandağ and during the Persian domination in the region, the Syangelans moved to Theangela because it was more defensible. See: Radt 1970, 107. 162. 224; Hornblower 1982, 98; Pimouguet-Pédarros 2000, 153.

[25] Bean 2000, 127. Bean argues that the Theangela is the Hellenistic form of the Syangele, which occurs in the 5th and 4th centuries in the ATL and pays regularly until 427 BC, Merit *et al.*1939, 414–415 and the city is under the control of the Dynast Pigres, son of Hyssaldamos at that time. See: Bean – Cook 1957, 143.

[26] Bean – Cook 1957; Bean 2000, 114 Pottery dated to the end of the 5th century BC were found in a structure that is thought to be the tomb of Pigres.

[27] Paksoy 2018, 221.

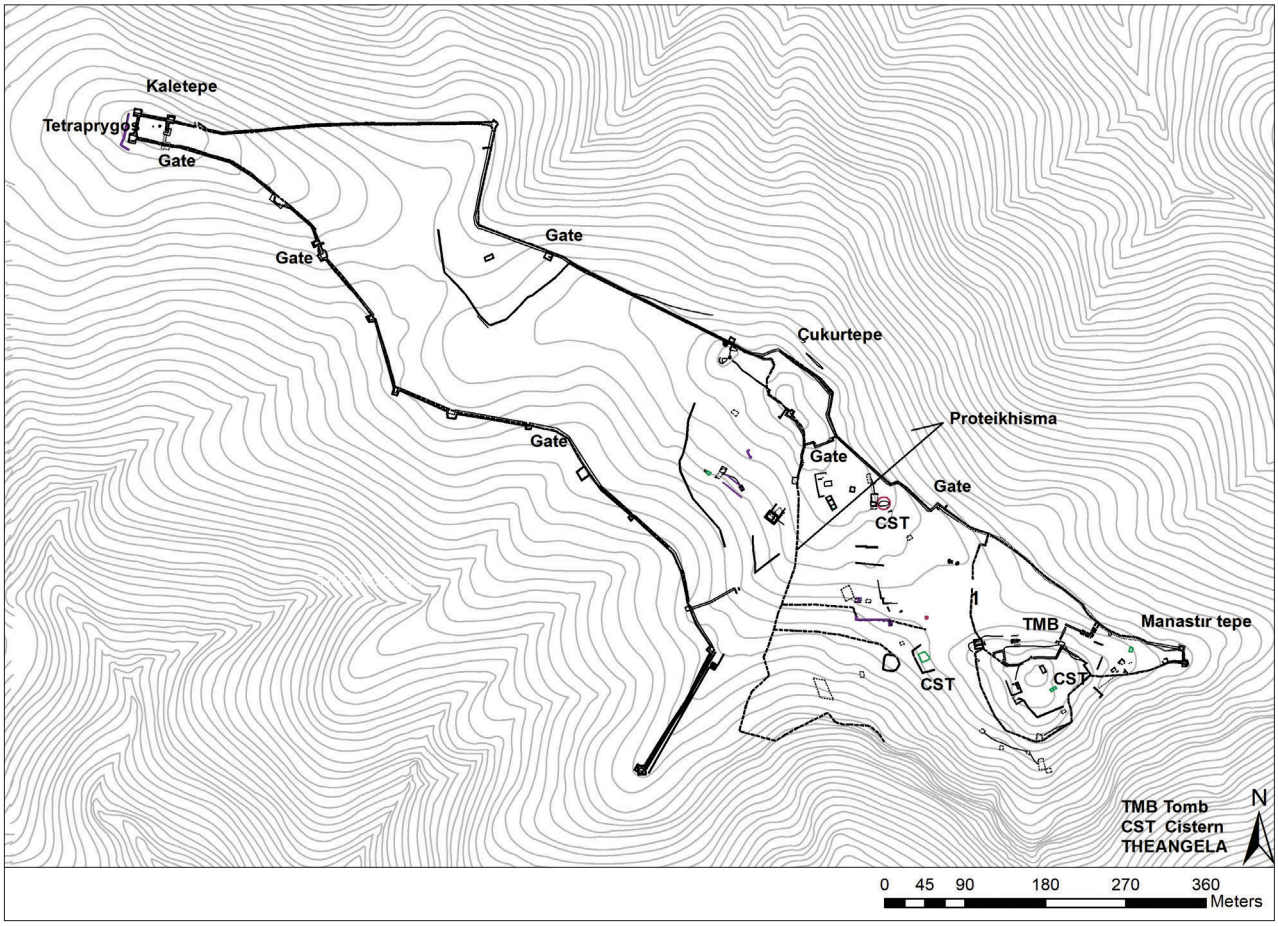


Fig. 14: Theangela, settlement plan (A. Diler – Ş. Gümüş)



Fig. 15: Theangela, eastern terrace wall (A. Diler – Ş. Gümüş)

runs from east to north, was built with an irregular polygonal technique (Fig. 15). In addition to the differences in the wall's building technique, the architectural structures in the Lelegian style, the tomb attributed to dynast Pigres and the crown block decorated with Ionic cymatium, which probably belonged to a temple, support the idea that the eastern section of the citadel, which was separated by a barrier (diateikhismata) in the west, belongs to the pre-Maussolean period (Fig. 16)[28].

The northern wall, which is made of irregular rectangular and polygonal blocks in parts, was

[28] Bean and Cook also give information about the orientation of the pre-Maussollean settlement by referring to a sanctuary and tombs based on the sculptures, which are understood to be from the 6th century due to their style. See: Bean – Cook 1957, 94–95. This phase probably goes back to the Early Iron Age. The late Protogeometric skyphos fragment and Iron Age material coroplastic finds published by Işık are an important support material in this regard, see: Işık 1990. We can date the construction phase of the walls of the Theangela Geländemauer to the time of the synoikismos of Maussollos in 370–360 BC. The renovation and repair phase belong to the time of Eupolomos, who was sent to the region by the Macedonian general Kassandros in 315 BC. See: Pimouguet – Pédarros 2000, 239; Tırpan 1987. 167 f.



Fig. 16: Theangela, aerial view of Manastır Tepe (A. Diler – Ş. Gümüş)



Fig. 17: Theangela, view of southern bastion (A. Diler – Ş. Gümüş)

built during the time of Maussollos[29]. In the lower part of the wall, the thickness of which varies between 2.00–2.40 m, the blocks are of semi-cyclopean technique. In the western part of the northern walls, an isodomic pattern, made up of rectangular blocks, is dominant[30]. The door openings, one of which has a triangular pediment, give information about the entrances to the citadel from the northeast[31]. The approximately 3 m thick fortification walls, surrounding the land starting from Kale Tepe to the diateikhisma wall that divides Çukur Tepe into two, are constructed in the bossed pseudo-isodomic technique.

[29] Diler – Gümüş 2016, 157.

[30] The walls, which were repaired in the upper parts, are from ancient times. Because large blocks, which measure 0.60 m in length and up to 2 m were used in the lower parts of this wall. See: Diler – Gümüş 2016, 158.

[31] For this type of gate models that have become widespread since the 5th century BC in tombs and city gates seen in Termera and in the settlements to the east of the peninsula, see: Diler 2019, 518.

The bastion (Fig. 17), built of roughly dressed cyclopean stone blocks, lying about 300 m west of the tetrapyrgon on the southern city walls, is important for the problems of dating based on masonry technique[32]. Similarly, the isodomic thick wall, measuring 9 x 6 m and having a width of 3.90 m, with a wide wall-walk/parados on top, lying where the southern walls meet Manastır Tepe and that was joined to the bastion built at the east end, is interesting for different applications in the defense system (Fig. 18).

We can content ourselves here with remembering the function and history of the Tetra Pyrgon based on the assessments made by G. E. Bean (Fig. 19)[33]. The building was constructed on the hilltop of the western hill. The building, which



Fig. 18: Theangela, isodomic wall of parados (A. Diler – Ş. Gümüş)

was given a strong inner castle function with the support of its four corner towers, measures 31.30 x 24.35 m from the inside. The towers measure

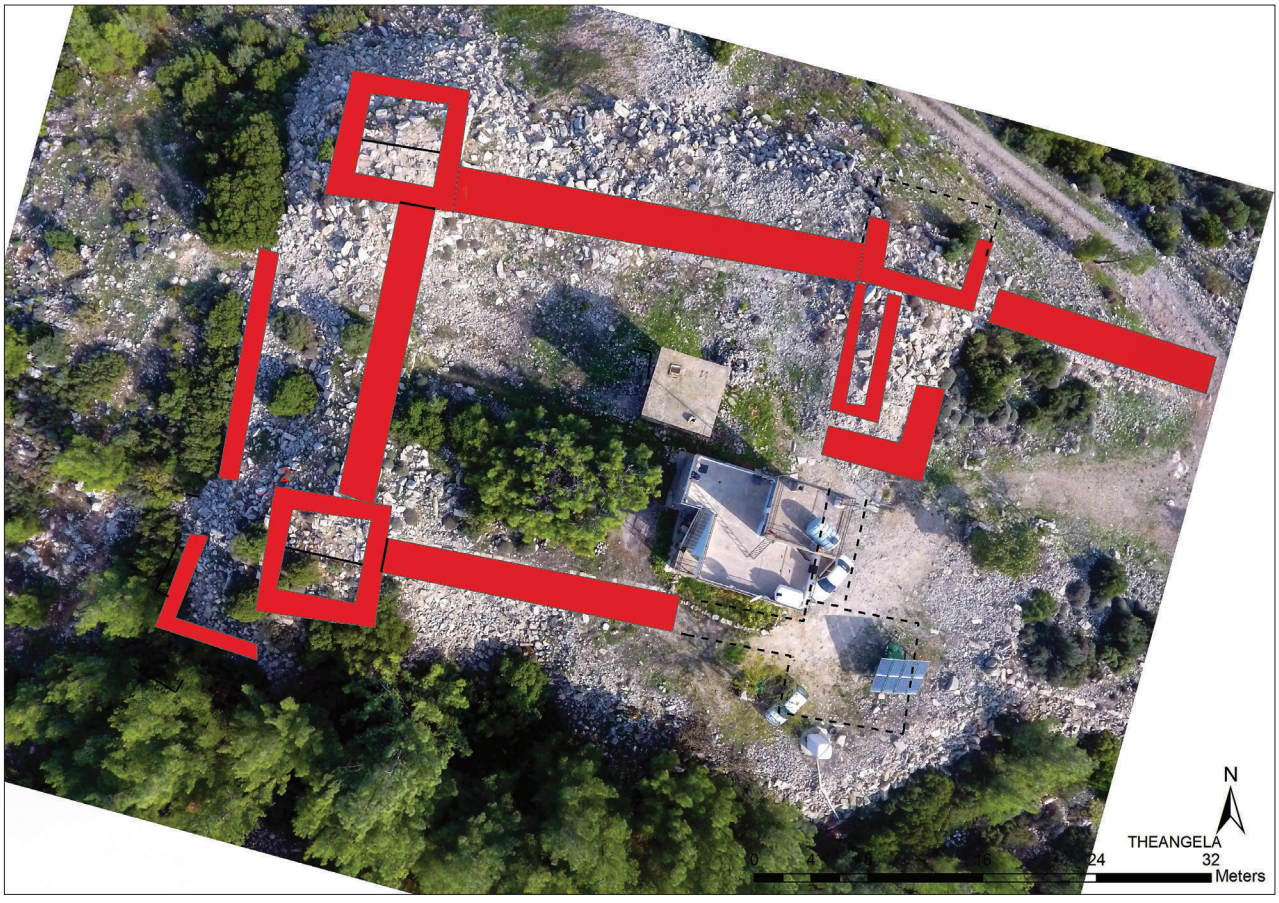


Fig. 19: Theangela, aerial viev of tetrapyrgon (A. Diler – Ş. Gümüş)

[32] It was built of large cyclopean blocks and lacks the masonry character and corner moldings that were common in Karia during the Hekatomnids.

[33] Bean – Cook 1955, 113 fig. 4.

8.55–8.50 x 8.75–7.60 m in size. The interesting part of the building is at its entrance. In the drawing made by G. E. Bean, a gateway was created in the middle of the gate walls that joins inwards from the towers. One interesting thing here is that the access is through an "L" shaped corridor (Fig. 19), which was created by building a 2.60 x 8.80 m front wall at a distance of approximately 5.70 m from the northeast tower in front of this entrance gate. It is clear that the arrangement was purely defensive. Another interesting part of the building is the small casemate room, which opened into the north wing of the gateway that joins the northeast tower. The roofing of this 1.40 m long and 0.85 m wide room was built by corbelling. The corner molding, which is widely used in Halikarnassos and in all Karian cities, suggests that the building may have been constructed during the time of Maussollos or at the latest in the 3rd century BC[34].

The tetrapyrgon has a privileged location in the city, which is divided into three separate defense zones by the diateikhisma walls, especially in terms of its special location and defensive advantages. A distinctive feature for the Theangela city walls is that the city walls and especially the city gates bear early and later features together[35]. This phenomenon indicates that Theangela, being a Lelegian city, kept its architectural and building traditions throughout the Hellenistic Age[36].

Pedasis

Pedasa, which Herodotos reports to be located inland from the coast of Halikarnassos, is one of the eight Lelegian settlements on the peninsula[37]. Strabo states that this area was also called Pedasis during his time, in accordance with the name of the city[38]. Despite the importance of the city in the Archaic and Classical Ages, the excavations

[34] Pedersen suggested, that the system of double corner bonds and drafted margine are a typical creation of Ionian renaissance, invented by architects of Maussollos and which stayed in use in western Asia Minor until well into the 3rd century BC. See: Pedersen 2010, 313–314.

[35] Bean – Cook 1955, 85–171. It has the function of an inner castle/palace with its elaborate masonry thicker than the 2.70 m fortification walls.

[36] According to our research results, Theangela is a Lelegian settlement from the early Iron Age. The pre-Maussolean settlements were on the hills of Manastır Tepe, Çukur Tepe in the east, which remained within the fortified area, and on the hill where the Tetrapyrgon was located in the west. Apart from this, the surviving parts of the residential cisterns and sanctuaries scattered over different parts of the hill are from the same period. The choroplastic and ceramic materials, which were discussed extensively by F. Işık, show that the first settlement of the city dates back to the Early Iron Age period, see: Işık 1990. Bean – Cook (1955, 114) suggested, that as commonly accepted Theangela is the Hellenistic form of the name Syangela which occurs in the 5th and 4th centuries. Bean and Cook state that Theangela was founded by Maussollos. They suggested that the first occupation of the Etrim site was not earlier than the second quarter of the 4th century. In their view, there are no remains before the 1st half of the 4th century BC. See: Bean – Cook 1955, 146–147. Based on the characteristics of the settlement, researchers would like to see it compared rather with the nearby Alazeytin Fortress, not with its Classical predecessor's current location. See: Bean – Cook 1955, 146–147. W. Radt, on the other hand, says that the Lelegian city Syangela was probably founded on Kaplandağ, but after it was destroyed in the middle of the 6th century BC, the inhabitants of the city founded their new settlements right next to the mountain, which was later named Theangela. See: Radt, 1970, 224 note 33a.

[37] According to what we learned from Plinius (*nat.*5,107), the names of the six Lelegian cities whose people were immigrated to Halikarnassos are Termera, Side, Madnasa, Pedasa, Ouranion, and Telmisos, which have various forms of pronunciation. Hdt 1, 175; 8, 104.

[38] Strab 13, 1, 59 [C 611]. In his explanations on the toponym of Pedasa, P. Pedarros attributes the existence of more than one city named Pedasa in Karia to reasons such as the topographic structure and settlement partnership of settlements with the same name. As a basis for her argument, Pedarros also states that after the Persian destruction, Pidasa (Cerd Osman Castle) in the Grion Mountain was founded by the Pedasaians of Halikarnassos by migrating there. Pimouguet – Pédarros, 2000, 155 f.

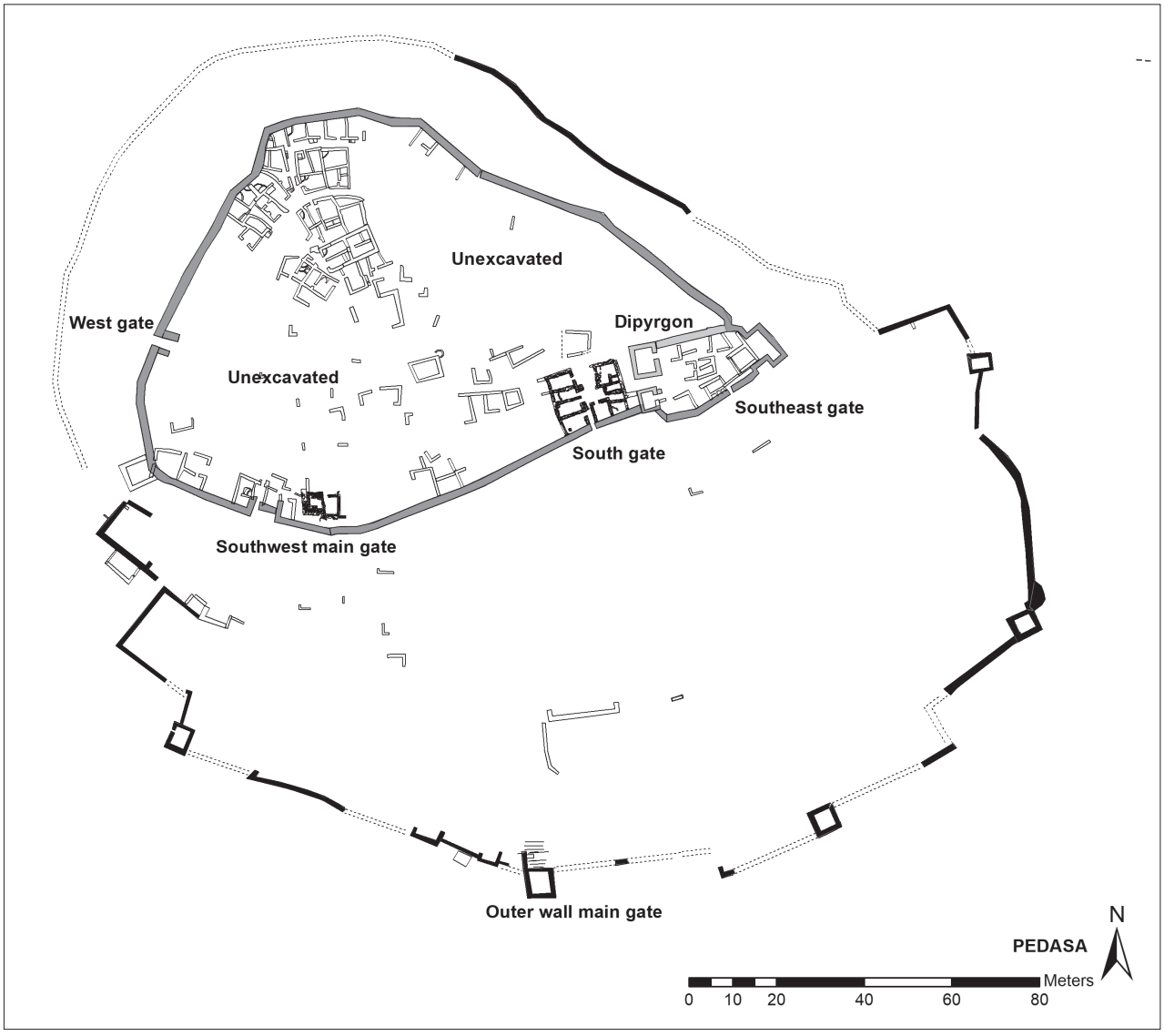


Fig. 20: Pedasa, settlement plan of acropolis (A. Diler – Ş. Gümüş)

and research at Pedasa reveal that its foundation goes back to 12th/11th BC, which we were able to determine by platform tombs, tumuli and finds from the residential quarters[39]. According to Herodotus, after the Persians captured Sardis in 546 BC and they sent an army under the command of Harpagos to Karia, only the people of Pedasis resisted against them at the spot called the Mount Lide [40]. During the 4th century BC, Pedasa was one of the six Lelegian cities attached to Halikarnassos by Maussollos[41]. The city lost its importance afterwards. The excavations and research at Pedasa also helped to shed light on the important questions concerning the Lelegian city walls and defense systems that remained obscure[42]. Pedasa is located in an area isolated by deep valleys between Torba and

39 Özer 2018, 35–55; Diler *et al*. 2021, 222.

40 Here, the address that Herodotos shows while describing the Pedasian people is "beyond Halikarnassos", which does not create a debate as to which city of Pedasa/Pidasa the Peadasans who stopped the Persians are from. Hdt. 1, 175–176.

41 Strab, 13, 1, 59 (C 611).

42 See Adıgüzel – Yıldız article in this publication.



Fig. 21: Pedasa, plan of southwestern acropolis

Konacık, an important transition point from the middle to the west of the peninsula which is still in use today. The deep and narrow valleys that reach to the coast in the east and west directions constitute the natural transportation axes. The outer defense lines of the city territory are shaped by the topography. The hills in the north and south act as a natural barrier that makes it difficult to reach the city. The small settlements on Demir Tepe in the east and Sarıkaya Tepe in the southeast, and on the western border of the territory, and the compound type farmhouses located at Gavuravlusu and overlooking the road axis reaching the city center and the sea from the west, serve as outposts[43].

The Acropolis of Pedasa, which has a defense system consisting of inner and outer walls, is situated on a 390 m high rocky hill, which lies at a topographical location that dominates the land and sea from the north and south. The Acropolis, which was the absolute administrative center of Pedasa in the 7th/6th century BC, is surrounded by a 380 m long city wall with an entrance that is supported by a tower in the west. Apart from the main entrance in the southwest, it has three more entrances in different directions (Fig. 20). The entrances acquired their final forms during the Byzantine period. However, the main entrance to the city was provided through the gate in the southwest direction, narrowed during its second use phase (Fig. 21). The stone-paved road leading to the inner castle settlement from the outer walls in the south must have been one of the main

[43] The farmhouses on the western hills must have served as outposts from time to time. Radt 1970, 72–73.



Fig. 22: Pedasa, plan of dipyrgon (A. Diler – Ş. Gümüş)

transportation axes of the outer settlement of the acropolis, an area which was densely built during the 7th/6th century BC. The investigations here have shown that the western and southern gates of the inner castle were narrowed later[44].

The outer walls, reinforced with bastions and towers on the south and east sides, which are the part of the hill with the least slope extending towards the acropolis, surround a large area that allows for settlements[45]. Defended by two towers in front and fortified with a wall line, the Dipyrgon is a unique example for the peninsula, with its special location in the inner castle being the highest point of the Acropolis of Pedasa (Fig. 22). This special structure, which probably pioneered the "pyrgon" type dynastic residences, especially the one at Theangela, which was built later, must have been built during the dynastic period when Pedasa was the most powerful according to the Athenian tax lists[46]. It is understood that the inner and outer walls of the Acropolis were built in the same construction phase during the 6th century BC[47], but the outer walls were strengthened with towers and bastions in a second construction phase at the end of the 5th century BC. It was also during this later phase that the stone-paved road leading to the

44 The Roman Period inscription on the 1.05 m wide spolia gate lintel block in the south also indicates that this gate may have been narrowed. The southern entrance of the inner castle is a very narrow gate measuring 1.05 m. For the west gate see: Özen-Kleine 2016, 547–548.

45 For the preliminary evaluation report of the outer walls, see. Adıgüzel – Yıldız 2017, 927–928.

46 Meritt *et al.* 1939, 376–377; Bean – Cook 1955, 150–151.

47 Fortifying the acropolis and the settlements around the acropolis with outer walls in Anatolia goes back to the Hittite period. See: Maner 2019, 142–143. 396, fig. 5; Paksoy 2019, 7. 55; Diler 2015, 160.

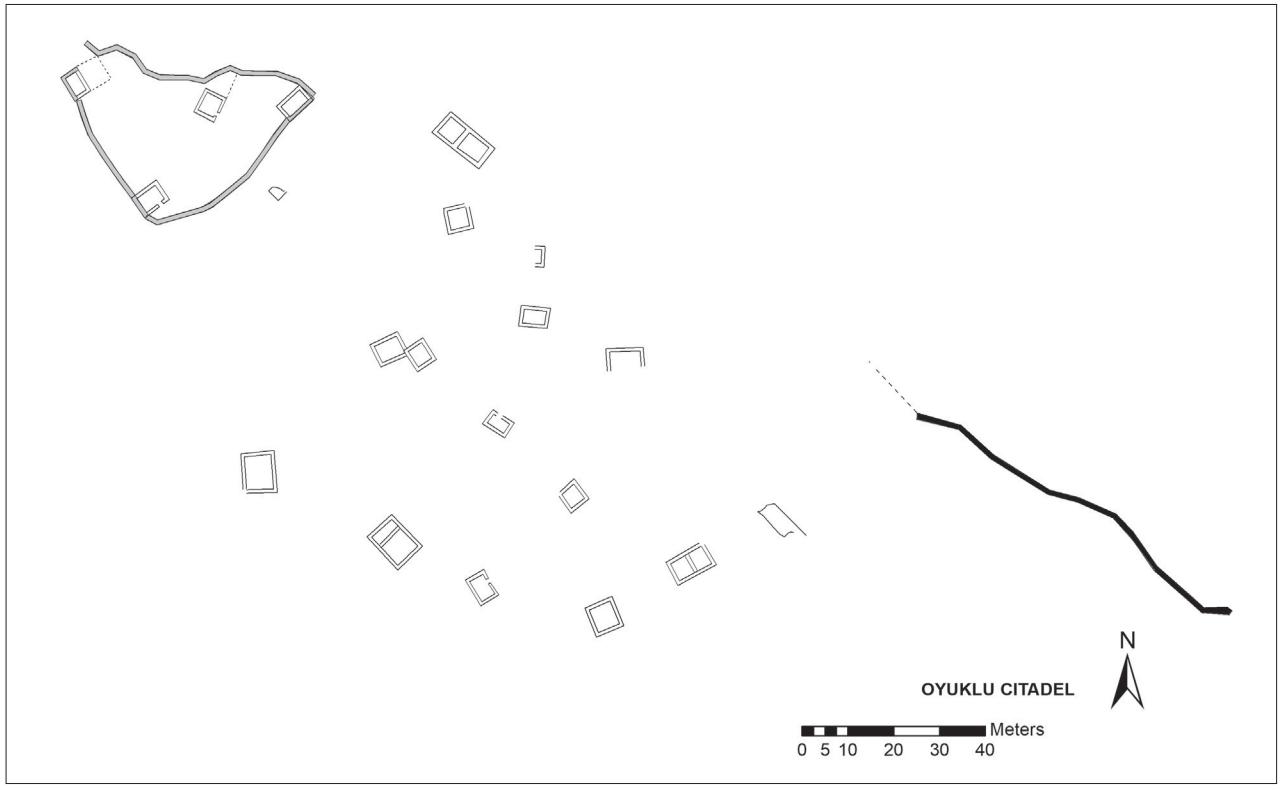


Fig. 23: Oyuklu Tepe, settlement plan (A. Diler – Ş. Gümüş)

acropolis from the outer walls was blocked with Tower 5 built on top of it[48].

West of Pedasis

Oyuklu Tepe, located in the northwest of Pedasa territory and strategically at the highest point of the Bodrum Peninsula at 689 m above sea level, is on a steep rock that forms a natural defense barrier. It is adjacent to Girel Kalesi, from which it is separated by a deep valley to the north, and to the Lelegian settlements on Karadağ which have not been localized yet. The south and southeast parts of the hill, which have a special location isolated by deep valleys in four directions, are on the border of the territory of Pedasa.

It has a simple masonry out of piled, large, undressed stones. The masonry technique of the 1.10–1.20 m thick fortification wall is similar to the masonry work we see in Lelegian settlements. The wall line seen in the northeast can be traced for about 80 m, with interruptions. The ruins consist of residential-type structures scattered over the hill-top enclosure and on the rocky terrain on its gently sloping extension to the southeast (Fig. 23). The reason for the construction of the fortification wall in the north, which is on a very steep cliff and actually unnecessary, could not be understood. The inner castle or enclosure on top of Oyuklu Tepe covers a small area measuring approximately 35 x 39 m. There are three structures within the circuit wall, whose walls are adjoined to it. It is possible that the hill, where transportation and water resources were a big problem, was a small fortress for refuge.

Halikarnassos[49] is a coastal Karian city founded before the time of Maussollos. It is clear that the

[48] See Adıgüzel – Yıldız article in this publication.

[49] Herodotos, who was also from Halikarnassos, says that the city was a member of the Dorian Hexapolis in the past and this union was called the pentapolis in his own time (Hdt. I, 144). However, Strabon and Pausanias state that Halikarnassos and Myndos were of Troizen origin on the east coast of Peloponnessos and he says that it was founded by immigrants

settlement was established on the hills in accordance with the Karian settlement model during the time before Maussollos. These hills are Zephyrion, which borders the harbor from the east, Salmakis Hill to the west and the northern hill where the Pedasa gate is located, and probably Göktepe where the theater is located on the lower slope. The most important feature of the city of Halikarnassos is that it was surrounded with large fortification walls (*Geländemauer*) during the time of Maussollos in Karia[50]. The walls of Halikarnassos, which surround the harbor in a horse-shoe shape starting from the coast and extending over Salmakis Hill and over the peak of Göktepe to the east and then over the hill in the northeast above the Pedasa gate down to Zephyrion, forming the shape of a *theatri curvatura* as defined by Vitruvius[51]. The city walls of Halikarnassos were built in a single construction phase, according to Pedersen's research[52]. The great expansion of the fortification walls of Halikarnassos constitute an important point of reference for the masonry technique and dating. If they were not constructed at any other time, we can say that the polygonal technique with tight joints between Salmakis and the Myndos Gate in the west and on the walls leading to the Pedasa Gate in the north was also used during the time of Maussollos. Trapezoidal stones were also used between the polygonal stones in this type of wall. Dating the city walls made out of irregular rectangular stones on the hill near the Pedasa gate in the north is problematic due to their great differences. As a result of the excavations carried out on the northern hill in 1999, it was seen that the rectangular outline of the city wall here was turned into a tetrapyrgon by closing it with a partition wall (*diateichisma*) in the south[53]. One of the most important differences of the walls of the Maussollean Period is the increase in the number of towers and bastions, which were built mostly for the purpose of defending the gates in the Archaic Period, and the regular intervals between them. The Number of towers and bastions increased so much, that in Halikarnassos a tower was built at every point where the wall line changed its direction.

Örenavlu and Girel Kalesi are two neighboring Lelegian settlements located on two hills, with a straight distance of 520 m from each other. They are located on Karadağ mountain to the west of Pedasa. The walls surrounding the settlements were built in accordance with the topographic features of the hill. In Örenavlusu[54], which covers an area of 150 x 140 m, the steep northern and western slopes of the hill form a natural defense line (Figs. 24–25). The southern and eastern sections, which are open to attack due to their lower

(Strab. 14, 2, 16 [C 656]; Paus. 2, 30, 9). In fact, Pausanias brings up the bond between Halikarnassos and Troizen by writing about Halikarnassos the Isis temple, built by the people of Halikarnassos in Troizen, which they thought was their main city (Paus. 2, 32, 6). Information about the establishment and identity of Halikarnassos can be obtained from ancient sources, especially from Vitruvius. According to Vitruvius, with the occupation of Halikarnassos (Vitr. 2, 8, 12) by colonists from Argos and Troizen, barbarian Karians and Leleges retreated from the coasts to the mountainous region. The information given by Vitruvius can be based on two important facts. The first of these is that the Karians and the Lelegians are shown as two separate ethnical groups sharing the same region, and the second is that the Dorian colonists are the latecomers to the region. According to Herodotus (Hdt. 7, 99, 2; see: Bean – Cook 1955, 95), it was ruled by the Lygdamis dynasty from Halikarnassos from 480 BC until the middle of the same century. According to the ATL lists, the city was paying 2 talents in 447/446.

50 In his study, Paksoy suggests that the reason why the coastal Karian cities were surrounded by Geländemauer walls might be to resist the attack of members of the Delian League, which established the 2nd sea federation in 377/76 BC. Paksoy, 2019, 171.

51 Vitr. 2, 8, 267–268.

52 Pedersen 2010, 269–270 fig. 1. See also the article of P. Pedersen whithin this book.

53 Pedersen 2010, 298 fig. 33.

54 Diler – Gümüş – Topaloğlu 2019, 371.



Fig. 24: Örenavlu, aerial photography (A. Diler – Ş. Gümüş)

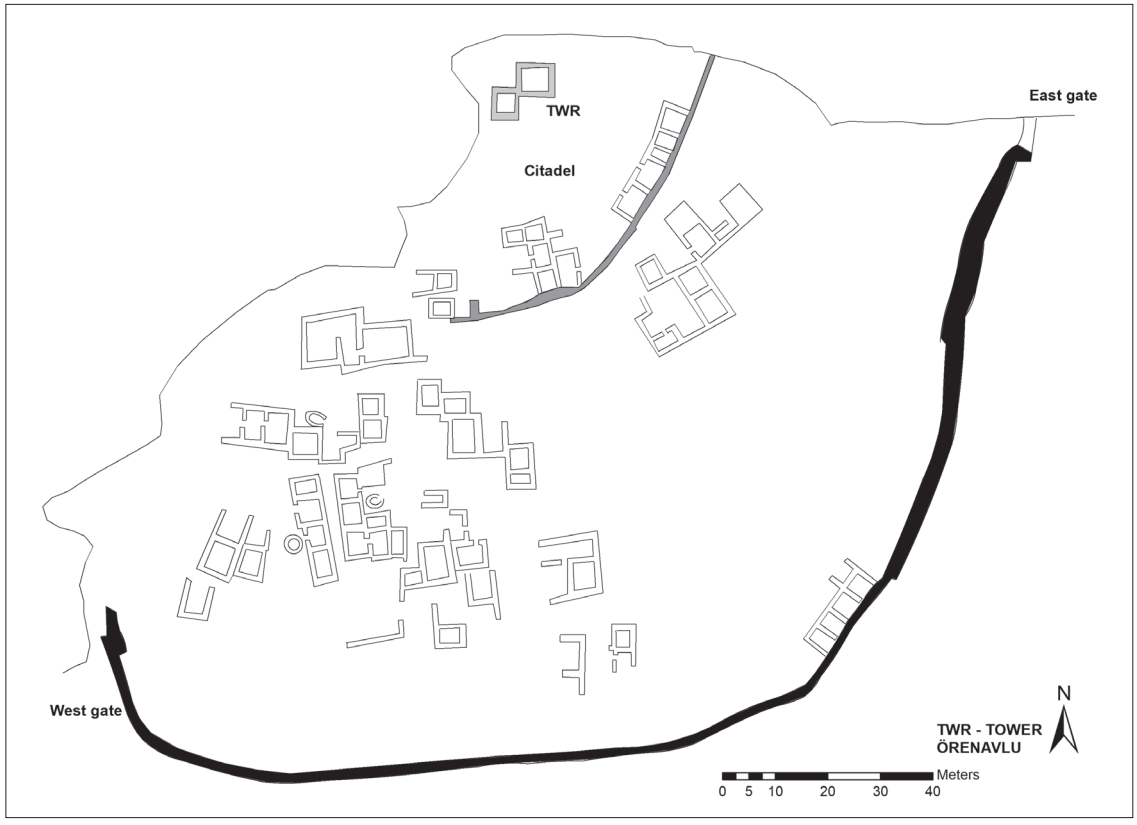


Fig. 25: Örenavlu, settlement plan (after Radt1970, Beil. 3 with revision)

inclination, were closed with walls. The eastern wall especially draws attention with its thickness reaching 3 m in parts. Although the wall thickness is 1.50 m on average, it is clear that the walls in the northeast and east have been thickened and strengthened with additions. The wall, which was strengthened in the eastern section, is 2.60 m thick and consists of three sections for support purposes. The width of the ruins scattered downwards from the walls, which were built with an inward inclination due to static reasons, is about 4.50 m, which also gives an idea about its original height.

A group of buildings clustered in the north of the city wall was bordered by a 0.90–1.20 m thick barrier wall, which created an inner castle here[55]. Within this area, the two tower-like structures at the top of the hill may also have been given the function of surveillance and control[56]. The low density of buildings in this area draws attention. The entrance to the inner castle is provided from the west side, where the buildings are concentrated, by a long corridor formed between two opposite rooms. Lower city structures are concentrated on the western side of the settlement. The area to the east of this building group was left empty. The axes of the residential building groups within the settlement are in the north-south direction in accordance with the Lelegian land use model. The remains, which differ from other structures with their round plans, are cistern-type structures which supplied water to the city[57].

Girel Kalesi is on a lower but easy to defend hill compared to Örenavlu. The northeastern side of the hill merges with the extension of Karadağ, while the other sides are on steep slopes. It is surrounded by walls in all directions except the south side, which has a steep slope. The most important structure added to the outer wall is a small enclosure, accessed through a narrow gate from the south, functioning as an upper castle that fulfills the function of a shelter during the threats.

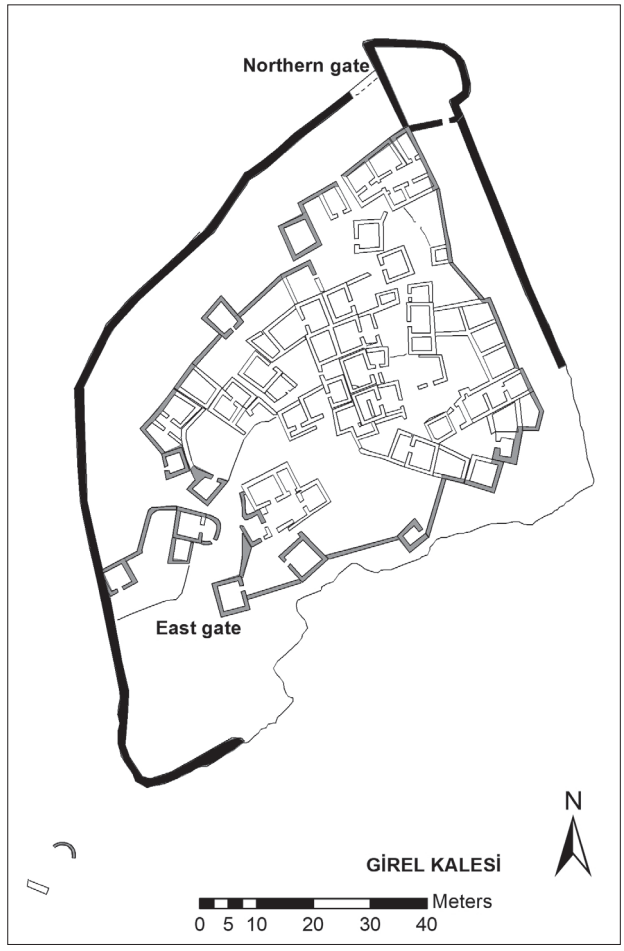


Fig. 26: Girel Kalesi settlement plan (after Radt1970, Beil. 2 with revision)

In Girel Kalesi, the dwellings of the settlement were built side by side. Each of the structures built side by side as if they were forming a barrier, leaving a gap of 10–30 m towards the outer walls. Each has its own wall and the spaces between the structures are blocked with wall extensions to form a second, closed defensive barrier within the city wall (Fig. 26–27). Special structures such as management offices are located near the north and northwest sections, which are the safest areas of the settlement. Within the settlement, there were inner dwellings that were adjoined to form a defensive block within a closed complex, only three independent towers/bastions can be identified.

55 For similar examples of plan and layout, see. Radt 1970, 142; Nicholls 1958, BSA 53/54,116 f.; Scranton 1941,149 f.

56 Radt 1970, 83 sup.3 no.1–2.

57 Radt 1970, 82–83.



Fig. 27: Girelkalesi aerial view (A. Diler – Ş. Gümüş)

One was built in the south, one in the west and one in the southwest (Fig. 26). The two larger towers in the south must have been given the function of control. In addition, a single structure projecting from the wall that joins the dwellings in the west should likewise have served a defensive purpose. The architecture of the outer walls of the dwellings with right-angle projections strengthened the inner defense line. As seen in other Lelegian settlements as well, the outward projection of the houses with common walls and the filling of the spaces between the houses with shorter walls form an effective defense within the city. The tower or bastion structures seen in the inner defense line are not visible from the outer line of the wall[58].

The entrance to the settlement of Örenavlu should probably be expected in the area where the eastern walls meet the steep slope and the projecting wall forms a corner (Fig. 28). The gate in the northeast corner was most likely blocked by a wall[59]. A second entrance is in the section where the wall meets the bedrock in the southwest, which has a similar wall addition, and where it is easy to reach the settlement.

The outer wall projecting outwards at Örenavlusu, and the gate towers built on both sides of the entrance on the inner defense line of Girel Castle control the citadel entrances. At Örenavlusu, one of the two gates allowing access to the city was built at the point where the east wall line meets

[58] The most characteristic feature of the archaic city walls is that the towers and bastions are few and irregular. These are often used only for defense and control at the entrance gates. See: Becks 2014, 170–171.

[59] A similar application can be seen at the eastern gate of Çilek Kalesi, Radt 1970, 82.



Fig. 28: Örenavlu aerial viev of east gate
(A. Diler – Ş. Gümüş)

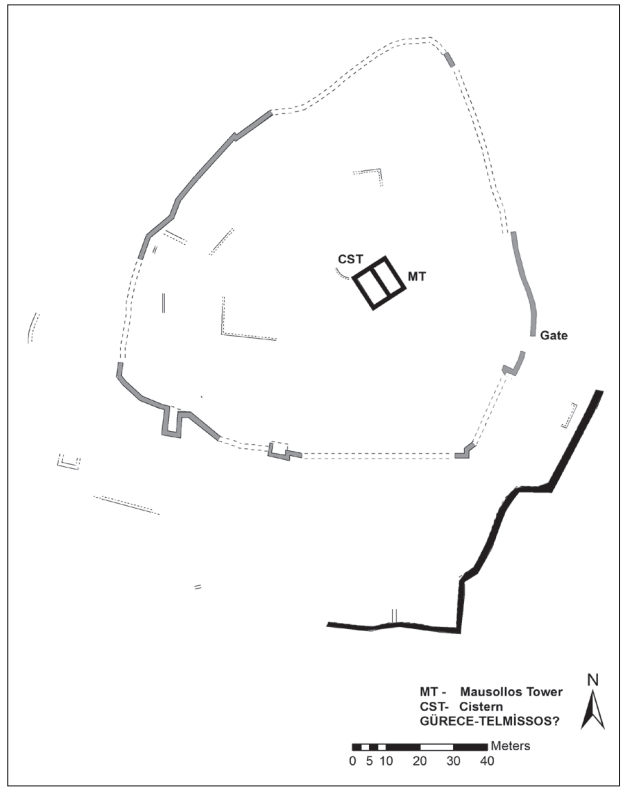


Fig. 29: Gürece, settlement plan
(A. Diler – Ş. Gümüş)

the steep cliff. The other one was built where the west wall line meets the steep cliff on the other end of the city. It is clear that the defense opportunities provided by the bedrock formation and topography were decisive in the location of the gates (Fig. 26). Both of the door walls were reinforced by inward and outward right-angle projections. In addition, the fact that the outer wall line on the east side, which is 1.50 m thick on average, was given a thickness of 3.00 m by three separate additions is also related to defense. There is no defense structure visible that could be identified as a tower on the outer walls of both Örenavlusu and Girel Kalesi[60]. Even if the inner defense line, which is lined up side by side and creates a strong defense, is overrun, there are no axes that allow direct access to the center of the settlement. We can say that this is a typical Lelegian defense strategy.

Our research shows that Girel Kalesi and the ruins to its west are Archaic settlements founded before Maussollos. One has to ask why the two settlements are so close to each other[61]. However, when compared to the building density at Girel Kalesi, the building sparseness seen at the Ören Avlusu does not indicate that the Ören Avlusu may have been founded later. In our opinion, both settlements were founded simultaneously. Both settlements are pure Lelegian settlements founded by Early Iron Age Lelegian people from the Peninsula. On the other hand, there is no evidence that Örenavlu and Girel Kalesi were included in the defense system of the peninsula during the time of Maussollos.

Located at the midpoint of the peninsula between Pedasa and Myndos, the settlement is identified with the ruins on Kale Tepe, which is 240 m high, to the west of Gürece district[62]. As a result of our research, in the light of the ruins visible on

60 Except for the entrance gates, the archaic citadel walls lack tower or bastion type defense architecture. At regular intervals, towers and bastions became common in Karia with the Hekatomnids.

61 The area surrounded by outer walls is 17 acres in Örenavlu and 12 acres in Girel Kalesi..

62 Bean – Cook 1955, 151. As a result of our research, the dense ancient building blocks and protected walls used in and around the great basilica located to the east of Dağbelen Village are important archaeological evidence of a large temple built before the basilica, Diler 2014, 426. Paton and Myres localized Telmisos on Karadağ with the inscription found

the surface, the plan of the walls was drawn and the boundaries of the territory were determined. Gürece controls the agricultural lands and the road network reaching the west and south of the peninsula. The north side of the conical hill is a very steep slope. To the east and south of the hill are the remains of a traditional village settlement. The slightly sloping side to the south is the easiest access to the acropolis. In terms of the topography of the castle and the spread of its ruins, it shows the characteristics of Early Iron Age settlements like Termera and Dirmil. The walls surrounding the level surface on top of the hill on four sides are visible especially in the west and south (Fig. 29).

The wall surrounding the acropolis follows the line where the hill-top plain ends and is 395 m long. The lower parts of the walls gradually projects outwards. Both polygonal and roughly cut rectangular blocks were used together in the sections of the walls extending from east to south, where they have elbow-shaped breaks. This type of masonry technique is common in the area since the Archaic Age. Some additions, indicating that repairs were made on the walls in different periods, were also identified. At the southwest corner of the inner-city walls, only one tower measuring 7.40 x 5.60 m and 1-2 m in height could be seen standing along the entire line. Only a part of the eastern and western extensions of the tower, which are 1.45 m thick, have been preserved. The inner walls can be traced in the north direction with a length of approximately 50 m. The tower, measuring 12.05 x 11.65 m on the hill-top, serving as a control and surveillance tower, is preserved to a height of 1.00-2.50 m. The tower, which obviously was built during the time of Maussollos with its bossed isodomic walls and vertical drafted margin, is divided into two spaces by an inner wall[63].

Some wall extensions that may belong to an outer wall were determined in the south, where the inclination is low and accessibility is easy.



Fig. 30: Gürece, view of outer fortification (A. Diler – Ş. Gümüş)

These were built with coarser, polygonal and larger stones compared to those of the inner walls (Fig. 30). Especially in the southeastern part the 125 m long section of the outer wall, which has elbow-like breaks, is mostly preserved. The westward extension of the wall is not traceable.

The terraces, which can hardly be traced among the dense heaps of rubble on the southern slope between the inner and outer city walls, indicate that the civil building groups are concentrated on this slope. The thickness of the outer wall in the eastern section, where it is preserved to a height of 1.20, measures 1.50 m. Within the area bounded by the inner and outer walls, building terraces, a necropolis outside the city walls, agricultural terraces, workshops and a farmhouse were found. It was observed that the walls of the building terrace in the area surrounded by the Gürece city walls and the inner and outer walls were built in a similar technique. They all have wide spaces between the stones and were cut in a rough, polygonal shape. These were probably built simultaneously during the earliest foundation of the city.

Although their localization is uncertain, the ruins on Kaleyıkığı, above Gölköy to the northwest of the peninsula, are identified with Medmassa or Telmessos, which are among the six settlements

in Dağbelen Village in 1893. Paton – Myers 1894, 373; Bean – Cook 1955, 151–155; Hornblower 1982, 96; Harvey 1991, 245–246.

63 The cistern next to the tower is similar to the examples we have seen in settlements such as Kaplandağ and Dirmil.

attached to Halikarnassos by Maussollos[64]. Except for the western part of the bedrock, which has a relatively steep inclination, the settlement, which has a special location that extends in the form of a long, thin, irregular rectangle towards northwest-southeast and parallel to and compatible with the topographic features, is surrounded by walls on three sides, (Fig. 31–32). The total length of the walls, which are ruined in all three directions, is 682 m. The main gate of the settlement, which uses the Gölköy as a natural harbor, faces northeast, where the remains of the necropolis meet the sea. The hill does not form a plateau-like plain. As a result of this, a large terrace which also constitutes a defensive barrier in the south, and the building terraces, most of which are articulated with each other, were formed in the sloping area behind the eastern wall line[65]. The walls, 40 m away from the wall line in the southeast, belong to these. These walls, which are preserved ca.1 m high from the walking level, are made up of irregular coarsed rectangular masonry. The walls, which were built in coarse irregular polygonal technique out of large andesite blocks and extending on the ridge lines of the rugged topography, bear traces of repair from different periods. However, like those seen in other Lelegian settlements, there are sections, where smaller stones are used between the smaller rubble or large stone blocks, in the continuation of the walls in the same direction and in those on the south side. The inward inclined walls, which are preserved to a height of 2.50 m in places, merge with the structures in some parts (Fig. 33). Although the wall line in the north is dynamized with elbow-like articulations, bastions and towers are not visible. On the north wall line, there is a gate opening made of smoothly cut rectangular blocks, also seen by G. E. Bean[66]. The main gate of the settlement, which also allowed direct access to the sea is located on the north side. On the north side of the entrance is the doorroom, which was recently emptied by an illegal excavation. The square-shaped room measuring 5 x 5 m was strengthened from the inside in all four directions by 0.60-0.70 m, so it was probably designed as an inner tower higher than the parados wall. From the few visible traces of the wall a slightly protruding gate tower/room can be located on the opposite side of the north gate/tower. A third gate, of which we are not precisely sure when it was built is located roughly 50 m north of the main gate. The fortification wall is made of coarse, irregular rectangular stones on the eastern side of the 3.90 m wide doorway, and of irregular loose polygonal blocks on the western side.

There is a tower built within the fortified area in the southwest, behind the south terrace wall. This tower is located on the summit, measures 11.50 x 6.50 m and consists of two rooms. In terms of workmanship, it must have been built during the time of Maussollos, due to the bossed isodomic technique and the fine joint framing seen in the corners.

Near the northwest corner of the settlement, at the junction with the city wall, there is a tower incorporated into the wall[67], which differs from the south tower with its polygonal technique and should probably be seen as one of the early towers of the settlement (Fig. 34). The buildings in the citadel were built on terraces depending on the

64 Our research has also shown the possibility of it being Telmissos due to its proximity to the prophecy center, which we identified as the oracle center of Apollo, and the continuity of the city's use in the Classical and Hellenistic periods. See footnote 20; Bean-Cook, 1955, 155; Paton – Myers 1894, 375–376 identified the settlement as Karyanda. For location also see: Hornblower 1982, 96.

65 Diler – Gümüş – Çur 2014, 429–432.

66 Bean also draws attention to the early and Classical Period surface pottery, see: Bean – Cook 1955, 121–122, 9; Strab. 13, 1,59 [C611].

67 Bean-Cook,1955, 121.

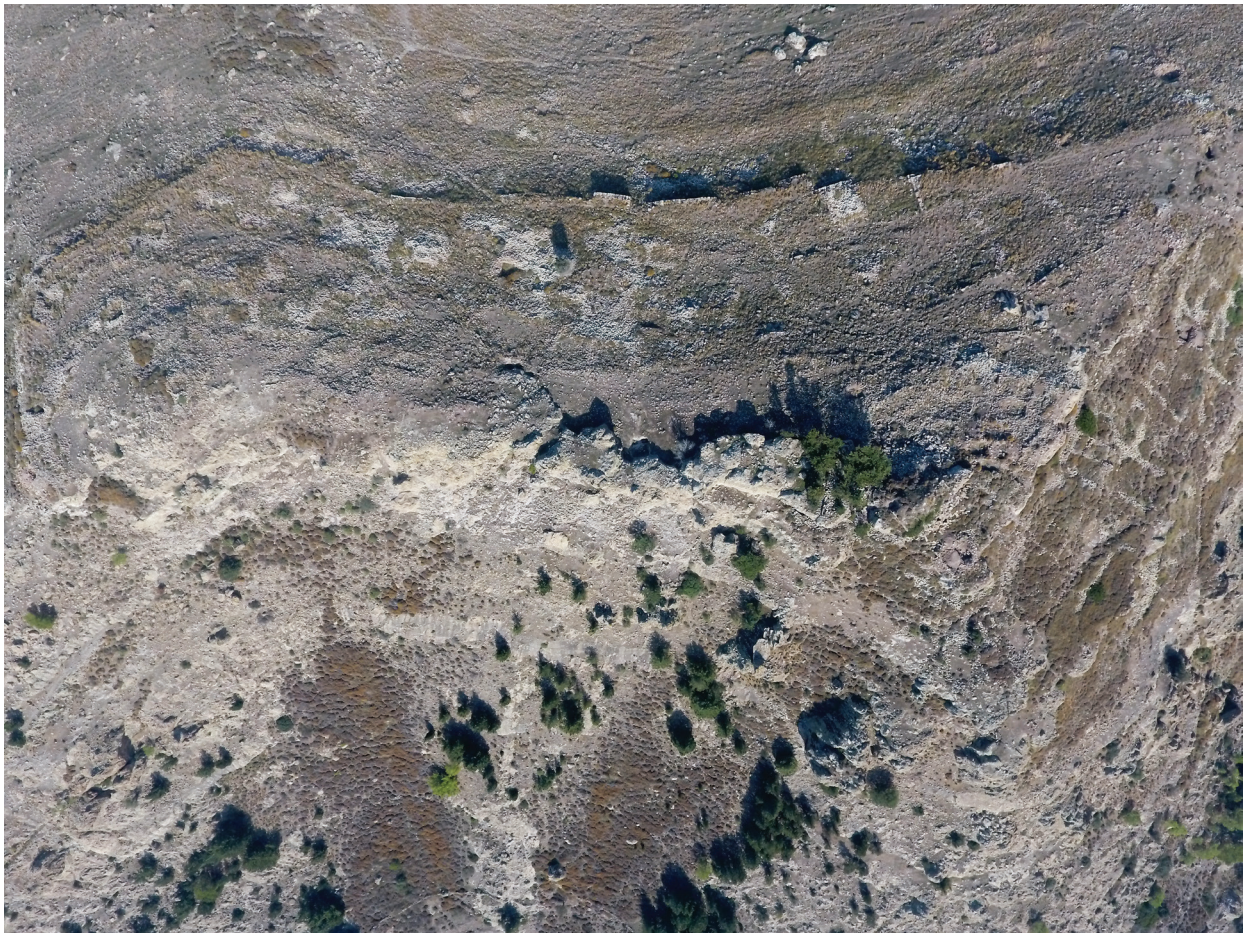


Fig. 31: Madnasa/Kaleyıkığı, aerial view (A. Diler – Ş. Gümüş)

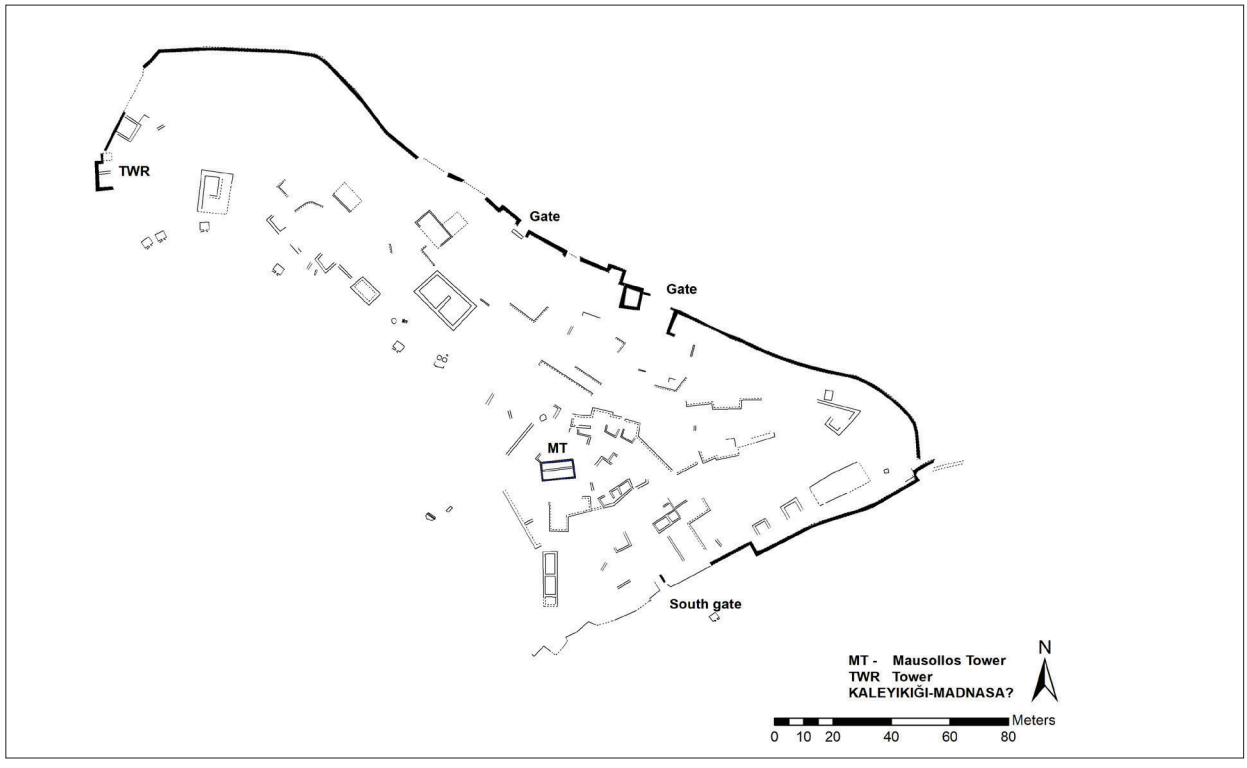


Fig. 32: Madnasa/Kaleyıkığı, settlement plan (A. Diler – Ş. Gümüş)



Fig. 33: Madnasa/Kaleyıkığı, view from the northern walls (A. Diler – Ş. Gümüş)



Fig. 34: Madnasa/Kaleyıkığı, polygonal wall of western tower (A. Diler – Ş. Gümüş)

topographical features[68]. The remains we see on the surface must be from the pre-Maussollean period in terms of workmanship and technique. The most important feature of the city walls, from our point of view, is that they have elbow-like breaks, which is an old Anatolian tradition used in their defense walls[69]. In the southeast section, which can be defined as the acropolis of the settlement, a second south-facing entrance was found on the wall-terrace line.

Bozdağ[70], identified as Palaea Myndos by researchers, consists of three separate hills in the north-south direction, approximately 150 m above sea level. Although it seems to be spread over the hills, the main settlement is on the northern hill surrounded by a wall (Fig. 35). There are traces of a tower on the south hill and a smaller settlement on the middle hill visible. The Island Kos, the hills to the west of the peninsula and the road network are within sight of the settlement. The northern walls of the settlement, which enclose a level area of 72 x 52 m on the hill-top, are 1 m high and 1.30-1.40 m thick in the best-preserved section. The entrance gate protected by two towers/door rooms is located in the section facing the port of Myndos. The lower sections of the preserved spaces on both sides of the 4 m-wide gate opening measure 4 x 7 m. The corridor-like gates between opposing spaces are common in the citadels in the east of the peninsula[71].

Ancient Myndos is one of the port cities on the western border of the peninsula, which Maussollos did not unite with Halikarnassos for strategic reasons[72]. Myndos, as Strabo describes, is a coastal city located on Cape Termerium,

68 Diler – Gümüş – Çur 2014, 429–432.

69 We can see similar walls in Kissebükü.

70 Plinius (nat. 5, 107) mentions a settlement that existed no longer in his time, which he introduced as Paleamyndos near Myndos. Bozdağ, an old Lelegian settlement, and the settlements on other hills were probably joined to Myndos by Maussollos. See also, Bean – Cook 1955, 118. 145; Şahin 2006, 293–306; Şahin 2009, 503–504.

71 For gate forms, see Radt 1970, 134 Abb. 14. Archaeological data found in Myndos as a result of the excavations and research carried out by M. Şahin showed that the city was founded before Maussollos. Şahin 2009, 503. In this case, the question of whether the Bozdağ Castle was a shelter built against the Persian danger in the middle of the 6th century, like by many other examples on the peninsula, comes to the fore. For the Lelegian settlements in the east of the peninsula and the fortified enclosures defined as refuge castles, see. Radt 1970, 104–105.

72 Paton and Myres say that Myndos was a complete Hellenic city because it lacks a Lelegian necropolis Paton – Myres, 1896, 204. G. Bean compares the 2.75 m thick polygonal wall made of cyclopic stones, which is shown as the Lelegian wall, with the northern walls of Halikarnassos, from the time of Maussollos, adding that it will not be before this time, supports this view, Bean 1955, 110–111. Let's just say here that apart from the settlements on the Pedasa, Termera, Kaplandağ and Gölköy ridge, traces of characteristic Lelegian necropoleis are not seen anywhere else.

opposite to the Cape Skandaria of Kos and in the immediate vicinity of Halikarnassos. The walls of the mainland of Myndos reach the summit of Kocadağ over a breakwater to the west, and from there they extend over the mainland in the east from the northern skirts of the hill. As in the case of Halikarnassos, the walls, extending over the peaks of the hills, took the defensive advantages provided by the topography and protected a large area by surrounding it. Although the geländemauer walls of Myndos date from the Maussollean period[73], M. Şahin states that the cyclopean wall on Kocadağ, which is part of the city's defense system, belongs to an earlier citadel[74].

"Termera", identified with Asarlık in the southwest of the peninsula by the researchers, is among the Early Iron Age settlements. The natural bay on the slope of Mount Aspat, 3 km south of the hill where the settlement lies, has most likely been the harbor of the settlement. Termera, beginning from the Sub-Mycenaean and Early Iron age, was one of the most important settlements of the peninsula throughout the entire Iron Age[75].

The settlement has a wide territory extending to the sea with a gradually descending topography interrupted by low hills and shallow valleys in the south, and to the areas where necropolis and agricultural structures are spread in other directions[76]. It is obvious from the preserved in-situ blocks and traces of stone beddings on the rock that the acropolis was surrounded by walls on four

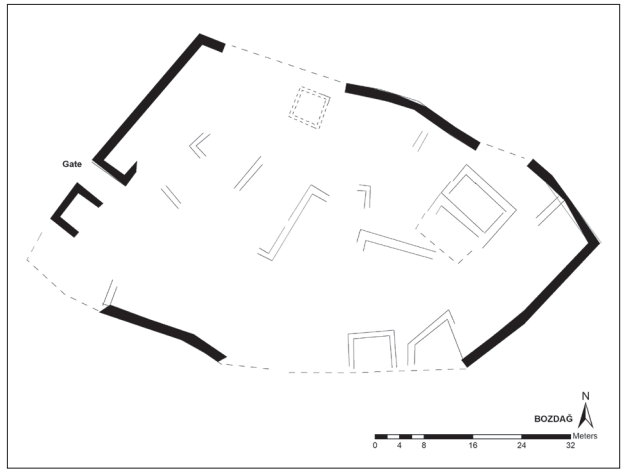


Fig. 35: Bozdağ, settlement plan (A. Diler – Ş. Gümüş)

sides (Fig. 36–37). Except for the south part of the inner castle, other parts have topographical advantages which could have been used as a natural defense. On the hilltop, there is a rock-cut cistern 6 x 19 m in size[77]. The threshold block found *in situ* in the southeast corner shows that the access to the acropolis was in this direction. It is understood that the acropolis plain and the lower settlement terrace in the south were arranged during the same period. The 111 m long walls surrounding the hilltop extend over the ridge line. The 152 m long terrace wall on the south upper slope of the acropolis continues westwards with some elbow-shaped bends in south direction.

The lower skirts of the Asarlık hill have a steep inclination in the north and northwest. The outer

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73 Although Alexander the Great besieged the city in 335 BC, he could not capture the city due to its strong fortification and defense system see: Arr. *An*. 2, 5, 7.

74 The polygonal walls on Kocadağ were named as "Lelegian Wall" by M. Şahin and dated to the Late Bronze and Early Iron Age period. Şahin 2009, 508, 510–511.

75 Diler 2015a, 14–15. 21; Diler 2019 507 f. The city name appears in the Athenian Tribute Lists (ATL) in the mid 5th century BC Meritt *et al.*1939, 128. The tribute (tax) paid by Termera, which was mentioned 13 times in Athenian Tribute Lists until 425/424, was two and a half talents until 477/476. Based on the high tax paid by the city, it is understood that Termera is stronger than all the cities of the region. "Myndians near Termera", which was used in the Athenian Tribute Lists (ATL) to identify Myndos see: Meritt *et al.* 1939, 522 s. v. Myndioi para Termera, also see ibid., 132 (list of 450/449 BC, column II, lines 11–12); 149 (list of 430/429 BC, column I, line 47); 152 (list of 421/420, column I, lines 92–93); 157 (list of 4425/424 BC, column II, lines 141–142).

76 Diler 2015a, 1–2.

77 Diler 2015a, 2.

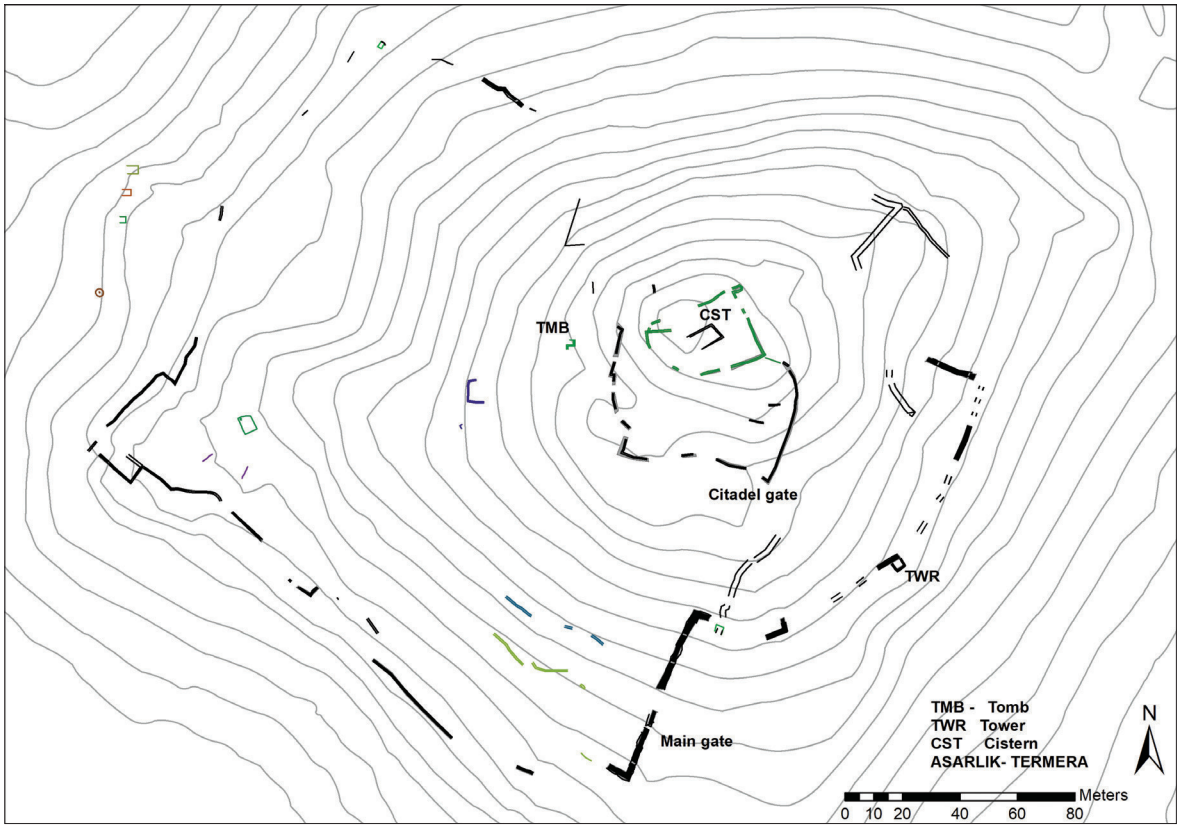


Fig. 36: Termera, settlement plan of acropolis (A. Diler – Ş. Gümüş)



Fig. 37: Termera, view of inner castle (A. Diler – Ş. Gümüş)



Fig. 38: Termera, main gate of citadel
(A. Diler – Ş. Gümüş)

walls of Asarlık are approximately 745 m long. The extent of the city walls in the southwest and northwest of the settlement could only be determined by the completion of the preserved parts at the foundation level. Accordingly, the lower slopes of the hill were surrounded by a wider outer wall during the same time as the inner walls were built. These walls can be traced along all sides of the hilltop except for in the north. There is a monumental entrance gate in the section where the walls are preserved to a length of 114 m and to a height of 5 m in the southeast[78] (Fig. 38). The main entrance to the settlement is on the transportation axis that connects to the sea from the south through the necropolis and agricultural areas. Two towers, which were built at the point where the road axis are connecting Termera to the sea, control the road network.

The part of the main gate, which continues to the south in the same technique, forms a corner 20 m below this gate and turns to the west. The part of the walls, starting from this corner and continuing to the west, was constructed on a steep rock outcrop in the same direction without interruption. These partly preserved walls continue for about 220 m on the west side, then make a corner in the southwest and continue to rise on the slope towards the north. The western walls are approximately 175 m long. Continuing to the east at the same length, it merges with the inner castle at the peak of the hill.

Asarlık hill ends with a high ridge where the southern necropolis and the valley descending to Aspat Strobilos approach the hill. This ridge meets the hill in the southwest and continues to the west. It extends to the modern Mandıra Village in the northeast and continues to the north. After this natural elevation, a deep valley surrounds the settlement on almost three sides and forms a natural ditch. In the west, the slope of the hill extends into a deep valley. Despite this high ridge in the south, the road and valley extending to Aspat is visible from the Acropolis. Another striking feature of the fortification of the Termera acropolis is the absence of towers and bastions.

When thinking about Lelegian settlements, settlements with a single enclosure/defense line come to the fore as the original type of settlement model. This type of hill settlement is enclosed by thick drywalls using the topographical advantages. One of the oldest examples of these types of walls is on the high hill to the east of Sandima Village, which is now abandoned, in the northwest of the peninsula[79].

[78] Another remarkable arrangement in the Termera fortification and defense system is the main gate of the city.

[79] The mountain range in the northeast of the village, which is one of the oldest villages of Muğla province and which is abandoned today, consists of two hills. Transportation between the two hills can be done over the ridge. The hill is completely rocky. Traditional dwellings are commonly seen on the western side of the hill. In addition, there are abandoned houses on the southern lower and middle slopes of the hill. The residences on the southern lower slopes of the tower are accessed by a stone-paved road. A definite conclusion could not be reached as to whether the rock cavities on the lower and middle slopes of the hill on which the Sandıma settlement was formed were formed by natural or human intervention. However, even if these are natural, it is thought that some of them may have been made for cremation burials.

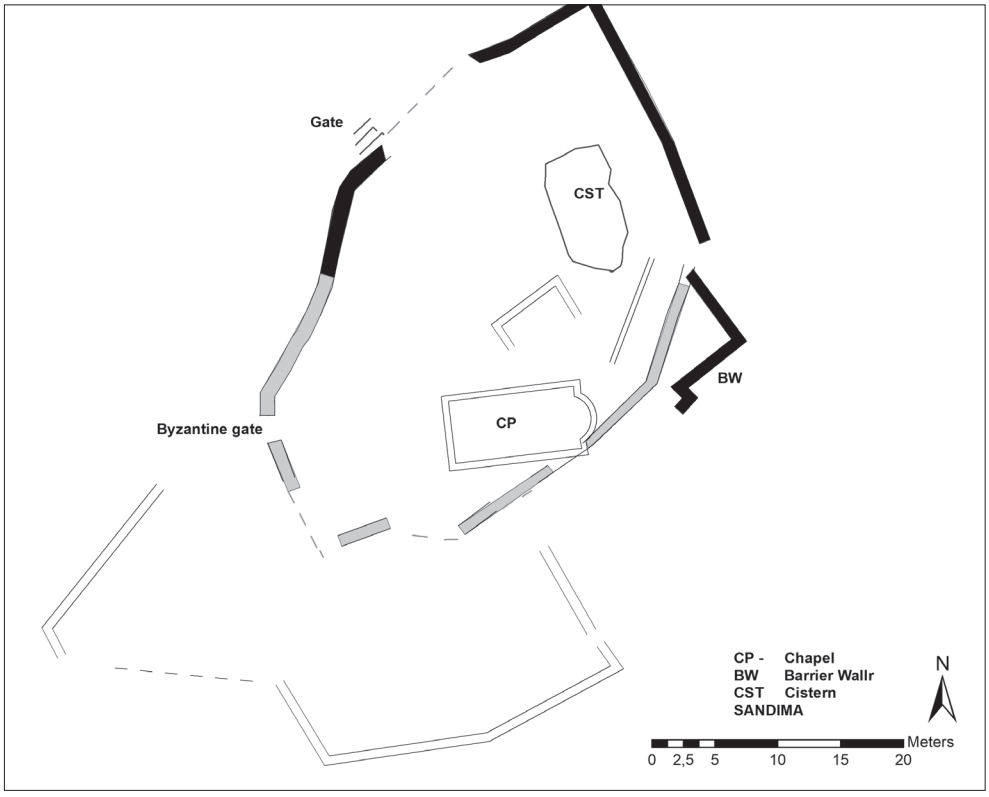


Fig. 39: Sandıma, settlement plan (A. Diler – Ş. Gümüş)

Fig. 40: Sandıma, aerial view (A. Diler – Ş. Gümüş)



The fortified settlement of Sandima is located on a high pointed hilltop in the south, extending in the north-south direction. While the hill on which the settlement is located is bordered by the Karakuzu and Sivritaş hills rising gradually in the east, the section facing the sea in the west has a wide viewing angle. The hill is isolated from the topography by two deep valleys in the south and north. Despite this steep topography, the top of this small settlement was not considered sufficient for defense and was surrounded by walls in all four directions (Fig. 39–40). The hilltop plain measures approximately 40 x 30 m and ends with a lower hill in the south. Access to the hill in ancient times was from the rocky slope rising to the east from the deep valley that separates Sandima Village from the hill. The western walls, which are 2.20 m wide and up to 3 m high, and on which the gate was built, were constructed in the cyclopean technique, in which large and small stones were used together with mortar. The unregularity of the circuit wall and remains of mortar traced to the floor level support the hypothesis, that the west gate was used together with the walls after being repaired. The main gate of the citadel is located roughly 30 m north of this gate. Some blocks in front of the entrance, stretching roughly 3 m away from the threshold block of the gate may indicate a stepped entrance.

The well-preserved southern walls, on the other hand, are of an irregular polygonal technique with small stones. The terraces, built side by side outside the southern circuit, owed their existence to the fact, that the citadel only allowed a limited number of buildings[80]. The large, cyclopic, roughly rectangular and polygonal blocks, seen in the northward leading part of the eastern walls represent the oldest parts and therefore the original city walls of Sandima. It seems that a triangular bastion was formed at the junction of the southern and eastern walls. The chapel built on the side of the southern inner-city wall indicates, that the castle was inhabited during the Christian era, and the mortared repairs on the walls probably date from this period as well.



Fig. 41: Sandıma, view of eastern polygonal wall (A. Diler – Ş. Gümüş)

Although they have survived at different heights, the walls, which were built in rough polygonal technique in gigantic dimensions, were built at the same time (Fig. 41). The straw-tempered coarse pottery we identified in the area, which are so far not seen in any other part of the peninsula, support that the date of the settlement may go back to the Bronze Age.

The latest material we identified during the investigations at the settlement of Sandima and on its lower slopes is glazed Eastern Roman pottery. On the other hand, some fragments similar to those of the Early Iron Age Lelegian settlements were also found in the eroded earth profiles.

The ancient settlement, which lies at the Gökçeburgaz hill in the Gökçebel neighborhood of Yalikavak Town, is called Dirmil Kalesi today[81]. The

[80] The cistern, measuring 5.20 x 10.40 m, formed by carving the bedrock by 2.00 m deep in the inner part of the walls that surround the hill in four directions, is relatively close to the northern walls and is on the north-south axis. The chapel built in front of the southern city walls represents the last phase of the settlement of Sandıma. Except for the apse and the south side wall, we cannot observe the other parts of the single-nave ruin. Its measurable length is 5.70 m, excluding the apse.

[81] Paton – Myres (1896, 208 fig. 8) and G.E. Bean and Cook (1955, 160–161) who carried out the first survey in the area, named the settlement as Trimili after the first study, because of the close similarity of the name of the current



Fig. 42: Dirmil aerial view of citadel (A. Diler – Ş. Gümüş)

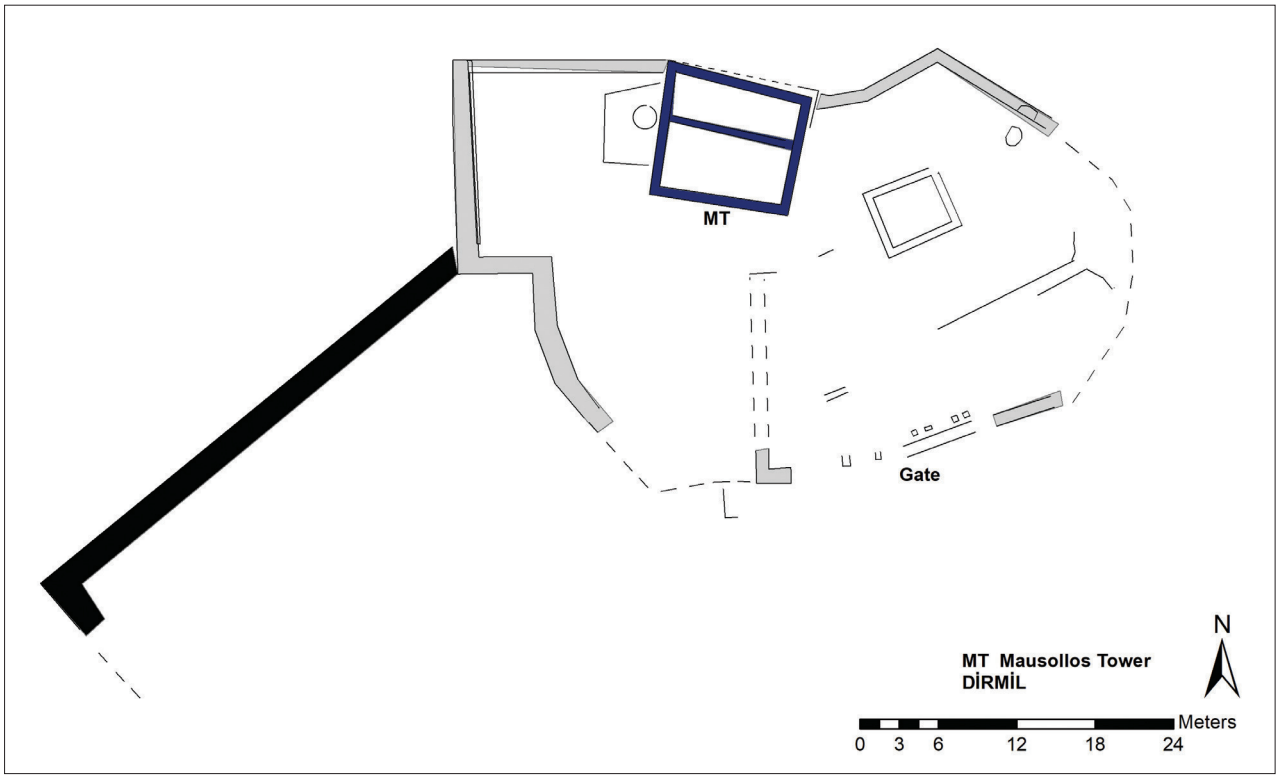


Fig. 43: Dirmil, settlement plan (A. Diler – Ş. Gümüş)

settlement consists of the inner castle surrounded by walls on a conical hilltop with an elevation of approximately 180 m, and the outer walls extending to the mid-skirts of the hill in the west (Fig. 42–43). The hill has a steep inclination in all directions except the south side. The sections where the hill walls are best preserved are the northern walls of the inner castle and the western walls, which continue to the south with an elbow-shaped bend on the hilltop plain. The southern walls of the Dirmil inner castle were constructed in a rough, polygonal technique. The western walls of the inner castle, which have been preserved in a small part, can be traced by the stone beddings on the bedrock.

The inner castle walls, which are joined to the northern wall of the cistern rock in the north, continue on the same axis towards the east and west. The southward extension of the inner-city walls in the preserved sections is of the same technique and is 1.00 m thick. There is a stepped entrance probably created during the second use at the corner of the western city walls where it turns towards the east.

The research we carried out at Dirmil showed us that the settlement was also surrounded by outer walls. The part of these walls, that connects to the northwest corner of the inner castle, continues straight in the southwest direction and turns south by forming a corner. The walls preserved at the junction are of polygonal masonry made up of roughly cut rectangular blocks between which small stones are used as a filling. The walls are preserved up to a height of 1.50 m at the corner (Fig. 44).

The extension of the city wall, which continues from the south corner of the western inner-city walls to the southwest, is considered to be the section where the outer walls of the Dirmil citadel are



Fig. 44: Dirmil, northwest corner of outer wall (A. Diler – Ş. Gümüş)

best preserved. The inner walls surround the flat area on the hilltop, in which there are watchtowers, cisterns and sanctuaries. The most important defense structure of the inner castle is the tower. The isodomic walls of the tower, which are preserved with seven rows of blocks in the Maussollean technique, were placed on the bedrock in the east and north directions. Here, the bedrock was cut and used as part of the tower. Although the lower rows were constructed in coarse polygonal technique with half-finished large blocks, the upper rows belong to the time of Maussollos. Another interesting fact on the north side of the tower is the presence of polygonal rows underneath the outer blocks which were dismantled. This indicates that the tower was repaired with a new technique in a later phase of use. There is no clear evidence about the entrance of the city. However, it is likely that it may be from the west of the cult-related rock surfaces near the middle part of the southern inner walls, where we have identified a few steps cut into the bedrock. The Late Proto-Geometric Period chamber tomb, which was accidentally found on the southern lower slope of the hill in the 1970s

settlement, Dirmil, with Trimili, which is known to be a Luwian name. Paton – Myres 1896 208, fig. 8. E. Laroche says that the ethnic name Trimili derives from "Tarmi" meaning mountain peak. On the other hand, Bryce (1986, 30) says that the word Termilae is not related to the local Anatolian languages, but to the immigrants from Crete. For the origin of the name Dirmil see: Bean – Cook 1955, 160. For the name Dirmil/Trimili, see: Hdt. 1, 173; Diler 2015, 146–147.

and published by G Bass[82], and C. Özgünel[83], sheds light on the settlement history of the city, indicating that the existence of the settlement may go back to the Early Iron Age at the latest.

Conclusions

One of the main problems that arise in the evaluation of the fortifications and defense systems of the peninsula is about the ethnical identity of the people who founded the settlements. Attempts to associate the people who left the ruins behind them with an ethnic structure identified as Karian, Lelegian or "Lelego-Karian" never came to a conclusion so far[84]. We can say that the elements that determine the fortification and defense structures in the Lelegian settlements, which were almost entirely built on hills that are far from the coast and dominating the topography, are related to the lifestyles and social structures rather than an ethnic identity[85]. The Lelegian cities did not develop a *polis* identity except Myndos and Syangela/Theangela, which were completely rebuilt by Maussollos, and they kept this status from the Early Iron Age until the Synoikismos of Maussollos.

The results of our long-term surveys on the peninsula and our 15 years of Pedasa-focused excavations support the work of W. Radt. An important result of our research is to date the history of the Lelegian settlements as early as the 12th/11th century BC, considering the excavated material[86]. The summary of these studies is as follows: Lelegians and Karians are people, who share the same common cultural region. However, the environmental conditions and the lifestyles arising from the use of mountainous areas in the inland regions by the Lelegians, and the use of the coastal areas by the Karians caused them to be represented with different cultural materials. While the Karians, living on the coastal area, established an urban life with the opportunities of the sea and the coast, the Lelegian people, living in the mountainous area, led a rural life based on livestock and dry farming[87].

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82 Bass 1963, 353–354; Özgünel 2006, 20.

83 Özgünel 2006, 20–30.

84 The main reason for this is the inconsistent information given in ancient written sources and the different opinions that emerged accordingly.

85 As stated by Aristotle, the acropolis is suitable for oligarchy and monarchy, and the plain for democracy (Aristot. Pol., 7, 10, 4). We see two important local dynasts who support Aristotle's view in the cities' administration: Pigres in Syangela and Tymnes in Termera. Tyrans were able to protect themselves in the acropoleis or the inner castles against the threats that could come from within and against external threats. Even so, although we have information about the Lelegian living tradition during the time before the 6th century BC, we do not have concrete information about their political structure. However, as concluded from the settlement structure analysis, each hill settlement had its own local lord. The emergence of large settlements and sympolities must have started with the Persian threat in the 6th century BC. It is not possible to interpret the emergence of dynast and lord names and the fact that some cities are included in the tribute lists.

86 Diler *et al.* 2021.

87 This is exactly what Vitrivius (2, 8, 12) wrote in the definition of Halikarnassos, which corresponds to the definition of two groups of people living together and joining forces against external threats. To date, no inscription from the pre-Maussollean period has been found in any Lelegian settlement. On the other hand, according to early written documents, the traces of the Karians in Halikarnassos go back to the 6th century BC. Similarly, there are no public and administrative structures such as Hellenic temples, theaters, and stadiums before the time of Maussollos. After their revolts were suppressed by the Persians, the Persians preferred the fertile plains and the Pidasa Karians preferred the mountainous areas when it came to sharing the lands of Miletos. This was the case among the Pelasgians, who were proto-people like the Lelegians. Terminological definitions such as Aegean Durids or stop-gap used for Lelegians seem to be based on a lack of data. Today, Lelegians can be evaluated as a whole with the original building types they left behind and their long-term development of burial customs and other living traditions.

On the Technique and Layout

All Lelegian walls and defensive structures were made up of inner and outer walls in the drywall and double face technique. Wall faces were often built by stacking unfinished stone blocks in the shapes they were quarried. Towers and bastions always have more solid and elaborate workmanship than the curtain walls, which continued during the time of the Hekatomnids after the Lelegian period. There are no rules in the masonry techniques of the Lelegian fortifications and defense structures. While in some examples the gaps between the large stone blocks are balanced with small stones, in others large stones are stacked in heaps on smaller stones. In the eastern settlements on the peninsula, where the stones were extracted in parallel profiles from the quarry, the rectangular rows are dominant (Fig. 45). This type of masonry turns into irregular polygonal masonry in settlements to the west of Pedasis where volcanic andesite rock structure is dominant in the early periods (Fig. 46).

The natural hills on which the settlements lie shaped the city walls (Fig. 47). The curved or ring-shaped walls are always dominant in plans of the fortifications. Even so, the plan of no other settlement almost forms a full circle as can be seen in Alazeytin. Futhermore, they do not exactly match the radial layout of the structures built inside, which again in Alazaytin is the case (Fig. 7). In Lelegian settlements, which could not complete their urbanization process until the end of the Archaic Period, topography always appeared as the most important element in defense, and in early settlements, walls and fortifications were shaped according to the immediate topography. Although examples such as Kocadağ and Tırmandağ were described as refuge forts by W. Radt, our long-term research has shown that these fortified or enclosed settlements, which serve the controlled livestock of the rural population using vast lands, may have been used continuously, not just during the attack.

Whatever the size of the Lelegian ramparts and circuit walls, they always have a plan that depends



Fig. 45: View of rectangular walls (A. Diler – Ş. Gümüş)


Alazeytin South Fortification Walls

Bozdağ West Fortification Walls

Dirmil South Inner Fortification Walls


Geriş North Fortification Walls


Gürece North Inner Fortification Walls


Kissebükü West Fortification Walls


Madnasa North Fortification Walls


Sandıma West Fortification Walls


Halikarnassos South Fortification Walls

Fig. 46: View of polygonal walls (A. Diler – Ş. Gümüş)

on the topography. This is why the eastern outer walls of Çilek Kalesi turn with right angles in the north and south, also in Madnasa (Gölköy), Bozdağ (Güney Tepe) and Kovukçal. Apart from that, the walls always have curvilinear lines. The common practice in the relationship of the city walls/circuit walls with the dwellings and other structures is that they are usually adjacent to the wall. When the plans and dimensions of these are examined, it is seen that they generally belong to single, small-scale residential structures repeating each other in their forms. Although the buildings were built side by side, each had its own walls. It is a different practice to separate the residential-type structures from the walls in Girel Kalesi and Ören Avlusu in the west, and Kaplan Kalesi in the east of the peninsula.

The dominant practice within the fortified settlements is side-by-side placement of the structures. Side-by-side placement means kinship and solidarity against the enemy. This occurs so naturally that streets and courtyards are formed by themselves. The democratic scale that appears in the building dimensions does not allow to distinguish the examples with managerial or high-level status from the structures where ordinary people live. What is determinative is the limited demographic structure organized for settling in a limited area. The distribution of Lelegian hilltop cities over large areas is related to the fact that the settlements allow only a limited number of populations. Structures with different functions can only be identified when they are under close scrutiny[88]. In the Lelegian settlement model, the necropoleis

[88] Among these, Çilek Kalesi and Örenavlu structures were defined by Radt (1970, 82 f.) in this function with their size and location in the citadel.

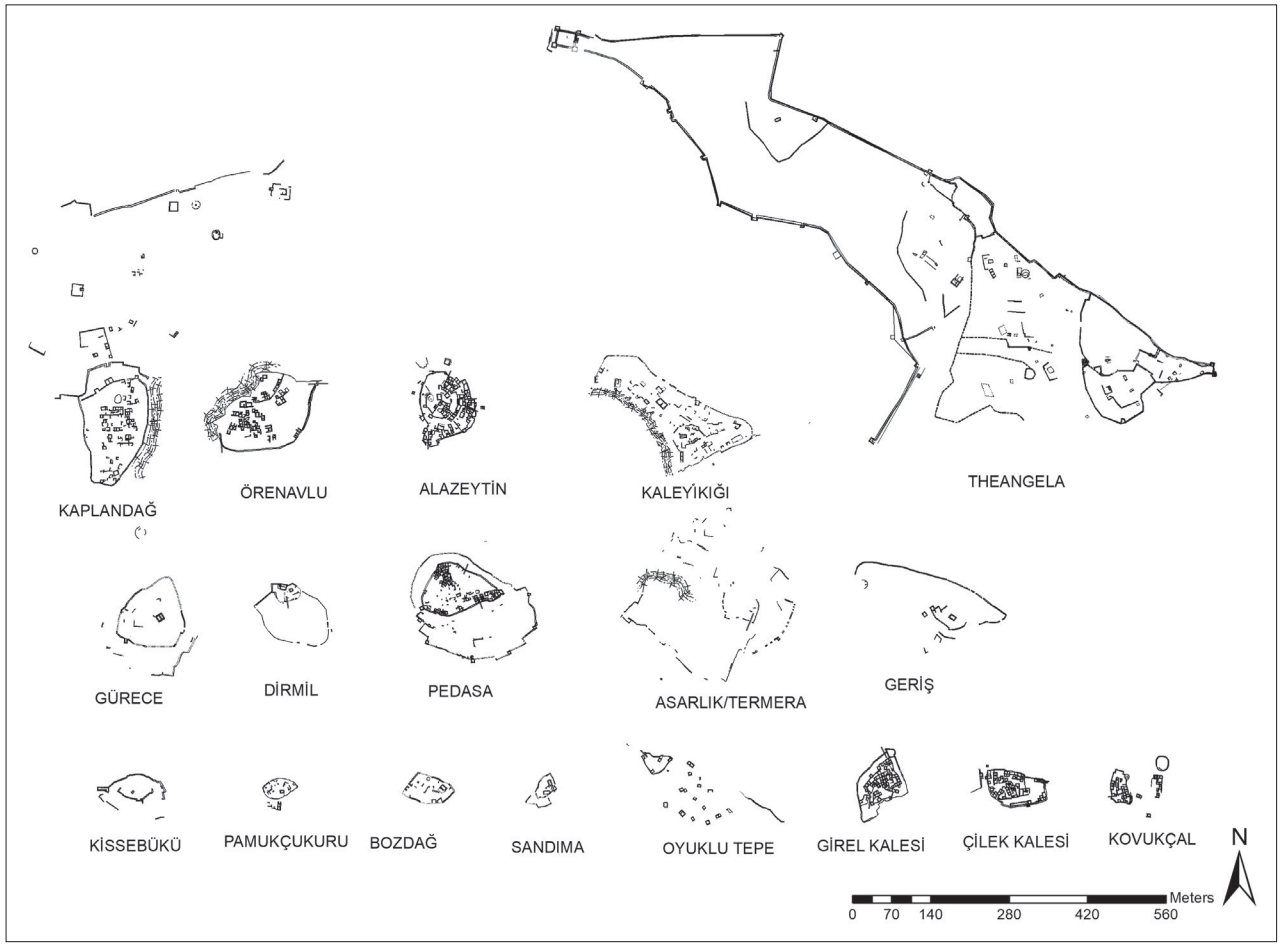


Fig. 47: Plans of Lelegian settlements in same scale (A. Diler – Ş. Gümüş)

were outside the main settlement. On the other hand, the tombs within the settlement center like in Termera, Theangela, Alazeytin and Kissebükü owe their existence to the privileged people with dynastic status as their owners.

What draws our attention about the city walls and defense structures is that the basic fortifications such as the tower and bastion, which became widespread with the Hellenistic Period, were not so common before Maussollos. The tower on the side of the gate in the main settlement in Kaplandag, Pedasa, Madnasa (Gölköy), and the main towers and the bastions on both sides overlooking the settlement plateau to the north of Kaplandağ Yıkıklı Tepe are rare examples that fulfill the task of defense and control. According to the excavation data, the towers of the *dipyrgon* in the inner castle and the gate tower and bastions on the outer city-walls of Pedasa are definitely before the time of Maussollos[89] . This also applies to the bastions on the Alazeytin walls[90].

[89] F. Winter (1971,152 f.) suggests that the towers of late Archaic Buruncuk (Larisa) in the Aiolis the castle of Policrates in Samos and the Miletos towers from the late 7th to the early 6th century are the earliest examples that fulfill the real tower function. Gate-towers of Padasa circuit should be also evaluated in this context.

[90] Pimouguet-Pédarros (2000,141) says that the Alazeytin castle was built after the Persian destruction. We can think that Alazeytin Castle was built in the same construction phase, except for some arrangements on the tower and citadel from the time of Maussollos. The idea that the city might have been built after the Persian destruction seems unlikely to us. Most of the changes must have been made in the 6th and 5th centuries before the time of Maussollos.

L. Karlsson[91] says that the double corner bond technique seen in the time of the Hekatomnids was brought by stonemasons from Peloponnesos and Sicily. P. Pedersen[92], on the other hand, supports this view based on the technical and architectural requirements of the new building program of Maussollos and states that the impact of the Ionian Renaissance should also be observed in other areas. The most important change on the towers after the time of Maussollos is that they were separated from the walls during the Hellenistic Period, the earliest examples of which can be seen in the city walls of Halikarnassos. The main reason why the lower parts of the tower and bastions below the walking ground outside the walls have earth packing is that they should have been completely static and resistant to external attacks. The examples of such practices dated to pre-Maussollean period on the peninsula, which were investigated by excavation, were unearthed at Pedasa.

The Gates and the Defense of Citadel

Regardless of their size, the rows of rooms lined up in front of the city wall and the room/chamber groups built on the right and left side of the entrance gate were arranged as a part of the defense system (Fig. 48). We can exemplify this with the room adjacent to the southern outer wall of Girel Kalesi[93], and the western main gate of the inner castle. The courtyard behind the western gate of Girel Kalesi and the curvilinear bastion built right behind it and the two-storeyed adjoining structures accessed by the stairs behind it, as Radt mentioned[94] supported the defense. Thus, even if the enemy reached the main gate from the western side where the fortification is weakest, they would have to cross the strong defense line in front of the gate-rooms flanked on both sides and the secondary defensive structures behind the courtyard at the back. The defense of the entrances with gate chambers on both sides are not only the case in large settlements with urban character, but also in refuge forts without a building density that indicates a continuous settlement[95]. In order to enter through the 1.50 m wide door in the Kocaören refuge castle which lies in the Pedasa territory and constitutes a full circle with a diameter of approximately 58-60 m with a 2.00-3.00 m thick solid outer enclosure wall, it was necessary to pass through a room built behind the door.

The gates of the Lelegian settlements were typologically evaluated by W. Radt[96] Another noteworthy practice in the small-scale citadel gates is that the side walls are strengthened by increasing their thicknesses, even if there is no gate tower or gate chamber on the sides - as seen in the eastern gates of Çilek Kalesi and Örenavlu. It is an important feature for the layout of the Lelegian citadel gates to be pulled backward and to be equipped with a courtyard in the front and a gate tower on the east side like that in the south main gate in Alazeytin Kalesi[97]. The rooms adjacent to the gate most likely functioned as part of active defense. The rows of rooms behind the main gate were part of the defense system, which, as W. Radt rightly suggested, prevented the enemy from accessing

91 Karlsson 1994, 151; Pedersen 2010, 314.

92 Pedersen 2010, 314.

93 Radt 1970, sup. 2 nos 9–11.

94 Radt 1970, 78–80.

95 Radt refers to the enclosures as fluchtburg, where rural people, who are mostly engaged in animal husbandry, take shelter in case of any kind of attack, spreading over large lands without buildings. Radt 1970, 104 f.

96 Radt (1970, 136) proposes three main types of entrances in the Lelegian citadels.

97 Radt 1970, 134 fig.14.

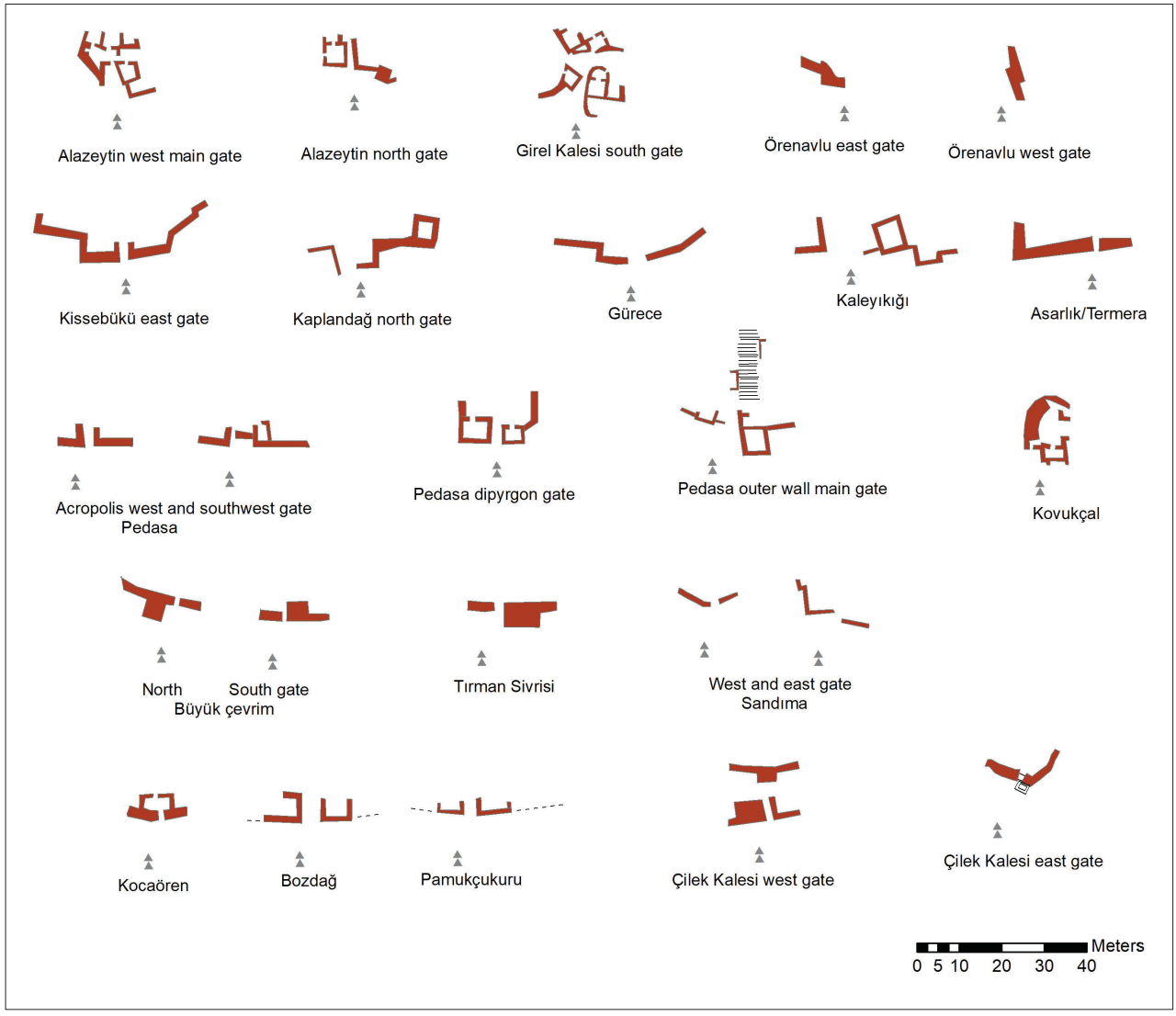


Fig. 48: Plan of gates (A. Diler – Ş. Gümüş)

the city[98]. It was customary for Lelegian settlements to prevent the access of the enemy to the city center with barrier walls having the characteristics of *proteichismata.* While these *proteichismata* separated the settlements from the courtyards where the herds sheltered at night.

It was another common practice to create a long corridor by turning both ends of the citadel entrances of the city walls inward. At the western gates of Pedasa[99] and the Çilek Kalesi access is provided through a narrow corridor, where there is neither a bastion nor a tower in front or the sides of the gates. Perhaps one of the most important arrangements regarding active defense is to provide security with a single tower/bastion on the outer side of the entrance gate, which can be seen at the

[98] It is of particular significance to strengthen the city gates with front defense since they are weak against to attacks. The defense barriers constructed in front of the northern gate of Kaplandağ and the western gate of Çilek Kalesi were the Iron Age followers of the proto-models seen in the Hittite defense system at Boğazköy Yerkapı in the 2nd Millenium BC in Asia Minor. For Hittite examples, see Maner 2019, 128–129 Pl. 6.

[99] Özen-Kleine 2021,192 f.

southern outer gate of Pedasa (Fig. 21), Eastern Gate of Çilek Kalesi (Fig. 11)[100], as well as at the northern gate of Büyük Çevrim[101] and at Tırman Sivrisi[102] fortress.

The spaces built in front of the circuit walls in the citadel were considered as an important auxiliary element of the Lelegian defense system. This phenomenon has also been the main factor in the planning and construction of such structures together with the city wall. In the gate arrangement of Kovukçal, the main entrance gate of the citadel was built within the wall where the city wall turns with a right angle, to provide a defensive advantage (Fig. 12).

We see an interesting example of the defensive arrangement of the gates in the Lelegaian settlements in Cilek Castle in the east of the peninsula. Çilek Castle has four entrance gates, two in the south and the other two in the north and west (Fig. 10). The wall that turns with a right angle on the east side of the southwestern gate, which acts as the main gate, provides a defensive advantage to the gate. This gate gives access to an open area. The inner castle enclosure/barrier wall was built thinner than the 2.30-3.00 m thick outer wall and was separated from the outer wall by a courtyard which was deliberately left empty. There is a gate chamber on both sides of the entrance gate which can be reached from this courtyard. The gate chamber on the east side, which is larger than the other, can be accessed from its backside. The inward protruding room on the west side, though smaller, was extended towards the courtyard. The gate rooms on the left and right were flat and probably higher than the inner circuit-wall. It is clear that the gates reached by stairs[103] would provide a great advantage from above for fights in both the front and rear courtyards inside the citadel. The entrance on the northwest is approximately 10 m lower than the outer enclosure wall. In order to reach the gate, it is necessary to pass over the fortification wall with a gate built on a steep slope of approximately 30 m. The end of the southern extension of this fortification wall, which forms a front barrier, was extended inwards (Fig. 10). The northern side wing of the door, on the other hand, is equipped with a door room on its longer side, which, together with the wall extension opposite of it, forms a corridor. Another arrangement that supported the west fortification is the 2.66 x 4.80 m room which served as a bastion.

The east gate is one of the most important entrances which gives access to the city from the east. The gate lies at the corner where the northern and eastern walls meet. The northern walls built on the sloping ridge were built thinner (1.20 m) than the eastern walls, which are approximately 3.00 m thick, taking advantage of the steep terrain in this direction. On the other hand, it seems that the walls oriented towards the gate were also built thicker, just like the south wing. The cluster of rooms lined up behind the gate also served for the security of the entrance, as seen in other Lelegian settlements. The fact that the 1.50 m wide gate was blocked with stone walls and reinforced with a bastion or tower-like structure must only be related to this. Here, large-sized stones were used, as usual in the bastion-type structures.

In the case of only one bastion or tower at the entrances of the citadel, then having the citadel gate to the right gives a disadvantage for the enemy and an advantage for the defenders. The best example for this is the southern gate of the outer wall of Pedasa (Fig. 21). According to our research results, probably during the Peloponnesian wars at the end of the 5th century BC, the main gate of the outer walls, which directly gave access to the citadel, was blocked to prevent the enemy gaining

100 Radt 1970, sup. 4 no. 56.

101 Radt 1970, 112 fig. 12.

102 Radt 1970, 134 fig. 14 no. 14.

103 Radt 1970, 86-87 sup. 4 no. 2.

direct access to the citadel via the paved road. Access to the lower city of Pedasa was achieved only by a smaller door, which has been shifted to the west side of the tower[104]. Our excavations helped us to acquire some data about the history of the period when the main entrance at the south gate of the outer wall of Pedasa was closed up and a tower was built on it[105].

M. Şahin makes a historical synchronization by comparing the "L" shaped entrance gate, where the entrance of the castle is retracted behind the city wall, together with the fortification structure that he interprets as the "Lelegian technique" on Kocadağ in Myndos, with the mainland Mycenaean citadel walls[106]. It was found interesting by the researcher that the entrance gate was not related to the north and south ports that were used later.[107]. However, hiding the entrance in this way should have been aimed at preventing the door from being a target in case of an attack from the sea.

The Oyuklutepe citadel to the west of the territory of Pedasa is an important example of the defensive use of castles on mountain plateaus. Apart from being used for defense, it is not possible to explain the reason that the structures were placed on the corners of the settlement, which is in the form of a rough triangle with rounded corners, lying on top of the 300 m high mountain at Oyuklu Tepe (Fig. 23). The absence of any building inside the fortification, except for one example, indicates that the interior was reserved as a human and animal shelter. Independent dwelling-type buildings with living spaces consisting of one or two rooms are scattered over an area of 100 m in the east and south of the fortification.

The fortified acropolis of Termera, one of the Lelegian settlements joined to Halikarnassos, differs from the Lelegian settlements on the eastern side of the peninsula, together with Pedasa. However, this difference is valid only for the acropolis settlements of these two cities, which took their final form in the Archaic period, which is relevant to our subject. Otherwise, the rural structures, stone tumuli, and platform tombs representing the Lelegian identity in the territories of both cities do not differ.

If we consider the lands of Pedasis[108] as the historical-geographical center of the peninsula, we can say that the main difference between the fortifications of the settlements to the east and west of it is due to the physical structure of the region. The ease of cutting the slate stone used in the area with the center at Alazeytin to the east of the peninsula has led to a more regular technique in both the building and the city walls. However, the hard volcanic andesite and limestone rock formations in the west of the peninsula created coarser workmanship.

The common aspect of Pedasa and Termera is that during the time between the Geometric and Archaic Ages, their small settlements were united around strong centers and became larger fortified settlements consisting of an inner castle and an outer castle. To these, we can also add yet unidentified Dirmil and Gürece (Telmissos?) settlements to the west of the peninsula. Among these settlements, Pedasa stands out with its fortification and defense structures, which draw attention with the increase in the number of towers and bastions that took shape in the 6th and 5th centuries BC.

104 See the article of Adıgüzel – Yıldız article in this book.

105 The important change in this main gate of the city probably took place at the end of the 5th century BC, during the Peloponnesian wars and the subsequent restructuring in Karia.

106 Şahin 2009, 503 f. 505 Abb.3. Lohman dates the "L" shaped gate of the Zeytin Mountain ring wall in the Latmos Region back to 7th/6th BC. century. Lohmann 2019, 68 f. Abb. 9.

107 Şahin 2009, 511; H. Lohmann (2019, 168), referring to Naumann, states that the tradition of this type of gates has been known since the Late Bronze Age. The walls of the Zeytin Dağ ring city wall settlement near Pınarcık are 2.30 m thick. According to Lohmann (2019, 162 Abb. 4) such gates served as bastions and gave great support to passive defense.

108 Strabon (13, 1, 59 [C 611]) states that the Pedasa land were called Pedasis during his time, in his reference to "Pedasians lived inland from the coast beyond Halikarnassos" see: Hdt. 1, 175.

So much so that this structure is not seen in settlements such as Gürece and Burgaz, which were equipped with watch and control towers during the time of Maussollos. The inner and outer wall fortification model seen in Pedasa are the prototypes of the *Geländemauer* type large circuit city walls which were seen for the first time during the time of Maussollos. In addition, the *dipyrgon*, which was built as a residence for the dynast in the acropolis of Pedasa, is also the forerunner of the *tetrapyrgon* structure in Theangela[109] which was re-planned during the reign of Maussollos on the peninsula, according to the results of our research.

The reinforcements made on the outer walls of Pedasa at the end of the 5th century BC are not identified in other Lelegian cities[110]. Depending on the development of defense systems, reinforcement of the fortifications and the gates by towers on the walls gradually increased by the Late Classical Period[111]. However, Lelegian cities always had wide viewing angles from their locations[112].

In Alazeytin, Kaleyıkığı, Girel, Örenavlu, Çilek Kalesi and other settlements mentioned in the text, the defense concept that constitutes the inner castle was mostly in the form of adjoining the structures with each other and filling non-built areas with walls[113]. A complex city plan was designed as a defensive strategy to prevent the attackers to reach the city center. Against the new war and defense techniques developed after the Archaic Period, the use of towers and bastions in Lelegian cities is not common except for Pedasa, Kaplandag and Alazeytin. However, the placement of one or two towers at points with a strategic view from the inner wall is a post-Maussollan practice.

A common feature of the Western Anatolian Archaic and older Iron Age settlements with simple walls, which can be seen in a wide area starting from the Troas to the Karia is that they were weak in terms of surface ceramic finds and were built in a single settlement phase. The most important feature of the pre-Archaic citadels is that they consist of small settlements spread over hills. This pattern, which we clearly see in Lelegian settlements such as Pedasa and Kaplandağ, is also characteristic for Karian cities of the same period[114]. In these settlements, tower-like structures were built close to the gates in order to strengthen the entrances[115].

109 Studying the Karian Palaces, A.M. Carstens questions whether the *tetrapyrgon* of Latmos should be called a residence for local ruler, or keep, a stronghold of fortification as a palace, based on the fact that the *tetrapyrgon* of Latmos constituted a palace. According to our research, special structures such as the Pedasa *dipyrgon* and *tetrapyrgon* at Theangela, which are located at the prestigious point that separate the ruler from his subjects and their structures in the Lelegian inner castles, cover all of these definitions. However, although it lacked the temples and magnificent andoron-like structures in the Hekatomnid palaces in Halikarnassos and Labraunda, these functions were probably fulfilled by much simpler structures. For this reason, we would like to call the structures in the Lelegian citadels as administrative/residence buildings. See. Carstens 2013, 369 f.

110 See Adıgüzel – Yıldız article in this publication.

111 Nicholls 1958, 119; The eastern and western castle settlements of Larisa (Buruncuk) near Hermos in Aiolis Region are important in terms of supporting the gates with towers and for the increase of the towers with the classical age see: Saner – Sağ – Denktas 2016, 159 f. Figs. 3. 8.

112 Alazeytin and Pedasa differ from other cities by multiple towers and bastions added to the wall.

113 The settlement model and defense system are associated with Northern Syria, see: Radt 1970, 130 f.; Nicholls 1958, 116 f.

114 According to the data of the city wall excavations by B. Schmatz in the city of Kaunos, the settlements established on separate hills, each of which was shared by independent influential peoples, constituted the Archaic age settlement model of Kaunos, see: Schmaltz 1994, 185 f. According to Özen – Özen-Kleine (2019, 207) the focus of the Archaic settlement in Kaunos was on the northern and western slopes of the Acropolis, which was not inhabited much. On the other hand, the Acropolis, which was fortified with strong and high walls, functioned as a shelter in danger.

115 Becks 2014, 170; Saner – Sağ – Denktaş 2016.

Among the Lelegian citadels, the rock-cut bowl located in the middle of the narrowed second phase southwestern entrance gate of the Pedasa citadel is noteworthy as a part of the gate arrangement that welcomes the people passing through[116]. The pit carved in the shape of a bowl into the bedrock block of 1.00-1.10 m in length at its widest part, on the entrance walkway, has a diameter of 0.43-0.38 and a depth of 0.20 m[117]. The rock-cut bowls on the northern and front side of the Strobilos' acropolis main door and similar offering bowls next to the Dirmil entrance gate are interesting examples for relating them with a cult. Giving meaning to the main city gates with the cult is a Hittite tradition of the ancient Anatolian 2nd millenium, and evidence to establish such a relationship has been found with on the Büyükkale Yerkapı and sphinx examples[118].

The two walls formed by cyclopean blocks joining with the northern outer wall of the settlement identified to the northeast of Büyük Keneli Tepe by W. Radt were interpreted as a "land boundary wall"[119]. The important feature of such practices, similar to those seen in Çilek Kalesi (Fig.10), Kovuçal (Fig. 12), and Pedasa Çamtepe necropolis, is that large cyclopean stone blocks were placed like orthostats[120]. Adjoining structures forming lines or independent structures joining the enclosure wall serve like a fortification. The dema (barrier) walls in front of the closed defense line formed by the adjacent spaces on Büyük Keneli Tepe[121], which spans an area of 50x50 m, separate the buildings according to their property status and land use.
One of the most important features of the large fortified Lelegian settlements is that they may have provided shelter to those living on farms far from settlements during times of trouble. There are no towers or front garrisons to support the defense system around the Lelegian settlements. At this point, in addition to the wide viewing angles of the high hilltop settlements, the compounds built on the high hills may have served as watch and control towers.

When it comes to fortifications and defense systems, it is necessary to dwell on the building terminology such as castle/settlement, refuge castle and enclosure, and the building types they define. W. Radt defined the castles with little or no building density as fluchtburg (refuge castle) where the rural population took shelter for protection during the war[122]. First of all, it is necessary to consider the fortified settlements with very low building density, such as Oyuklu Dağ and Kışla Dağ located in rural areas, as places where the rural population lived constantly, not as a shelter in case of war and attack. Almost all of the mountainous areas of the peninsula are largely used by the rural population as a livelihood based on animal husbandry. These should not have been used against enemy attacks during wartime, but against tigers, panthers, and jackals, whose existence is known until the 1970's. Another reason for this is that these enclosure walls are never as protected as settlement walls.

Our long-term research has provided some information about the boundaries of the Lelegian

116 For the gate rituals in the settlements and the Pedasa offering bowl, see. Diler – Adıgüzel 2015, 87 f. fig. 9.

117 Our work showed that this gate block on the acropolis entrance axis was used for offering purposes as a continuation of an old 2nd and 1st millennium tradition in Anatolia. For the similar offering bowl examples in the building entrances attributed to Lelegians, see. Benoit 2015, 75–78 Fig. 2.

118 See: Maner 2019 52–53; M. Korfman (1998, 471 f.) states that the stelae and altars in front of the city gate of Troy are common in Anatolia, Syria and Mesopotamia.

119 Radt 1970, 103 Taf. 24, 4 Beil. 6.

120 The type called *haimasa*, which was constructed as a thicker double face wall of this type, which was filled with rubble stones and whose height is less than 1.50 m, were used intensively especially in ancient agricultural lands.

121 Radt 1970 Sup. 6.

122 Radt 1970, 104–114.

settlements, examined with their fortifications. If we need to give an example of some of these, for example, the territory of Kaplandağ, whose approximate borders are determined by the farmhouses, tombs, and the fortification wall that borders the territorial plateau from the west, is 300 acres, Pedasa 10100 acres, and Termera is 6200 acres. The acropoleis of cities such as Pedasa and Termera, which have outer walls, probably covered a smaller area before the Archaic Age.

Another important common feature of the peninsula Lelegian settlement fortifications is that they have a homogeneous appearance, although there are differences in wall techniques depending on the geological structure of the stone used. However, we do not see this feature in cities such as Theangela and re-planned Halikarnassos, which were not united with Halikarnassos after Maussollos. The new siege techniques, started with Satrap Maussollos and continued its development throughout the Hellenistic period, and especially the re-use of the walls, which were destroyed by natural external effects such as war and earthquake in a long time, with pragmatic approaches[123], led to the emergence of heterogeneous appearances and applications contrary to the wall techniques and the nature of the stone.

As in all over Karia, the settlements consisting of large prestigious buildings and strong walls must have been united with settlements such as Pedasa, Madnasa, Theangela, which were under the rule of more powerful rulers, during the Persian threat in the 6th century BC. The capital city Halikarnassos, Theangela and Myndos[124], which were rebuilt in the *geländemauer* model during the reign of Maussollos, represented a new model of fortification. Maussollos reconstructed these strategically important castles on the peninsula together with Halikarnassos. These cities not only represent an important development as to the dimensions of their fortifications but also with the use of the double corner bond technique in the towers and bastions. And this became the pioneer of a new model for the application of the same technique not only in the peninsula but also in cities such as Kaunos, Knidos, Herakleia, Alinda, Alabanda, and Theangela[125]. We should also add that it should not be overlooked that the compounds, which were spread all over the peninsula and on all the mountain and hill ridges and which dominated the entire topography from land to the sea, may have been used as part of the defense network.

Prof. Dr. Adnan Diler – Dr. Şahin Gümüş
Muğla Sıtkı Koçman Üniversitesi,
Arkeoloji Bölümü
TR-48000 Kötekli / Muğla

123 B. Schmaltz (2010, 321 f.) explains the similar situation he identified in the coastal Karian city walls of Kaunos, with justified reasons, with the results of the 227/6 great Rhodes earthquake. Another point that draws our attention here is that the similar appearance caused by the use of spolia materials of the walls, which were destroyed many times, was similarly seen in the walls and towers unearthed between Salmakis and Myndos Gate during the excavations made in 2021 on the walls of Halikarnassos.

124 Strab. (13, 1, 59 [C 611]) identifies Myndos as a Lelegian city. According to Paton and Myres (1869, 204) Myndos never had a Lelegian necropolis and was a complete Hellenic city. Bean and Cook (1955, 111) say that Palaia Myndos is in Bozdağ and the town paid 1/12 talents of tax in the 5th century BC. See: Hornblower 1982, 365. Strab. 14, 2, 16 (C 656); Paus. 2, 30, 9 and Vitr. 2, 8, 12 reports that Halikarnassos and Myndos were founded by colonists of Troizen.

125 P. Pedersen (2010, 314–315) says that there must be supplementary criteria for the double corner bond technique, which was seen during the time of Maussollos and used until the 3rd century BC, to be attributed to the time of Hekatomnids.

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Neue Forschungen zur Stadtmauer von Kaunos

Soner Özen

Abstract

Due to its relatively good state of preservation, the Kaunos city wall attracted the attention of early travelers and researchers, who described individual sections or recorded them in drawings and photographs[1]. B. Schmaltz focused largely on the city wall, carried out surveys in its various sections and laid out soundings at a number of different points. He published his descriptions and theories on dating in several articles[2]. B. Özen-Kleine and the author examined the fortification walls on the Acropolis between 2013–2014 and laid out soundings at various neuralgic points as well. The results were published in two papers[3]. The author also carried out surveys and excavations in the remaining wall areas of the city fortifications between 2015 and 2019[4]. Furthermore, as part of this work, important sections of the wall were recorded by photogrammetry. The latter part of this contribution below reflects the preliminary results of these studies.

Die Topographie von Kaunos ist durch Berge und Hügel geprägt, die das eigentliche Siedlungsareal an drei Seiten begrenzen (Abb. 1)[5]. Im Norden liegt der *Balıklar Dağı*, der ein Teil des *Ölemez*-Bergmassivs ist, im Süden begrenzen die sogenannte Große Akropolis und die Kleine Akropolis

[1] Für die frühen Erwähnungen der Stadtmauer s. Schmaltz 2006, Anm. 1–4.

[2] Schmaltz 1991; 1994; 2003; 2010.

[3] Özen-Kleine – Özen 2015; Özen – Özen-Kleine 2019.

[4] Özen 2019.

[5] Mein herzlicher Dank gebührt in erster Linie dem türkischen Kulturministerium, das uns nicht nur die Erlaubnis zur Durchführung der Forschungen an der Stadtmauer von Kaunos erteilte, sondern unsere Kampagnen vor Ort auch logistisch unterstützte. Nicht weniger dankbar bin ich dem Grabungsteam von Kaunos, namentlich Münife Doyran, Prof. Dr. Adnan Diler und Prof. Dr. Cengiz Işık, das unsere Arbeiten in Kaunos in jeder Hinsicht tatkräftig unterstützt hat. Dank verpflichtet bin ich auch der ehemaligen Leiterin des Lehrstuhls für Klassische Archäologie an der Universität des Saarlandes, Prof. Dr. C. Reinsberg, die uns sowohl die Aufarbeitung der Kampagnen im Saarbrücker Institut ermöglichte, als auch stets mit Rat und Tat zur Seite stand. Ebenfalls bedanke mich herzlich auch bei meinem Lehrer Prof. Dr. B. Schmaltz, der uns den topographischen Plan von Kaunos zur Weiterbearbeitung zur Verfügung gestellt hat. Für die finanzielle und weitere logistische Unterstützung der Kampagnen in Kaunos danke ich der Firma Bentour-Reisen in Zürich, dem *Mediterranean Civilizations Research Institute* in Antalya und Universitäten *Başkent* in Ankara und der Universität des Saarlandes in Saarbrücken. Mein besonderer Dank gilt Nils Schorr, M. A. und A. Gürer, die beide durch ihre Drohnenaufnahmen die Mauerzüge in schwererreichbaren Höhen für mich zugänglich gemacht haben. Schließlich danke ich Doç. Dr. U. Çörtük und Dr. Ş. Gümüş für ihre Vermessungsarbeiten an der kaunischen Stadtmauer sowie S. Kreber, U. Eken, E. Özer, Y. Jakobs, Ö. Şamlı, A. Şanslı, O. Bal, J. Tregellis, H. N. Çağlar, V. Çapan, F. Brill, L. Henrich, J. Geisthövel, L. Braun, E. Kart, M. Seiwert, F. Brill und I. Mittag M. A., die nicht nur die Grabungsarbeiten in Kaunos begleitet, sondern auch die fotogrammetrischen Aufnahmen der kaunischen Mauerabschnitte gemacht und anschließend Zeichnungen angefertigt haben.

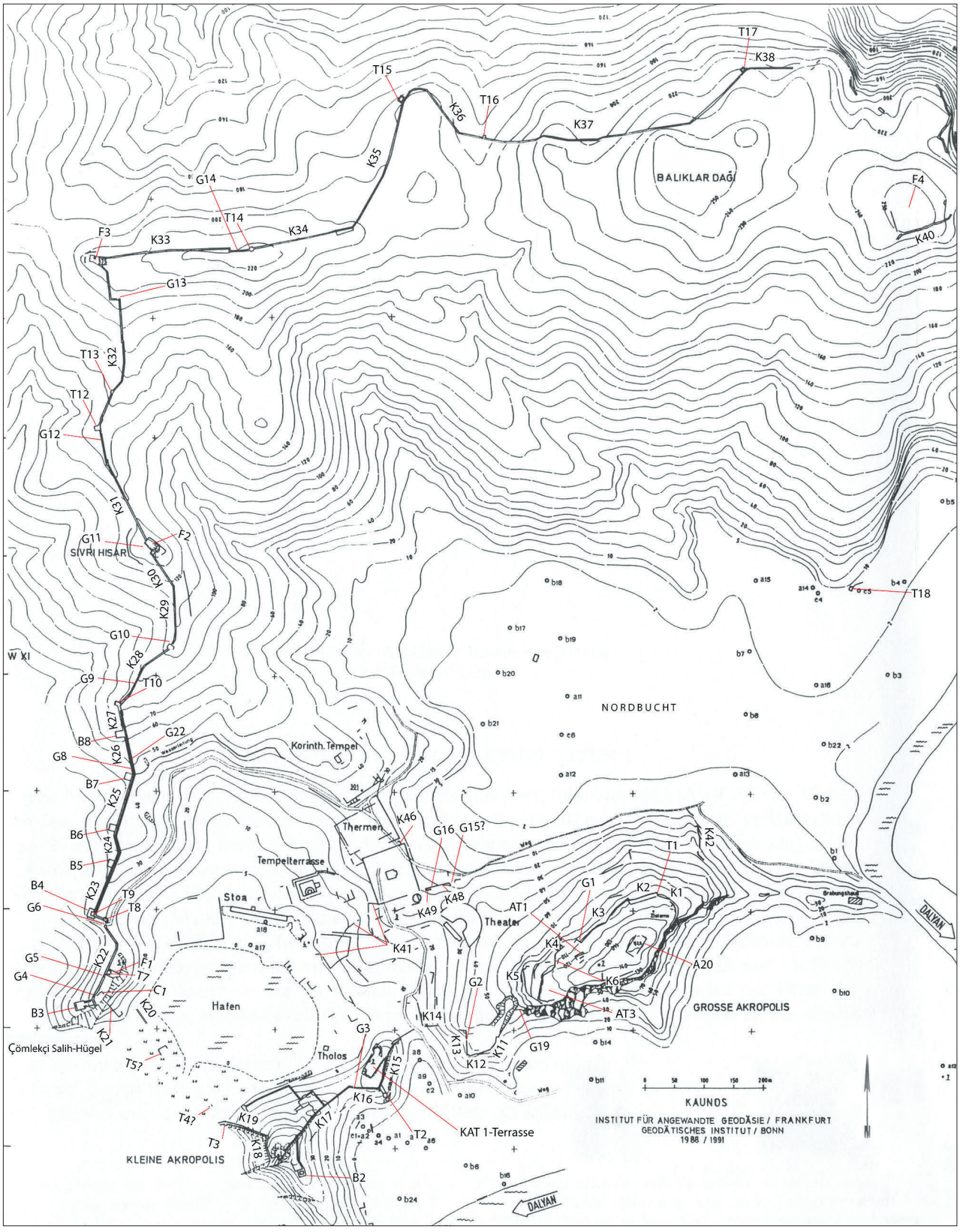


Abb. 1: Geänderter Stadtplan von Kaunos (Ursprünglicher Plan: B. Schmaltz, AA 1994 Abb.1)



Abb. 2: Entdeckte Mauerabschnitte auf der Großen und Kleinen Akropolis und in deren näheren Umgebung (Plan: S. Özen)



Abb. 3: Blick auf die beiden Akropolen mit ihren Mauerabschnitten (A. Gürer)

das Stadtgebiet[6], die über einen Geländesattel miteinander verbunden sind. Die Kleine Akropolis reicht bis an den antiken Hafen heran (heute *Sülüklü Göl*), an dessen westlichem Ufer sich ein weiterer Hügel erhebt, der den Rufnamen „*Çömlekçi Salih-Hügel*" trägt. Weiter nach Norden hin steigt der *Sivri Hisar* an, der ebenfalls einen Ausläufer des *Ölemez-Massivs* darstellt.

Das kaunische Befestigungssystem gliedert sich der beschriebenen Topographie folgend in drei Teilbereiche: die Befestigungsanlagen im Süden (K1–K19, Abb. 1–3), im Westen (K22–K32, Abb. 1. 4) und im Norden (K33–K38, Abb. 1). Anders als in diesen Bereichen konnte im Osten, ausgerechnet an der offenen Flanke der Stadt zur Nordbucht hin bisher nur spärliche Reste (K42. K46, Abb. 1–2) entdeckt werden, die nur vage auf einen möglichen Mauerverlauf dort hinweisen.

Befestigungsanlagen im Süden (Abb. 1–3, K1–K19)

Die Stadtmauer von Kaunos ist eine Geländemauer[7], die ihren südlichen Anfang am oberen Nordabhang der Akropolis (K1) nimmt[8]. Sie umschließt den Gipfel an drei Seiten (Abschnitte K1–K5, „Gipfelmauer"), läuft am Westabhang des Hügels hinab und quert die Senke zwischen

[6] Die beiden Bezeichnungen „Große Akropolis" und „Kleine Akropolis" haben sich in der Forschung als Rufnamen etabliert und werden auch hier weiterhin verwendet. Es ist allerdings anzumerken, dass für den kleineren Berg die Bezeichnung „Akropolis" irreführend ist und durch eine andere Bezeichnung ersetzt werden sollte.

[7] Für die frühen Erwähnungen der Stadtmauer s. Schmaltz 1994, Anm. 2.

[8] S. Özen-Kleine – Özen 2015, 79 Abb. 4–5; Özen – Özen-Kleine 2019.



Abb. 4: Westmauer, Mauerabschnitte K31 und 32 inkl. Türme T 12 und T13 (N. Schnorr)

den beiden Akropolen (K11–K14)[9]. Von dort aus verläuft sie zum Gipfel der Kleinen Akropolis (K15–K17) hinauf, um anschließend über den Westabhang des Hügels den antiken Hafen der Stadt zu erreichen (K18–K19).

Gipfelmauer (K1–K5)

Die in ihrer frühen Phase ca. 1,8 m breite Mauer zeigt einen kurvigen Verlauf und sitzt auf einer Geländekante auf, die etwa 30 m unterhalb des eigentlichen Gipfels verläuft. Die Abschnitte K1–K4 (Abb. 5–6) sind im unteren Bereich - die oberen Lagen stammen aus späteren Reparaturphasen oder gehören zum byzantinischen Ausbau - aus meist polygonalen unbearbeiteten Bruchsteinblöcken unterschiedlichen Formats ohne Lagenbildung aufgeschichtet, wobei die Blöcke in den unteren Lagen nicht selten kyklopische Ausmaße erreichen. Die Lücken zwischen den Blöcken sind öfters mit kleineren Steinen gefüllt, die der zusätzlichen Fixierung und Stabilisierung der Blöcke dienen[10] (Abb. 6). Die Mauer besaß ursprünglich weder Türme noch Bastionen[11].

Der Eingang G1 (Abb. 7), der stark byzantinisch überprägt ist, war wohl aufgrund der topographischen Situation, der Größe sowie der unmittelbar auf das Tor Bezug nehmenden antiken Binnenbebauung auch in der Antike der Hauptzugang zur Akropolis. Das Tor wird durch einen ca. 8 m langen Versatz der Mauer in nördliche Richtung gebildet und stellt somit ein Tangentialtor dar. Mit dem Torbau verbunden ist heute noch ein Weg (Abb. 2, P), der zunächst parallel der Akropolismauer von West nach Ost den Hang hinaufführt, um dann nach einer Kehrtwendung direkt auf den Torbau zuzuführen. Der Weg wird ab dieser Wende an seiner Südseite

[9] Die beiden Zitadellen dort sind wahrscheinlich mit den überlieferten antiken Bezeichnungen „Persikon“ und „Herakleion“ zu identifizieren. Zur Diskussion s. Pimouguet-Pédarros 2000, 246.

[10] S. Özen-Kleine – Özen 2015, 80 Abb. 6–7.

[11] Erhalten ist nur der byzantinische Turm T1(Früher A8, s. Özen-Kleine – Özen 2015, 79 Abb. 5).



Abb. 5: Gipfelmauer, Blick auf K3, 2
(B. Özen-Kleine)



Abb. 7: Gipfelmauer, Toranlage G1 vom Osten
(B. Özen-Kleine)

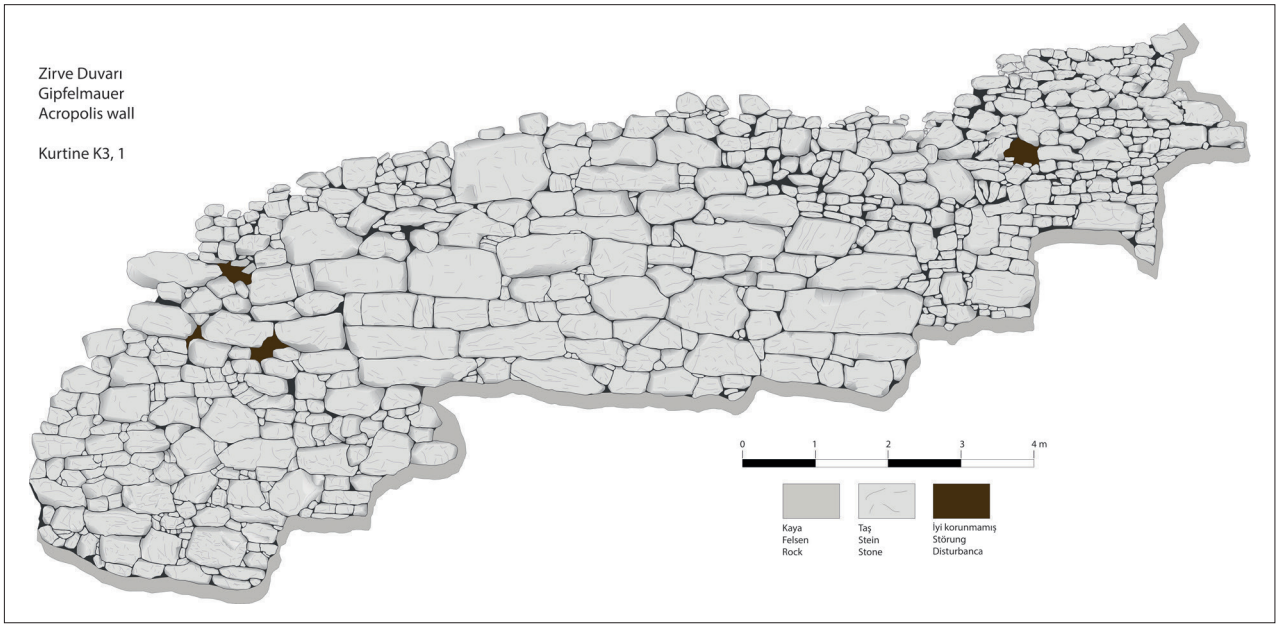


Abb. 6: Gipfelmauer, Zeichnung des Abschnittes K3,1 (Zeichnung: J. Tregellis; L. Braun)

von einer steilen Felswand flankiert, auf deren Oberseite die Akropolismauer verläuft und somit die vollständige Kontrolle des Zugangs zum Tor ermöglicht. An der Nordseite dieses Weges ist eine Stützmauer erhalten, die sich von der Kehrtwende bis kurz vor den Torbau verfolgen lässt und den letzten Abschnitt des Weges in eine Rampe verwandelt (Abb. 2, H1).

Zwei weitere Versätze in der Gipfelmauer im Bereich des Turmes T1 und des Abschnittes K3, 3 (Abb. 2. 8) weisen deutlich auf die Existenz von zwei weiteren Tangentialtoren in der frühen Phase der Akropolis hin[12]: Das eine Tor (G18) wurde offensichtlich erst in byzantinischer Zeit durch den Bau des Turms (T1) umfunktioniert, der im Norden und Süden direkt auf der frühen Mauer aufsitzt, während er sich im Osten, wo sich ursprünglich die Zugangsöffnung befand, auf einem neu aufgeschichteten Mauersockel erhebt, der reichlich Mörtel sowie eine völlig andere Mauertechnik als

[12] Auch die später in den Torgassen gebauten Sperrmauern, die sich durch die Mauertechnik deutlich von der frühen Mauer unterscheiden, weisen auf die ursprünglichen Zugänge in den genannten Arealen hin. (S. für die Mauertechnik der genannten Sperrmauern Özen-Kleine – Özen 2015, 81 Abb. 10 bei K3, 3).



Abb. 8: Gipfelmauer, Blick auf K2 mit T1, G17–G18 (A. Gürer)



Abb. 9: Gipfelmauer, Mauerabschnitte im Westen der Akropolis (A. Gürer)

die frühe Mauer aufweist. Dies ist ein Beleg für die Neustrukturierung des Zugangs in byzantinischer Zeit.

Auch das andere Tor (G17) wurde, wie die Sondagen vor den Mauerabschnitten (K3,3 und K3,2) eindeutig belegen, später zugemauert[13]: Anders als die frühe Mauer bestehen hier die genannten Abschnitte aus Blöcken, deren Auflager gut bearbeitet sind. Die Quader sind außerdem in groben Lagen geschichtet und weisen einen engen Fugenschluss auf. An einigen Blöcken wurden zudem Abarbeitungen vorgenommen, in die kleinere Blöcke passgenau eingefügt wurden[14]. Glücklicherweise konnte dieser Abschnitt – dadurch auch der Zeitpunkt der Schließung des Tors – aufgrund von Keramikfunden im Fundamentgraben ins zweite Viertel des 5. Jhs. v. Chr. datiert werden. Diese Datierung stellt zugleich auch den *terminus ante quem* für die Entstehungszeit der Gipfelmauer dar, die demnach spätestens im 6. Jh. v. Chr. errichtet worden sein muss[15].

Während der Verlauf und die Struktur der frühen Phase der Gipfelmauer an der Ost- und Nordseite weitgehend geklärt sind, ist ihre Gestaltung an der Westseite unklar, was vor allem auf die Umbaumaßnahmen der Byzantiner zurückzuführen ist. Die Mauerabschnitte, die im



Abb. 10: Gipfelmauer, byzantinischer Mauerabschnitt K4, 2 mit dem Zugang G20 (B. Özen-Kleine)

Westen in byzantinischer Zeit dem Befestigungssystem hinzugefügt wurden, sind K4,2 und K5,1 (Abb. 2. 9).

K4,2 zweigt von der älteren Gipfelmauer nach Süden hin ab und stellt somit eine Art Querriegel dar, der die westlichen Terrassenanlagen (AT4 und AT5) von der restlichen Akropolis trennt. Die Mauer besitzt einen schmalen Durchgang (G20, Abb. 10), der Zugang zu den unteren Bereichen des Westabhanges gewährt. An der Ostseite der Mauer verläuft zudem eine Treppe, die hoch zu einem Tor (G21) führt, welches den Eingang zu der oberen Terrasse AT3 bildet.

13 Özen-Kleine – Özen 2015, 80-82 Abb. 9–13.

14 Özen-Kleine – Özen 2015, 81 Abb. 10.

15 Özen-Kleine – Özen 2015, 80-81 Anm. 18 Abb. 10–13.

Auch K5,1 – das ist der südliche Abschnitt von K5 – scheint keine Vorgängermauer an dieser Stelle besessen zu haben. Denn während bei K5,2 in den unteren Lagen polygonale Blöcke der frühen Mauer zu beobachten sind, fehlen diese bei K5,1 vollständig, so dass die byzantinische Mauer bis auf den Felsen hinabreicht[16]. In der frühen Phase bestand demnach die Verteidigungsstruktur der Akropolis im Westen aus den Abschnitten K5,2 und K4,1. Allerdings lassen Felsabarbeitungen, die ca. 4-6 m weiter westlich von K5,1 identifiziert werden konnten, vermuten, dass dort ein weiterer Abschnitt (K5, 3, Abb. 2) verlief und dieser in byzantinischer Zeit mit dem Bau des Abschnittes K5,1 um einige Meter nach Osten versetzt wurde. Wie genau die Situation in diesem Bereich ursprünglich war und warum die Mauer K5,1 versetzt wurde, muss durch weitere Grabungen geklärt werden. Eine mögliche Erklärung wäre, dass die Enden der beiden Mauerabschnitte K 5,2 und K 5,3 ursprünglich ein weiteres Tangentialtor bildeten, das vom Westen aus den Zugang auf die Akropolis ermöglichte. Das Tor wurde in byzantinischer Zeit mit der genannten Neustrukturierung anscheinend in ein axiales Tor verwandelt.

Auffällig ist, dass sich auf dem Gipfel bis auf ein Heiligtum (A20)[17], nur wenige Bauten der Phase der Gipfelmauer zuweisen lassen. Deshalb ist anzunehmen, dass die Akropolis in archaischer Zeit vor allem als Fluchtburg fungierte, die vor allem in Gefahrenzeiten von den Stadtbewohner aufgesucht wurde[18].

Mauerabschnitte K11–K17

Unabhängig von der Gipfelmauer läuft ein weiterer Mauerzug (K11–K14) im Süden des Westabhangs der Akropolis den Berg hinab und umschließt am unteren Westabhang einen quasi quadratischen Platz (H2, Abb. 2.). Die Mauer quert anschließend den Geländesattel zwischen den Akropolen und verläuft über den Osthang der Kleinen Akropolis bis zum Gipfel des Hügels (K15–K17). Die Mauertechnik in den Abschnitten K11–K17 ist gut vergleichbar mit der der Gipfelmauer: Auch hier sind im Allgemeinen Mauerverbände aus polygonalen Blöcken mit kleinen eingeschobenen Steinen zu beobachten (Abb. 11–12). Allerdings erscheint das polygonale Mauerwerk, dessen Blöcke nun häufiger kyklopische Maße besitzt, insgesamt homogener als die Abschnitte der Gipfelmauer, da die Füllsteine bzw. Blöcke nun besser in die Lücken passen und die Aufschichtung aus einheitlicheren Polygonal-Verbänden besteht.

Teile der Abschnitte weisen allerdings spätere Reparaturen auf, die sich durch die Verwendung anderer Steine leicht erkennen lassen. Dies wird vor allem beim Abschnitt K16 deutlich (Abb. 12), der später zum Teil in den originalen Bereichen der Mauer repariert wurde. In den Abschnitten K11–K17 wurden bisher drei Pforten (G2, G3 und G19) identifiziert. Während die Pforte G19, die den Zugang auf die Akropolis vom Südosten aus gewährte, durch die in den Felsen geschlagenen Aufgangsstufen leicht im Gelände erkennbar ist, wurden die Pforten G2 und G3 durch Grabungen von B. Schmaltz und A. Dickers freigelegt und untersucht: Wie der Grabungsbefund zeigte, ist der Zugang G2 sekundär in die polygonale Mauer eingefügt und stammt aus dem 4. Jh. v. Chr.[19]

Der Zugang G3 (das sogenannte „Hafentor“) stellt die einzige bisher auf der Kleinen Akropolis entdeckte Pforte dar. Wie ihre erhaltenen Mauerreste belegen, war sie wie die Zugänge im polygonalen Teil der Westmauer in Kragsteintechnik

16 Özen-Kleine – Özen 2015, 80 Abb. 8.

17 Özen-Kleine – Özen 2015, 83; Schmaltz 1994, 208–211; Öğün – Işık 2001, 47–49.

18 Zum möglichen archaischen Siedlungskonzept, zu dem auch die befestigte Akropolis gehörte, s. Özen-Kleine – Özen 2015, 88–89.

19 Öğün – Işık 2001, 50–51 Abb. 29.

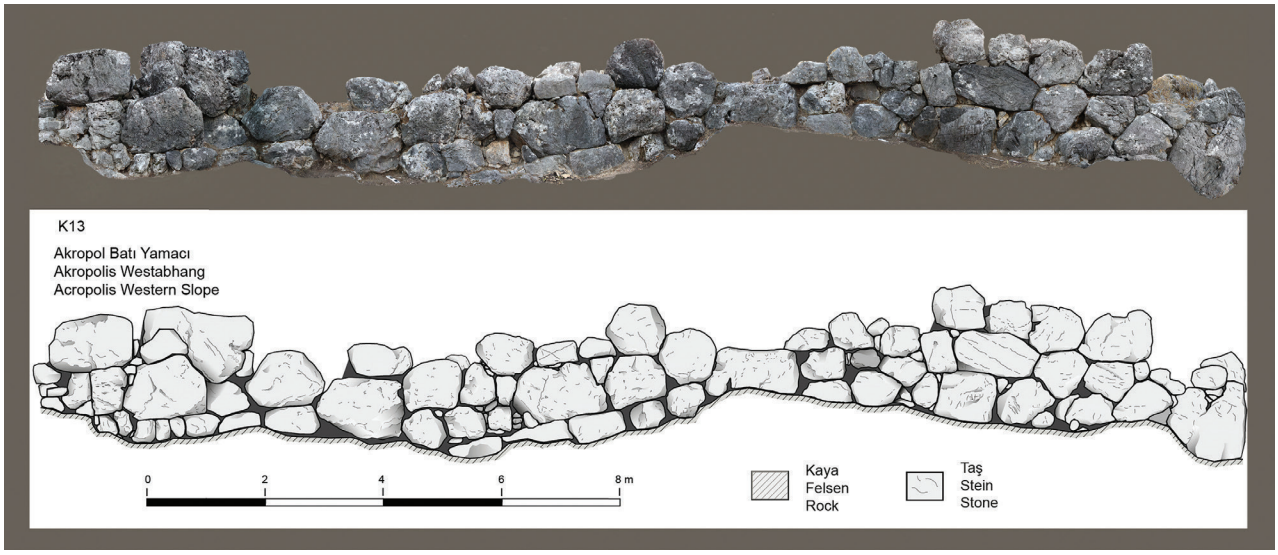


Abb. 11: Westabhang der Akropolis, K13 (Orthofoto: S. Özen, Zeichnung: L. Braun)



Abb. 12: Kleine Akropolis, K16 (Orthofoto: S. Özen)

gebildet[20] (Abb. 13). Obwohl dieser schmale Zugang durch Anlegen eines Grabungsschnittes detailliert untersucht wurde, konnte er nicht genau datiert werden[21]. Allerdings weist das archaische Material, das in der Nähe des Zugangs gefunden wurde, auf menschliche Aktivitäten in der Zeit in diesem Bereich hin[22].

In späteren Phasen wurden den Mauerabschnitten K15 und K17 ein Turm (T2, Abb. 2)[23] und eine aus Spolien errichtete Bastion (B2,

[20] s. unten G4–G5. G8.

[21] Dickers 1994, 204–208; Öğün – Işık 2001, 36 Abb. 20.

[22] Doyran 2000, 79–86.

[23] Schmaltz 1991, 125–130 Abb. 2 („Südturm“).



Abb. 13: Kleine Akropolis, G3
(Kaunos, Grabungsarchiv)

Abb. 2)[24] vorgelagert. Beide Bauten wurden durch Verbindungsmauern mit der Verteidigungsmauer der Kleinen Akropolis verbunden.

Die Errichtung des Turmes (T2) wird von B. Schmaltz auf den fortgeschrittenen Verlandungsprozess des von ihm angenommenen „S-Hafens" zurückgeführt, der südlich der Kleinen Akropolis gelegen haben soll und in spätklassische oder frühhellenistische Zeit datiert. Den Bau der Bastion (B2) dagegen bringt Schmaltz mit einem 227/6 v. Chr. stattgefundenen Erdbeben in Verbindung. Beide Ereignisse hätten die Verstärkung der Stadtmauer im Südosten der Kleinen Akropolis notwendig gemacht. Auf die These von Schmaltz wird weiter unten zurückzukommen sein.

Der Abschnitt K18, der den Gipfel der Kleinen Akropolis nach Westen hin befestigt, besteht aus polygonalen bis rechteckigen, grob bearbeiteten Blöcken unterschiedlichen Formats, die zum größten Teil in Lagen aufgeschichtet sind. Auch wechseln sich verschiedene Mauertechniken in kurzen Abständen ab und lassen die Mauer dadurch insgesamt inhomogen erscheinen. Der Abschnitt vermittelt generell den Eindruck, dass er mehrere Reparaturphasen in sich birgt (Abb. 14). Anders sind die Mauertechniken im Abschnitt K19: Oberhalb des Hanges, zu Beginn des Abschnitts ist die Mauer aus einem Gemisch überwiegend trapezoidaler und rechteckiger Blöcke gebaut. Bezeichnend für die Technik, die uns in Kaunos vor allem in der Nordmauer ab dem Abschnitt K36 begegnet, sind neben den gut bearbeiteten trapezoidalen und rechteckigen Blöcken die passgenau sorgfältig geschnittenen Steine, die die Zwischenräume zwischen den Blöcken füllen. Ferner sind dazu schmale horizontal verlegte Platten zu beobachten, die vor allem dazu dienen, Niveauunterschiede zwischen den Lagen ausgleichen (Abb. 15). Nach ca. 10 m ändert sich die Mauertechnik: Nun bilden langrechteckige, schmale Blöcke die Mauer, deren Fronten sich leicht vorwölben (Abb. 16). Die unteren Lagen bestehen aus größeren Blöcken, während nach oben hin kleinere Blöcke verbaut wurden. Bei den mittleren und unteren Teilen des Abschnittes K19, die ursprünglich wahrscheinlich in der letzterwähnten Technik gebaut waren, fehlen fast alle Blöcke des Mauerverbands. Durch Abarbeitungen im Felsen kann der Verlauf der Mauer allerdings bis an das Becken des Hafens verfolgt werden. Das sich verbreiternde Ende des Abschnittes lässt dort auch einen Turm (T3) vermuten, der wahrscheinlich zur Sicherung des Hafens diente (Abb. 17).

[24] Schmaltz 1991, 137–143 Abb. 4 („Südbastion").



Abb. 14: Kleine Akropolis, K18 (A. Gürer)



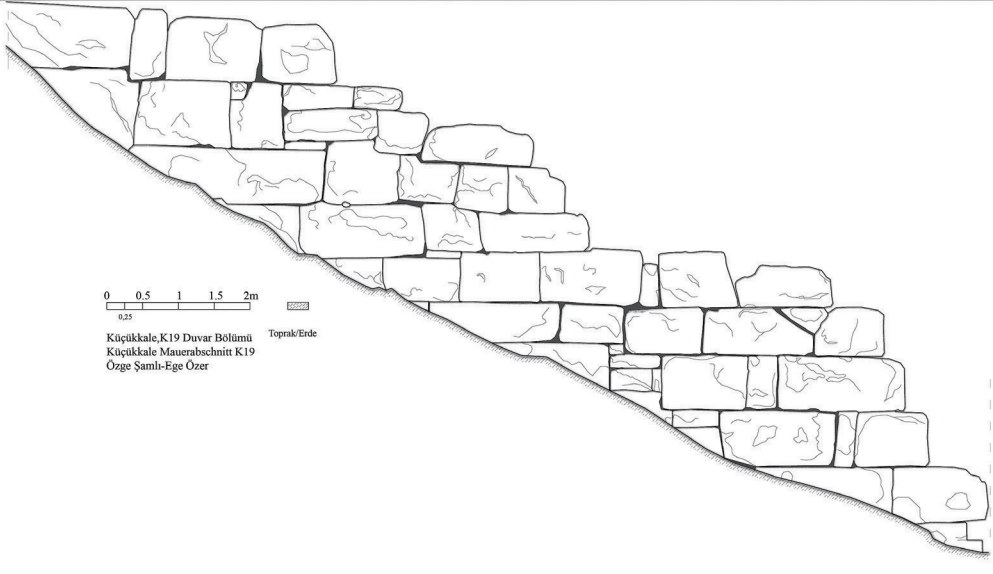


Abb. 15: Kleine Akropolis, oberer Teil von K19 (Orthofoto: S. Özen, Zeichnung: Ö. Şamlı)



Abb. 16: Kleine Akropolis, unterer Teil von K19 (A. Gürer)



Abb. 17: Kleine Akropolis, Felsabarbeitungen für Fundamentierung von T3 (S. Özen)

Befestigungsanlagen im Hafenbereich (K 19–K21; T3?–T5?)

Im Rahmen von Surveys im Hafengebiet wurden zwei rechteckige Strukturen (T4?–T5?, Abb. 18) und zwei Mauerzüge (K20–K21) entdeckt, die offensichtlich die westliche rechteckige Struktur (T5?) mit der Stadtmauer verbanden und den kaunischen Hafen zum offenen Meer hin sperrten[25]. Die in ca. 100 m Entfernung voneinander liegenden Strukturen könnten als zwei Türme unterschiedlichen Formats interpretiert werden, die den Eingang des Hafens kontrollierten (T4?–T5?). Ihre Lage lässt an die Überlieferung bei Strabon (14, 2, 3) denken, der berichtet, dass der kaunische Hafen verschlossen werden konnte. Die Türme würden zu einer derartigen Schließvorrichtung gut passen, bei der sie als Ankerpunkte für eine Kette dienen könnten[26]. Am Nordwest-Ufer des Hafens liegt der bereits erwähnte isodome Mauerabschnitt K20, dessen Verbindung mit dem Mauerabschnitt K21 zwar anzunehmen, aber noch durch Grabungen nachzuweisen ist.

Der isodome Abschnitt K21, der an seinem nordwestlichen Ende an einer hohen, steilen Felswand beginnt, ist ca. 2 m hoch erhalten. Die zweischalige Mauer besteht aus isodomen Läufern und Bindern mit gutem Fugenschluss, deren Fronten

[25] Özen 2017, 73. 85 Abb. 9.

[26] Für einen vergleichbaren Rekonstruktionsversuch s. Krischen 1938, Taf. 2.



Abb. 18: Hafen, Rechteckige Strukturen im Hafen (Kaunos, Grabungsarchiv)

leicht bossiert sind. Der Abschnitt setzt sich ca. 25 m in südöstlicher Richtung fort und biegt danach in östliche Richtung um, um sich wahrscheinlich mit dem Abschnitt K20 zu verbinden.

Westmauer (K22–K35)

Die Abschnitte K22–K35 werden in der Literatur als „Westmauer" bezeichnet. Während die Abschnitte K22–K30 in polygonalem Mauerwerk unterschiedlicher Stile errichtet sind, bestehen die Abschnitte K31–K32 (Abb. 4) aus regelmäßigen, gut bearbeiteten Quadern, die die imposantesten Abschnitte der Stadtmauer darstellen[27].

Mauerabschnitt K22

Der Mauerabschnitt K22, dessen Mauer ca. 2,80 m breit und teilweise noch 2 m hoch erhalten ist, befestigt im Südwesten den terrassierten Gipfel des sogenannten „*Çömlekçi-Salih-Hügels*" nach Westen hin (Abb. 1). Die Mauer besteht aus nur grob bearbeiteten polygonalen Blöcken mit lockerem Fugenschluss, die in den unteren Bereichen größere Formate aufweisen und sich daher teilweise von dem anstehenden Felsen nur schwer unterscheiden lassen (Abb. 19). Im letzten Teil des Abschnitts, beim Westtor (G6) zeigen die polygonalen Blöcke einen Randschlag und sind in der Mitte unterschiedlich stark bossiert, weisen also insgesamt eine bessere Bearbeitung und einen dichteren Fugenschluss auf[28](Abb. 20).

Im Abschnitt K22 wurden bisher zwei schlecht erhaltene Pforten identifiziert: G4 und G5 (für den Zugangstypus der beiden Pforten s. G8 unten). Auffallend ist, dass sich die Mauertechnik nördlich der Pforte G5, die zusätzlich mit einem Turm (T7) geschützt ist, von der polygonalen zur

[27] Vgl. Schmaltz 2010, 318–319; Özen 2017, Abb. 18–20.

[28] Schmaltz 1994, 191 Abb. 4.

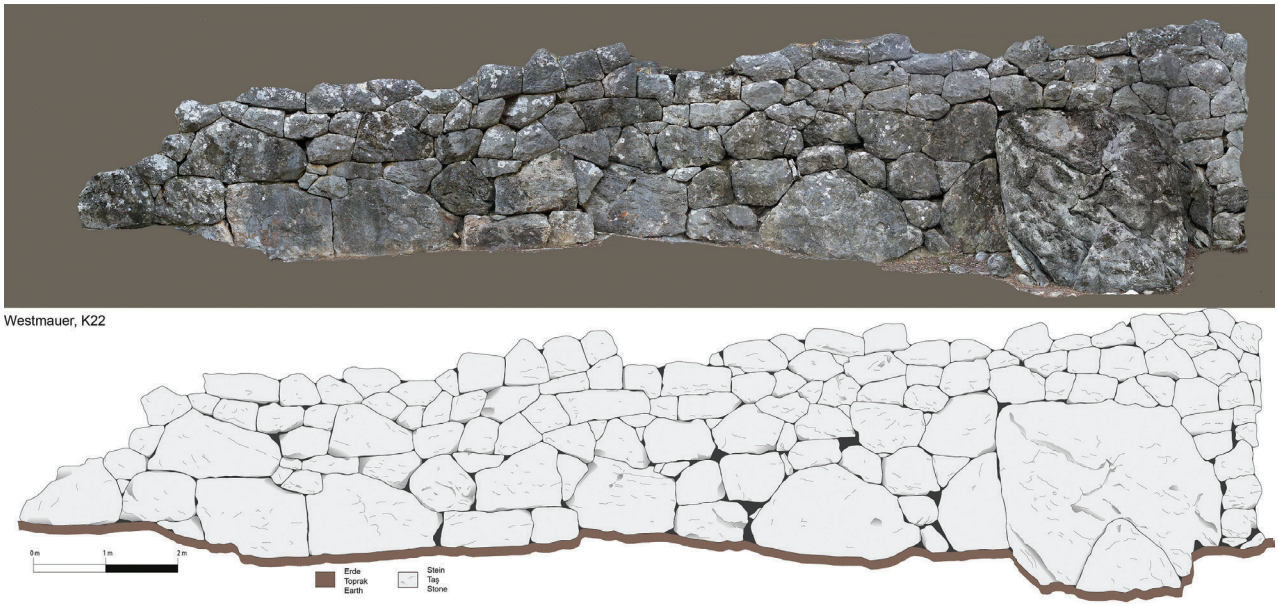


Abb. 19: Westmauer, Mauerabschnitt K22 (Orthofoto: S. Özen, Zeichnung: J. Geisthövel)



Abb. 20: Westmauer, Mauerabschnitt K22 bei G6 (S. Özen)

isodomen Quadertechnik ändert (F1, Abb. 21). Die isodome Mauer setzt sich ca. 10 m in nördlicher Richtung fort und biegt dann nach Osten um, wo sie wiederum von der polygonalen Mauer abgelöst wird. Der isodome Mauerabschnitt (F1) erweckt den Eindruck eines Fremdkörpers, der plattformartig in die polygonale Mauer eingeschoben ist. Von dem Turm (T7) ausgehend überqueren ferner zwei weitere schmalere Quermauern die Terrasse, die den südlichen Teil von der Umgebung abtrennen. Nach B. Schmaltz fungierte der abgetrennte Teil in der Phase der isodomen Anlage wahrscheinlich als ein Sperrfort[29]. Allerdings weisen sichtbare Befunde (C1, Abb. 1) auf eine mögliche kultische Funktion der Terrasse hin, vergleichbar mit den Kultbezirken auf den Terrassen der Kleinen Akropolis unmittelbar hinter der Stadtmauer[30].

Ebenfalls eine nachträgliche Erweiterung des Abschnittes K22 in isodomer Quadertechnik stellt die Bastion B3 (Abb. 1–2. 22) dar[31]. Sie ragt ca. 30 m von der Westmauer vor und ist zum Teil bis zu einer Höhe von 5 m erhalten. Der Mauerstil ist

29 Schmaltz 1991, 143–146 Abb. 5 ("W-Fort").

30 Vgl. Demeterheiligtum hinter dem Abschnitt K15–K16, Işık 2000, 229–240.

31 Schmaltz 1991, 145–146 Abb. 6 („W-Bastion").

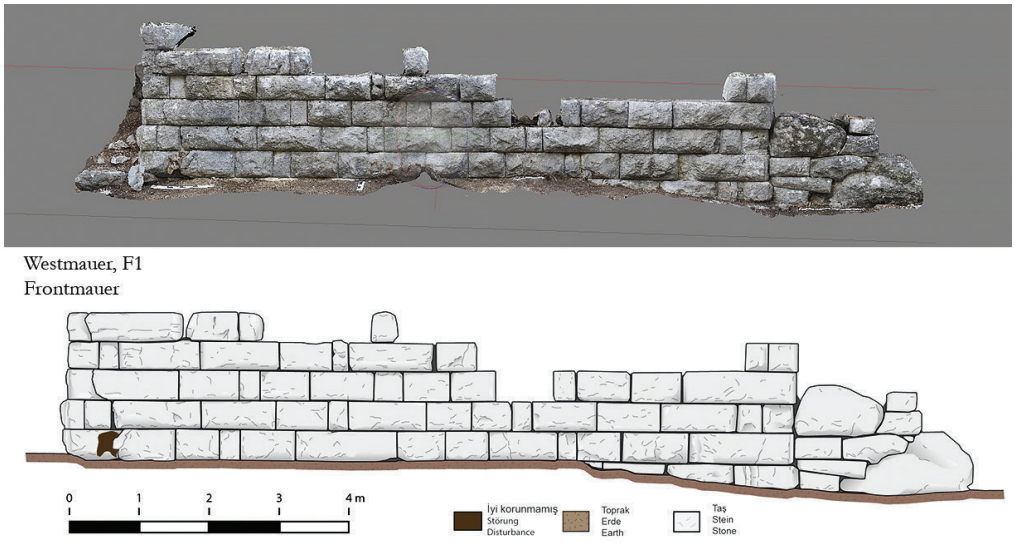


Abb. 21: Westmauer, F1 (Orthofoto: S. Özen, Zeichnung: L. Braun)

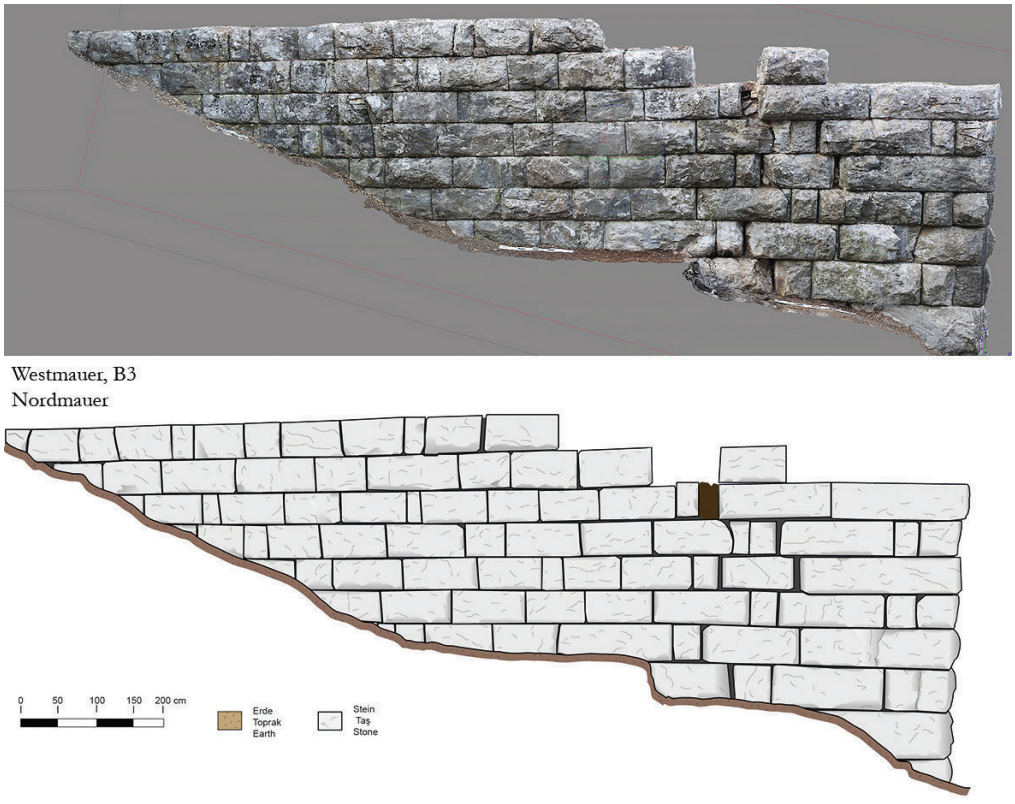


Abb. 22: Westmauer, B3 (Orthofoto: S. Özen, Zeichnung: L. Henrich)

gut vergleichbar mit dem bereits beschriebenen isodomen Teil des Abschnittes K22: Isodom verlegte rechteckige Blöcke im Läufer- und Binderverband mit gutem Fugenschluss, deren Fronten stark bossiert sind. Die beiden isodomen Erweiterungen des Abschnittes K22 tragen nach B. Schmaltz der fortschreitenden Verlandung der Bucht von *Çandır* und dem Fortschritt in der Militärtechnik Rechnung[32]; Entwicklungen, die die Verstärkung des Abschnittes K22 notwendig gemacht hätten. Obwohl spätklassische Keramik bei der Grabung in der Bastion entdeckt wurde[33], datiert Schmaltz

32 Schmaltz 1991, 146.

33 Schmaltz 1991, 156.

die Bastion B3 nach dem Erdbeben von 227/6 v. Chr. und somit in die gleiche Entstehungszeit, in die er auch die Bastion B2 auf der Kleinen Akropolis datiert.

Toranlage G6, Türme T8–T9 (Abb. 1)

Einen wichtigen Zugang der Polygonalmauer bildete die Toranlage (G6), die durch zwei Türme (T8, T9) geschützt war[34]. Das eigentliche Tor, dessen Torwangen und Torschwelle durch B. Schmaltz freigelegt wurden, hatte eine Öffnungsbreite von 2,14 m. Hinter der Schwelle befand sich eine 20 cm hohe Stufe, die in die eigentliche, ca. 2,70 m breite Torkammer führte, deren Gehniveau mit langen, rohbelassenen Platten gepflastert war. Die Stufe stellte sicherlich ein Hindernis für den Wagenverkehr dar. Auch die fehlenden Radspuren im Torbereich legen die Vermutung nahe, dass das Tor in erster Linie für den Personenverkehr angelegt war.

Die Türme T8 und T9 waren mit einer schmalen Polygonalmauer (1m breit) miteinander verbunden. Parallel hinter der Mauer verläuft eine 2,70 m breite Plattform mit unbekannter Funktion[35], die ab dem Abschnitt K23 ihre Breite verdoppelt und sich bis zum Turm T10 gut verfolgen lässt. Der stark zerstörte Turm T8 ist in seinem polygonalen Mauerstil und in seinem Format sehr ähnlich gebaut wie der Turm T9[36], der besser erhalten ist: Er weist einen rechteckigen Grundriss mit den Maßen 6,75 x 6,60 m und einer Mauerstärke von 1 m auf. Er ist aus homogenen polygonalen Blöcken gebaut, deren Stirnseiten nur grob bearbeitet sind. Der Eingang, mit einer Breite von 1 m und einer Höhe der erhal-

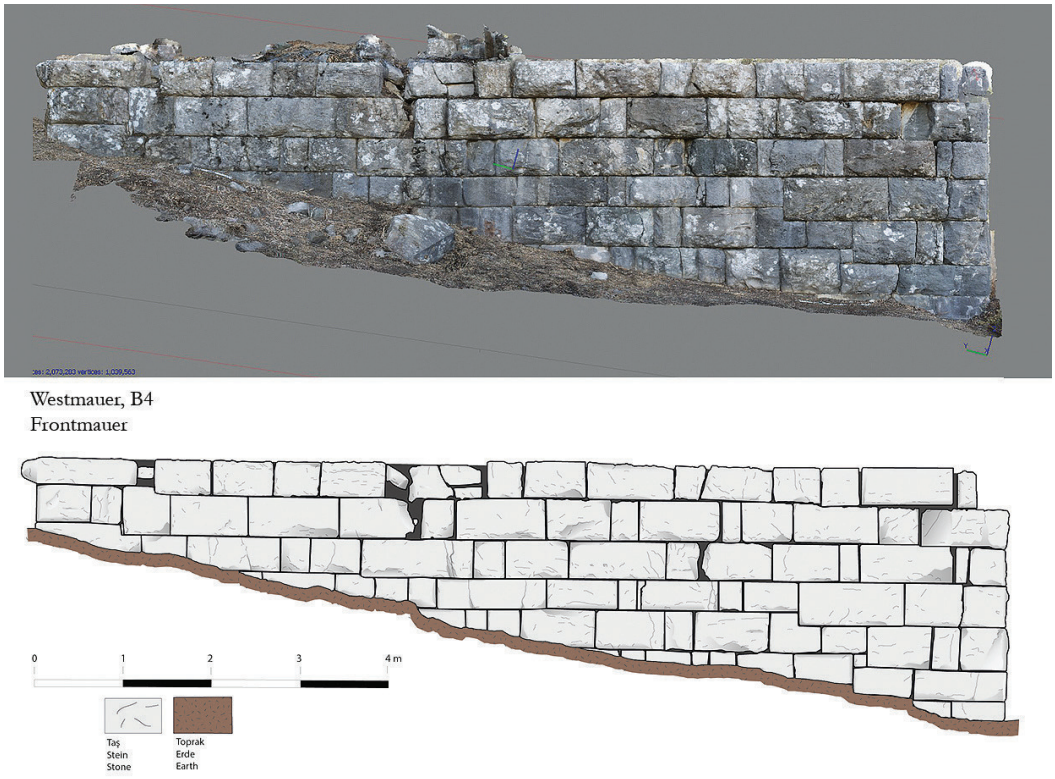


Abb. 23: Westmauer, B4 (Orthofoto: S. Özen, Zeichnung: L. Henrich; L. Braun)

34 Schmaltz 1991, 146–157 Abb. 7 („Westtor, Turm I–II"); Özen 2017, 87 Abb. 13.

35 Denkbar sind Überbleibsel von Bauten, die hinter der Wehrmauer der Verstärkung der Abschnitte oder ihrem Aufgang mit einem verbreiteten Wehrgang dienten.

36 s. Anm. 26.

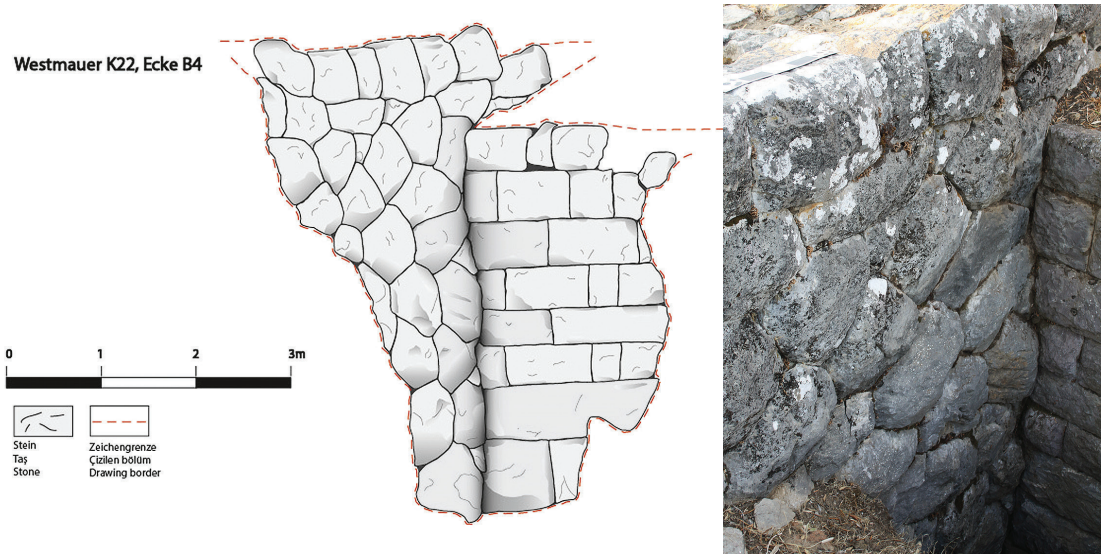


Abb. 24: Westmauer, K22 Ecke B4 (S. Özen, Zeichnung: J. Geisthövel)

tenen Torwange von 2,50 m, befand sich im Osten und weist keinerlei Verschlussvorrichtungen auf. Die innere Gestaltung des Turmes ist unklar. Später wurde der Innenraum des Turmes mit Steinen verfüllt und die Außenwände durch breitere Mauern in Quadertechnik ummantelt. So wurde der Turm in den Unterbau einer 14 x 14 m großen Bastion (B4) verwandelt (Abb. 23). Die kräftig bossierten Quader der Ummantelung erinnern an die Technik der isodomen Mauer des Abschnittes K22 und der Bastion B3. Die Spolien, vor allem zwei Blöcke vom Grabmal eines Arkaders aus Pheneos aus der Mitte des 4. Jhs. v. Chr., die in der Ummantelung verbaut sind, geben nach Schmaltz den *terminus post quem* für den Bau der Bastion[37]. Weiter unten wird dies zu diskutieren sein.

Abschnitte K23–K27

Ab dem Turm T9 ändert sich der Stil der polygonalen Mauer. Es sind nun gut bearbeitete, homogene, zur Mitte der Stirnflächen hin deutlich bossierte Blöcke mit feinem Fugenschluss verbaut (Abb. 24). Auch in den folgenden Abschnitten ändert sich der Stil der Polygonalmauer mehrmals[38]. Ob diese Vielfalt an Stilen zeitbedingt ist, bleibt zu erforschen.

In einer späteren Phase wurden den Abschnitten K23–K27 vier Bastionen in meist isodomer Mauertechnik vorgebaut, bzw. vorhandene Türme - wie bei der Bastion B4 - durch isodome Mauern ummantelt, wie es beispielsweise bei der Bastion B8 beobachtet werden kann[39].

Innerhalb der polygonalen Mauerabschnitte sind schließlich noch Pforten von Bedeutung, die nach den erhaltenen Resten zu urteilen, alle demselben Typus zugewiesen werden können. Die Pforten sind ausnahmslos axial angelegt und weisen unterschiedliche Durchgangsbreiten auf. Wie das gut erhaltene Beispiel G8 (Abb. 25) und die



Abb. 25: Westmauer, G8 (S. Özen)

37 Schmaltz 1991, 169.

38 s. auch den Mauerabschnitt bei der Pforte G8 Abb. 2.

39 Vgl. hierfür Pimouguet-Pédarros 2000, 248.

Reste der anderen Vertreter des Typus zeigen[40], waren die Torwangen aus größeren Polygonen gebildet, während die anderen Blöcke, die die Wände der Torkammer bilden, kleiner und auf den Stirnseiten plan gearbeitet sind. Die Torkammer, deren Tiefe der der Stadtmauer entspricht, war mit einem Kragsteingewölbe aus großen Blöcken überdeckt.

Die Abschnitte K31–K32

Diese sind in Quadertechnik zweischalig gebaut und bilden die besterhaltenen Mauerabschnitte der kaunischen Stadtmauer[41]. Der Übergang von der polygonalen Mauertechnik zur Quadertechnik erfolgt am Nordabhang des Sivri Hisar-Hügels in der Mauertechnik (Abb. 26), die bereits beim oberen Teil des Mauerabschnittes K19 beschrieben ist (Abb. 15). In den Abschnitten K31–K32 ist die Mauer bis zu den Zinnen erhalten (Abb. 27)[42]. Im unteren Zweidrittel sind die Quader isodom, gut bearbeitet und bossiert. Sie weisen ferner einen dichten Fugenschluss auf. Die Blöcke werden im oberen Drittel, ab der Höhe der Zinnenmauer kleiner. An einigen Stellen sind die Wehrgänge[43] mit Stufen erhalten. Um die Höhenunterschiede zwischen den einzelnen Schichten am Hang auszugleichen, wurden die unteren Hälften einiger Blöcke als Auflagerflächen abgearbeitet. An den Abschnitten K31 und K32 wurden bisher keine Grabungen durchgeführt. Daher sind Aussagen über die Innenstruktur der beiden Türme T12–T13 nicht zu machen. Bisher konnten zwei Zugänge G12–G13 (Abb. 28) in den beiden Abschnitten entdeckt und in den Plan verzeichnet werden. Anders als die Zugänge in der Gipfelmauer oder in der polygonalen Mauer stellen diese schlichte rechteckige Öffnungen unterschiedlichen Formats dar. Sie sind oben ausnahmslos mit Sturzbalken abgeschlossen. Die Pforte G12

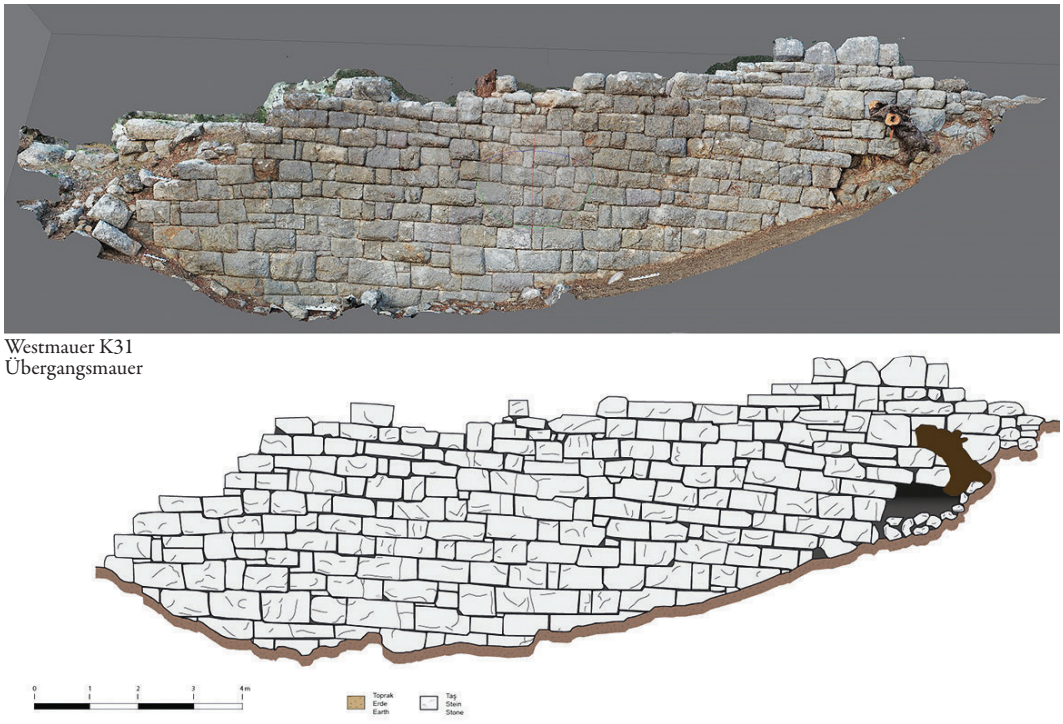


Abb. 26: Westmauer, K31, Übergangsmauer am Nordabhang von Sivri Hisar (Orthofoto: N. Schnorr, Zeichnung: S. Özen)

[40] Pimouguet-Pédarros 2000, 249 Abb. 24, 4.

[41] Schmaltz 2010, 318–319; Pimouguet-Pédarros 2000, Abschnitt H–J, 247–248.

[42] Vgl. auch Schmaltz 2010, 324–325 Abb. 1–3; Özen 2017, 75. 90 Abb. 18–20.

[43] Die Aufgänge sind in der Achse der Verlaufslinie der Mauer aufgebaut, wodurch die Wehrmauer ab dem Wehraufgang nach Außen versetzt werden musste (Text-Abb. 4).

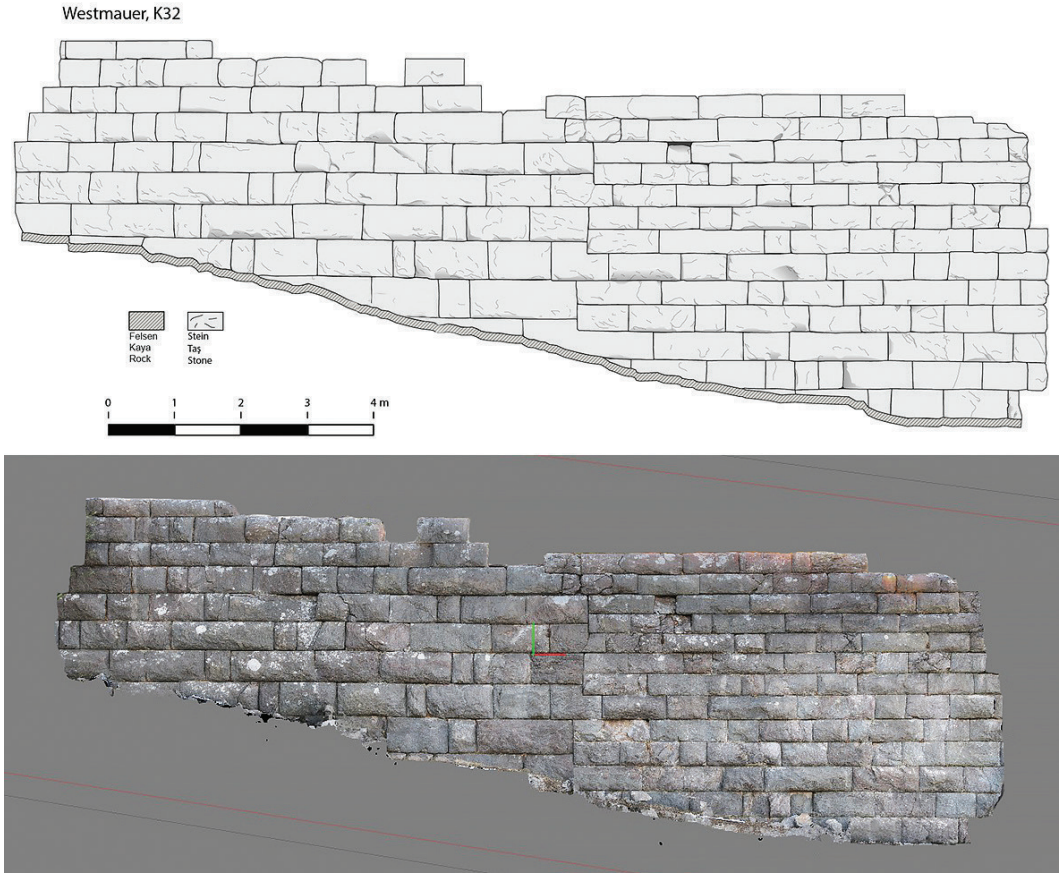


Abb. 27: Westmauer, K32, Mauerabschnitt K22 (Orthofoto: S. Özen, Zeichnung: J. Geisthövel)



Abb. 28: Westmauer, G13 (S. Özen)

ist axial, G13 dagegen tangential angelegt[44]. In den beiden Wänden der Torkammern, gleich hinter den Torwangen, sind Löcher in verschiedenen Formaten und Höhen zu beobachten, die wohl zur Aufnahme von Verschlussbalken dienten, die in unterschiedlichen Höhen angebracht werden konnten.

Nordmauer[45]

Abschnitte K33–K38

Die zweischalige Nordmauer, deren Breite an mehreren Stellen 2 m beträgt, stellt den bisher am wenigsten erforschten Bereich der Stadtmauer dar. Ihr Verlauf ist bis zum Abschnitt K38 gut verfolgbar, ab diesem Abschnitt verliert sich jedoch ihre Spur. Sie hatte ursprünglich vier Türme (Abb. 29) und mehrere Durchgänge, die bis auf die Pforte G14 im Plan noch nicht eingezeichnet sind.

Die Pforte G14 gehört zum gleichen Typus von Zugängen, die in den Abschnitten K31–K32 der Westmauer beobachtet wurden. Die Abschnitte K33–K34 sind wie die Abschnitte K31 und K32 in Quadertechnik gebaut (Abb. 30). Die Technik ändert sich ab dem Abschnitt K35. Deutlich von dem Quadermauerwerk unterscheidbar sind in den

[44] s. auch Özen 2017, 91 Abb. 20.

[45] Schmaltz 1994, 187 f.



Abb. 29: Nordmauer, T15 (S. Özen)



Abb. 31: Nordmauer, Mauerabschnitt K37 (Orthofoto: J. Tregellis)



Abb. 32: Nordmauer, Mauerabschnitt K36 (S. Özen)

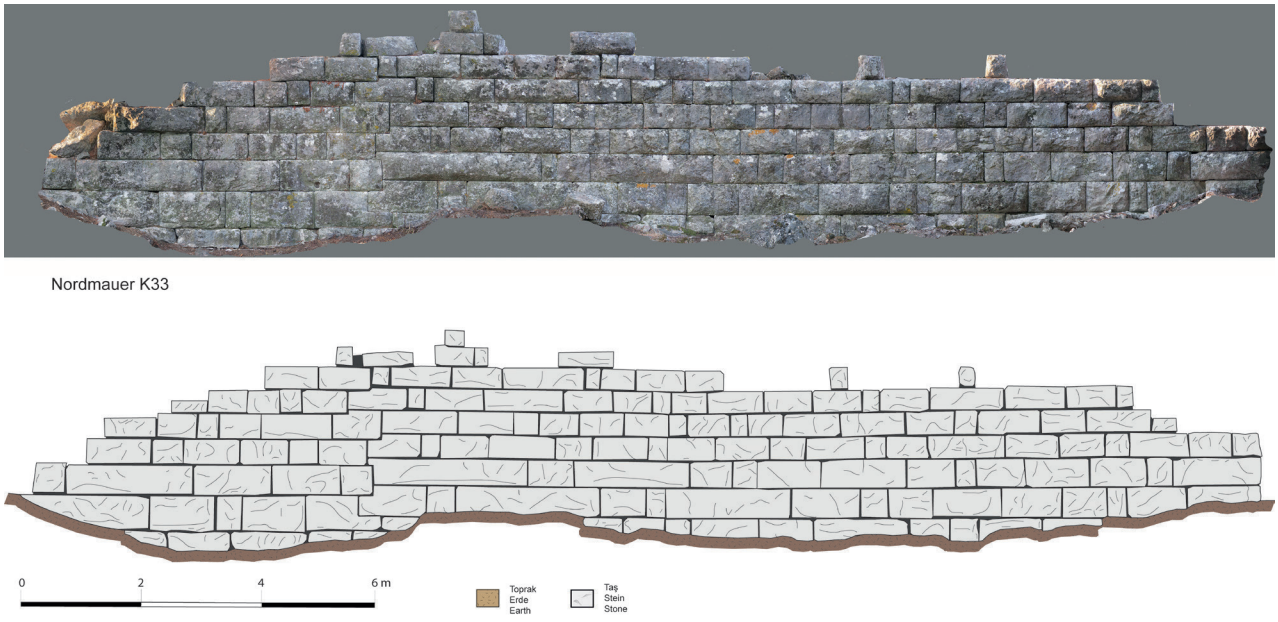


Abb. 30: Nordmauer, Mauerabschnitt K33 (Orthofoto: S. Özen, Zeichnung: S. Özen)

Abschnitte K35–K38 zwei weitere Mauertechniken zu beobachten: die meisten Abschnitte sind mit überwiegend trapezförmigen, gut bearbeiteten Quadern aufgeschichtet, die teilweise einen sehr engen, feinen Fugenschluss aufweisen (Abb. 31). Nicht selten füllen dabei maßgeschnittene kleine Steine oder flache Platten die Zwischenräume der Blöcke. Gut vergleichbar sind diese Nordabschnitte aus überwiegend trapezoidalen Blöcken mit den bereits besprochenen Abschnitten K31 (Übergangsteil, Abb. 26 und K19, Abb. 15). Seltener sind Mauerabschnitte mit langen, irregulär rechteckigen, trapezoidalen oder polygonalen, grob bearbeiteten Blöcken zu beobachten, die so verlegt wurden, dass horizontale Schichtungen möglichst eingehalten wurden (Abb. 32). Auch bei dieser Technik sind die Zwischenräume gelegentlich mit kleinen Steinen gefüllt. Trotz der unterschiedlichen Mauertechniken geht Schmaltz mit Recht von einer gleichzeitigen Errichtung des nördlichen Teils der Westmauer (K31–K32) und der Abschnitte der Nordmauer (K33–K38) aus.

Reste einer Stadtmauer im Osten

Zum Verständnis der Ost-Befestigung müssen zwei topographische Gegebenheiten und eine Neustrukturierung im Osten der Stadt in römischer Kaiserzeit immer berücksichtigt werden: Die Ost- und Südost-Abhänge des *Balıklar Dağı* östlich und südöstlich der Abschnitte K39–K40 sind erstens teilweise so steil, dass sie wie eine natürliche Wehrmauer fungierten und dadurch in den genannten Abschnitten eine durchgehende Verteidigungsmauer überflüssig machten. Die Ebene zwischen der Großen Akropolis und dem *Balıklar Dağı* war zweitens ursprünglich eine Bucht, die mit der Zeit mit den Alluvionen des *Dalyan-Flusses* gefüllt und in eine flache Ebene verwandelt wurde[46] (Abb. 1–2. 33). Von der Dicke der Alluvionen-Schicht vermitteln einzelne, ursprünglich hoch in die Felswand geschlagene Felsengräber einen Eindruck, die durch den Verlandungsprozess heute zum Teil im Erdreich liegen. Die Ebene wurde bereits in der Antike zumindest partiell genutzt, was der bisher unerforscht gebliebene Tempelbau (römisch?) mitten in der Ebene ohne Zweifel bezeugt.

Im Rahmen einer Neustrukturierung wurden drittens auf mächtigen Terrassen (darunter auch die sogenannte Palästra-Terrasse) eine Thermenanlage und eine Palästra im Osten der Stadt gebaut (Abb. 2. 34), wodurch die bereits vorhandenen Bauten im Areal, darunter auch die Befestigungsanlagen unter der Füllung der Terrassen geblieben sind. Vor allem die letzterwähnten beiden Ereignisse hatten weitreichende Folgen für Befestigungsanlagen im Osten, von denen heute nur wenige sichtbar geblieben sind (K39–K40, K42, K46, K48–K49 und T18) und nur vage Hinweise auf die Gestaltung der Befestigung im Osten des Stadtgebiets liefern. Wie bereits B. Schmaltz postuliert hat, scheinen die Mauerzüge K39–K40 eine Bergkuppe zu umschließen und könnten somit als ein Außenfort gedeutet werden. Südlich dieser Mauerabschnitte sind bis heute keine weiteren nennenswerten Abschnitte entdeckt worden, was sicherlich auf die oben geschilderte Topographie des Bereichs mit bis zu über 100 m hohen Steilhängen zurückzuführen ist.

Wichtig zum Verständnis der östlichen Befestigungsbauten in Kaunos ist vor allem der wiederum von B. Schmaltz entdeckte und durch Grabungen im Detail noch nicht näher untersuchte Mauerzug K42 (Abb. 35), der am Ostabhang der Großen Akropolis den Hang hinabläuft und oberhalb des modernen Weges an einer Steilkante abbricht (Abb. 2). In der Kampagne 2018 wurden südliche Teile des Abschnittes im Südosten der Großen Akropolis entdeckt (Abb. 36). Diese befestigten offensichtlich den gesamten Ostabhang der Akropolis und verliefen ursprünglich auf der Geländekante, von der aus der Abhang steil abfällt (Abb. 2, hypothetischer Verlauf von K42). Der vermutete hypothetische Verlauf der Stadtmauer wird durch die Lage der

[46] Riedel 1996, 57–67.



Abb. 33: Nordbucht, Blick von der Großen Akropolis (S. Özen)



Abb. 34: Ostmauer, Mauerabschnitte K46. K48–K49 (S. Özen)

extramuralen Grabbezirke am Nordostabhang der Akropolis unterstützt, die unmittelbar östlich des Mauerabschnittes K42 einsetzen, während westlich davon keine Gräber mehr anzutreffen sind[47]. Es ist

[47] Özen 2000, Grabbezirke AI–AII, 9–54.



Abb. 35: Ostmauer, Mauerabschnitt K42 (S. Özen)

aufgrund der Mauerabschnitte K48–K49 außerdem anzunehmen, dass sich die östliche Stadtmauer in der Verlängerung des Abschnittes K42 unterhalb der Alluvion-Schicht der Nordbucht weiterhin fortsetzt und anschließend nach Westen umbiegt, um sich unterhalb des Theaters mit dem Abschnitt K48 zu verbinden (Abb. 2, hypothetischer Verlauf



Abb. 36: Ostmauer, Mauerabschnitt K42, südlicher Teil (N. Schnorr)

von K42). Die Mauertechnik des Abschnittes K48 besteht aus gut bearbeiteten polygonalen Blöcken mit geradlinig verlaufenden Kanten. In die Lücken zwischen den Blöcken sind wiederum gut passende Zwickelsteine eingeschoben (Abb. 37). Nach der Pforte G16 schließt sich der breitere Abschnitt K49 an, der sich durch seine Mauertechnik von der des K48 deutlich absetzt. Im Abschnitt K49 wurden große, überwiegend trapezoidale Blöcke verwendet, die gut bearbeitet sind und dichte Fugenschlüsse ohne Zwickelsteine aufweisen (Abb. 37). Fast in der gleichen Achse von K49 erstreckt sich südlich in einer Entfernung von ca. 70–80 m ein weiterer Mauerzug (K41, Abb. 2) mit einem Zugang (G23) am Südwesthang der Palästra-Terrasse. Dieser wurde in den 1980er Jahren von B. Schmaltz entdeckt und freigelegt[48]. Der Mauerzug besteht aus großen polygonalen Blöcken mit zum Teil eingeschobenen Füllsteinen und besitzt zumindest stellenweise eine Breite von ca. 4 m[49].

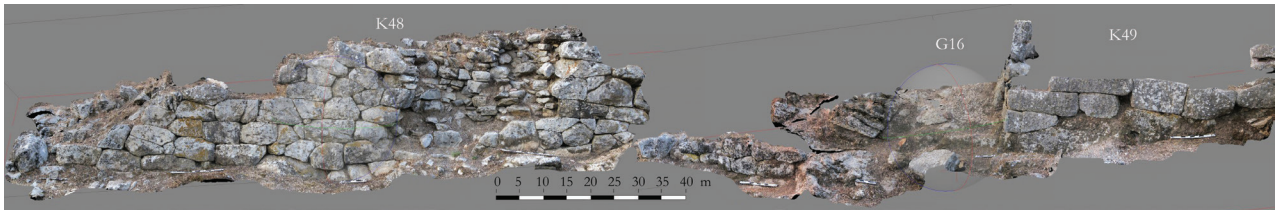


Abb. 37: Ostmauer, Mauerabschnitte K48–K49 (Orthofoto: S. Özen)

[48] Schmaltz 1991, 123–125.

[49] Schmaltz 1994 Abb. 6; Schmaltz 2003 Abb. 3, Nr. 1. Die Mauertechnik ist gut vergleichbar mit der Technik des Abschnittes K13, s. Text-Abb. 11.

Laut B. Schmaltz lässt sich der Mauerzug über eine längere Strecke nach Westen hin in bestimmten Abständen bis zum Hafenbecken verfolgen (Abb. 1), während er im Osten unter der Palästraterrasse verschwindet. Mit der Freilegung des Mauerzuges glaubte B. Schmaltz einen Teil der frühen Stadtmauer entdeckt zu haben, die sogenannte Alte Stadtmauer, die das ursprüngliche, kleinere Stadtgebiet von Kaunos nach Norden hin abgeschlossen haben soll. Während die Süd- und Westgrenze der frühen Siedlung durch die Abschnitte K11 und K19, bzw. durch den Hafen gut fassbar sind, ist ihre Ost- und Nordgrenze nicht klar definiert. B. Schmaltz denkt als Grenze im Osten offenbar an den südöstlichen Hügel mit dem Rundbau auf dessen Spitze, der in dem Falle auch im Osten durch den weiteren Verlauf des Mauerzugs K41 befestigt sein müsste[50]. Wie die Ergebnisse unserer Arbeiten im Areal allerdings zeigen, ist es wahrscheinlicher, dass sich der Abschnitt K41 nach Osten hinter dem Hügel fortsetzt, um sich dem Mauerabschnitt K49 anzuschließen[51]. In dem Falle würde die frühe Siedlung in Kaunos nicht am Hügel nordöstlich der Palästraterrasse enden, sondern sich bis zum Mauerabschnitt K42 auf der Geländekante im Osten ausdehnen (Abb. 2, hypothetischer Verlauf von K 46).

Neben dem Mauerzug K41 befindet sich in der Nähe von K49 (in einer Entfernung von ca. 60 m in nordwestlicher Richtung) ein weiteres Zeugnis der Befestigungsreste (K46) auf der Palästraterrasse Dieser „Z"-förmig angelegte Mauerteil mit der erhaltenen Länge von ca. 21 m ist aus rechteckigen, leicht bossierten Quadern in verschiedenen Formaten in geordneten Lagen mit unterschiedlichen Höhen aufgeschichtet, wobei in bestimmten Abständen Ausgleichsschichten aus flachen Blöcken eingeschoben sind (Abb. 38). Auffällig sind die obersten, fast quadratischen großen Blöcke, die den erhaltenen Befund oben

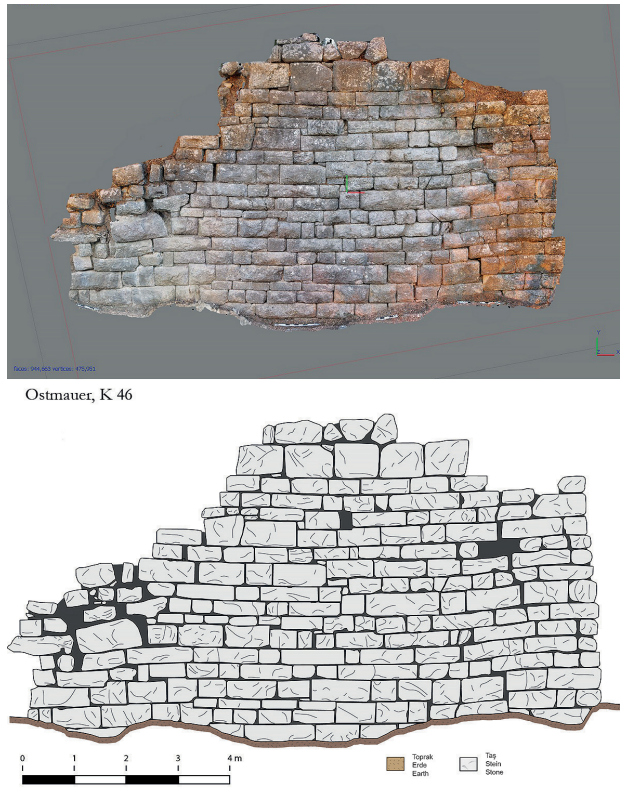


Abb. 38: Ostmauer, Mauerabschnitt K46 (Orthofoto: S. Özen, Zeichnung: L. Braun)

abschließen sowie der vertikale Lauf der Mauer an der Nordostecke, die sich in einem bestimmten nach innen geneigten Winkel erhebt.

Aufgrund des Mauerzuges K46, der offensichtlich ein Teil der Ostbefestigung darstellte und durch seine Mauertechnik eindeutig auf eine spätere Phase der Befestigung hinweist, ist es wahrscheinlich anzunehmen, dass der ursprüngliche Verlauf des Abschnittes K49 später geändert wurde. In dem späteren Verlauf bog er kurz nach der Pforte G13 nach Norden um und lief in gleicher Achse der östlichen Palästra-Terrassenmauer weiter, um sich danach den Abschnitt K46 anzuschließen (Abb. 1, hypothetischer Verlauf von K46). Beim Betrachten der verschiedenen Mauerzüge am Südostrand der Palästraterrasse erscheint es sehr wahrscheinlich, dass die Römer beim Bau der

[50] Für die ursprüngliche Topographie vor dem Bau der Terrassen s. Schmaltz 1994, 187 Abb. 2. Vgl. auch Schmaltz 2003, 27–30.

[51] Die Freilegungsarbeiten an den Abschnitten K46, K48 und K49 zusammen mit der Pforte G16 in den Kampagnen 2018–2019 legten die Schlussfolgerung nahe.



Abb. 39: Ostmauer, T18 (S. Özen)

Palästraterrasse Teile der späteren Ostbefestigung in die neu entstandene Anlage integriert haben. Die von Schmaltz freigelegte hellenistische Straße und weitere frühere Bauten, die für immer unter der Füllschicht der Palästra verschwanden, zeugen von den tiefgreifenden Umbaumaßnahmen in dem Areal[52]. Die geradlinige Ausrichtung der Straße zum Mauerabschnitt K46 (Abb. 2) macht ferner eine große Toranlage in dessen näheren Umgebung sehr wahrscheinlich[53].

Ab dem Abschnitt 46 verliert sich die Spur der Befestigungsanlagen im Osten bis auf den isodomen Turm T18, der sich zu Fuße des Balıklar Dağı an dessen Südabhang erhebt (Abb. 39).

Der Turm stellte offensichtlich einen wichtigen Teil des Befestigungssystems der antiken Stadt dar, auch wenn er womöglich nicht direkt mit der kaunischen Stadtmauer verbunden war[54]. Die Konzentration der Felsgräber mit aufwendigen Tempelfassaden östlich und nördlich des Turmes weist zudem darauf hin, dass in diesem Bereich eine wichtige Ausfallstraße[55] der Stadt verlief, die gegebenenfalls auch für den Wagenverkehr über Land angelegt war. Der Turm T18 wäre in dem Falle eine Art Vorposten bzw. Beobachtungsturm für den Zugangskorridor zur Stadt im Osten.

Zu erwähnen sind schließlich noch die Forts (F1–F4), die ursprünglich als selbständige Wehr-anlagen an strategisch wichtigen Punkten errichtet und später zum Teil in die Stadtmauer integriert wurden. Ferner sind noch auf die Befestigungsanlage auf dem Gipfel des *Ölemez Dağı* und auf dem *Kızılbel*, welcher der westliche Hügel oberhalb des *Alagöl* ist, zu verweisen. Diese dienten wahrscheinlich als Beobachtungsposten für ein Frühwarnsystem, welches in das Verteidigungssystem der Stadt einbezogen war[56].

Datierung der Abschnitte

Die zeitliche Abfolge der Mauerabschnitte des kaunischen Befestigungssystems lässt sich nach aktuellem Stand wie folgt darstellen: Die ältesten Abschnitte bilden K1–K5 in der Gipfelmauer, die - wie die Sondagen auf der großen Akropolis gezeigt haben - spätestens im 6. Jh. v. Chr. errichtet wurden. Wie die vergleichbare Mauertechnik in Melie und Eretria, die unter „Bruchstein-Mauerwerk“ zusammengefasst wird, sowie die im von der Gipfelmauer befestigten Areal entdeckte Keramik nahelegen, ist die Errichtungszeit früher anzusetzen[57]. Der Gipfelmauer folgen zeitlich die Abschnitte K11–K17. K41 und K42. Sie weisen

52 Schmaltz 2003, 1–38.

53 Vermutlich bildete K46 selbst ein Teil der Toranlage, vgl. Schmaltz 2000, 33 Abb. 10; Schmaltz 2003 Abb. 3 Nr. 7; Abb. 6.

54 Schmaltz 1994, 188 Anm. 19.

55 Wahrscheinlich lag hier eine Vorgängerin der heutigen Straße, die die Besucher der Stadt nach der Überquerung des *Dalyan-Flußes* bei den Felsgräbern in die antike Stadt führt und auch heute merkwürdigerweise am Mauerabschnitt K46 endet.

56 Pimouguet-Pédarros 2000, 245.

57 Vgl. Melie: Müller-Wiener 1967, 113 Abb. 58–59; Eretria: Krause 1972, Taf. 36 Abb. 112; Zur Keramik: neben geometrischen Keramikfragmenten wurden Pithosfragmente aus der Akropolis gefunden, die zwischen 8. und 6. Jh. v. Chr. datiert werden, s. Özen 2020, 386–401.

als Gemeinsamkeiten eine enorme Mauerbreite[58] und große, zum Teil grobbearbeitete polygonale Blöcke mit den eingeschobenen Steinen auf, die im Vergleich zur Gipfelmauer[59] für die zu füllenden Zwischenräume passender geschnitten sind und dadurch den Abschnitten ein homogeneres Aussehen verleihen. Es ist ferner gut möglich, dass die Abschnitte, wie oben beschrieben ein kleines Siedlungsareal in der frühen Phase der Stadt befestigt haben. Allerdings ist zu betonen, dass die Nordgrenze der frühen Siedlung ab dem östlichsten Teil des Mauerzuges 41 noch offenbleiben muss. B. Schmaltz denkt in dem Zusammenhang offensichtlich an die westlichen Teile von 41, die die Nordgrenze der frühen Siedlung bildeten. Eine Diskrepanz zu dieser Annahme stellt allerdings die Tatsache, dass der mögliche Befestigungsring in dem Falle den halbkreisförmigen hellenistisch-römischen Hafen nur zur Hälfte einschließen würde. Zudem würden alle frühen Bauten inklusiver Heiligtümer nördlich des Hafens außerhalb des Befestigungsrings liegen. Dazu zählt auch eine lange Halle (frühe Stoa?), die nach den Forschungen von B. Özen-Kleine erst nach einem Brand am Ende 6. v. Chr. aufgegeben wurde[60].

Bezüglich der frühen Siedlung muss allerdings noch erklärt werden, warum sich die zum gleichen Befestigungsring gehörigen Abschnitte K48–K49 mauertechnisch von den restlichen unterscheiden. Obwohl eine Klärung dieses Problems durch Grabungen in dem Areal ermöglicht werden kann, haben wir es auch hier wahrscheinlich mit späteren Reparaturphasen zutun, die in vielen Mauerabschnitten der kaunischen Stadtmauer zu beobachten sind. Auch die Frage, in welchen Zeitraum die Abschnitte K11–K17. K41 und K42 genau zu datieren sind, muss zunächst offenbleiben.

Einer jüngeren Phase gehört die Polygonalmauer der Abschnitte K22–K30 an, die in jedem Fall älter ist, als die Abschnitte des Quadermauerwerks. Dies belegen einerseits die von B. Schmaltz angelegte Sondage an der Nordost-Ecke der Bastion B4, da sich die Quader der Ummantelung eindeutig an die polygonale Mauer anlehnen, ohne sich mit dieser zu verzahnen[61] (Abb. 24), andererseits aber auch die Anlage (F1), deren isodome Mauern wie Fremdkörper in der polygonalen Mauer wirken, in die sie später eingeschoben sind. Problematischer ist auch hier die absolute Datierung der polygonalen Mauer K22–K30, deren unterschiedliche Abschnitte offensichtlich mehrfach repariert oder geflickt wurden, wie die Mauerteile nahelegen, die überwiegend aus polygonalen Blöcken mit Randschlag bestehen (z. B. der letzte Teil des Abschnittes K22 beim Westtor[62], Abb. 20). Im Stil vergleichbare Mauern mit polygonalen Blöcken mit Randschlag in Xanthos werden solche Mauern ins 3. Jh. v. Chr. datiert[63]. Bemerkenswert ist jedoch, dass in dem homogenen Polygonalverband in der Sondage neben der Bastion B4 (Abb.2), diese Reparaturblöcke mit Randschlag fehlen. Der polygonale Mauerstil des Abschnitts ist gut vergleichbar mit dem von

58 Die Breite der Mauerabschnitte ändert sich zwischen 3 und 4 m.

59 Die Zwickel der Blöcke der Gipfelmauer sind dagegen in der Regel mit mehreren kleineren Steinen gefüllt, s. die Text-Abb. 5–6.

60 In den Kampagnen 2017 und 2019 wurde der Befund ca. 12 m lang freigelegt und vermittelt den Eindruck, dass er eine frühe, nordost-südwestlich ausgerichtete Stoa darstellt, Özen 2019, 203–204 Abb. 5–6, s. für den im Plan eingezeichneten Teil, Text-Abb. 2.

61 Schmaltz 2010, 320 Abb. 5.

62 s. Anm. 20.

63 Des Courtils 1994, 289-290 Abb. 3; Schmaltz 2010, 319–320.

Scranton „Hammer Face" genannten Polygonalstil, der von ihm ins 5. Jh. v. Chr. datiert wird[64].

Noch älter scheint der Abschnitt zu Beginn des polygonalen Mauerzugs auf dem *Çömlekçi-Salih-Hügel* westlich des Hafens zu sein, dessen Polygone aus grob bearbeiteten Blöcken bestehen, die in den unteren Bereichen kyklopische Ausmaße erreichen. Vereinzelt werden diese von kleineren Blöcken oben und an den Seiten umgeben (Abb. 19). Wiederum findet der beschriebene Mauerstil enge Parallelen in solchen Mauern, die von Scranton als „lesbisch beeinflusst" bezeichnet und ins 6. Jh. v. Chr. datiert werden[65]. Aufgrund dieser Parallelen wird die Entstehungszeit der kaunischen Polygonalmauer vorläufig ins 6. oder 5. Jh. v. Chr. eingeordnet. Diese Datierung würde auch durch den Pfortentypus der polygonalen Mauer unterstützt, dessen nächste Parallelen sich in der archaischen Polygonalmauer auf Samos finden[66]. Auch der Kouros, der unmittelbar vor dem Westtor auf der Feldseite entdeckt wurde und in die zweite Hälfte des 6. Jh. v. Chr. datiert wird, unterstützt diese Annahme[67]. Er stand ursprünglich wahrscheinlich an einer Ausfallstraße, die durch dieses Stadttor nach Westen führte. Aufgrund der feinen homogenen Bearbeitung der Blöcke hält dagegen Pimouguet-Pédarros die polygonalen Abschnitte für hellenistisch, wofür jedoch keine Argumente angeführt werden[68].

Es bleibt nun die Datierung des Quadermauerwerks der Abschnitte, F1, K21, K31–K32, B2–B8 vorzunehmen. Insbesondere aufgrund von Spolien, die B. Schmaltz vor allem in den Bastionen B2 und B4 entdeckte, setzte er für das Quadermauerwerk, bzw. für das isodome Quadermauerwerk, das Mittlere 4. Jh. v. Chr. als *terminus post quem* fest[69]. Auf der Suche nach einem wichtigen Ereignis, welches den Wiederaufbau der Stadtmauer rechtfertigen könnte, führt er das von Polybios (5, 88 f.) beschriebene Erdbeben auf Rhodos im Jahr 227/6 v. Chr. an, das der Überlieferung nach sogar den berühmten Koloss in Mitleidenschaft gezogen haben soll. Dieses Ereignis als Auslöser nehmend datiert Schmaltz alle Erweiterungen und Reparaturen, die an der Stadtmauer in Quadertechnik bzw. in isodomer Quadertechnik durchgeführt wurden, in die Zeit kurz nach dem genannten Erdbeben. Ferner datiert er auch alle Abschnitte der Nordmauer in jene Zeit, die zum Teil unterschiedliche Mauertechniken aufweisen.

Außerdem hält B. Schmaltz die Abschnitte ab dem Nordabhang des *Sivri Hisar-Hügels* (K31) bis K38 für eine große Erweiterung der kaunischen Stadtmauer, wodurch das Stadtgebiet um das Dreifache ausgeweitet worden sei. Die von B. Schmaltz angenommene Erweiterung würde allerdings voraussetzen, dass die Stadtmauer vorher bereits einen Befestigungsring besessen haben muss, der die Stadt auch vor Angriffen aus dem Norden schützte. Anders ausgedrückt müssten wir am Nordabhang des *Sivri Hisar-Hügels* in dem Bereich, in dem die ältere polygonale Mauer von der Quadermauer abgelöst wird, also die angenommene Erweiterung ihren Ausgangspunkt nimmt, zumindest Spuren entdecken, die auf den Verlauf der Nordmauer vor der vermeintlichen Erweiterung hinweisen. Abgesehen von der ungeeigneten Topographie östlich des *Sivri Hisar-Hügels* konnten trotz der intensiven Geländebegehungen hier keine Spuren für die Existenz eines vorherigen Verlaufs der Mauer nach Osten hin gefunden werden. Der beschriebene Verlauf der Stadtmauer vom Abschnitt K22 bis K38 scheint im Gegenteil von Anfang an als eine Geländemauer festgelegt

64 Scranton 1941, 46 Abb.7; 162 Nr. 5.

65 Scranton 1941, 34 Abb. 5; 161 Nr. 1–11.

66 3. Viertel 6. Jh. v. Chr., s. dazu Kienast 1978, 60 Abb. 26–27.

67 Gürman 1975, 13–16.

68 Pimouguet-Pédarros 2000, 248 Abschnitte G–H.

69 Schmaltz 1991, 156–157; Schmaltz 1994, 189–190; Schmaltz 2010, 320–322.

und bei allen späteren Reparatur-, Ausbau-, und Erweiterungsphasen beibehalten worden zu sein. Deshalb handelt es sich m. E. bei den überwiegend in Quader- und trapezoidaler Technik gebauten Mauerabschnitten im Westen und Norden, um großangelegte Erneuerungen und Verstärkungen der bereits vorhandenen Stadtmauer in Kaunos. Wie sind aber diese Erneuerungsmaßnahmen zu datieren?

Die gefundenen Spolien, die nach B, Schmaltz den *terminus post quem* für die Datierung des Quadermauerwerks bilden, erweisen sich bei näherer Betrachtung als problematisch. Denn bei der Berücksichtigung von Spolien für die Datierung eines ganzen Gebäudes ist stets die Anzahl und Lage des wiederverwendeten Materials zu berücksichtigen. Bei den beiden Bastionen B2 und B4 ist m. E. deshalb eine differenzierte Herangehensweise erforderlich. So bestehen die Mauern der Bastion B2 zu 70 % aus Spolien, die die Festsetzung eines *terminus post quem* für die Entstehungszeit der Bastion mit Hilfe der Spolien rechtfertigen.

Die Spolien in der Mauer der Bastion B4 allerdings wurden nur in der Südwest-Ecke[70] der Ummantelung gefunden, die offensichtlich eingestürzt war und wiederhergestellt wurde. Ansonsten besteht der Mauerverband aus homogenem, gut bearbeitetem Quadermauerwerk mit verhältnismäßig dichtem Fugenschluss und ohne weitere Spolien. Die genannten Spolien liefern folglich in diesem Falle nur einen *terminus post quem* für die Reparatur der Südwest-Ecke, nicht aber für die Entstehungszeit der Bastion B4 insgesamt.

Der Erdbebentheorie von B. Schmaltz widerspricht ferner die Dimension der Erneuerung in den Mauerabschnitten K31 bis K38, die Vielfalt an Mauertechniken (Quader-, Isodom-, Trapezoidal-Technik) und die Sorgfalt der präzisen Ausführung. Diese Punkte setzen eine langwierigere Planungs- und Bauzeit sowie insbesondere immense finanzielle Ressourcen voraus. Solch eine aufwendige und umfassende Erneuerung und Verstärkung der kaunischen Stadtmauer (wie die Bastionen B3–B8, Abschnitte K19. K21–K22, F1) wäre kurz nach einer Katastrophe weit weniger denkbar als in prosperierenden, ruhigen Zeiten. Deshalb sollte die Erneuerung, Verstärkung und z. T. Neustrukturierung des kaunischen Befestigungssystems als eine umfassendere und sorgfältig geplante Maßnahme verstanden werden, die nicht nur auf das Erneuern und Verstärken der kaunischen Befestigung beschränkt war, sondern wie die Mauern K19 und K20 zeigen, auch auf eine Neugestaltung des Hafens, ja womöglich auf eine Neuordnung der Stadt insgesamt zielte. Deshalb ist es plausibler, all diese Maßnahmen an der kaunischen Stadtmauer mit dem Engagement der Hekatomniden in Karien im Zusammenhang zu sehen. Denn diese Dynastie war politisch und wirtschaftlich in der Lage, solche Großprojekte in Folge der günstigen politischen Lage zu planen und auszuführen[71]. Schließlich ist anzuführen, dass die Hekatomniden in Kaunos präsent waren, was die Basen ihrer Statuen, die im Zentrum von Kaunos aufgestellt waren, ohne Zweifel belegen[72].

Dr. Soner Özen
Klassische Archäologie
Universität des Saarlandes
Campus / Gebäude B3 1, 1
D- 66123 Saarbrücken
soner.oezen@uni-saarland.de

70 Schmaltz 2010, 327 Abb. 6.

71 Die günstige politische Lage nach dem Königsfrieden 387/6 v. Chr. für Städte im westlichen Kleinasien, s. Pedersen 2006, 272–273.

72 Işık – Marek 2005, 239–247.

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Studies on the Southern Outer Fortifications of Pedasa Acropolis

Gözde Adıgüzel – Sevilay Zeynep Yıldız

Abstract

Pedasa is located in the inner part of the Halikarnassos Peninsula in Karia. It was an important settlement founded by the Lelegians who were seen as the ancestors of Karians that were among the Western Anatolian Iron Age people mentioned in the ancient texts. Following long-term surface surveys, archaeological excavations have been conducted at Pedasa since 2007. The Pedasa Acropolis, situated in the center of the city, is a hilltop settlement with inner and outer walls (fortification systems). Thus far, the archaeological excavations at this part of the settlement have been concentrated namely on the walls and dipyrgon. This paper, however, evaluates the Ancient Road, Towers 5, 4, and 3, and Bastion 1 structures, which were associated with the acropolis outer fortification walls that were studied during the 2016–18 excavation campaigns. Our archaeological work at the site has yielded important data on the structuring of the area, different construction phases, and periodic relations of the walls.

Keywords: *Karia, Pedasa Acropolis, fortification, the Ancient Road, Tower*

Introduction

The region named "Karia" in antiquity was surrounded by the Great Meander River (Maiandros), the Aydın Mountains (Messogis) and the Karanlık Mountains in the north, the Dalaman River in the south, the Babadağ and Honaz Mountains in the east and the Aegean Sea in the west[1]. The geographical limits of the region were defined by these mountains, seas, and rivers (some of which are still active)[2]. Culturally, Karia had a heterogeneous structure with different ethnic groups such as Dorians, Karians ("*Kars*"), and Lelegians[3]. Situated in the Gökçeler of Bodrum (Halikarnassos) Peninsula, Pedasa was among the eight settlements established by the Lelegians[4]. Lelegian identity has also been linked to the pre-Maussolleion architectural remains (compounds, tumuli, etc.) spread mainly over the Halikarnassos Peninsula and the region between Iasos and the Bafa Lake[5].

1 Hdt. 1.171; Strab. 12.7.2; 12.8.15.

2 Diler 2015, 145.

3 Lohmann 2012; Mokrišová 2017.

4 Varinlioğlu (1992a, 14) claims that researchers like Newton, Paton, Myres, Mauri, L. Robert, Bean, Cook, and Radt who tried to associate non-Hellenic features with Lelegians in the Bodrum Peninsula seemed to be agreed that Gökçeler (Gökçallar) was Pedasa mentioned by Herodotus and Strabo. This is further confirmed by "*Pedasis / Pedasidos*" inscription of a sculpture base found in the Athena sanctuary during our excavations (Diler – Bulut – Özer 2009, 29).

5 Diler 2005; 2007; Diler – Gümüş 2012; 2016; Diler – Gümüş – Çur 2015; Flensted-Jensen – Carstens 2004; Lohmann 1997; 1999; 2012; Radt 1970; 1992.

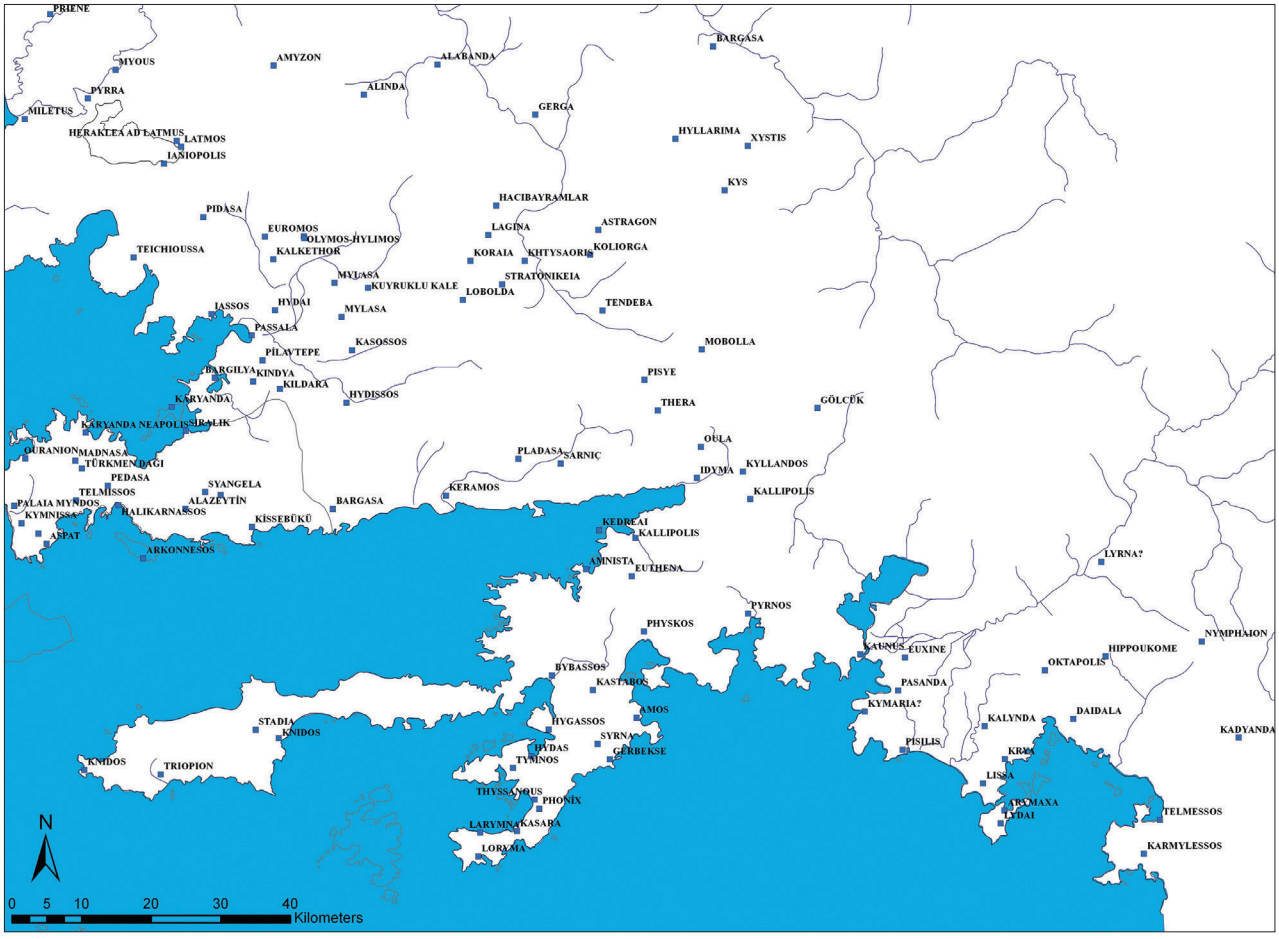


Fig. 1: Map of Karia, location of Pedasa (Pedasa Excavation's Archive)

The Bodrum Peninsula was researched in the 19th century by Paton and Myres (1893 and 1894) to investigate and define the Lelegian culture mentioned by the ancient writers[6]. In the 1950s, Bean and Cook conducted surface surveys on the peninsula[7]. After the comprehensive archaeological surveys of Radt in the 1960s, the settlement patterns and material culture of the indigenous people (Lelegians) in the region were determined[8]. In addition, Rumscheid studied many archaeological materials[9]. Recently, the Bodrum Peninsula surveys have been run by Diler to research archaeological questions concerning the pre-Hecatomnid Era[10]. After the surface surveys in the Peninsula, the Pedasa excavations have been conducted under the direction of Diler since 2007 by focusing primarily on the study of the characteristic settlement patterns of the city (Fig. 1)[11].

The Pedasa territory covers a large area stretching from the north of today's Konacık (Bodrum)

6 Hdt. 1.171; Strab. 13.1.59; Paton – Myres 1896, 248.

7 Bean – Cook 1955.

8 Radt 1970.

9 Rumscheid 2009.

10 Diler 2003; 2004; 2005; 2007; 2009, 359, 368; 2016b, 139; 2019; Diler – Gümüş 2012; 2016; 2019; Diler – Gümüş – Çur 2015; Diler *et al.* 2009; 2011a.

11 Diler 2010a; Diler *et al.* 2008; 2011b; 2013; 2014; 2016; 2019; 2020.

to the northern limit of the peninsula facing the Torba Harbor[12]. Our current archaeological excavations at Pedasa have shown that the city was characteristically a traditional rural hilltop settlement with fortification systems[13]. The city comprises an acropolis with fortifications, an Athena temple (Fig. 2), necropolis areas with different types of graves spread over the territory, and agricultural areas[14]. Due to its rustic settlement structure,[15] Pedasa differs from Halicarnassos and Myndos, which are cosmopolite settlements established by the coast[16].

The acropolis of Pedasa, situated on a hilltop (~300 m high) and commanding the area from all sides, is surrounded by the 200 m long inner walls and ca. 400 m long outer walls (Fig. 3). It overlooks the Güllük Gulf in the direction of Torba (to the east) and Bitez (to the west and northwest). The Athena sanctuary is located in the west of the acropolis while the civic architectures are on the southern ridges. The necropoleis areas are spread all over the settlement. In the inner castle of the acropolis, there is a *dipyrgon* (an enclosure/forth belonging to a "master" or a lord)[17] with

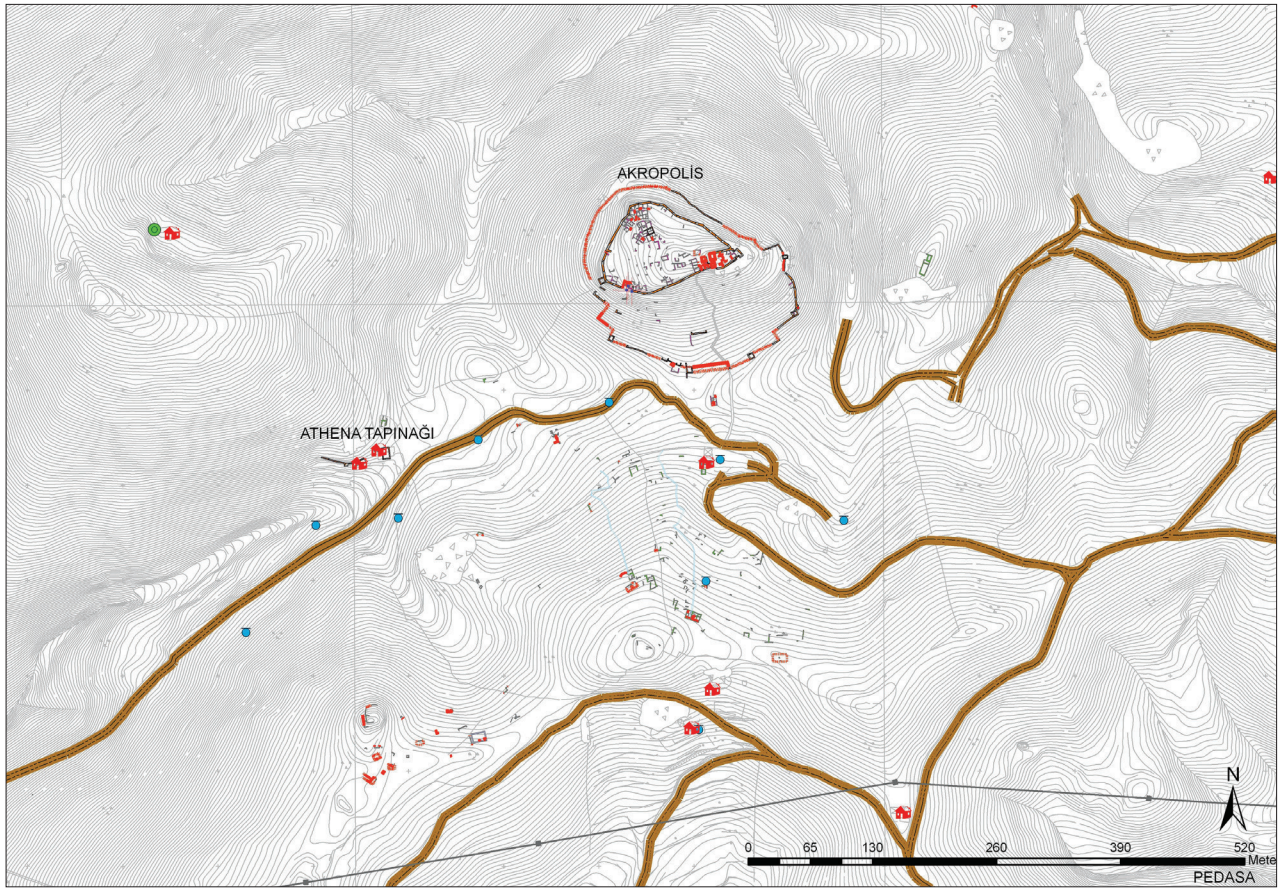


Fig. 2: The location of the acropolis in Pedasa (Map: Ş. Gümüş)

12 Diler 2006, 479; 2009, 369.

13 Adıgüzel – Yıldız 2017; Diler 2006, 110.

14 Diler 2006, 111; 2009, 369; Özer 2018.

15 Diler 2006; 2010b; 2015; 2016b, 456–457.

16 Mokrišová 2017, 197.

17 "bey" in Turkish.

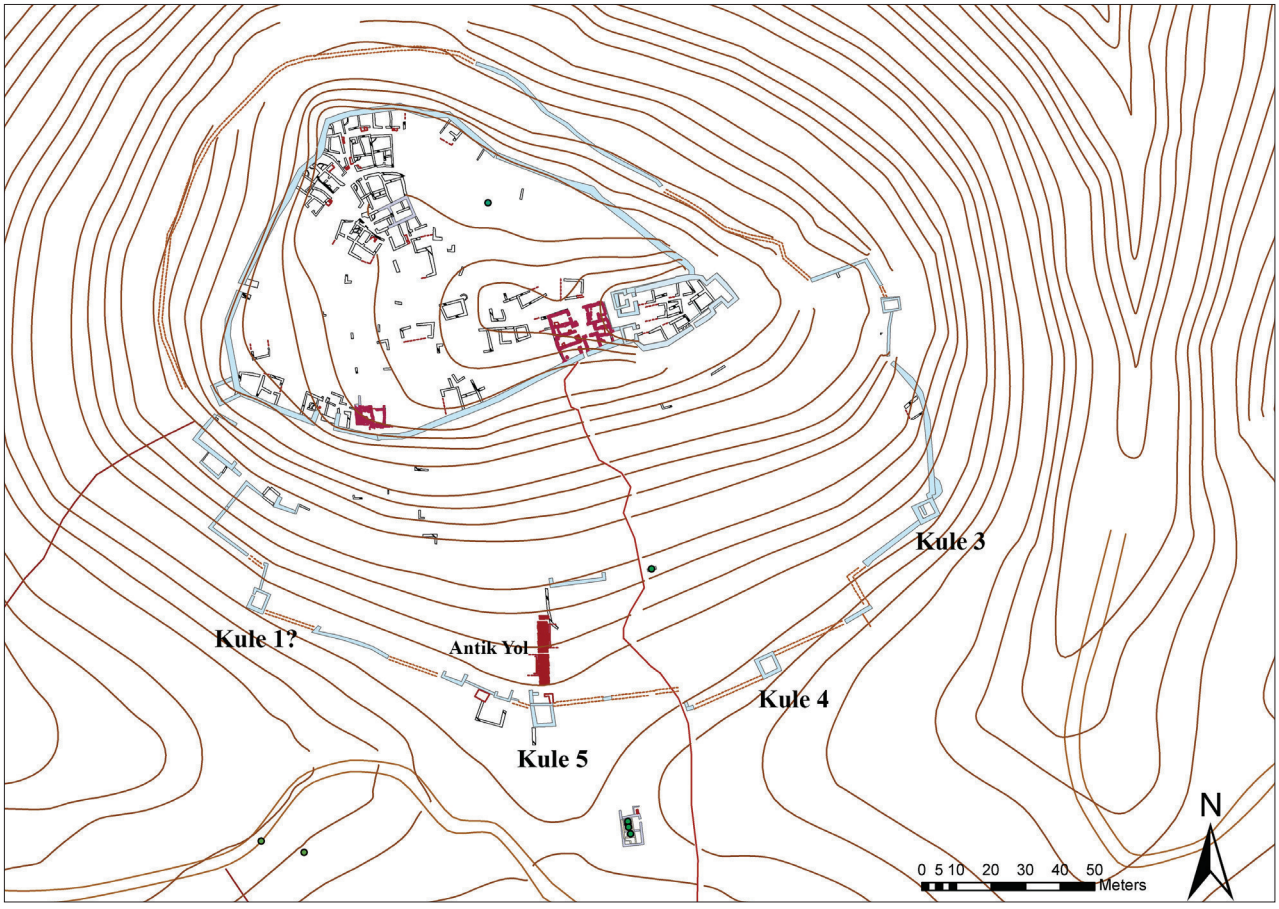


Fig. 3: Acropolis of Pedasa, the excavation areas in the inner castle and southern outer fortifications (Map: Ş. Gümüş)

towers[18]. A similar enclosure has also been discovered in Termera[19]. Both Pedasa and Termera *dipyrgons* are in the tradition of Theangela, Herakleia at Latmos, and Labraunda but are most likely older[20]. The domestic structures are situated in the inner castle of the acropolis, either with one or several rooms. These structures have openings to the alleys and some share walls with the fortification wall. This settlement system in the inner castle must have been in use from the Geometric period up to the 12th century AD[21].

Studies on the southern outer fortifications of the acropolis

To understand the dating and historical development of the acropolis' fortifications, research has been conducted on the inner walls. The results indicated that the inner walls date to the Archaic

[18] In the 2014 excavations, a wall probably belonging to a 5th century BC building was exposed. In the Acropolis, the earlier layout with the side-by-side structures - mainly rooms adjacent to the fortification wall and divided into small parcels by alleys - continues also in this period. While the earliest find dates back to the Late Geometric period, this area was highly occupied in the Byzantine period. For the outer walls, on the other hand, there has yet to be a reliably dated find before the Archaic period (Diler 2016a, 139; 2019, 519; Diler – Adıgüzel 2015, 90; Diler *et al.* 2016).

[19] Diler 2019, 516.

[20] Diler 2016a, 139; 2019.

[21] Adıgüzel – Yıldız 2017; Diler – Adıgüzel 2015, 90, Fig. 10.

period[22]. In the 2016–2018 campaigns, our work focused on the outer walls to investigate their construction phases, periodization, and relations to the towers and bastions[23].

Defining the outer walls topographically

Located in the center of Pedasa territory, the acropolis rises to the different heights in the northern and southern parts. The northern side has a relatively steeper slope compared to the southern one. Domestic buildings are located in the lower town of the acropolis, while in the upper town both domestic and administrative structures can be found (Fig. 4). The outer wall is almost 400 m long although it did not well preserve in the northern part. The walls start on the southwestern side; running southwardly, they end in the northeastern part of the acropolis (Fig. 5). On the eastern and western sides, the walls continue as the topography allows. Unless the walls in this part had been previously destroyed, it appears redundant to construct a wall in the northern part because the steep slope and structure of the land provide natural protection. In the eastern part, following the topography, the walls make irregular turns and rise mainly on the bedrock. In the southern part of the



Fig. 4: Aerial image of acropolis (inner and outer walls) (Pedasa Excavation's Archive)

[22] Diler 2009, 375; 2019, 512–513; Özen-Kleine 2016.

[23] The preliminary results of the 2016 and 2017 campaigns were published earlier (see Adıgüzel – Yıldız 2017). The area between the outer wall and the acropolis was excavated by opening small soundings under the supervision of B. Özer in order to understand the occupation history and stratification of the area (Diler *et al.* 2022).



Fig. 5: Acropolis, southern outer walls (Pedasa Excavation's Archive)

fortifications, there are gaps due to destructions. Towers were placed regularly at intervals of ca. 70-100 m[24]. Five towers were detected on the outer walls and three of them (Tower 3, 4, and 5) were investigated further by opening soundings.

Construction technique and material of the outer walls

As seen in the towers, the outer walls of the acropolis were made of local limestones. The walls were constructed with rectangular and trapezoidal blocks in dry-dyke technique (Fig. 6a–b)[25]. On the outer façades of the walls, the blocks were roughly carved while the inner side was relatively finely smoothed. The joint gaps differ between 0.03 m and 0.07 m and they are pseudo-isodomos because of their irregularity. The thickness of the fortification walls varies between 1.00 to 1.30 m. The fortification has the "double-walling-technique". In places, the gaps between the two walls were filled with rubbles. Binders were not used or have not been detected yet. The size of the stone blocks used in the wall itself ranges between 0.20 x 0.45 m and 0.50 x 1.30 m. As observed with the

[24] The tradition of having an inner castle on the acropolis and enclosing lower town(s) with walls which were fortified with towers at intervals is a very well-known feature from the Hittites (Diler 2009, 375; 2015,160; Maner 2019, 128–129, 396, Taf. 20.1; Paksoy 2019, 7, 55).

[25] Such technique is mentioned as the "Lelegian walls" within the fortification techniques of the pre-Maussolleion era by Pimouguet-Pédarros (2000, 80–82).





Fig. 6 a-b: Acropolis, southern outer walls (Pedasa Excavation's Archive)





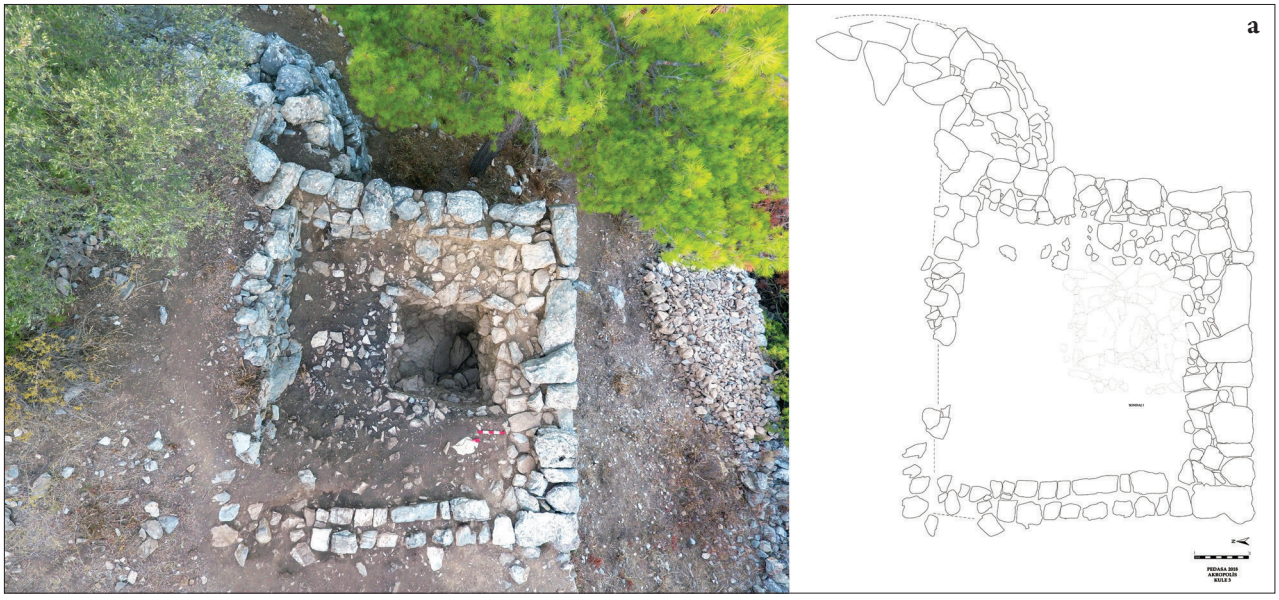


Fig. 7
a: Acropolis inner castle, western fortification wall
b: Acropolis outer fortifications, northern wall
c: Acropolis outer fortifications, eastern wall (Pedasa Excavation's Archive)

inner walls, the outer walls were built immediately on the bedrock (Fig. 7a–c). The eastern part of the wall that stands on 1.40 m high bedrock is preserved in ca. 1.30 m height. The walls make turns (corners) at Tower 3, 4, and 5 and as well as in the western and eastern ends but it follows an ovoid form at Tower 3 due to the topography.

Construction technique and material of the towers

Only the foundation levels of the original stone rows of the towers that were placed at intervals on the fortification wall are preserved (Fig. 8a-b-c). Two of the five towers have been used as beehives by today's beekeepers and thus, the upper rows of the original walls were altered by adding more stone rows. Before we started to work in this area, we first removed these modern alterations up to the original stone rows. The towers have approximately 1.50 m – 3.00 m of preserved heights. The walls of the towers are better preserved on the southern façades. The thickness of the walls is ca. between 0.80 – 1.20 m. Towers usually have square or nearly square plans measuring 6 x 5 m or 4 x 4 m. As seen in the fortification walls, the towers were also constructed with local limestone blocks (often rectangular or polygonal) in the dry-dyke technique. The walls have two rows, in which the larger blocks were used on the outer façades. On the corners or turns, larger and better-worked blocks (measuring ca. 150 x 0. 30 m) were used (Fig. 9a–c). The surfaces of the stones were left unshaped.





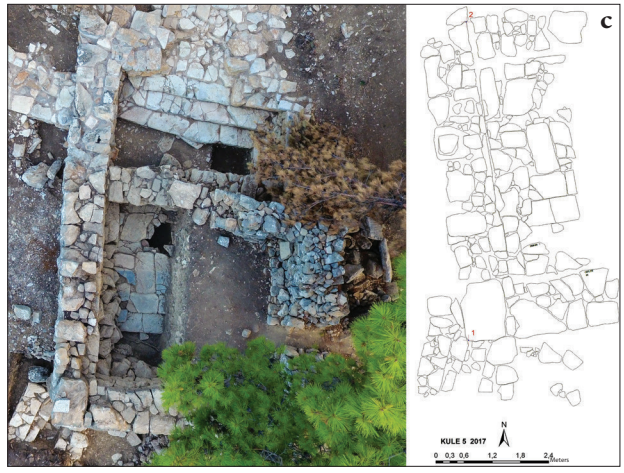


Fig. 8 a: Tower 3. **b:** Tower 4. **c:** Tower 5. (Pedasa Excavation's Archive)

The irregular joint gaps measure between 0.05 m and 0.13 m, therefore, are pseudo-isodomos. The outer floor levels differ from the inner floor levels in every tower. In Tower 3, there is a bedrock outcrop rising ca. 1.15 m high. In this area, the floor level is higher than the tower's southern outer floor level, which probably made the tower even stronger. The floor in Tower 4 was made of pressed earth that is compact like bedrock. Tower 5 was built over the Ancient Road. For this reason, stone blocks used in the road were included in the floor levels of the tower.

Gate: An access from the outer city walls to the acropolis was probably provided via a gate in the southern part between Tower 5 and Bastion 1 (Fig. 10a). This gate must have been used throughout the Archaic period. The gate measures 5.40 m long 1.40 m wide in the preserved parts. However, after



Fig. 9 a: The unexcavated corner of Tower 1 at the southwestern walls **b:** Tower 3, southeastern corner **c:** Tower 4, northwestern corner **d:** Tower 5, southwestern corner (a–b: authors; c–d: Pedasa Excavation's Archive)



Fig. 10 a: Southern outer walls, gate **b:** The entrance area used after the Archaic period (Pedasa Excavation's Archive)

the construction of the towers, the entrance to the city might have been to the west of the Ancient Road, where we found a door-stone (measures 1.50 x 0.85 m) (Fig. 10b). No other accesses or entrances from the outer walls to the acropolis have been detected other than this gate.

Bastion 1

Fortifying the outer wall, Bastion 1 is located 5.80 m west of Tower 5 and connects organically with the 1 m thick fortification walls. Today's preserved height of the bastion is approximately 2.70 m. It is 5.10 m long and 1 m thick in the southern part, while it projects 0.5 m outwardly in the western section.

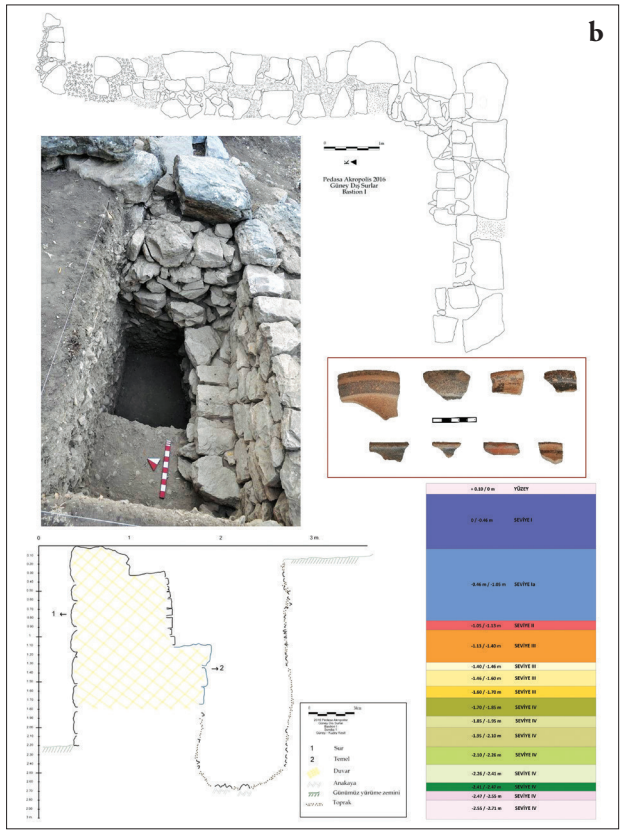




Fig. 11 a: Soundings at Bastion 1 **b:** Location of Bastion 1 (Pedasa Excavation's Archive)

In the southeastern part of Bastion 1, a sounding (2.5 x 1.5 m) was opened (Fig. 11ab). After removing the fill and rubbles, the beginning of the foundation level of the fortification, which projects 0.35-0.40 m outwardly, was detected at -1.00 m beneath the working surface. This foundation level also indicates the walking surface of the acropolis outer castle within the fortification walls. In order to understand the construction phase(s) of Bastion 1, the sounding was excavated further down and, as a result, the bedrock was reached at the level of - 2.50 m below the working surface. The inner wall of Bastion 1 shows good craftsmanship, constructed with regular and strong stone rows. However, in the eastern part, the wall running perpendicularly towards the north has a different masonry. In this part, the stones are not worked, larger than the others, and irregularly placed in a random setting. The part of Bastion 1 that turns northwards (approximately 1.40 m) does not organically connect.

The archaeological finds retrieved from the sounding in Bastion 1 are dated between the early Iron Age and the Archaic period. The first construction phase of Bastion 1 is the best-preserved part of the outer walls in the southern part and can be dated to the Archaic period according to the finds from the walking floor level.

The Ancient Road

Archaeological investigations were conducted in the area beginning with the northern wall of Tower 5 and continuing towards the acropolis to help understanding the archaeological relations of the remains to the rest of the structures, as well as the stone slabs found in front of Tower 5. As a result, it has been discovered that the aforementioned stone slabs belonged to an ancient stone-paved road with steps. The road is 28 m long and 5.50 m wide (Fig. 12a).

Beginning with three steps approximately 1.50 m in front of the northern wall of Tower 5, the road was constructed with landing platforms and overlapping stone slabs in varying sizes (0.18-0.20 m) (Fig. 12b). The steps are made of easy-to-walk, low stone slabs with different heights





Fig. 12 a: The Ancient Road discovered in the north of Tower 5. **b:** Steps situated in northern façade of Tower 5 (Pedasa Excavation's Archive)

(0.05-0.15 m). Towards the middle of the road, a part (measuring 0.50 x 1.20 m) seems to have been removed. In the western part of the road, a monolithic stone plate (1.50 x 0.85 x 0.10 m) was found confined by another stone plate (0.09 x 0. 81 x 0.20 m). This confining stone was most probably a threshold. After the construction of Tower 5, the

part beneath the tower must have lost its function which would imply that access was gained through this threshold from the gateway in the west. The road with this side entrance remained in use until late periods. The archaeological finds retrieved in the area between Tower 5 and the Ancient Road have been dated to the Archaic period. As the road was blocked in the southern part after Tower 5 was built, access to the ancient road and the acropolis was provided by an opening represented through another threshold that could be reached by a door-opening between Bastion 1 and Tower 5.

This ancient road, climbing towards the acropolis, was enclosed by walls on both sides (east and west). The eastern side enclosure runs approximately 8 m northwards with destructions in some places. On the western side, on the other hand, the wall (0.54 m wide and 0.23-0.30 m high) starts at the door and runs ca. 6 m (preserved). Adjacent with this western wall and built in the same craftsmanship, an almost square room (measuring ca. 2.60 x 2 m in excavated parts) was exposed. This room must have belonged to a structure related to the Ancient Road. In the small sounding made in this room, remains of a foundation level, sitting on the bedrock and associated with an earlier structure than the road, were discovered.

Moreover, in the northern part, the road becomes narrow, and deformations increase. Due to differences in thickness and types of stones used in the northern part of the road, it is thought to have been repaired at some point in this section. According to the ceramics, the road must have been built in the 6th century BC at the latest but might have remained in use after the city came under the rule of Halikarnassos.



Fig. 13: Stone-slabs (steps) of the Ancient Road exposed in Tower 5 (Pedasa Excavation's Archive)

Tower 5

To the south of the Ancient Road and the east of Bastion 1, Tower 5 (used for beekeeping in modern days) is located. Our work in this area started with the removal of the modern destructions up to the original stones. Thanks to excavations, important information on the walls and foundation levels of Tower 5 was gathered (Fig. 10a-11b). Tower 5 measures 4.78 x 4.43 from wall to wall (interior) and the thickness of the walls varies between 0.80 – 1.20 m. The construction technique of the tower follows the general fortification building traditions of the city (see above: "Construction technique and material of the towers").

As a result of the small sounding made in Tower 5, stone plates (pavement), which belong to the Ancient Road, were discovered (Fig. 13). This confirms that Tower 5 dates later than the road. Including this pavement, five different fill layers (I-V) yielding ceramics dated from the Archaic period through the Classical period were discovered. The ceramics found in Layer III support our idea that this level was filled during the 4th century BC. Cleaning more in Tower 5, we uncovered that the

ancient road (beneath Tower 5) continues southwardly even after the tower for at least 1.10 m.

The ancient road's steps in Tower 5 are identical to the step-setting of the ancient road in front of the northern outer wall of Tower 5 (Fig. 8c). The stepping located in Tower 5 consists of large stone plates (1.20 m x 0.60 m x 0.12 m). These stone plates, which can be seen both in Tower 5 and near its north-outer front, seem to be different from the northern part of the ancient road and show a monumental appearance.

To sum up, the walls near the southwest corner of Tower 5 and the ones in the excavated soundings were directly constructed on the floor of the ancient road. The best-preserved part of the road is near the western corner of Tower 5. After the construction of the tower, the ancient road was destroyed. At the corners of Tower 5, as in the Lelegian tradition, finely worked stone blocks were used. The outer walls of Tower 5 were constructed in dry-dyke technique. In the outer façades, roughly worked irregular blocks were used and small stones were filled in between. It is not possible to unequivocally date the dry-dyke walls only from the architectural point of view[26].

Tower 5 projects 6.80 m out of Bastion 1, which is situated 5.80 m away from the tower itself (Fig. 10a). Such projections had been considered as advantageous practice in fortifications since ancient times[27]. One indication for a gate are some architectural remains (70x1.05x0.30 m), most probably from a lintel that must have belonged to a door in the 2 m west of Tower 5.

Tower 4

Through the investigations of Tower 4, which is located in the southern outer walls of the acropolis, 70 m east of Tower 5, the construction





Fig. 14 a: Western façade of Tower 4. **b:** Tower 4, sounding 1 (Pedasa Excavation's Archive)

phases and periodization of the area were researched (Fig. 14a)[28].

The floor level of Tower 4 was reached at -4.00 m within the sounding (1.60 x 2.50 m) opened in the southeastern area, the only part where some of the original walls have been preserved (Fig. 14b). Tower 4 measures ca. 6 x 6 m from wall to wall (exterior). After determining eighteen layers (I–XVIII), ceramic finds indicated that Tower 4 must be dated between the end of the 5th century BC and the beginning of the 4th century BC. In the studied ceramic repertoire, both local and imported groups exist. A base fragment from Layer X, which shows paint decorations of a

26 Scranton 1941, 145.

27 Vitruvius (1. 5. 2) recommends such organizations of the towers and explains the details of possible benefits of this construction style when the enemy attacks.

28 Diler *et al.* 2020, 36.



Fig. 15 a: Southern façade of Tower 3.
b: Acropolis, the southern outer walls, Tower 5, bastion, entrances and the Ancient Road (Pedasa Excavation's Archive)

palmette-roulette (interior) and concentric circles (exterior), has been dated to the last quarter of the 5th century BC (425–400 BC)[29].

Tower 3

A small sounding was opened inside of the south-eastern outer corner of Tower 3 that is situated 70 m east of Tower 4 (Fig. 15a). Tower 3 measures 6.40 x 5.30 m from wall to wall (exterior). Preserved greatly in large blocks, eight ceramic layers were detected (Fig. 8a). Standard cooking vessels and coarse wares are high in numbers. In addition, ceramic groups including the Classical black glazed pottery and the East Roman cream/yellow, as well as yellowish slipped wares were retrieved. In Layer VIII, excavations were carried out in the northwestern and northeastern corners as the bedrock allows. At -2.10 m, the bedrock formation was reached and exposed as 1.20 wide and 1.15 m high. This formation continues southwardly by covering almost the entire working area (except for NW and NE corners)[30].

Conclusion

As a result of the archaeological research conducted on the acropolis outer fortifications to investigate the relations between towers and fortification walls as well as their periodization and construction techniques, the following remarks can be concluded: Pedasa's outer fortification walls were strengthened with towers and bastions. The "progressive fortification system" of the settlement has similar features to the other Karian settlements.[31] The topography of the region was taken into consideration and made use of while constructing the fortifications. Sharing similar architectural features with the other settlements in the Halicarnassos Peninsula, the fortification system of Pedasa finds its parallels also outside of the region. In Termera (Asarlık) of the Halikarnassos Peninsula, the wall construction dated to the 5th century BC resembles Pedasa's outer fortification towers[32]. Furthermore, outside of the peninsula, an architecturally parallel masonry was found at Kaunos. In the northern wall of the Kaunian fortifications, one of the two construction techniques, namely the stone rows with irregular blocks, looks similar to the ones seen in Pedasa[33]. However, we think that dating remains solely based on the architectural analysis

[29] Sparkes – Talcott 1970, Fig. Pl. 47/633, Pl.59/865, Pl.59/1025.

[30] Diler *et al.* 2020, 37.

[31] Diler 2003, 15; 2015, 158.

[32] Bean – Cook 1955, 85-171, Fig.17 (e).

[33] Özen 2016, 76, Fig. 22.

is not always sufficiently conclusive and adequate, and other forms of evidence should therefore be checked, if available.

The fortifications of Pedasa cannot be considered separate from the regional settlement patterns. Moreover, physical conditions, building traditions of the region and, the economic and political environment of the period must be taken into account while evaluating the craftsmanship and technical aspects of the fortifications. The reason for alterations in the Pedasa fortification system might have been due to emerging protection needs because of the ongoing conflicts in the region, rather than a planned construction program/agenda. If we also look at the subject from the historical point of view, we might find some connections. From 546 BC until Alexander the Great (334 BC), Persians took control of the region between the Mediterranean Basin and India, including Asia Minor. During the regional wars, rebellions, and disputes, they built a cosmopolite culture[34]. In 478–477 BC, the Delian League was founded under the control of Athens in Delos after Athens agreed to lead the defense and attack alliance in order to stop the Persian attacks, free Asia Minor from the Persian invasion,[35] as well as pursue the Athenian exterior and interior politics in the region[36]. Pedasa paid "2 *talent*" taxes to the league in 454/453, 453/452, and 451/450 BC[37]. In the second term, 448/447 and 447/446 BC,[38] this tax was reduced to "1 *talent*"[39]. Pedasa was included in the tax list in years 442/441, 441/440, and 440/439 BC[40]. Then in 425/424, Pedasa reappears in the list again by paying 3000 *drachmae*[41]. Possibly, Karia was still an ally of Athens at the beginning of the last quarter of the 5th century BC[42]. This above-mentioned period overlaps with the construction date of the outer fortifications of Pedasa. Pedasa was in a dominant position since it was the only Karian settlement resisting the Persians. Before the founding of Halikarnassos, in the 6th and 5th century BC, Pedasa is thought to have been the biggest city of the peninsula, whose control extended until Myndos. These centuries were the heydays of Pedasa.

Although there is no clear data to date the fortifications in certainty, judging by the wall construction technique, the fortification walls must have been built before the towers. The dry-dyke wall technique with irregular, roughly shaped and usually rectangular stone blocks were one of the common traditions, frequently encountered

34 Sarıkaya – Arslan 2017, 78.

35 Mansel 2004, 299; Sarıkaya – Arslan 2017, 87.

36 Boyana 2007, 12; Meiggs 1972, 1.

37 Pedasa was paying much more tax than its neighbor Halikarnassos. Paying less tax was not appropriate for a big city like Halikarnassos (Demir – Doğan 2014, 310). In 454 BC, Halikarnassos paid 166 *drachmae* and 4 obols to the League. In 454–453 when Halikarnassos made the first payment, it seems to have paid less than neighboring cities like Pedasa and Termera (Demir – Doğan 2014, 310). Varinlioğlu (1992a, 19; 1992b, 214), however, argues that the city paying tax in the first term of Athenian Tribute Lists was not the Pedasa in the peninsula but must have been "Pidasa" near Miletos. For more on this subject see: Bean 2000, 97; Konuk 2012, 343; Meritt *at al.* 1939, 535.

38 In 446/5 BC, Karian cities in Halikarnassos and environs, which were paying tax according to the tax list, decreased from 13 to 6. These cities were Halikarnassos, Keramos, Kalynda, Knidos, Kodapa, Madnasa, Ouranion, Pedasa, Termera ve Kooi (Demir – Doğan 2014, 310).

39 Konuk 2012, 343; Meritt – Wade-Gery – McGregor 1939, 535.

40 Keen 1993; 152; Konuk 2012, 343; Meritt *at al.* 1939, 535.

41 They continued to pay taxes during the Peloponnesian Wars (431-404 BC) (Keen 1993, 152; Konuk 2012; Meiggs 1972, 553, Table IV – Karian district, 343; Meritt *at al.* 1939, 535).

42 According to Keen (1993, 153) Karia and Lykia was under the control Athens in 430/429 BC.

in Karia in the Archaic period. Pedersen (2010, 314) argues that a part of the "Geländemauer-type" ("great circuit") city wall of Halikarnassos from the 4th century BC was made of a fine masonry with dry-dyke technique, particularly in the "north-east salient". Furthermore, he claims that this type of masonry was a characteristic Karia or Lelegian feature in the pre-Hekatomnid era as in the Pedasa's outer walls[43]. Similar wall techniques can be seen in Stratonikeia and the fortifications and terracing walls of Kadıkulesi Tepesi (Hill)[44]. In addition, the building technique of the fortification walls of Kaplandağ – Southern Acropolis (Yıkıklı Tepe-Hill) is similar to Pedasa's outer fortifications[45].

The outer fortifications, Bastion 1, and the ancient road were contemporary and must have been built at the end of the 7th century – at the latest by the beginning of the 6th century BC. The fortification wall itself then must have been strengthened with towers at the end of the 5th century/the beginning of the 4th century BC. In conclusion, the fortifications were most probably built in two phases. The southern outer walls, the ancient road leading to the acropolis, and the gate constitute the first construction phase followed by the second phase with the addition of the towers. Thus, the fortifications, road, bastion, and gate were used in the Archaic period and the towers were built in the 5th century BC while access to the acropolis was provided from the west of the ancient road (Fig. 15b).

Gözde Adıgüzel M. A. – Dr. Sevilay Zeynep Yıldız
Muğla Sıtkı Koçman Üniversitesi,
Arkeoloji Bölümü
TR- 48000 Kötekli / Muğla

[43] Pedersen 2010, 290, 293–294, Fig. 26, 314. This is also aligned with the thoughts of Pimouguet-Pédarros (2000).

[44] Söğüt 2013, Fig. 5; 2017, Fig. 1.

[45] Diler – Gümüş 2016, 156.

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Die Befestigungsanlage Prienes als Spiegelbild der Stadtgeschichte

Ulrich Ruppe

Abstract

Priene was refounded in the middle of the 4th century BC and was continuously inhabited until the end of the 13th century AD. Whereas scholars in the 20th century used to set their focus on the Hellenistic period of the city, recent investigations are increasingly shedding light on Priene's history in roman and byzantine times – and not least research at the fortifications could make a major contribution to this effort. In contrast to earlier opinions, the city wall shows quite a number of modifications, repairs and – mainly in the byzantine period – various extensions, especially on the acropolis. This short paper is intended to present this development and show how it reflects the city's history and demographic development throughout its 1650 years of existence.

Keywords: *Priene, fortification, acropolis, Teloneia, Proteichisma*

Forschungsgeschichtlicher Prolog

Im Zuge der ersten systematischen Ausgrabungen in Priene unter Theodor Wiegand am Ende des 19. Jhs. war es gelungen, ein flächendeckendes städtebauliches Ensemble freizulegen, welches uns heute das zusammenhängende Bild einer spätklassisch–hellenistischen griechischen Kleinstadt vermittelt (Abb. 1)[1]. Kaum irgendwo sonst ist das urbanistische Gefüge mit seinen öffentlichen Gebäuden, der Wohnbebauung und der infrastrukturellen Ausstattung in dieser Vollständigkeit erhalten und ›lesbar‹. Folgerichtig nahm die Forschung Priene gleichsam als Musterbeispiel einer hellenistischen[2] Stadt wahr und fokussierte sich auf die urbanistische Struktur eben jener Periode. Einen Höhepunkt erfuhr dieser Ansatz in den suggestiv-idealisierenden, aber auch inspirierenden Darstellungen in den Publikationen von Wolfram Hoepfner und Ernst-Ludwig Schwandner, die glaubten, dem Stadtentwurf pythagoreische Entwurfsprinzipien entlocken zu können[3].

Auf der anderen Seite blieb die nachhellenistische Geschichte Prienes lange verschwommen. Dies liegt nicht zuletzt in der Vorgehensweise Wiegands begründet, die Grabung ohne detaillierte Untersuchung jüngerer Schichten bis auf ein Niveau herabzuführen, von dem man annahm, dass es das hellenistische Stadtgefüge

[1] Die Grabungen wurden 1895 unter Carl Humann aufgenommen. Nach dessen Tod 1896 führte sein Assistent Theodor Wiegand, phasenweise unter Mitwirkung von Hans Schrader, die Arbeiten bis 1899 zu Ende und veröffentlichte die Ergebnisse gemeinsam mit Schrader in der 1904 erschienenen Grabungspublikation: Wiegand – Schrader 1904.

[2] Zwar erfolgte die Neugründung des Zentralortes der uns schon seit archaischer Zeit bekannten Polis Priene in der Mitte des 4. Jhs v. Chr., also in spätklassischer Zeit. Da wesentliche Merkmale der urbanistischen Struktur sich jedoch erst in den folgenden Jahrhunderten herausbildeten, wird die früheste Periode der Stadt in der Forschung gemeinhin als hellenistisch angesprochen.

[3] Hoepfner – Schwandner 1994, 188–225.

abbildet. Teilweise werden die dabei zerstörten Befunde zwar in der Grabungspublikation von 1904 am Rande erwähnt, doch ergibt sich aus diesen Schilderungen kein zusammenhängendes Bild. Tatsächlich schien die archäologische Evidenz ohnehin auf einen steten wirtschaftlichen Niedergang der Stadt in römischer Zeit schließen zu lassen, so dass Frank Rumscheid noch im Jahre 2002 die These vertrat, Priene hätte in der Kaiserzeit »den Anschluss verpaßt«[4]. Noch fragmentarischer waren die Erkenntnisse hinsichtlich der byzantinischen Zeit. Zwar fügte Wiegand am Ende der Grabungspublikation noch ein kurzes Kapitel »Priene und Umgebung in christlicher Zeit« hinzu, doch aufgrund der fehlenden systematischen Dokumentation der byzantinischen Befunde blieb das Bild des späten Priene nebulös.

Mit der Wiederaufnahme systematischer bauhistorischer Untersuchungen im Jahre 1990 sowie archäologischer Grabungen 1998 wurde der Fokus zunehmend auch auf die nachhellenistische Zeit gelenkt[5]. Als Ergebnis zeichnet sich heute gerade für die frühe Kaiserzeit ein regelrechter Bauboom ab[6]. Dabei deuten die aus den Erosionsschichten der unausgegrabenen Stadtbereiche herausragenden Reste von *caementicium*-Bauten darauf hin, dass zukünftige Untersuchungen Hinweise auf noch viel umfangreichere kaiserzeitliche Bauaktivitäten ergeben könnten, als bisher angenommen wurde.

Auch die Geschichte Prienes seit spätantik–frühbyzantinischer Zeit zeichnet sich zunehmend deutlicher ab, was wir in erster Linie Jesko Fildhuth zu verdanken haben. Durch seine Feldforschungen sowie die akribische Analyse der lückenhaft dokumentierten Funde und Befunde der nachrömischen Epochen, die er mit den literarischen und urkundlichen Quellen der byzantinischen Zeit abglich, entwickelte er ein Modell der Geschichte der Stadt in den letzten gut 1000 Jahren ihres Bestehens[7]. Das sich darin abzeichnende Bild Prienes ist durch eine ausgeprägte Siedlungskontinuität charakterisiert, wenngleich sich die Siedlungsschwerpunkte innerhalb des Stadtgebietes mehrfach verschoben.

Die Stadtbefestigung

Dieser Prolog zur Forschungsgeschichte Prienes war als Hintergrundinformation unverzichtbar,wenn in der Folge auf die bauliche Entwicklung der Stadtbefestigung eingegangen werden soll. Denn auch die Forschungen an der Stadtmauer ergänzen und vervollständigen unser Bild von Priene im Wandel der Jahrhunderte von der Mitte des 4. Jhs. v. Chr. bis zum Ende des 13. Jhs. n. Chr. – also 1650 Jahre kontinuierlicher Stadtgeschichte.

Ganz im Sinne des auf die Zeit der Neugründung fokussierten Blicks wurde der Mauerring noch von Wiegand als »durchweg gleichartig« bezeichnet, an dessen einheitlicher Entstehung kein Zweifel bestehen könne[8]. Doch lässt sich diese Sicht heute so nicht mehr halten: Selbst der ursprüngliche,

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[4] Vollständiger Titel des Kolloquiumsbeitrages Rumscheid 2002: Den Anschluss verpaßt: Priene in der (frühen) Kaiserzeit.

[5] Erste bauhistorische Untersuchungen wurden bereits seit den 1970er Jahren von Wolfgang Müller-Wiener begonnen. Sie blieben jedoch weitgehend unpubliziert oder wurden erst nach Übernahme der Grabungsleitung durch Wolf Koenigs (TU München) im Jahre 1990 von anderen Forschern fortgeführt. Die 1998 begonnenen archäologischen Untersuchungen standen unter der Leitung von Wulf Raeck (Goethe-Universität Frankfurt), zunächst als Stellvertreter von Koenigs, bevor er 2000 dessen Position übernahm. Seit 2014 leitet İbrahim Hakan Mert das nunmehr türkisch-deutsche Forschungsprojekt mit der Bursa Uludağ Üniversitesi und der Goethe-Universität Frankfurt als Kooperationspartnern.

[6] Zusammenfassend zu den neueren Untersuchungen zum kaiserzeitlichen Priene mit weiterführender Literatur: Raeck 2020, 22f; Fildhuth 2017, 29.

[7] Fildhuth 2017.

[8] Wiegand – Schrader 1904, 35 f. 41.

gründungszeitliche Zustand der Anlage ist keinesfalls >in einem Stück entstanden<. Darüber hinaus ist eine Vielzahl an Reparaturen, Ergänzungen und Erweiterungen der Befestigung zu beobachten. Eine Auswahl dieser Beobachtungen soll in der Folge vorgestellt werden.

Gründungszeitliche Befestigung – Bauabfolge

Anhand bautechnischer Details lässt sich die Errichtung des zusammenhängenden Mauerbereichs der Unterstadt in mehreren aufeinander abgestimmten und zeitnahen Bauabschnitten heute sehr gut nachvollziehen und in die Gründungsphase der Stadt datieren (zum Folgenden vgl. Abb. 1). Sehr zeitnah scheint nun auch die Befestigung des in den hellenistischen Inschriften als >*Teloneia*< bezeichneten Akropolis-Plateaus begonnen worden zu sein. Die Komplettierung des Mauerrings erfolgte hier sowie am isoliert stehenden nördlichen Ende der Westmauer der Unterstadt jedoch nur verzögert:

Die Teloneia überragt das Zentrum der Unterstadt im Mittel um 300 m, und ihre dominierende Lage wird betont durch den teilweise fast senkrechten Felsabsturz auf ihrer der Stadt zugewandten Südseite (Abb. 2). Ihre strategische Bedeutung ergibt sich aus dieser topographischen Situation zwangsläufig. Das Plateau selbst hat die Form eines leicht ungleichschenkligen Dreiecks, innerhalb dessen die Höhenunterschiede gering sind. Die Basis des Dreiecks – die Südseite – wird von dem oben beschriebenen Felsabsturz charakterisiert. Die beiden anderen Schenkel des Dreiecks im Osten und Westen liegen oberhalb steiler Abhänge, so dass von diesen Seiten ein Angriff leicht abgewehrt werden konnte. Nur an der Spitze des Dreiecks im Norden geht das Gelände mit geringem Höhenunterschied in einen Bergsattel über, der durch ein Seitental leicht erreichbar ist. Eine feindliche Attacke war daher am ehesten hier zu erwarten.

Folgerichtig wurde als erste Befestigungsmaßnahme auf der Teloneia der zentrale Turm N5/6 des nördlichen Abschnitts errichtet, allerdings nicht direkt an der Spitze der dreieckigen Hochebene, sondern rund 80 Meter nach Süden versetzt (vgl. Abb. 1). In dem Turm konnte eine fest stationierte Wache, wie sie inschriftlich mehrfach belegt ist[9], untergebracht und dadurch das Plateau zunächst gesichert werden. In einer zweiten Maßnahme wurde anschließend in zwei möglicherweise parallelen Bauabschnitten von den beiden Ecktürmen N3/4 (Abb. 3) und N7/8 aus begonnen, die Mauer in Richtung auf den zentralen Turm hin zu errichten. Durch diese Maßnahme war das Plateau zum nördlich anschließenden Bergsattel hin abgeriegelt. Durch den von der Spitze des dreieckigen Plateaus nach Süden zurück versetzten Mauerzug sollte sich in der Folge für die gründungszeitliche Akropolisbefestigung eine trapezoide Form ergeben.

Wann die beschriebenen baulichen Maßnahmen auf der Teloneia relativchronologisch im Verhältnis zu der Befestigung der Unterstadt anzusetzen sind, ist dem Baubefund nicht zu entnehmen. Auffällig ist jedoch, dass das gesamte Ensemble des Nordabschnitts verglichen mit dem Mauerring der Unterstadt als entwicklungstypologisch fortschrittlicher anzusehen ist. Die drei Türme gehören zu den vier größten der gesamten Anlage, und sie weisen Kammern unterhalb des Wehrgangsniveaus auf[10]. Dabei ist jedem Turm eine Pforte zugeordnet, die von ihm gedeckt wird und von denen zumindest die beiden äußeren als Ausfallpforten anzusprechen sind[11]. Die Konzentration von Großtürmen am sensibelsten Abschnitt der Nordmauer lässt darauf schließen, dass sie der Stationierung größerer

[9] Blümel – Merkelbach 2014, 71–83 Nr. 20–26.

[10] Abgesehen von einem wohl ebenfalls etwas später errichteten Turm ganz im Norden der Westmauer weisen alle anderen Flankierungsbauten der Befestigung einen massiven Sockel auf.

[11] Vgl. die Pfeilmarkierungen im Bereich der nördlichen Akropolis in Abb. 1. Bis auf eine Ausnahme ist kein Mauerdurchbruch in der Unterstadt als Ausfallpforte anzusehen.

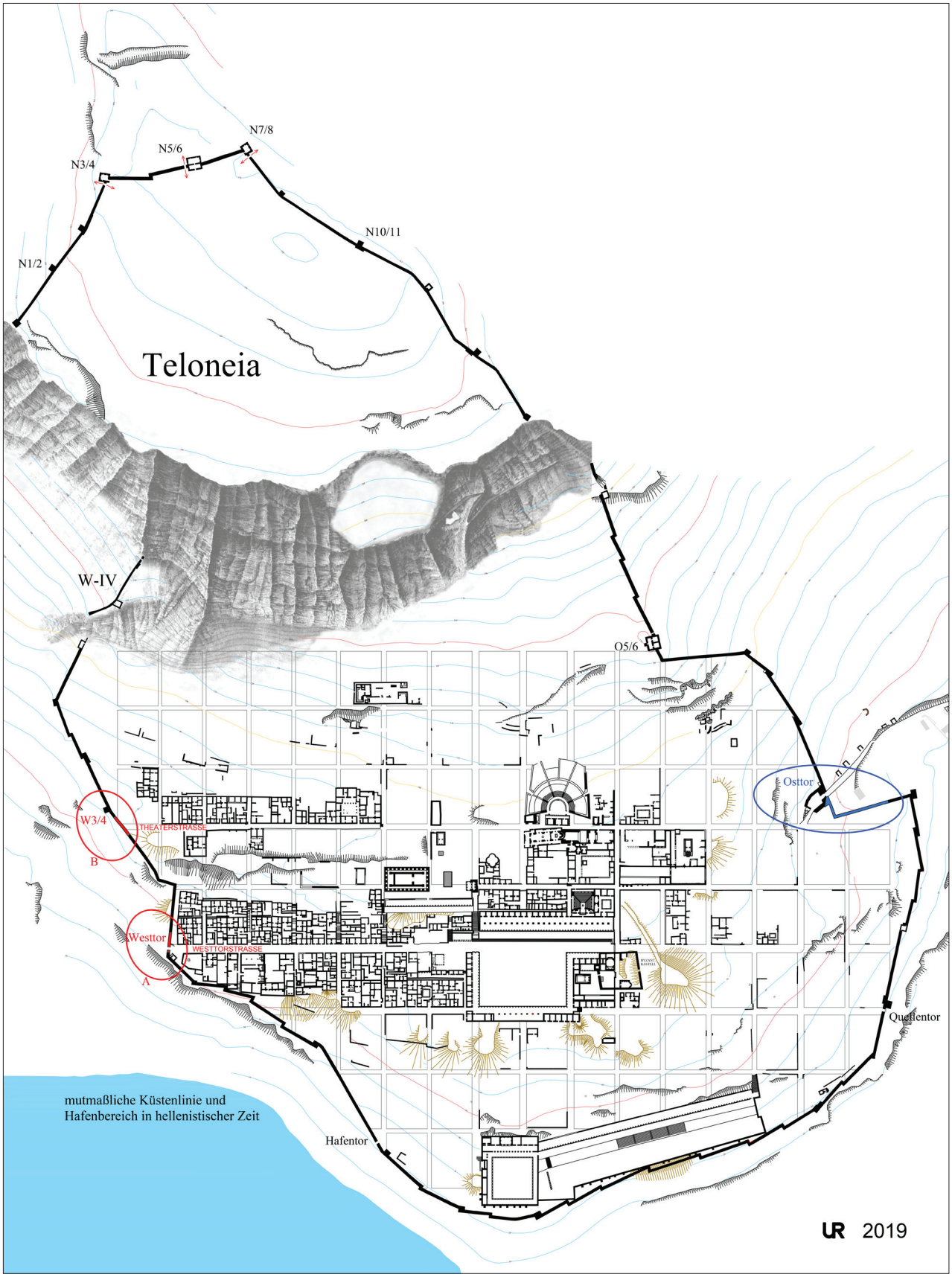


Abb. 1: Stadtplan Priene mit Markierung der hellenistischen Umbauten in Rot sowie der kaiserzeitlichen Reparaturen in Hellblau (U. Ruppe)



Abb. 2: Blick von Süden auf das Areal der Unterstadt und die Felswand der Akropolis (B. Kuru)

Geschütze dienten. Auf Bauten mit vergleichbarer Funktion gibt es am erheblich längeren Mauerring der Unterstadt keinerlei Hinweise[12], und auch die Funktion als Ausfallpforte ist dort lediglich in einem Fall in Erwägung zu ziehen. Dies legt nahe, dass das Ensemble an der Nordflanke der Akropolis einem fortgeschritteneren Stadium der sich im 4. Jh. rasant entwickelnden Fortifikatorik angehört und mit einem gewissen zeitlichen Abstand zum Mauerring der Unterstadt errichtet wurde.

Die Befestigung der beiden Flanken im Westen und im Osten der Akropolis erfolgte offenbar nochmals verzögert. Ein Angriff war hier aus den oben geschilderten topographischen Gründen leicht abzuwehren, weshalb die Errichtung der Mauer in diesen Bereichen offenbar nicht mit Hochdruck vorangetrieben wurde. Ebenfalls mit einem gewissen zeitlichen Abstand scheint ein abgelegener und schwer erreichbarer, vom Stadtmauerring der Unterstadt isoliert stehender Abschnitt im Norden der Westmauer entstanden zu sein (Abb. 1: Mauerabschnitt W-IV). Alle diese angeführten Mauerzüge zeichnen sich durch eine – verglichen mit den frühen Bauabschnitten – sehr uneinheitliche Ausführung aus, die auf eine sukzessive Vollendung der Befestigungsanlage in den wenig gefährdeten Bereichen hinweist. Zudem flossen in die Ausführung weitere Charakteristika ein, die einer nochmals jüngeren Entwicklungsstufe des Befestigungsbaus entsprechen.

Problematischer als die Rekonstruktion der Bauabfolge erweist sich die absolut-chronologische Einordnung. Die wenigen Grabungsschnitte an der Stadtmauer erbrachten keine stratigraphische Evidenz. Dass mit dem Stadtmauerbau jedoch zeitgleich mit den Bauarbeiten im Stadtgebiet begonnen wurde, ergibt sich aus einer Reihe von Indizien: Einen ersten vagen Hinweis gibt uns eine zeitgleich mit der Mauer angebrachte Inschrift am Quellentor, deren Orthographie

[12] Die Flankierungsbauten der Unterstadt weisen nur geringe Grundflächen auf, so dass dort allenfalls kleine Geschütze der ersten Generation stationiert gewesen sein dürften. Der größte Turm der gesamten Befestigung liegt an der Ostmauer der Unterstadt. O5/6 diente jedoch als Kommandoturm und ist aufgrund seiner Lage und Ausrichtung nicht für eine sinnvolle Stationierung von Artillerie geeignet.



Abb. 3: Turm N3/4 der Akropolisbefestigung (U. Ruppe)

in die Mitte des 4. Jhs. v. Chr. weist[13]. Ein konkreteres Indiz stellt die enge Verwobenheit von Bebauung und Mauertrassierung dar. So nehmen in vielen Fällen frühe Hausgrundrisse Rücksicht auf die Mauerführung. Ein weiterer belastbarer Hinweis ergibt sich aus der Beobachtung, dass aus arbeitsökonomischen Gründen das Material für die Mauer in unmittelbarer Nähe zur Baustelle gebrochen wurde. Dies ist an vielen Stellen in den unbebauten Bereichen des Stadtareals nachweisbar. In den bebauten Stadtbereichen ist dagegen kaum Steinbruchtätigkeit in unmittelbarer Nähe zur Mauer zu beobachten. Es ist daher naheliegend, dass hier das Gestein für den Mauerbau unmittelbar bei den Terrassierungsarbeiten im Zuge der Baugrundbereitung für den Siedlungsbau gewonnen wurde[14]. In der Summe der Indizien ist somit davon auszugehen, dass die Befestigung der Unterstadt zeitgleich mit dem Bau der Wohnquartiere in den 50er oder 40er Jahren des 4. Jhs. v. Chr. begonnen wurde und – wie bautechnische Details an den Bauabschnittsgrenzen zeigen – weitgehend in einem Zuge ausgeführt wurde. Wenig später dürfte die Errichtung des zentralen Turms auf der Teloneia anzusetzen sein. Zumindest aber wird der erste Schritt zur Sicherung des Plateaus durch die Fertigstellung des Querriegels auf seiner Nordseite mit Einsetzen der Siedlungstätigkeit in der Unterstadt, wie sie spätestens in den 30er Jahren durch die epigraphische Evidenz belegt ist, abgeschlossen gewesen sein: Ohne die Sicherung des Plateaus war die Sicherheit in der Unterstadt kaum zu gewährleisten. Die endgültige Komplettierung der Anlage durch die Befestigung der beiden Teloneiaflanken sowie die Errichtung des Mauerabschnitts W-IV der Westmauer ist chronologisch nicht einzugrenzen und kann sich durchaus hingezogen haben. Möglicherweise ist zumindest die Fertigstellung der Teloneia-Befestigung spätestens um die Wende vom 4. zum 3. Jh. anzusetzen, als Hieron von der Akropolis aus die Macht an sich riss und eine dreijährige Tyrannis ausübte[15].

Modifikationen in hellenistischer Zeit

Noch in hellenistischer Zeit kam es zu erheblichen Eingriffen in die gründungszeitliche Anlage. Schon Wiegand bemerkte im Bereich des Westtores (Abb. 1 rot A) Keilsteine, die er der Überwölbung der Torgasse zuwies. Kürzlich gelang es, weitere in der Nähe liegende Teile des Bogens zu identifizieren und anhand der Steinmetzzeichen

[13] Vgl. Wiegand – Schrader 1904, 44 f.; Hiller von Gaertringen 1927, 139 Nr. 196; Blümel – Merkelbach 2014, 393, Nr. 195.

[14] Zum Aufkommen von Baumaterial im Stadtgebiet und den notwendigen Terrassierungsarbeiten im Zuge der Anlage der Stadt vgl. Hoepfner – Schwandner 1994, 193 f.

[15] Vgl. Blümel – Merkelbach 2014, 316, Nr. 132, Z. 144 f.



Abb. 4: Keilstein des Westtores mit Versatzmarken (U. Ruppe)



Abb. 5: Flankierungsbau W3/4 der Westmauer mit Nische (U. Ruppe)

das Versatzsystem zu erschließen. Die zeichnerische Rekonstruktion des Bogens anhand der Fundstücke ergab, dass die Zuweisung zum Westtor gesichert ist. Eine gründungszeitliche Datierung erschien jedoch zweifelhaft, da es sich in diesem Fall um eines der frühesten Beispiele von Keilsteinbogenarchitektur in der griechischen Baugeschichte handeln würde[16]. Hinzu kommt die Buchstabenform der Versatzmarken, die eher in das 2. Jh. v. Chr. weist (Abb. 4)[17]. Die weitere Untersuchung ergab Baufugen beiderseits des Tores und die Verwendung von Spolien, so dass gesichert war, dass das Keilsteinbogentor das Resultat eines Umbaus eines sicher schon vorher an dieser Stelle existierenden[18] Tores darstellt. Ein weiterer Befund

16 Den besten Überblick über Entstehung und Verbreitung des griechischen Keilsteingewölbes gibt weiterhin Dornisch 1992.

17 Das Alpha der Versatzmarken weist eine gebrochene Querhaste auf. Die Verwendung dieser Buchstabenform ist regional unterschiedlich, wird aber gemeinhin nicht vor dem Ende des 3. Jhs. v. Chr. angesetzt. Für Priene ist sie nicht vor der Mitte des 2. Jhs. v. Chr. belegt. Vgl. Weber 2013, 238. Die Einschätzung, dass diese Form des Alpha für das 4. Jh. und auch das frühere 3. Jh. auszuschließen ist, wurde mir auch von Wolfgang Blümel mündlich bestätigt, dem ich für die Auskunft herzlich danken möchte.

18 Missverstanden von Raeck 2020, 10, der das Ergebnis der Untersuchung so verstanden hatte, dass das Tor erst nachgründungszeitlich in die vorher durchlaufende Mauer eingefügt wurde. Tatsächlich lässt der Baubefund keine endgültige Entscheidung darüber zu, welche der beiden Alternativen den Zustand vor dem Neubau des Westtors beschreibt. Und tatsächlich ist es plausibel, den Umbau des Tors mit dem Abtragen eines Felsrückens am Übergang der Westtorstraße zur Agora zu verbinden, welche die Funktion dieser Straße als Hauptverkehrsachse erst ermöglicht hat. Die Beseitigung dieser Barriere wurde von Ibrahim Hakan Mert versuchsweise mit der Anlage des Vormarktes verbunden, für welche er plausibel eine Datierung um 130 v. Chr. annimmt (Mert 2016, 283 f.).

Allerdings ist die chronologische Parallelisierung der Anlage des Vormarktes mit der Beseitigung der Felsbarriere nicht zwingend aus dem Befund zu erschließen. Und es erscheint wenig plausibel, dass die Westtorstraße nicht schon in der ursprünglichen Stadtplanung als Hauptverkehrsstraße vorgesehen war, der Fels im Vormarktbereich also schon früh abgetragen wurde: Die Westtorstraße stellt einen Teilabschnitt der durchgängig mit Wagen befahrbaren



Abb. 6: Kurtine südlich des Osttores (U. Ruppe)

nur wenig nördlich des West-tores ist höchstwahrscheinlich mit den zuvor gemachten Beobachtungen in Zusammenhang zu bringen: Unmittelbar nördlich des Westendes der ›Theaterstraße‹ befindet sich auf der Südseite des Flankierungsbaus W3/4 eine Nische, für die bereits Wiegand die Interpretation als Bildnisnische eines Torheiligtums vorschlug (Abb. 5)[19]. Zwar lässt die streckenweise noch gut erhaltene Mauer in diesem Bereich heute kein Tor mehr erkennen, eine Untersuchung des Abschnitts ergab jedoch, dass eine Reparatur mit Spolien bis in den Fundamentbereich vorliegt (Abb. 1 rot B). Dies schließt die ehemalige Existenz eines Tores an dieser Stelle zumindest nicht aus, legt diese in Verbindung mit der Deutung der Nische als Torheiligtum sogar nahe.

Die Bauweise der besprochenen Umbauten, die – vor allem am Westtor – große Sorgfalt aufweist und mit der ursprünglichen Versatztechnik der gründungszeitlichen Anlage übereinstimmt sowie der völlige Verzicht auf die Verwendung von Mörtel, weisen eindeutig in hellenistische Zeit. Aller Wahrscheinlichkeit nach sind die Maßnahmen mit einem aus vielen Grabungsarealen der Stadt bekannten und recht gut datierbaren Ereignis zu verbinden: Mitte der zweiten Hälfte des 2. Jhs. v. Chr. kam es zu einem schweren Erdbeben und einem dadurch ausgelösten Felssturz von der Teloneia-Felswand, in deren Folge große Teile der westlichen Wohnviertel Prienes schwer beschädigt wurden. Zu vermuten, dass auch die in unmittelbarer Nähe zu den bei der Katastrophe zerstörten Gebäuden liegende Stadtmauer bei diesem Ereignis in Mitleidenschaft

Ost-Westachse der Stadt vom Hafen über das Westtor, die Agora, das Osttor bis zur Überlandstraße nach Magnesia dar – eine verkehrstopographisch essentielle Bedeutung insbesondere auch für die Andienung der Baustellen in der ersten Phase nach der Neugründung der Stadt. Somit ist die Existenz eines Tores am westlichen Ende der Westtorstraße bereits in der Gründungsphase der Stadt, das im 2. Jh. v. Chr. lediglich umgebaut wurde, meines Erachtens vorauszusetzen.

19 Wiegand – Schrader 1904, 182.

gezogen wurde, ist nur folgerichtig. Da insbesondere die westlichen Bereiche des Viertels an der Theaterstraße nach dem Ereignis nicht wieder besiedelt wurden, hat man offenbar auf die Wiederherstellung des dort gelegenen Stadttores verzichtet. Bei der Reparatur des Westtores hat man dagegen die im zweiten Jahrhundert gängige Ausführung als Keilsteinbogentor gewählt.

Reparaturen römischer Zeit mit Repräsentationsanspruch

Für die römische Zeit sind in größerem Umfang Reparaturen im Bereich des Osttores zu beobachten (Abb. 1 hellblau). Dabei wurde eine deutlich größere Sorgfalt angewandt, als bei vergleichbaren nachhellenistischen Instandsetzungsarbeiten an anderen Mauerabschnitten der Anlage. Offenbar sollte die Maßnahme repräsentativen Ansprüchen am Hauptzugang der Stadt von Land her genügen. Diese Beobachtung stellt einen weiteren Mosaikstein im Nachweis umfangreicher kaiserzeitlicher Bautätigkeit im Stadtgebiet dar.

Sowohl am Tor selbst als auch an den beiden südlich anschließenden Kurtinen wurden umfangreiche, sich bis in die untersten Lagen erstreckende Reparaturbereiche teilweise derart sorgfältig ausgeführt, dass sie für den flüchtigen Beobachter kaum von dem gründungszeitlichen Mauerwerk zu unterscheiden sind (Abb. 6). Vereinzelt ist sogar zu erkennen, dass Quader an ihre Originalposition zurückversetzt wurden. Eine Datierung allgemein in römische Zeit ergibt sich aus der (spärlichen) Verwendung von Mörtel für den Versatz einerseits und der Ausführung des Mauerkerns in *caementicium*-Technik andererseits. Von den später reparierten bzw. neu errichten Teilen der Befestigung sind die Reparaturbereiche am Osttor nicht nur aufgrund des fugenschlüssigen Versatzes und der sorgfältigen und repräsentativen Ausführung abzugrenzen. Auch auf das Heben der schweren Originalquader bis in die oberen Niveaus des Mauerverbandes wurde zumindest bei den byzantinischen Baumaßnahmen an der Befestigung in aller Regel verzichtet – und wo es vereinzelt vorkommt, sind die Quader ohne jeglichen Fugenschluss unsystematisch und mit vielen Ausgleichssteinen versetzt.

Ob der von Reisenden des 19. Jhs. für die stadtseitige Torgasse des Osttores bezeugte Keilsteinbogen ebenfalls dieser römischen Reparatur angehörte, ist nicht mehr zu verifizieren. Es haben sich keine Keilsteine mehr erhalten und die wenigen noch anstehenden Lagen der Torgasse auf der Stadtseite sind offenbar gründungszeitlich. Da die kaiserzeitliche Reparatur auf der Feldseite des Tores jedoch bis in die untersten Lagen des Südturmes zu beobachten ist, muss davon ausgegangen werden, dass zumindest in den heute nicht mehr erhaltenen höheren Lagen auch die Stadtseite des Turmes betroffen war. Die Überdeckung der stadtseitigen Torgasse muss somit ebenfalls Schaden genommen haben, weshalb die Keilsteinbogenkonstruktion aller Wahrscheinlichkeit nach ebenfalls kaiserzeitlich zu datieren ist.

Welches Ereignis die Reparaturen notwendig machte, ist nicht mehr sicher zu ermitteln. Kriegerische Zerstörungen sind uns nicht überliefert, aber den Erdbebenlisten sind zwei Ereignisse zu entnehmen, die möglicherweise in Betracht gezogen werden können, und zwar in den Jahren 26 oder 25 v. Chr. sowie 68 n. Chr.[20]. Zumindest würde eine entsprechende Datierung besser zu den übrigen frühkaiserzeitlichen Bauaktivitäten in Priene passen, als die Arbeiten mit einer Serie von Beben zwischen 238 und 262 n. Chr. zu verbinden.

Spätrömische Instandsetzung der Mauer als Schutz vor den Goteneinfällen?

Ausgangspunkt der folgenden Schilderung ist ein weitgehend ruinöser Zustand großer Teile der gründungszeitlichen Stadtbefestigung. Betroffen hiervon waren einige Abschnitte der West- und der Ostmauer, während an der Südmauer hier einzuordnende Schäden nur noch in wenigen Fällen nachzuweisen sind. Über weite Strecken niedergelegen haben muss dagegen die Wehranlage auf

[20] Zur Datierung von in diesem Aufsatz genannten Erdbebenereignissen vgl. Altunel 1998, 33.

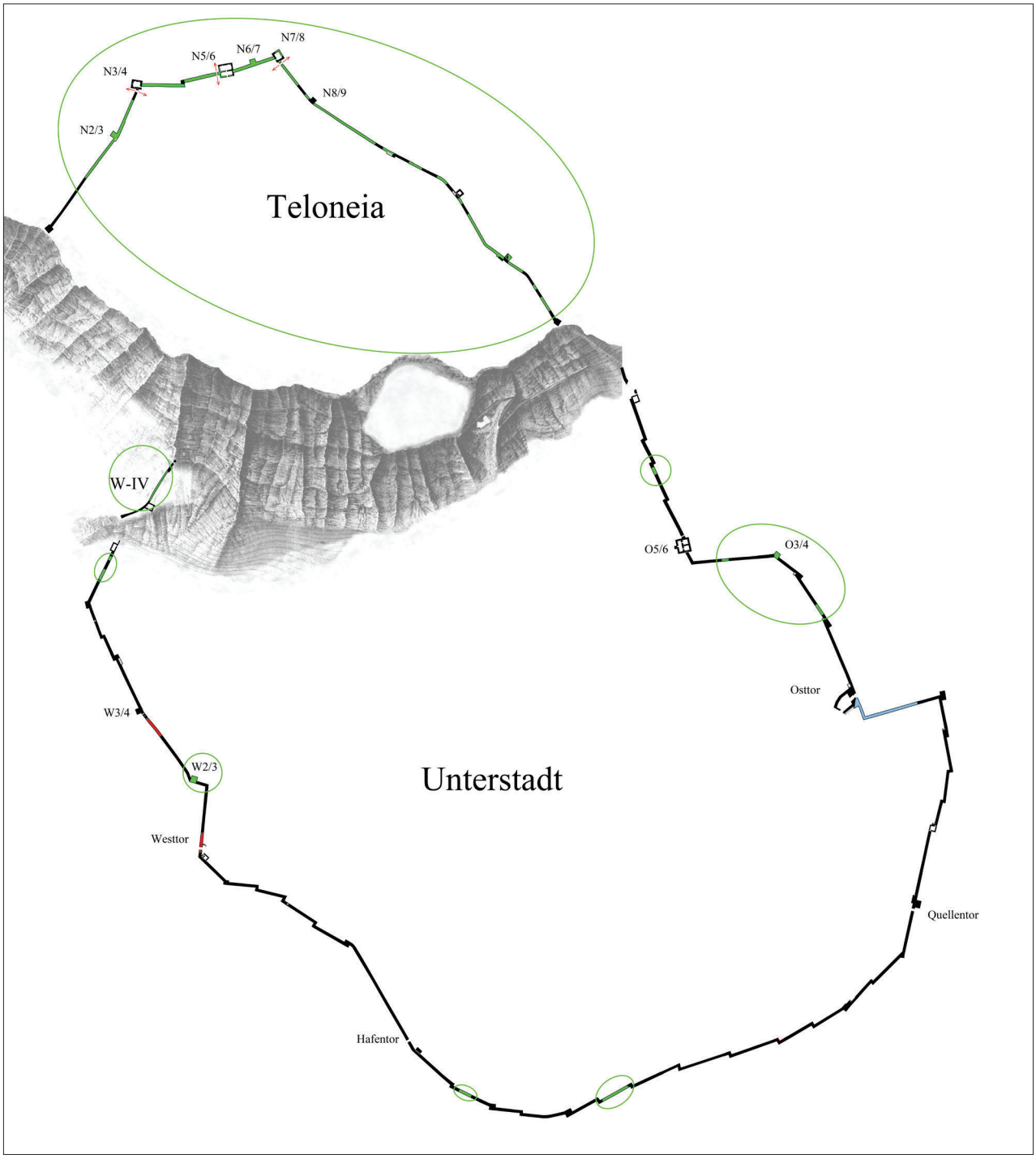


Abb. 7: Stadtmauerplan mit Markierung der spätrömischen Reparaturen (U. Ruppe)

der Akropolis. Ob die Schäden auf ein Erdbeben zurückzuführen sind oder ob die Anlage während der *pax romana* nicht mehr gewartet wurde und langsam zerfiel[21], ist dem Befund nicht zu entnehmen. In allen angesprochenen Bereichen sind umfassende Reparaturmaßnahmen zu beobachten, durch welche die Anlage wieder ertüchtigt und die Wehrfähigkeit wiederhergestellt wurde.

[21] Dass die Mauern während der *pax romana* zur Gewinnung von Baumaterial abgetragen wurden wie beispielsweise in Pergamon (Klinkott 2001, 8), ist eher auszuschließen, da die meisten Zerstörungen auf der schwer erreichbaren



Abb. 8: Spätrömische Reparatur (Bereich rechts) an einer Kurtine der Akropolisbefestigung (U. Ruppe)

Die teilweise auf den Resten der gründungszeitlichen Befestigung aufsitzenden, teils aber auch bis in den Fundamentbereich reichenden Reparaturen wurden weitgehend in gleichartiger Mauertechnik durchgeführt, weshalb es sich um eine einheitliche Maßnahme gehandelt haben wird. Aufgegeben wurden dabei die in weniger bedrohten Bereichen liegenden Flankierungsbauten N1/2 und N10/11 (vgl. Abb. 1), wohingegen N2/3 und O3/4 (vgl. Abb. 7) aufgrund ihrer strategischen Bedeutung von Grund auf erneuert wurden. N6/7 an der bedrohten Teloneia-Nordflanke und W2/3 in der Nähe des ungeschützten Westtores wurden sogar völlig neu erbaut. In Abb. 7 sind die Baumaßnahmen dieser Phase grün dargestellt. Ursprünglich dürften jedoch weit mehr Mauerabschnitte betroffen gewesen sein, als heute nachgewiesen werden kann.

Die Reparaturen erfolgten in Zweischalentechnik unter Verwendung von gründungszeitlichen Stadtmauerquadern. Auf Lagentreue und guten Fugenschluss verzichtete man dabei allerdings, und Niveauunterschiede im Mauerverband wurden durch Ausgleichssteine angepasst (Abb. 8). Auffällig ist die gegenüber dem gründungszeitlichen Mauerwerk weit geringere Anzahl an Bindern. Mörtel wurde nur sehr spärlich verwendet, der Mauerkern besteht wie bei der gründungszeitlichen Anlage meist aus lehmgebundenen Bruchsteinen, nur in Ausnahmefällen wurde in statisch gefährdeten Bereichen die Hinterfüllung gegossen.

Wolfgang Müller-Wiener stellt die hier beschriebenen Maßnahmen in den Kontext der Arabereinfälle zur Jahrhundertwende 7./8. Jh. n. Chr.[22]. Diesen Vorschlag greift Fildhuth bei der Entwicklung seines Modells der byzantinischen Stadtgeschichte auf, da zuvor keine Notwendigkeit für eine Befestigung der Stadt bestanden habe. Dieser Vorschlag führt jedoch zu einem Problem, wenn man ansonsten dem Modell Fildhuths folgen möchte. Dieses geht davon aus, dass sich die bewohnten Bereiche der Stadt ab dem Ende des 7. Jhs. auf die Akropolis beschränkten: Während in der Unterstadt die archäologische Evidenz ab diesem Zeitpunkt für mehrere Jahrhunderte sehr dünn ist, wurde auf der Teloneia kürzlich eine dichte byzantinische Wohnbebauung nachgewiesen (vgl. Abb. 10. 12). Ein weiteres Indiz für die Siedlungsverlagerung sieht Fildhuth in der Beobachtung Müller-Wieners, dass Instandsetzungen der hier besprochenen Phase am Mauerring der Unterstadt nicht zu beobachten seien. Da sich dies nach den neueren Untersuchungen jedoch anders darstellt, scheint entweder die Unterstadt doch weiter besiedelt gewesen zu sein, oder die vorgeschlagene Datierung der Instandsetzung in das 7./8. Jh. muss in Frage gestellt werden.

Nun unterscheidet sich die Mauertechnik der hier besprochenen Reparaturen signifikant von der Bauweise, die ansonsten in Priene und der Region an größeren Bauwerken mittelbyzantinischer Zeit zu beobachten ist. Am deutlichsten wird dies an der äußerst sparsamen und punktuellen Verwendung

Akropolis nachweisbar sind. In den am leichtesten zu erreichenden Bereichen steht die Mauer dagegen zu einem großen Teil bis heute in ihrem gründungszeitlichen Zustand hoch an. Für Milet konstatiert Gerkan den langsamen Verfall der Befestigung während der *pax romana* (Gerkan 1935, 30).

22 Zum Folgenden: Müller-Wiener 1961, 55 f.; Fildhuth 2017, 83 f.

von Mörtel. Aber auch der Grundgedanke, die Statik der Mauer über die Stabilität der beiden autonomen Schalen aus schweren Quadern zu gewährleisten, während die Mauerfüllung aus Lehm, Bruchstein und nur vereinzelt sehr schlechtem Mörtel kaum mehr als stützende Funktion hat, ist dem Grundgedanken des antiken Quaderbaus näher als dem der regionalen mittelbyzantinischen Architektur[23]. Letztere versucht, mit deutlich kleineren Steinen die Festigkeit der Mauer in erster Linie über harten Kalkmörtel zu erreichen, wobei der Mauerkern oft weniger als gegossene Einfüllung denn als massive Durchschichtung des Mauerverbandes zu verstehen ist, somit eine von den Schalen nicht zu differenzierende statische Aufgabe besitzt[24].

Ist die beschriebene Maßnahme somit vermutlich früher anzusetzen als bislang vorgeschlagen, bietet sich für die Datierung ein anderes einschneidendes Ereignis in der Geschichte Kleinasiens in der 2. Hälfte des 3. Jhs. n. Chr. an, in dessen Kontext in einer ganzen Reihe von Städten Befestigungen aus- oder neugebaut wurden – in unmittelbarer Nähe von Priene beispielsweise in Milet, Didyma, Ephesos oder im etwas weiter entfernten Pergamon[25]. Diese Maßnahmen werden in der Regel mit den Goteneinfällen verbunden, die in den frühen 260er Jahren auch das westliche Kleinasien erreichten. Möchte man die hier thematisierte Instandsetzung der Wehranlage von Priene im gleichen Kontext sehen, wäre auch ein passendes Ereignis, welches Reparaturen notwendig gemacht hätte, überliefert: die bereits oben angesprochene Erdbebenserie zwischen 238 und 262 n. Chr.



Abb. 9: Blick von Norden auf das Akropolisplateau und die byzantinischen Erweiterungen (U. Ruppe)

Byzantinischer Ausbau der Teloneiabefestigung

Vier Ausbauphasen der Akropolisbefestigung sind in ihrer relativchronologischen Abfolge gut nachvollziehbar (Abb. 9. 10. 12):

(1) Zunächst wurde die gefährdete Nordflanke weiter verstärkt. Der bereits im Zuge der spätrömischen Instandsetzung reparierten Kurtine N5 wurde nun stadtseitig eine Vorsatzschale hinzugefügt und feldseitig ein weiterer Flankierungsbau vorgeschaltet. Diese beiden Maßnahmen dienten zweifelsohne einem besseren Schutz des zentralen Haupttores der Akropolisbefestigung, das nun beidseitig flankiert wurde. Durch den breiteren Wehrgang war es zudem möglich, hier schwerere Waffen zu stationieren. In Abb. 10 sind die Bereiche der beschriebenen Ausbauphase braun eingefärbt.

[23] Ein ausführlicher Vergleich des Mauerwerks mittel- und spätbyzantinischer Großbauten würde den Umfang dieses kurzen Abrisses sprengen. Hier muss die Aussage genügen, dass eine eindeutige chronologische Differenzierung unterschiedlicher byzantinischer Mauerwerkstypen, wie sie beispielsweise von Manfred Klinkott für Pergamon vorgelegt wurde (Klinkott 2001), für Priene und Umgebung auf dem jetzigen Stand der Forschung nicht möglich erscheint.

[24] Neben dem fundamental differierenden konstruktiven Ansatz liegt der beschriebenen Bauweise auch ein völlig anderer arbeitsökonomischer Gedanke zugrunde: Durch die Verwendung kleinerer Steine konnte auf den Einsatz von Kränen weitgehend verzichtet werden und auch die Ausführung der Gerüste konnte leichter ausfallen. Darüber hinaus erübrigte der Versatz unter Verwendung großer Mengen Mörtel sowohl eine spezielle Auswahl als auch eine Bearbeitung der Steine.

[25] Milet: von Gerkan 1935, 83; Bumke – Tanrıöver 2017, 132 f. Didyma: Knackfuß 1941, 42 f.; Rehm 1958, 137–139 Nr. 159. Ephesos: Keil 1937, 204 f. Pergamon: Klinkott 2001, 8–11.

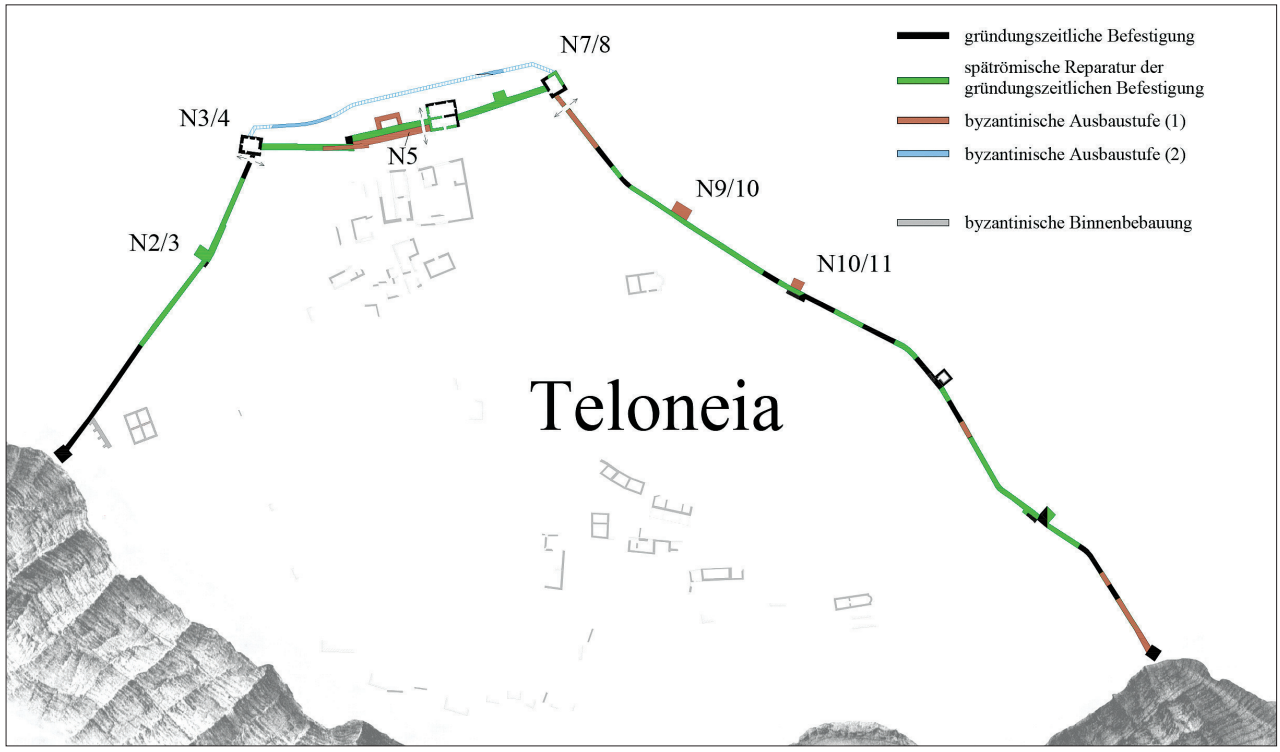


Abb. 10: Plan der Akropolisbefestigung mit Markierung der byzantinischen Ausbauphasen (1) und (2) (U. Ruppe)

Versuchsweise sollen hier die ebenfalls braun eingefärbten, umfangreichen Umbauten an der Ostflanke der Akropolisbefestigung dieser Maß-nahme zugeordnet werden. Hierbei wurde zunächst die antike Pforte südlich des östlichen Eckturms N7/8 vermauert und durch einen Mauerdurchbruch wenige Meter weiter südlich ersetzt. Der schon früh eingestürzte und bei der spätrömischen Reparatur nicht mehr instand gesetzte Flankierungsbau N10/11 wurde nun auf den antiken Grundmauern neu errichtet. Außerdem wurde auf halber Strecke zwischen N10/11 und dem antiken Eckturm N7/8 der Flankierungsbau N9/10 völlig neu erbaut (Abb. 11). Erhebliche Reparaturen an den Kurtinen der Teloneia-Ostflanke, die teilweise Schäden in den spätrömischen Instandsetzungen behoben, legen nahe, dass große Mauerbereiche zwischenzeitlich erneut zu Schaden gekommen waren. Hierbei wurde möglicherweise auch die heute vollständig zerstörte Struktur N8/9 (vgl. Abb. 7) unbrauchbar, was den Bau von N9/10 motiviert haben mag.



Abb. 11: Flankierungsbau N9/10 (links) der ersten byzantinischen Ausbauphase der Akropolisbefestigung einem spätrömischen Reparaturabschnitt vorgeschaltet (U. Ruppe)

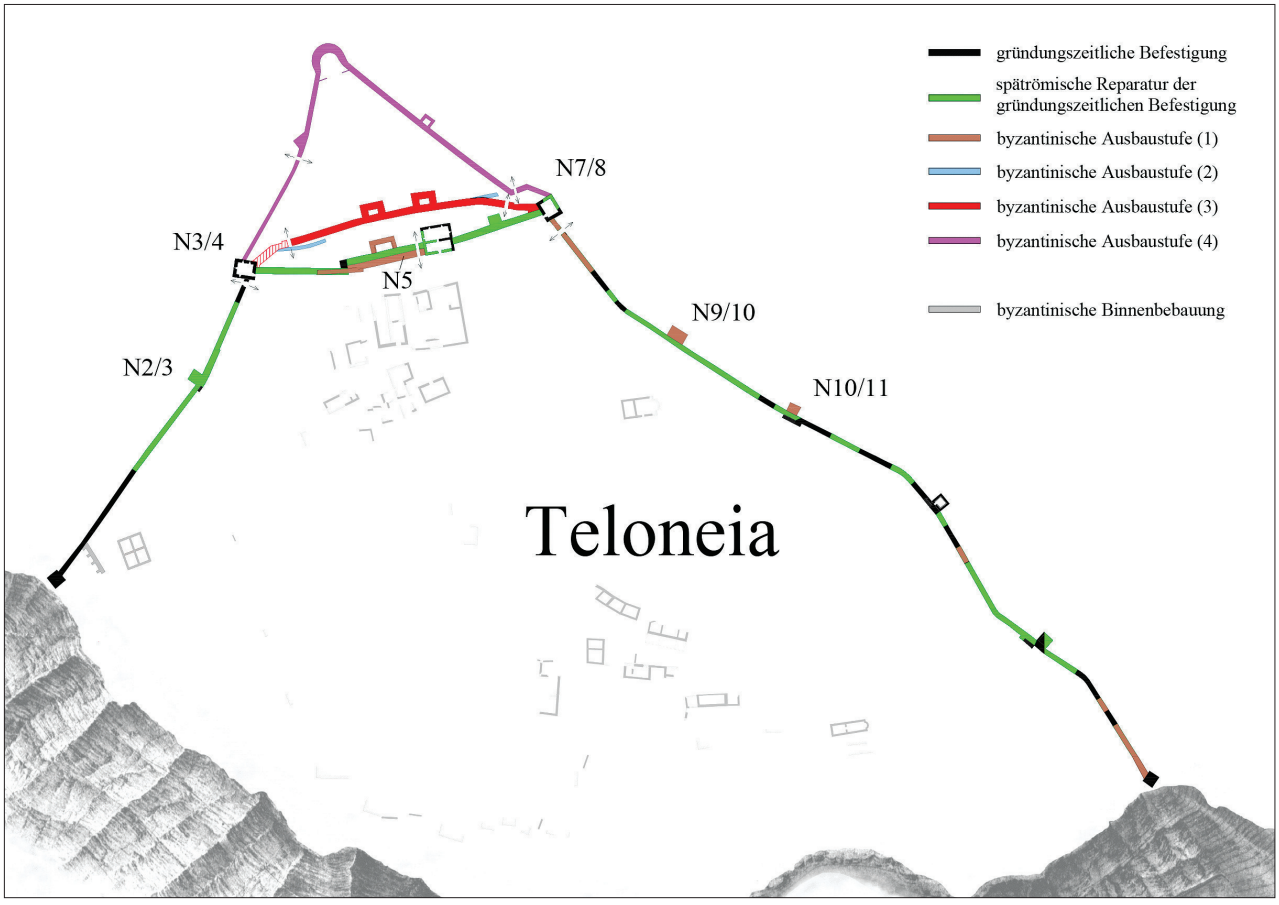


Abb. 12: Plan der Akropolisbefestigung nach der letzten Ausbauphase (U. Ruppe)

Die hier vorgeschlagene chronologische Parallelisierung der Maßnahmen an der Ostflanke der Teloneia mit dem Ausbau ihrer Nordflanke ist aufgrund bauanalytischer Kriterien kaum zu verifizieren. Sie folgt allein der Überlegung, dass die Initiative für den Bau der Vorsatzschale an N5 auf einen Schaden bei dem gleichen Ereignis zurückzuführen ist, das die Reparatur der Ostflanke erforderte. Es ist jedoch durchaus auch denkbar, dass dieser Umbau eine eigene Nutzungsphase darstellt oder aber einer späteren Ausbauphase angehört.

(2) Eine der Nordflanke im Abstand von etwa sieben Metern vorgelegte Mauer nimmt mit ihrem bogenförmigen Verlauf auf den vorgeschalteten Flankierungsbau der ersten Ausbauphase Rücksicht und setzt damit dessen Existenz voraus (Abb. 10 hellblau). Die Anordnung von Toren, die genaue Trassierung und der Anschluss an die Hauptmauer sind aufgrund der späteren Überbauung nicht nachzuweisen. Der gezeichnete Rekonstruktionsvorschlag (Abb. 10 schraffiert) im Osten basiert auf der Beobachtung, dass das hier freigelegte Teilstück in der Achse der späteren Trassierung (vgl. Abb. 12 lila) der letzten Ausbauphase verläuft, welche möglicherweise das hier besprochene, zu diesem Zeitpunkt sicherlich bis auf die Grundmauern abgetragene Vorwerk als Fundament nutzt und mit größerer Stärke umbaut. In diesem Falle könnte auch das später in diesem Bereich nachgewiesene Tor schon früher existiert haben. Und möglicherweise ist diese Lösung in Analogie auch im Westen zu ergänzen, so wie auch in der unten zu besprechenden dritten Ausbaustufe eine spiegelbildliche Lösung gewählt wurde.

(3) Weitgehende Klarheit besteht über die architektonische Ausgestaltung der überwiegend gut erhaltenen dritten Ausbaustufe, die das zuvor besprochene Vorwerk zu großen Teilen überbaut (Abb. 12 rot). Ihre beiden zentralen Flankierungsbauten



Abb. 13: Rundbau am Nordende der letzten byzantinischen Erweiterung (U. Ruppe)

stehen noch mehrere Meter hoch an, und die östlich daran anschließende Kurtine ist in ihrem Verlauf bis zum antiken Eckturm N7/8 durchgehend zu beobachten (Abb. 9). Der westliche Mauerabschnitt dieser Erweiterung verliert sich dagegen schnell in der äußerst dünnen Erosionsschicht, sein Verlauf war jedoch nach Reinigungsarbeiten bis etwa 14 Meter östlich des antiken Eckturms N3/4 zu verfolgen, wo er stumpf endet. Dieses stumpfe Ende ist mit Sicherheit als Torgassenlaibung anzusprechen, wie es auch die Analogie zum Verlauf im Osten, wo ein Tor nachgewiesen werden konnte, nahelegt. Dass sich die Kurtine nach dem Tor bis zu dem antiken Eckturm N3/4 fortgesetzt haben muss[26] (Abb. 12: Rekonstruktionsvorschlag schraffiert), ist ebenfalls anhand einer Beobachtung in Analogie zum östlichen Mauerzug wahrscheinlich zu machen: Dort sind an den antiken Quadern des noch hoch aufragenden Turms N7/8 im gesamten Bereich, in dem die besprochene, hier nur noch in geringer Höhe erhaltene östliche Mauer der byzantinischen Erweiterung angelaufen ist, großflächig Mörtelspuren zu beobachten. Die gleiche Beobachtung kann an N3/4 gemacht werden, wodurch der Bereich, in dem der Anschluss auf dieser Seite erfolgt sein muss, einzugrenzen ist.

(4) Die letzte Ausbaustufe ummauert nunmehr auch die Spitze des dreieckigen Plateaus (Abb. 12 lila). Die nun errichtete, dreiecksförmige Befestigung wies im Norden einen mächtigen Rundbau auf (Abb. 13). Der fortifikatorische Wert des kleinen rechteckigen Flankierungsbaus im Osten ist dagegen als gering einzuschätzen. Ein zweiter kleiner Vorbau im Westen hat einen dreieckigen Grundriss und flankiert ein schmales Tor. Ein zweites schmales Tor liegt im Osten der Erweiterung und ist völlig ungedeckt. Insgesamt

[26] Die Fortsetzung ist heute vom Versturzfeld des Turmes N3/4 bedeckt und konnte daher nicht verifiziert werden.

besteht eine eklatante Diskrepanz zwischen den schwach geschützten Toren einerseits und dem mächtigen Rundbau andererseits.

Die zuvor besprochene Vormauer der dritten Ausbaustufe wurde westlich der zentralen Flankierungsbauten offenbar zur Materialgewinnung abgebrochen. Anders lassen sich die frappierenden Unterschiede in ihrem Erhaltungszustand kaum erklären. Den restlichen Verlauf mit den beiden Flankierungsbauten hat man aber offenbar als zusätzlichen Schutz des Haupttores in der ursprünglichen Anlage beibehalten (Abb. 9).

Ist die relativchronologische Abfolge der geschilderten Verstärkungen zumindest der Teloneia-Nordflanke somit am Baubefund eindeutig ablesbar, ist die absolutchronologische Einordnung der Maßnahmen deutlich problematischer. Stratigraphische Erkenntnisse waren in dem felsigen Gelände nicht zu gewinnen und es konnten auch keine datierenden Funde – beispielsweise aus dem Mauerkern – geborgen werden. An Spolien weist die byzantinische Befestigung nur Baumaterial der gründungszeitlichen Anlage und einige kaum einzuordnende Ziegelfragmente auf, was zu einer Datierung der byzantinischen Ausbauten nicht beitragen kann.

Gewisse Anhaltspunkte ergeben sich aus der Oberflächenkeramik des Plateaus. Aus hellenistischer und römischer Zeit wurden nur relativ wenige Fragmente von Transport- und Vorratsgefäßen gefunden. Für die nachfolgenden Jahrhunderte nimmt die Konzentration an Grob- und Feinkeramik deutlich zu und weist zwei zeitliche Schwerpunkte auf, die im 5.–7. Jh. und im 12.–13. Jh. liegen. Hinzu kommen Dachziegelfragmente aus dem 6.–8. Jh.[27]. Das Surveymaterial bestätigt somit die These, dass die Teloneia in vorbyzantinischer Zeit lediglich militärisch genutzt wurde, während irgendwann im zeitlichen Spektrum des ersten Peaks eine Nutzung auch zu Wohnzwecken einsetzte. Legt man die untere Laufzeitgrenze sowohl der Keramik des ersten Peaks als auch der geborgenen Ziegel zugrunde, wäre die (zumindest teilweise) Umsiedlung der prienischen Bevölkerung durchaus mit dem Schutz vor den Arabereinfällen zu verbinden. In diesem Fall wäre, dem Vorschlag von Müller-Wiener und Fildhuth folgend[28], wie vielerorts in der Region auch in Priene eine Stärkung der Verteidigungsfähigkeit dringend erforderlich geworden. Die erste byzantinische Ausbauphase der Verteidigungsanlagen dürfte somit mit hoher Plausibilität im 7./8. Jh. zum Schutz der (zumindest teilweise) auf der Akropolis siedelnden Bevölkerung Prienes errichtet worden sein.

Die beiden folgenden Ausbaustufen (2) und (3) mit konkreten historischen Ereignissen zu verbinden, erscheint dagegen schwierig. Müller-Wiener, der die oben als Gotenmauer angesprochene Instandsetzung erst in das 7./8. Jh. datierte, stand dadurch vor dem Problem, für alle nachfolgenden Baumaßnahmen inklusive der Ausbaustufe (1) einen später anzusetzenden historischen Anlass zu finden. Unterschiedslos schlug er für alle hier den drei ersten Phasen zugeordneten Bauten eine Datierung in die frühe Komnenenzeit (11./12. Jh.) vor. Allerdings konnte er dafür – wie er durchaus selbst einräumte – keine wirklich zwingenden Argumente vorbringen[29]. Gleiches ist für die beiden Alternativvorschläge (10. oder 12. Jh.) von Fildhuth zu konstatieren, der wie Müller-Wiener alle Bauten der Ausbaustufen (1) bis (3) für gleichzeitig hielt[30]. Möchte man jedoch dem hier vorgelegten Vorschlag einer Datierung der ersten byzantinischen Erweiterung in das 7./8. Jh. folgen, erscheint es vielleicht am plausibelsten, auch die nachfolgenden Ausbaustufen

27 Vgl. Fildhuth 2017, 81.

28 s. o. Anm. 21.

29 Müller-Wiener 1961, 55 f.

30 Fildhuth 2017, 83 f.

(2) und (3) im Kontext der Araberbedrohung zu sehen, die schließlich über einen längeren Zeitraum hinweg bestand. Auch war ihr Ende im Voraus nicht absehbar, weshalb sie zu anhaltenden Vorsichtsmaßnahmen motiviert haben dürfte. Vermutlich handelte es sich bei der sehr schwachen – und daher wohl auch nicht sehr hohen – und soweit heute erkennbar turmlosen ersten Vormauer (2) um einen notdürftigen zusätzlichen Schutz der Teloneia-Nordflanke, relativ bald nach deren Verstärkung (1). Ihr fortifikatorischer Wert kann nicht sehr groß gewesen sein, weshalb sie möglichst bald durch das massive Proteichisma (3) mit seinen starken Flankierungsbauten ersetzt worden sein dürfte.

Als Zentrum des im 12. Jh. neu eingerichteten ausgedehnten Steuerbezirks (*episkepsis*) von Sampson kam Priene noch einmal zu einer späten Blüte, bevor die Stadt gegen Ende des 13. Jhs. an die Osmanen fiel und weitestgehend verlassen wurde[31]. Vier Machthaber, welche einander in der Kontrolle über die *episkepsis* folgten, sind uns teilweise auch namentlich überliefert. Einer von ihnen, Sabas Asidenos, versuchte sogar kurzzeitig, das sich in den Wirren nach der Eroberung Konstantinopels durch die Kreuzfahrer 1204 ergebende Machtvakuum auszufüllen und im unteren Mäandertal eine unabhängige Herrschaft zu errichten. Im Kontext dieser Blütezeit ist möglicherweise auch der jüngere Peak im Surveymaterial auf der Akropolis zu sehen. Aber auch in der Unterstadt ist für diesen Zeitraum eine deutliche Verdichtung der archäologischen Evidenz zu erkennen, und Fildhuth geht davon aus, dass spätestens jetzt das gesamte Stadtgebiet wieder besiedelt wurde. Tatsächlich sind auch an der Befestigung der Unterstadt Hinweise zu erkennen, dass abermals der gesamte Mauerring instandgesetzt wurde. Fildhuth folgend erscheint es somit am plausibelsten, diese letzte Reparatur der Stadtbefestigung der Unterstadt ebenso mit der geschilderten späten Blüte Prienes zu verbinden wie die dreiecksförmige Erweiterung der letzten Ausbauphase auf der Teloneia – ohne dass es auf dem derzeitigen Forschungsstand möglich wäre, die Initiative mit einem der bekannten Machthaber der *episkepsis* zu verbinden[32].

Dieser kurze Einblick in die Geschichte der Stadtbefestigung Prienes konnte nur die wichtigsten Festpunkte streifen, welche die Entwicklung der Anlage im Zuge der Jahrhunderte wesentlich mitbestimmt haben. Es sollte aber deutlich geworden sein, in welchem Maße sich die Historie eines Ortes immer auch in seinen Verteidigungsanlagen spiegelt und wie deren Erforschung umgekehrt auch einen Mosaikstein zur Wiederherstellung der Siedlungsgeschichte beitragen kann.

Ulrich Ruppe M. A.
Institut für Archäologische Wissenschaften
Abt. I Vorderasiatische und Klassische Archäologie
Goethe-Universität Campus Westend Hauspostfach 7
Norbert-Wollheim-Platz 1
D-60629 Frankfurt am Main

31 Zum Folgenden zusammenfassend Fildhuth 2017, 89.

32 Vgl. Fildhuth 2017, 84.

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The Outer Defenses of the City Wall of Halikarnassos – Ditches and Escarpments.*

Poul Pedersen

Abstract

Fortification ditches should be expected to be a regular feature in relation to ancient city walls, but they are not very often recorded and described. Have they disappeared from sight under earth and debris accumulated since antiquity? Or were they not that normal after all? At Halikarnassos there does exist, however, good evidence for ditches and escarpments at several places. These features are witnessed both in the physical remains and in ancient literary sources, especially those describing Alexanders siege on Halikarnassos in 334 BC. In this paper the physical as well as the written evidence for ditches and escarpments at Halikarnassos is presented and discussed.

Keywords: *fortification, Alexanders siege, Hekatomnid dynasty, Myndos Gate, Göktepe hill*

The Circuit

The city wall of Halikarnassos is of the "great circuit" or "Geländemauer" type. When following its preserved remains, the extreme care with which the layout had been chosen becomes evident (Fig. 1). Starting a few hundred metres northeast of the Castle Peninsula, the east course of the wall follows the west bank of a ravine where a torrent ran from the north and was crossed by a bridge in front of the Mylasa gate.[1] Although modern road

* This article draws broadly from observations and investigations which began back in 1978. I owe a special gratitude to former director Oğuz Alpözen who made it all possible and to my old friend Ali Uçarer with whom I explored Bodrum and its environs for many years. Heartfelt thanks are due to many others among whom I must mention Aykut Özet, Yaşar Yıldız, Emel Özkan, Tayfun Selçuk, Bahadır Berkaya and Erhan Özçan. Anne Marie Carstens has played an essential role in the city wall project and takes part in its publication. The most recent investigations took place in autumn of 2019 and had as their main purpose the GPS measurement of the western section of the city wall. I am extremely grateful to the General Directorate of Antiquities and Museums for the permission to carry out these investigations and to Bodrum Museum, in particular to the former directors Tayfun Selçuk, for invaluable help in preparing the field work and Bahadir Berkaya for facilitating its execution in every way. I owe special thanks to Ulrich Ruppe, without whom our mapping of the city wall could hardly have taken place and to whom I owe the plans of the Göktepe area and of the Northeast Extension. Special thanks are also due to Niels Bargfeldt, who took part in the field work and produced the general map of Halikarnassos. Further thanks must go to Metin Pala and Abdullah Kadayıfçı, who handled the GPS and drone flights with professionalism and to Jakob Kragstrup, who completed this dedicated team. Mrs. Lotte Jeppesen has kindly permitted me to make use of the photos taken by the late Prof. Kristian Jeppesen. Among the most important literature on the city wall of Halikarnassos may be mentioned: Newton 1862a, 267–275; Bean – Cook 1955, 89–92; Pedersen 1994 ; McNicoll 1997, 16–22; Pimouguet-Pédarros 1998; Pimouguet-Pédarros 2000, 224-231; Pedersen 2000; Pedersen 2001; Briese – Pedersen 2003; Pedersen 2010; Pedersen – Ruppe 2016.

[1] A short stretch of a strong ashlar wall has been excavated by the Bodrum Museum in this area of modern Bodrum. It appears to be situated in such a position that it could belong to a gate structure like the Myndos Gate and it may therefore belong to the Mylasa Gate. I am grateful to Bahadir Berkaya for having drawn my attention to this discovery.

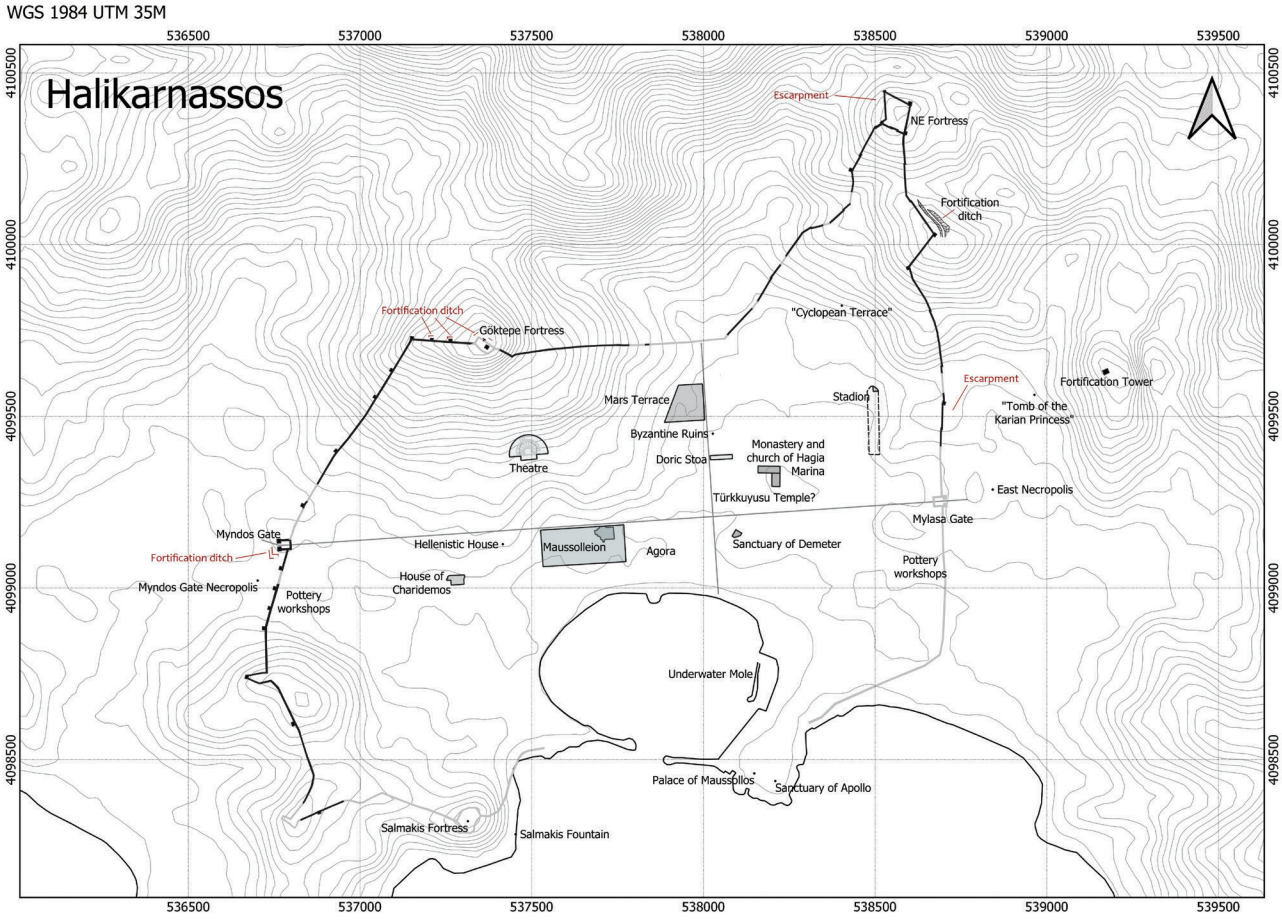


Fig. 1: Map of Halikarnassos (N. Bargfeld)

building and city development have made it less conspicuous, the ravine becomes gradually steeper as it winds its way northwards until it turns west, surrounding the precipitous hill, which carries the Northeast Extension of the wall circuit. Here, the wall makes a turn to the west and then proceeds southwest, interrupted only by a narrow gate opening towards Pedasa, which is situated just a few kilometres further north. Starting from the Pedasa Gate, a *diateichisma* runs eastwards, forming a separate fortress together with the city wall, the Northeast Fortress. Part of the *diateichisma* has recently been excavated by the Bodrum Museum[2]. From here, the wall runs down the valley to the southwest and then turns directly westwards up the highest hill of the circuit, the Göktepe Hill. The summit of Göktepe had another fortress that commanded a perfect view of the city and the surrounding landscape (Fig. 2). From Göktepe, the wall runs down westwards and turns south, where it is intercepted by the magnificent Myndos Gate, before it climbs the hills again and connects two impressive bastions in commanding positions facing westwards. These vantage points offer impressive views over the landscape to the west of Halikarnassos and northwards towards the Myndos Gate as well as the west slope of Göktepe (Fig. 3). As the circuit begins at the strongly fortified Zephyrion Peninsula on the east side of the harbour entrance, it ends at the Salmakis fortress west of the harbour. When Alexander succeeded in breaking through the city wall somewhere to the northeast in 334 BC, some of the Persians and their mercenaries took refuge in these two

[2] Unfortunately, this important and immensely beautiful area is presently obstructed by a high iron fence and barb wire.



Fig. 2: View of Halikarnassos from top of the Göktepe hill (Danish Halikarnassos Project 2019)



Fig. 3: The Myndos Gate of Halikarnassos and northwestern trace of the wall seen from the western bastion (P. Pedersen 2019)

strongholds by the harbour entrance, while the greater number fled on their ships. According to Diodorus, Halikarnassos was well provided with *akropoleis* or fortresses, and the remains of no fewer than four fortresses can be identified, distributed at important strategic positions along the circuit of the city wall.

The Outworks - General Remarks - Escarpments and Ditches

Impressive as it may seem, the fortification system had weaknesses, partly because of its excessive length and partly because in some areas it had to cross lower land, where nature provided little to no protection. In these places, the natural terrain in front of the wall had to be worked and prepared artificially to make up for the lack of natural defence. This could be done either by cutting a more or less regular escarpment in the sloping hillside at a short distance from the wall or by excavating a fortification ditch 5-15 metres in front of the wall if the ground was level (Fig. 4)[3]. The purpose of both was to prevent an attacking force from bringing siege towers, battering rams, and other siege engines up to the wall[4].

Irregular work on the rocky ground in front of the wall can be observed in several places and here and there wedge marks from quarrying can be seen in front of the wall. A systematic search for such evidence has not been undertaken as part

[3] The system at Halikarnassos is thus a smaller but very similar version of the late 4th century BC fortification-system at Athens, consisting of fortification ditch – proteichisma – fortification wall (Travlos 1971, fig. 228)

[4] For a general discussion of the outer defences of Greek fortifications: Winter 1971, 269–286; Lawrence 1979, 275–301.

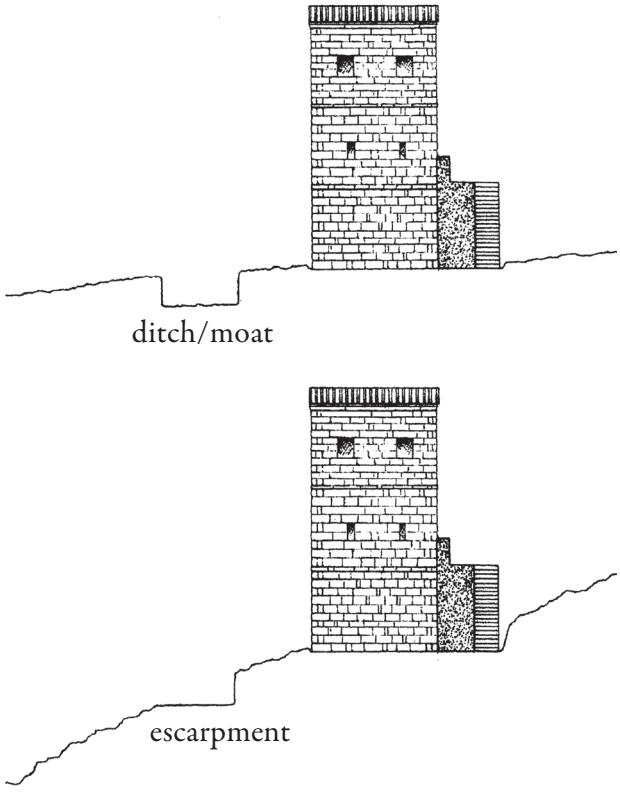


Fig. 4: Drawing showing the principle of ditches and escarpments (P. Pedersen)

of the Turkish-Danish investigations because vegetation and modern field walls cover great parts of the area. As the stone used for building the curtain wall to a great extent seems to change according to the type of rock on which it is built, it must be assumed that stone was quarried locally along the circuit, whenever possible[5]. For some of the towers, however, regular ashlars of hard andesite and limestone were preferred, and this type of rock could generally not be quarried at the construction site but had to be brought from further away. For practical and economic reasons, one would assume that the locally quarried stone was excavated at a distance in front of the wall so that the important escarpments and fortification ditches were created precisely when the stone was quarried for the construction of the fortification wall[6]. This hypothesis would imply that the escarpments and fortification ditches were part of the original city wall project, which seems likely but is not entirely certain.

The Fortification Ditches at Halikarnassos - the Literary Sources

From ancient literary sources and modern archaeological observations, there is substantial evidence for ditches in the fortification system at Halikarnassos.

The most important literary sources are the accounts of Alexander's siege of Halikarnassos by Diodorus Siculus from the mid-1st century BC and by Arrian from the 2nd century AD[7]. The two accounts constitute extraordinary and extremely valuable evidence for events that took place at Halikarnassos less than 20 years after the death of Maussollos, at a time when members of the Hekatomnid dynasty were still alive. Therefore, this article will address Alexander's siege of Halikarnassos in 334 BC in some detail. The accounts of Diodorus and Arrian are both based on older sources, which in turn rely on accounts close to the original events, mainly a historical account by Callisthenes of Olynthos and a diary, the *Ephemerides*, reporting on the daily events during the campaign[8]. Diodorus and Arrian generally agree on the course of the events, but some episodes are only included by one of them. Arrian seems most favourable to the Macedonians' exploits, while Diodorus tells of serious Macedonian difficulties which are not mentioned by Arrian[9]. As such, they do not seem to rely on exactly the same sources, but together

5 For the wall and the towers, see Pedersen 1994.

6 This is the general assumption expressed by Lawrence 1979, 276.

7 Diod. 17, 23, 4–27, 6 and Arr. *An.* 1, 20, 2–24. Important are: Pimouguet-Pédarros 1998 and McNicholl 1997, 1722.

8 Rolfe 1971, 15–18, Briant 2010, 11–20 has a brief discussion of ancient sources with references to further works.

9 W.W. Tarn, Alexander the Great, 2 (1948), 73 f.

they contribute to a fuller picture of the events. Diodorus and Arrian refer to the ditches several times and to events that took place there. By studying the two accounts, it is possible to gain some idea of the role played by the ditches during the fights, as well as a suggestion as to where their remains might be found.

Alexander's siege of Halikarnassos according to Diodorus and Arrian[10]

Based on the accounts of Diodorus and Arrian, an attempt can be made to summarize the most important course of events during Alexander's siege of Halikarnassos[11].

After conquering Miletos, Alexander had his siege engines and provisions transported on ships to Halikarnassos, where the Persians and their mercenaries had gathered. He marched through Karia with his army and, according to Diodorus, was immediately accepted by the Karian cities, who sent him embassies and offered him golden crowns[12]. He promised the cities their freedom and exemption from taxes. Pixodaros, brother to Maussollos, had expelled their sister Ada from Halikarnassos to the town of Alinda, when she came to meet Alexander. He promised that she should be reinstated as governor of Karia and thus he secured more support from the Karians[13].

When Alexander arrived at Halikarnassos, he first prepared a camp, which Arrian records was situated about 5 stadia from the city[14]. We do not know the location of the camp, but because Alexander anticipated a siege against a well-fortified site manned by a number of Persian soldiers and Greek mercenaries, we can assume it was of some substantiality[15]. The Persian army in Halikarnassos was commanded by Memnon of Rhodos. Orontobates, the Persian satrap of Halikarnassos, was also present in the city. Orontobates was married to Ada II, the daughter of Pixodaros and the niece of Maussollos, whom Alexander apparently had wished to marry just three years earlier but had been forbidden from doing so by his father, Philip II[16]. Nothing more is heard of Ada II. In addition to Orontobates, Memnon seems to have consulted the generals of the army, among whom the Athenian Ephialtes came to play an important role[17]. Before the arrival of Alexander, Memnon had made all the necessary preparations in Halikarnassos to withstand an attack[18].

On the first day, Alexander approached the Mylasa Gate, which was situated on the east side of the city. It was one of the two main gates to Halikarnassos and it was accessible by the road coming from Mylasa and the interior of Karia. The Mylasa road ran through the main cemetery of the ancient city in the area called Kislalik on Newton's map (Fig. 5) and must have finished as a short bridge spanning the riverbed, which constituted an efficient natural ditch along a large part of the city wall on the east side of Halikarnassos (Fig. 6). The Persians made a sally from the city but were

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10 On Alexander's siege of Halikarnassos in general, s. Pimouguet-Pedarros 1998 and McNicholl 1997, 17–22. My account is based on the Loeb edition of Diodorus Siculus: Oldfather 1989 and the Loeb edition of Arrian: Brunt 1976.

11 A summary of the siege can be found in McNicoll 1997, 18 and in Pimouguet-Pédarros 1998.

12 Diod. 17. 24, 2–3.

13 Arrian does not mention the meeting of Alexander and Ada until after the conquest of Halikarnassos (Arr. *An.* 1, 23, 7–8).

14 Arr. An. 1, 20, 2; Diod. 17, 24, 3.

15 Diod. 17, 23, 5–6; Arr. *An.* 1. 20, 3–4. Engels 1978, 34, estimated the siege to have lasted about two weeks.

16 Plut. *Alex.* 10, 1–3. Hornblower 1982, 49-50. and 220.

17 Diod. 17, 25, 6–27, 3.

18 Diod. 17, 23, 6. This could be the time when the ditches were made if they were not already part of the Hekatomnid city wall project.



Fig. 5: Central part of Newtons map of Halikarnassos showing approximate configuration of landscape with indication of hills and valleys (C.T. Newton 1862b, Pl. I.)



Fig. 6: East part of Bodrum/Halikarnassos and area east of the city in 1964. The Mylasa gate was situated approximately in the center to the right of the small Kislalik hill (K. Jeppesen)

easily driven back by Alexander's troops. It seems that skirmishes and fights took place over several days, presumably in the same general area near the eastern wall of Halikarnassos.

A few days later, with some infantry, cavalry and archers, Alexander moved around the city to the western side, the Myndos side of the

fortification, primarily to inspect the fortifications there[19]. Alexander launched no attack against Halikarnassos on this occasion, but he travelled on to Myndos to make an assault there. The sources reveal no information about fortification ditches at Myndos, but the city had a strong wall. Alexander managed to take down one tower before returning to Halikarnassos.

At Halikarnassos, he ordered his troops to fill up the fortification ditches[20]. This was easily achieved as the working men were protected by the roofs of movable sheds, presumably so-called 'ditch-filling tortoises'. According to Arrian, the fortification ditches were 30 cubits wide and 15 cubits deep (approximately 14 x 7 m), which is greater than the archaeological evidence attests[21]. Filling up the ditches seems to have caused surprisingly little trouble for the Macedonians, but this work was evidently of crucial importance because only then was it possible to move the siegetowers and other engines towards the walls. The general strategy in ancient siege warfare was for the attacking force to fire arrows and sling bullets from the siege towers at the defenders, who would then have to withdraw from the narrow walkway on top of the wall, granting the attacking troops access to the wall. This must have also been the strategy of the Macedonians, but in addition, they began to batter and tear down other stretches of the walls with other machines[22].

When the siege towers had been placed in position, the Persian troops attempted sallies at night, trying to set them on fire, but they were driven back into the city by the Macedonians. The Persians had the advantage of great firepower, shooting from the walls with *oxybeloi*, i.e. arrow-shooting machines[23].

After a few days, a remarkable episode became very dangerous for the Persians[24]. Two Macedonian soldiers who had been drinking together started a quarrel about who was the bravest. An attack they started by themselves soon engaged numerous troops from both sides, and very nearly led to the fall of the city. According to Arrian, this encounter took place on the height ("akra") facing towards Mylasa, on the east side of the city wall in its hilly and rough northern section. Although the Macedonians were on sloping ground and the Persian troops could shoot at them from above, the city nearly fell because two towers and the intermediate curtain wall had been overturned, and a third tower had been badly damaged. However, the besieged Persians had raised a strong, crescent-shaped wall of mudbricks on the inside, spanning the breach in the fortification wall, and the Macedonians abandoned their attempt to invade[25].

The next day, Alexander moved his towers up to the same section, and, as usual, the Persians made a sally to set fire to the siege equipment. It appears from Arrian's account that the character of the landscape was to the advantage of the defenders, who fought from a higher position. Alexander now wanted to move his towers inside the breach in the fortification wall to start an attack on the mudbrick replacement wall. Presumably, he first had to clear a passage through the debris of the collapsed fortification wall. When attempting this,

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19 Arr. *An.* 1. 20, 5–7. This episode is not mentioned by Diodorus.

20 Arr. *An.* 1. 20, 8–9; Diod. 17, 24, 4.

21 Arr. *An.* 1, 20, 3.

22 On the battering rams: Arr. An. 1, 20, 8 ; Diod. 17, 24, 4.

23 Diod. 17, 24, 6.

24 The episode of the two drunken soldiers is reported both by Diodorus and Arrian: Diod. 17, 25, 5. Arr. *An.* 1, 21, 1–4.

25 Arr. *An.* 1, 21, 4. Diodorus does not mention the mudbrick replacement wall, nor that this is where Alexander next makes his assaults.

the Macedonians were fired at from both sides and at an angle almost from behind by the Persians in the remaining towers.

A few days later, the greatest and most decisive encounter took place. It must be the same violent event which both Diodorus and Arrian report, although their accounts differ in important details[26]. It has been suggested that Diodorus was informed by sources with special insights into the conditions inside the city, while Arrian was relying on sources from Alexander's historians.

According to Arrian, it started when Alexander again moved his siege engines up to attack the mudbrick wall. The Persian troops made a sally in full force, not only in the area surrounding the collapsed wall where Alexander himself was present, but also from the Tripylon Gate (i.e. the Myndos Gate). After a fight at the collapsed wall in the northeast, the Persian troops were forced back into the city, but with great losses as they had to flee across the debris of the collapsed parts of the wall to get to safety. The sally by the Tripylon Gate was also repelled with severe losses for the Persians, as will be described a little further on.

The episode at the Myndos Gate is not recorded by Diodorus, but his account allows a glimpse into the difficult situation in the city and the discussions the Persians had before setting this decisive attack in motion[27]. At a council of the commanders, Ephialtes, a prominent Athenian among the generals of the mercenaries in the Persian army, advised them not to wait passively behind the walls until the war was lost and they were taken captives; instead, the leaders of the mercenaries should bravely lead the troops against the enemies. Memnon consented to his arguments and at daybreak, all the gates were suddenly opened and a group hurried out to set fire to the siege engines, while Ephialtes himself led a strong phalanx against the Macedonians who were rushing up to save the engines. The Macedonians were in severe trouble and suffered great losses at the collapsed wall, as the Persians sent down dense showers of missiles, especially from a one hundred-cubit high wooden tower filled with arrow-shooting machines. Memnon then joined the fight with numerous soldiers, and even Alexander was in serious trouble. At this critical moment, the veterans who had fought with Alexander's father, Philip, and who were not supposed to take part in actual combat, joined the battle in close formation. After killing Ephialtes, they managed to drive the Persian troops back into the city. Alexander then halted the fighting as it was getting dark, and – according to Arrian – because he wanted to offer the option of surrender to spare Halikarnassos from being sacked. The Macedonians returned to their camp about one kilometre away from the city and the dramatic events that had just taken place.

Despite the two very different descriptions of this decisive battle, Arrian and Diodorus both relate that Memnon then assembled the generals and the satrap Orontobates for a meeting[28]. Realizing that the city could not be defended much longer, since many men had been killed or wounded and part of the fortification had collapsed, they decided to leave the city. According to Diodorus, they installed the best of the soldiers on the acropolis with provisions to withstand a siege, while the rest sailed off to Kos. Diodorus does not specify which acropolis this was, and earlier in his account he had mentioned that Halikarnassos was well equipped with acropoleis[29]. However, Arrian reports these events in more detail; the Persian army set fire to their great wooden tower as well as to the sheds with their weapons; they then retreated to the "height on the island", which is no doubt the Zephyrion Peninsula (with the satrapal palace

26 Arr. *An.* 1, 22,1; Diod. 17, 26, 1.

27 Diod. 17, 26, 1.

28 Arr. *An.* 1, 23,1; Diod.17, 27, 5.

29 Diod. 17, 23, 4.

and the secret harbor), and to the height called Salmakis Hill. Both places were strongly fortified. According to Arrian, Alexander then killed the Persians who were setting fire to the city and pronounced that the Halikarnassians in their houses should be spared.

Alexander wanted to march on without delay and therefore left a garrison to besiege the two fortified strongholds in which the Persians and the mercenaries had taken refuge. He appointed Ada, the daughter of Hekatomnos and wife of Idrieus, to the satrapy of Karia, as he had promised before the siege. At that time, she had asked to adopt him as her son, to which he had consented[30]. Alexander thus became a member of the Hekatomnid dynasty, not by marrying Ada the Second, daughter of Pixodaros, but by being adopted by her aunt, Ada the First. If the younger Ada was in Halikarnassos and had survived the siege, she presumably left the city together with the Persians.

Both authors relate that Alexander then razed the city to the ground. But this sits awkwardly with his reported order to spare the Halikarnassians and with the reinstatement of Ada the Elder as satrap. Is Alexander likely to have left the residential capital of the Hekatomnids a smoking ruin? This is hardly plausible, and therefore questioned by most writers[31].

Conclusion

In the accounts of Arrian and Diodorus, we have important written evidence for the ditches in the fortification system of Halikarnassos and for the role they played during the siege of 334 BC. We learn that the fighting was always intense around the area of the fortification wall, but it also appears that Alexander's army had no trouble filling up the ditches. The ditches were simply too small to prevent Alexander from advancing his siege towers and battering rams to the walls. The frequent and desperate Persian sallies with the goal of setting the siege machines on fire delayed the city's capture but did not prevent it. The siege machines and the inability of the besieged to prevent their use determined the outcome. The ditches had been dug to counteract the use of siege engines in the areas most likely to be exposed to attack, but they proved ineffective against the Macedonian army.

The Fortification Ditches at Halikarnassos -the archaeological Evidence

The ditches were dug at the most vulnerable courses of the wall, where the natural defence was insufficient. In some places, the steep, rocky hillside made the use of siege towers impossible. This was the case at the four fortified heights, except for the north side of the Göktepe fortress, which had to be strengthened further by artificial escarpments. Little to no additional outer works have been observed in front of the strong, western bastions, on the slopes of the east and southwest sides of the Göktepe Hill, or on the steep, rocky hillside on the west and north side of the Northeast Extension (Fig. 7). The natural defences offered by land along stretches of the east wall also needed virtually no additional work.

Exposed level or gently sloping ground in front of the wall is found in at least three places: a. along



Fig. 7: Northeast Extension seen from the mountains to the northwest (P. Pedersen)

[30] Arr. *An.* 1, 23, 8.

[31] Pimouguet-Pédarros 1998, 24–26.

the northern part of the east side of the city circuit facing towards Mylasa, b. on the north slope of the Göktepe hill west of the summit, and c. in the area of the Myndos Gate (the Tripylon Gate of Arrian).

1. The Fortification Ditch in the northeast Section of the City Wall

From the accounts of Diodorus and Arrian, it appears that most of the dramatic fighting as well as the decisive final battle took place on the east side of the city[32]. Apart from a violent encounter at the Tripylon Gate on the west side of the city, the rest of the fighting seems to have taken place along the eastern wall, and the Macedonian camp was most probably located somewhere on this eastern or northeastern side of Halikarnassos[33]. On the first day of engagement, Alexander made an assault on the central part of the east wall by the Mylasa Gate, and only a few days later did he go around the city to reconnoitre the wall on the west[34]. Having tried in vain to take the town of Myndos by surprise, he returned and continued to prepare for the siege of Halikarnassos by filling up the ditch in front of the wall. This again seems most likely to have taken place on the east side, the Mylasa side, as he never filled the ditch by the Tripylon gate. The episode of the two Macedonian soldiers who made a drunken assault on the city wall is specifically described by Arrian to have occured at the height facing mainly towards Mylasa, and most of the ensuing fights must have taken place in this area[35]. It is clear that the ground was difficult to maneuver for the Macedonians, and that the Persians had the advantage of elevation. In the same chapter, Arrian recounts that two towers and the intermediate curtainwall collapsed – no doubt the work of the Macedonian siege rams. On subsequent days, Alexander drew the siege engines to the area of the fallen wall and to the mudbrick wall erected inside to replace it. The final, decisive fight took place in the area of the collapsed wall.

Although few, these details indicate the approximate location of the battleground and where to



Fig. 8: Northern section of the eastern city wall of Halikarnassos. Along this wall and in the area in front much of the fighting must have taken place in 334 BC. The photo shows situation in 1964 before the present main road, the Çevre Yol, was constructed in the hollow below to the left (K. Jeppesen)



Fig. 9: Hill on the south side of the main road, Çevre Yol. The ridge running in front of the wall may reflect the location of an artificial, ancient escarpment (P. Pedersen)

32 So also, Pimouguet-Pédarros 1998, 20.

33 Engels 1978 34 suggested that the camp was situated in the Yokuşbası Pass which opens to the coastal plain of Halikarnassos from the northeast. This seems a plausible hypothesis.

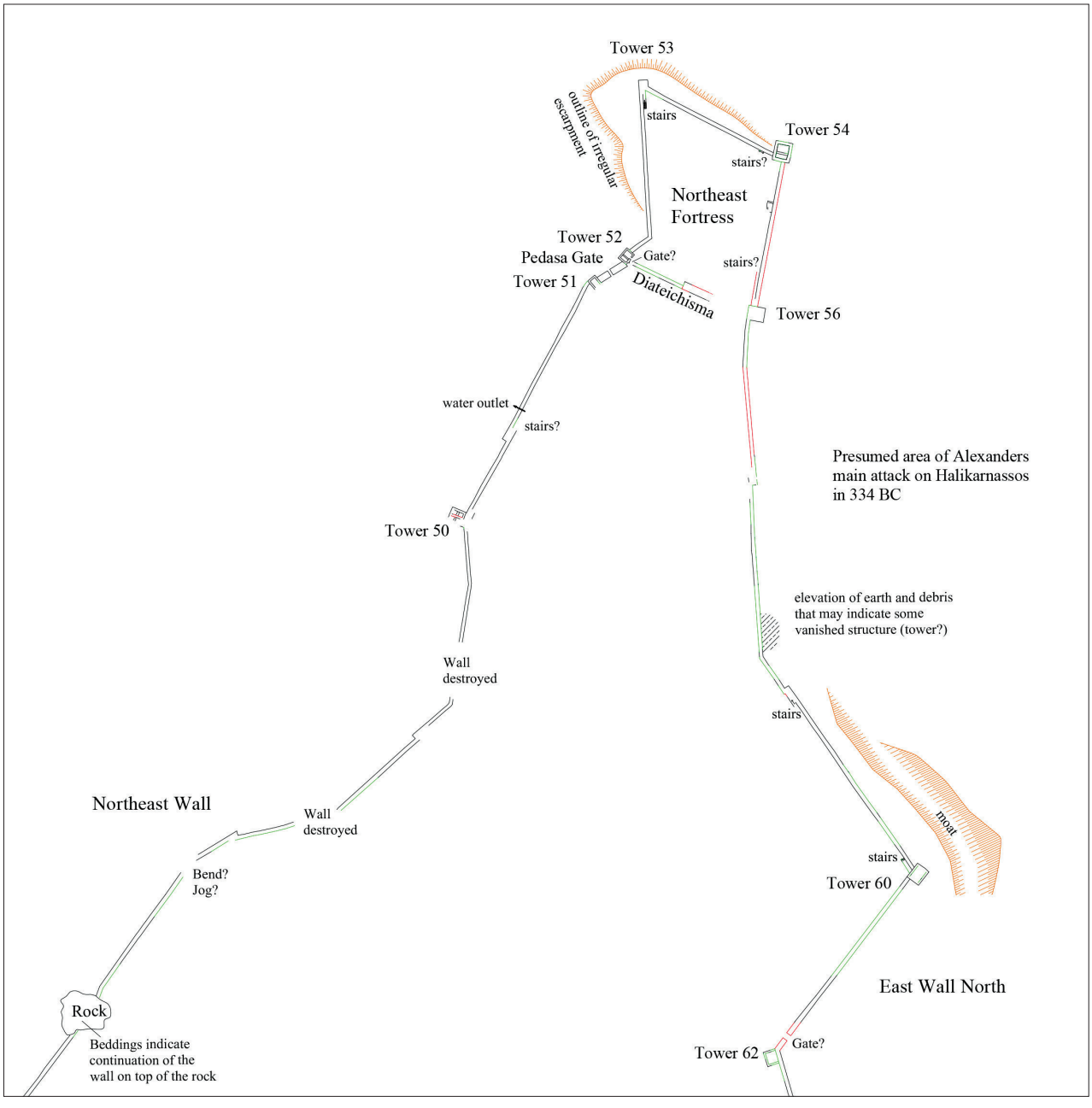
34 Arr. *An.* 1, 20, 5.

35 Arr. *An.* 1, 21, 1–2.



Fig. 10: East side of the Northeast Extension seen from the large ashlar tower to the north. The depression clearly discernable at some distance in front of the wall presumably indicates the remains of the fortification ditch (P. Pedersen)

Fig. 11: New plan of Northeast Extension showing escarpment to the northwest and ditches to the southeast (U. Ruppe)



look for ground passable by wheeled siege engines as well as any traces of a fortification ditch. In my opinion, the east side of the northeast extension south of the diateichisma is precisely such an area. It might have been thought that further south, where the modern main road, the Çevre Yol, intersects the territory, the wall might also have been naturally vulnerable and could be expected to have had a fortification ditch (Fig. 8). However, no trace of any ditch is visible at this point or on the "excavation sections" left by the road constructors in the hillsides north and south of the main road. Conversely, the hill to the south of the main road seems to have the remains of an artificial escarpment running at some distance along the course of the wall but no ditch (Fig. 9). No remains of an artificial ditch and escarpments have been observed south of this place, where the natural ravine formed by the stream, however, constitutes an efficient natural ditch for a considerable part of the east wall. No trace of the wall has been preserved from the area of the Mylasa Gate across the coastal plain to the sea. Since this part of the landscape does not fit the description of the area as an "akra", it can be ruled out as the location where Alexander filled the ditch and broke through the wall.

A visit to the beautiful, unspoiled natural landscape in the northeast confirms the hypothesis that this is the location of Alexander's attack. The ground in front of the wall slopes gently eastwards for a considerable distance, theoretically giving room for preparation of the battering rams and siege towers at a safe distance from the wall. Shallow depressions in the ground can be observed in this area running parallel to the wall and undoubtedly constitute the remains of an artificial ditch. No excavations have been made, but looking down from the large tower of the northeastern fortress, one can easily discern the line of a fortification ditch (Fig. 10). Measurements of the heights (Fig. 11) confirm this observation. At our present state of knowledge, it seems most likely that this was the area where the Macedonians had some of the most significant engagements with the Persian army and broke through the fortification wall. The wall is preserved to 1–2 m in height, but the remains show no clear indication of the battles which took



Fig. 12: Present state of the city wall flanking the fortification ditch on the east side of the Northeast Extension (P. Pedersen)



Fig. 13: The diateichisma wall recently excavated by Bodrum Museum (P. Pedersen)



Fig. 14: Staircase excavated at the northwestern bastion of the Northeast Extension (the Danish Halikarnassos Project)



Fig. 15: The northern bastion (Tower 53) in the Northeast Extension seen from the north-west. An irregular escarpment possibly of mixed natural and artificial origin is seen surrounding the bastion at some distance (Danish Halikarnassos Project. Drone photo 2019)



Fig. 16: Summit of the Göktepe Hill and sloping hillside running west seen from the mountains to the north. Remains of three towers, nos 30, 31 and 32 are indicated by low mounds on the ridge west of the top. This entire section had a combination of escarpments and ditches in front of the wall (P. Pedersen)

place here (Fig. 12). If this was the place where Alexander pulled down two towers and a part of the curtain wall, it must have been repaired afterwards. As would be expected, no remains can be seen of the replacement wall of soluble mudbrick. No detailed investigations have been carried out in this interesting Northeast Extension, but a stretch of the diateichisma inside the wall circuit was excavated by the Bodrum Museum a few years ago, (Fig. 13) and back in 1998, a well-preserved flight of stairs was excavated, leading up to the top of the northernmost bastion ("Tower 53") (Fig. 14). This bastion or tower is poorly built but surrounded by a distinct escarpment (Fig. 15).

2. The Fortification Ditch on the Göktepe Hill

The top of the Göktepe hill was surrounded by a fortification wall, and the remains of escarpments and a fortification ditch are clearly visible to the west of the summit and along its northern side (Fig. 16). During the Ericsson-Turkcell project that took place in 1998–2000, a low edge was observed in the natural rock projecting a few centimeters above the surface of the field west of the

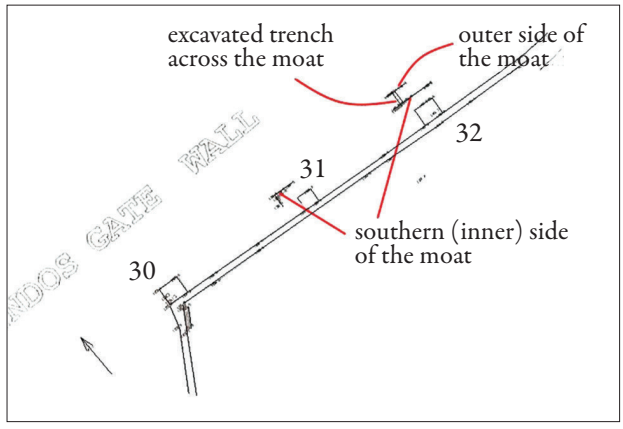


Fig. 17: Sketch plan showing location of ditch in front the north wall (Danish Halikarnassos Project)

summit and running parallel to the front of the wall[36]. A narrow test trench was excavated across the ridge and proved that these lines indicated the inner and outer borders of a fortification ditch (Fig. 17). The ditch runs ca. 5 m north of the wall and is only 5 m wide and ca. 2 m deep in the section where it was unearthed. It appears to follow the line of the wall and run systematically outwards to encircle the towers (Fig. 18 and 19). Arrian's report stating that Alexander filled the ditches without difficulty seems very plausible in

[36] Pedersen 2010, 289–293.

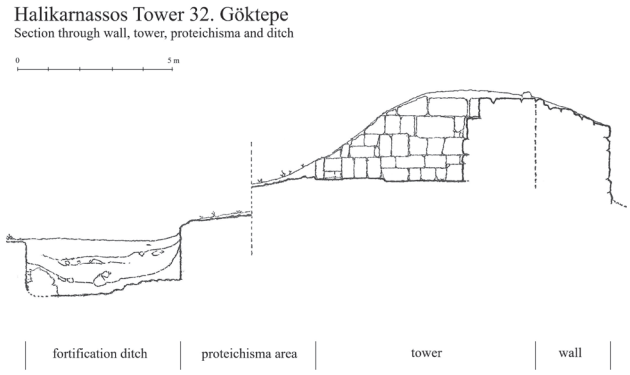


Fig. 18: Section through tower no 32 combined with section through the excavated trench in front of tower 32 (P. Pedersen)

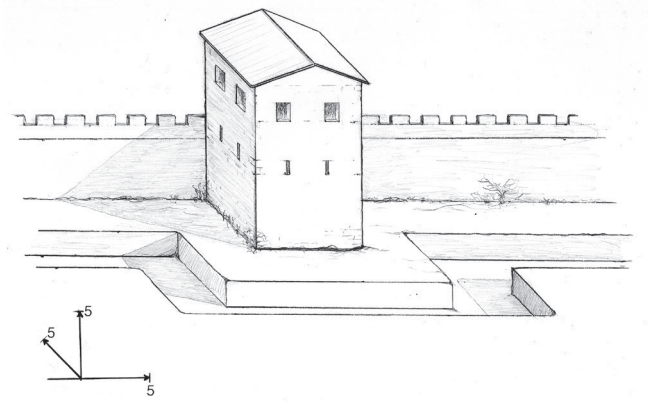


Fig. 19: Restored view of the fortification ditch, tower and wall west of Göktepe fortress (P. Pedersen)

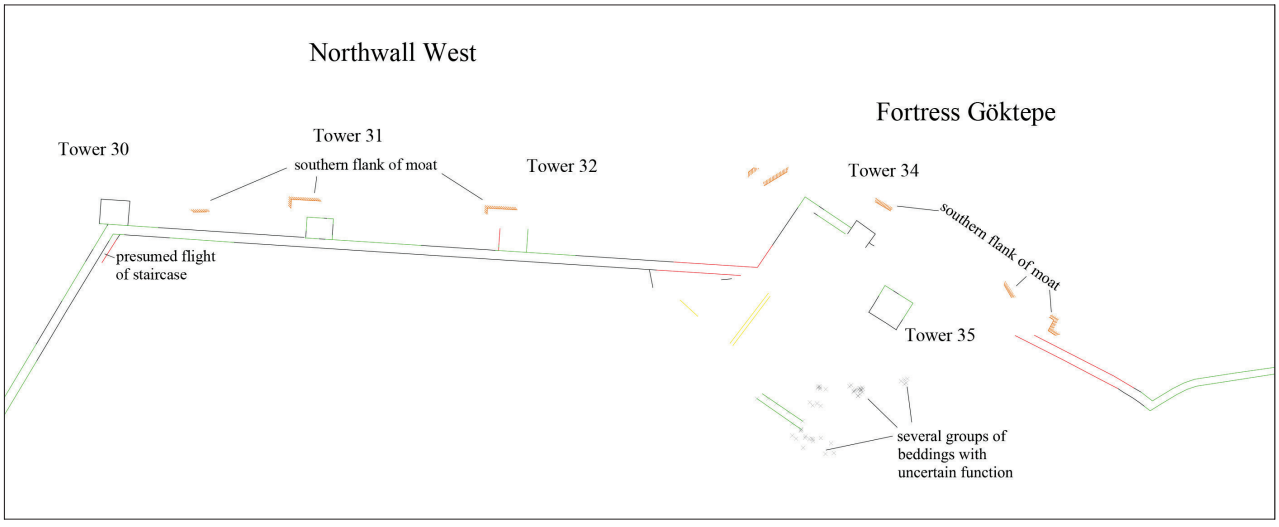


Fig. 20: New plan of the fortifications on the Göktepe hill. Remains of ditches and escarpments are found all along the north side of the fortress and westwards in front of the wall (U. Ruppe)

places like this. In the autumn of 2019, we investigated the visible remains of the Göktepe fortress more thoroughly (Fig. 20). The volcanic rock here is soft and has been heavily eroded since antiquity. In addition to the visible remains of walls, many areas with smoothed rock surfaces can be seen. In some places, they form a line and indicate the bedding of the fortification wall. In most cases, however, they are too dispersed and eroded to reveal anything except that the areas were once built over. On the southern and eastern sides of the hill, the remains were too badly preserved to establish the precise course of the wall. However, along its northern side, the fortification wall and the outworks can be traced to a great extent. As



Fig. 21: Remains of the Göktepe fortress. Tower no. 34. Ashlar masonry of reddish-brown andesite similar to the masonry at the Myndos Gate, the presumed Mylasa Gate and a number - but not all - of the towers of the city wall of Halikarnassos (P. Pedersen)

the slope is very steep, the ditch mostly appears as an escarpment. The architectural remains of the fortress are mostly of hard brownish andesite like the one used for the Myndos Gate (Fig. 21). The fortress was clearly of some importance and it would be extremely interesting to investigate the remains by excavation or geophysical survey, but because of the modern constructions on the site, this is currently not possible.

It has thus been ascertained that the Göktepe Fortress and the main wall west of the fortress were defended not only by the fortification wall but also by outworks such as a fortification ditch or escarpments where the slope was too steep for a ditch. Because of the eroded condition of the soft rock, it is difficult to establish the line of the wall to the east of the Göktepe fortress, but remains of ditches and escarpments may exist.

3. The Fortification Ditch at the Myndos Gate

The fortification ditch at the Myndos Gate constitutes an essential element in the account as told by Arrian:[37] "As for those who sallied by the Tripylon, Ptolemaios, the royal bodyguard, met them, bringing up the battalions of Adaios and Timander and some of the light troops; they too had no difficulty in driving back the sallying party, who in fact also suffered in the retreat over a narrow bridge thrown across the moat, which gave way under their numbers; many fell into the moat and some of them were trampled to death by their comrades, and others shot down by the Macedonians from above."

This area was excavated during the Ericsson-Turkcell city wall restoration project of 1998–2000 and the remains can be studied at the Myndos Gate archaeological site today (Fig. 22)[38].



Fig. 22: The Myndos Gate complex and fortification ditch from the south (P. Pedersen)

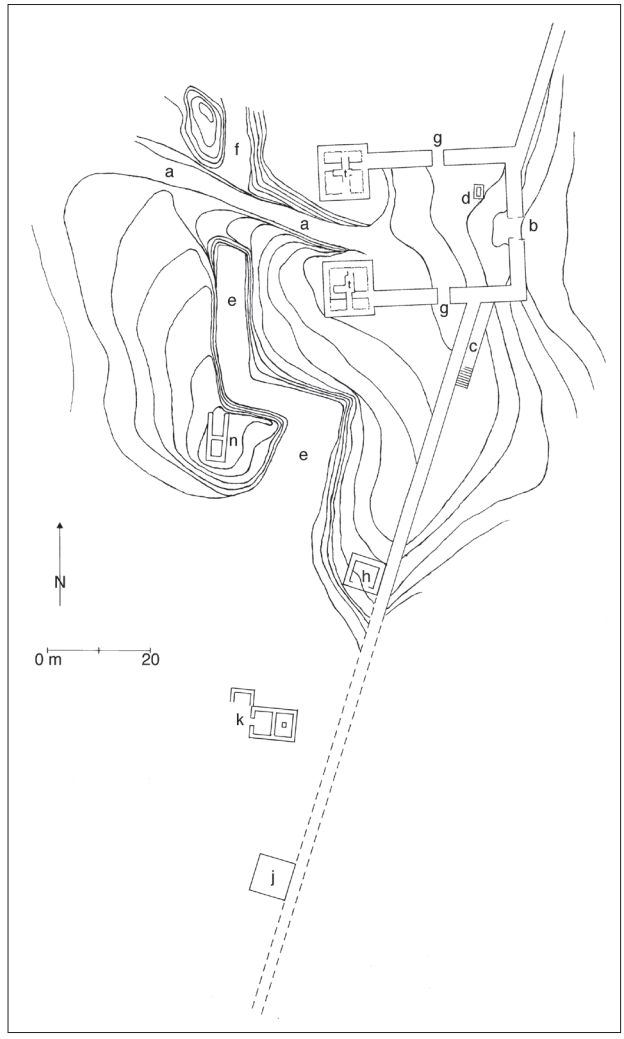


Fig. 23: Plan of the Myndos Gate complex and fortification ditch (P. Pedersen)

[37] Arr. *An.* 1, 22, 1–7. (after translation by Brunt [Brunt 1976]).

[38] The Myndos Gate is described in more detail in Pedersen 2010, 283–288.

The Myndos Gate is an impressive architectural structure, well-constructed and of strict rectangular plan. It resembles the *tetrapyrgion* in Theangela, which might accordingly be expected to be of the same date[39]. The gate is inserted obliquely into the line of the main wall, creating a strange contrast due to its regular layout (Fig. 23). Based on that observation, it can be tempting to think of the sophisticated gate complex as a later addition, but this is hardly the case. The fortification ditch undoubtedly existed at the time of the siege in 334 BC, and as it clearly winds its way around the gate complex, the Myndos Gate architectural structure must have been constructed before that date, probably as an integral part of the city wall project of Hekatomnid origin.

Arrian uses the ancient name "Tripylon" for the Myndos Gate. As there was no gate between the two great towers, the three gates probably refer to the main gate leading into the city and the two small gates at the northern and southern sidewalls of the gate yard. Their purpose is unclear as they only open to the *proteichisma-area* between the main wall and the fortification ditch. Perhaps they were meant to be sally gates through which the defenders could quickly exit to fight enemy soldiers trying to climb or batter the wall. This design may have contributed to the chaotic situation when Persian soldiers rushed in from both sidegates as well as the main opening, closely pursued by the Macedonians as they tried to return to the safety of the city. Arrian describes these dramatic events, which reached their climax when a narrow bridge leading across the ditch collapsed under the weight of the soldiers. As the main approach to the gate was by a road embankment and not a bridge, it was most likely a temporary construction, perhaps situated where there is now a steel bridge (Fig. 24).

The fortification ditch at the Myndos Gate only runs a short stretch of 50–60 m south of the gate structure but the situation north of the gate is unclear, which is where nowadays a modern cemetery lies. It is somewhat irregular and the soft white andesite into which it had been excavated has eroded heavily since antiquity. The ditch begins about 14 m west of the southern tower. It is ca. 5 m wide at the bottom but widens upwards. As the ground slopes towards the west, the height of the east wall of the ditch is ca. 4 m and the west wall



Fig. 24: The southern branch of the fortification ditch by the Myndos Gate with modern steel bridge (P. Pedersen)



Fig. 25: The western section of the fortification ditch in front of, i.e. west of the two great towers, no. 20 and 21. Note that the ditch is interrupted by the road dam carrying the Myndos road up to the gate, and that ditch was not finished on the other side of the Myndos road (P. Pedersen)

[39] Bean-Cook 1957, 92–93.

only measures a little more than 2 m. The ditch at the Myndos Gate appears to be unfinished north of the road embankment leading to the gate from the west (Fig. 25). This might suggest that the ditch was under construction when Alexander arrived and possibly formed part of the preparations that Memnon carried out to strengthen weaknesses in the defence of Halikarnassos. If this were the case, the Myndos Gate ditch would not have been part of the original city wall project of Maussollos.

Conclusion

Important questions remain unanswered in relation to the city wall of Halikarnassos and not least concerning the relation between the outworks and the walls of the main circuit. Concerning the course of the main wall, the entire circuit forms a coherent and well-designed entity. No remains of alternative lines of wall have been observed and given the natural topography of Halikarnassos, no other course of line seems likely. The existing circuit most probably constitutes one single phase from the time of Maussollos. This assumption is supported by the literary accounts of Alexander's siege, in which both the the Mylasa Gate and the Tripylon/Myndos Gate are mentioned, which implies that the full width of the alleged Maussollan circuit existed at that time. Furthermore, Diodorus' comment that Halikarnassos was well equipped with *acropoleis* accords well with the archaeology of the fortresses on the four most prominent hill tops integrated into the circuit of the wall. However, it cannot at present be ruled out that some of the towers are replacements or supplements from the Hellenistic period, and it may be that the ditches and escarpments are part of the preparations organized by Memnon before the arrival of Alexander[40]. Since only a fraction of the city wall of Halikarnassos has been investigated, it can be assumed that important remains are still preserved in the earth.

Poul Pedersen
Professor emeritus
Faculty of Humanities
Department of History
University of Southern Denmark
Campusvej 55
DK-5230 Odense M
p.pedersen@sdu.dk

[40] Winter assumes that the ditches at Halikarnassos were made by Memnon. He suggests that ditches were not a regular feature of Greek fortifications until the time of Philip and Alexander (Winter 1971, 275).

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New Research at Knidos City Walls: Initial Outcomes

Aytekin Büyüközer*

Abstract

This study includes the initial outcomes of our research on the defensive architecture of Knidos, one of Western Anatolia's major port cities. Located at the tip of Datça Peninsula, the city was established on a sloping site facing south towards a small nearby island called Cape Krio. The city experienced a period of mobility in the 4th century BC, interpreted as a change of location by some researchers. Inside the city walls, which are categorized as the Geländemauer type, a new arrangement with an orthogonal structure was built upon the layers of the archaic and classical periods and nowadays accounts for the majority of the local ruins. According to our preliminary evaluations, the walls on the mainland, as well as the ones that can be found on Cape Krio, were built during the 4th century. The process of building those walls generally consisted of short construction phases and was usually finished in one stage. Due to differences in the workmanship of the towers, it is safe to say that the Acropolis walls should have been completed shortly after the walls on the mainland and Cape Krio. The step-by-step establishment of the defence system has enabled the implementation of innovations specific to the military architecture of the time in each new section.

Keywords: *Datça Peninsula, Hecatomnids, Cape Krio, Knidos, Geländemauer, Karia*

The reconstruction activities in Western Anatolia first decreased[1] under the Persian rule, which started in 546 BC and eventually came to a halt during the 5th century BC[2]. Between 395-392 BC, Hecatomnos, who was assigned as the Satrap of Karia, and his successors managed to keep the chaotic situation between Athens, Sparta, and Persia at the beginning of the 4th century BC away from their territories. As a consequence of the Peace of Antalcidas in 387/6 BC, Athens had to give up its desire to control Western Anatolia, which resulted in Persia gaining total control over the region. With the tensions resolved, peace and stability prevailed following the time after the peace

* I would like to show my deepest gratitude to Prof. Dr. Ertekin M. Doksanaltı, who allowed me to study the city walls.

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1 It is stated that the only building in Anatolia dating back to 480 BC is the Andron in the Daskyleion satrap palace (Ateşlier 2001, 147–160, fig. 21). In the Karia Region, only two architectural elements in Mylasa were dated after 480 BC based on their stylistic features (Baran 2010, 148–149, tab. 1).

2 J. M. Cook thinks that the stagnation in construction activities, the development of the arts and the cities continued until the cities in the region were given their independence by Alexander the Great (Cook 1961, 90–101). According to J. M. Balcer, many Western Anatolian cities were in a good financial situation during the 5th century BC, but cultural decline has occurred due to political oppression (Balcer 1991, 57–58). Unlike J. M. Cook, P. Pedersen argues that architectural development in Anatolia started half a century before Alexander the Great (Pedersen 2001/02, 122, fn. 50).



Fig. 1: Knidos, Main Land and Cape Krio (A. Büyüközer)

treaty, and Western Anatolia experienced a great economic, political, and strategic upturn. As a result, the second major construction program, started in Western Anatolia after the Archaic Period. The majority of which were fortification structures. Due to the establishment of new empires and new borders, defensive walls and towers had developed greatly, making the 4th century BC a significant period for the entire Mediterranean geography[3]. During this process, many cities in the Karia Region, including Halikarnassos and Knidos, strengthened their city defences in response to the conditions of the time. According to some researchers, Knidos experienced a hectic period in the 4th century BC related to the re-planning of the city, although others argue it was due to a change of location[4]. Whether location change or re-planning, Knidos attracted attention in the 4th century BC with its powerful fortification system, magnificent structures and orthogonal urban planning.

Knidos City Walls

Knidos was founded on a sloping land facing south towards a small island, known as Cape Krio[5] (Fig. 1). As far as we know from the account of Thucydides (3, 33. 2), there were no city walls in Knidos during the 5th century BC. During the

[3] Pedersen 2010, 269, see also the article of P. Pedersen in this book.

[4] G. E. Bean and J. M. Cook claimed that Knidos was first located in Burgaz near Datça district and then moved to its current place in Tekir Peninsula in the second half of the 4th century BC (Bean – Cook 1952, 173–178, 210–121). Some researchers have stated that this move was the policy of Alexander the Great (Tuna 1982, 357; Tuna 1998, 430). R. Özgan states that such a move has never occurred and argues that even the existence of Alexander the Great's policy is suspicious (Özgan 2009, 94–95). N. Demand views Bean and Cook's hypothesis as bold and creative, but also expresses his opinion that such a move did not take place according to literary and epigraphic evidence (Demand 1989, 224–237).

[5] Doksanaltı *et al*. 2018, 5–9.



Fig. 2: City Plan of Knidos (A. Büyüközer)

replanning of the city in the following century, the walls were built to include the Acropolis as well as the mainland and Cape Krio and they can still be seen to a large extent today (Fig. 2). The wall, which has been categorized as the 'Geländemauer' type, is the product of a large project and measures a length of approximately 4 kilometres[6]. While planning its layout, strategic thinking and opportunities provided by the land were combined with a pragmatic approach, resulting in the shape of the land being decisive in the construction. In consideration of the topography, sections such as naturally arbitrated cliffs or rocks were rationally included. The walls were built from grey, limestone blocks, which are naturally occurring in the geological structure of the land. As a result of its hardy nature, the limestone blocks allowed the construction of strong walls while at the same time, providing an economic advantage in terms of transportation and workmanship due to its locality. However, it can also be seen that conglomerate blocks have been used in the repair phases of the fortification as well as the sections that were added later. All of the towers were built with rectangular blocks while the constructions of the walls also include polygonal and trapezoidal shapes. No binding material was used in the walls but instead, an emplecton technique was applied.

According to our initial evaluations, in Knidos, the walls on the mainland and Cape Krio were probably built in short-span building phases, and generally in one stage. However, it is considered that the Acropolis walls were built at a later date. The step-by-step establishment of the defence system has enabled the implementation of innovations specific to the military architecture of the time in each new section. It is seen that after the construction of the city walls, extensive repairs and additions were made.

Cape Krio

The topographic structure of Cape Krio provided a natural fortification for the island, and the sections considered weak were reinforced with walls

[6] For extensive discussions on typology, see: Lawrence 1979, 111–197; Frederiksen 2011, 8–19; Müth *et al*. 2016, 7–9.

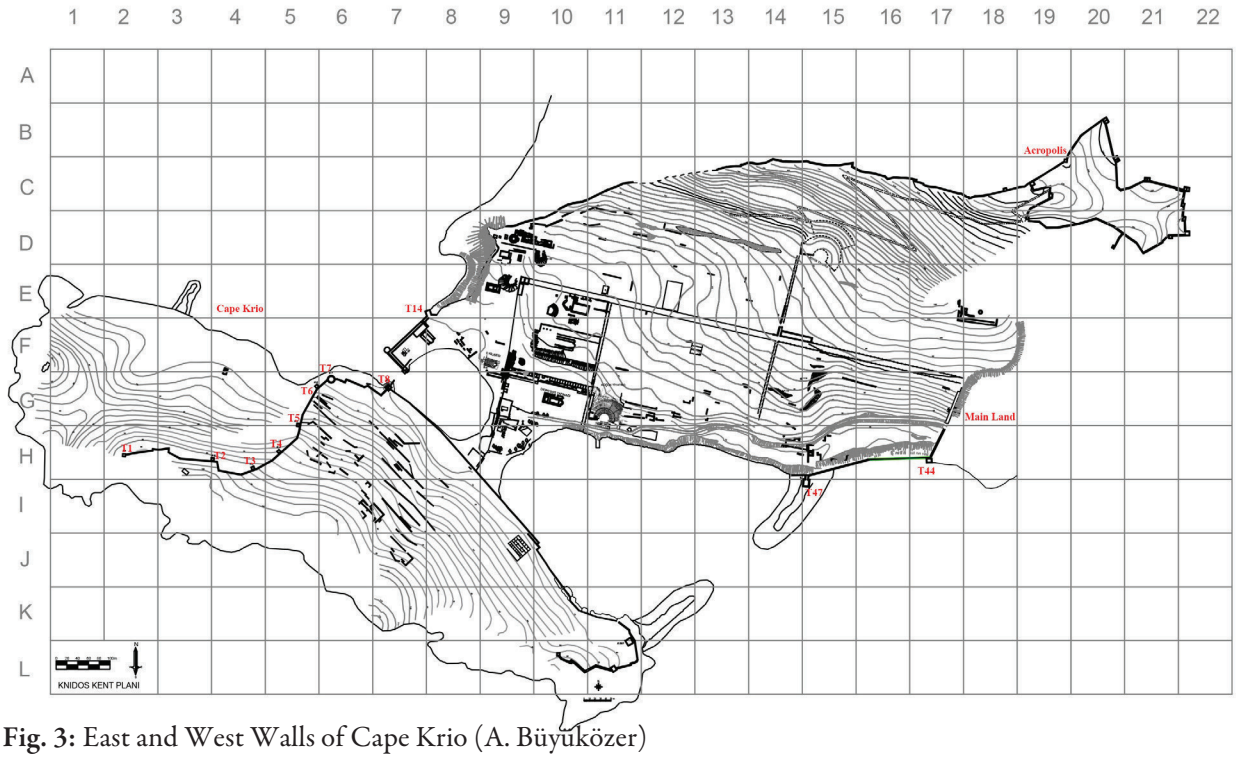


Fig. 3: East and West Walls of Cape Krio (A. Büyüközer)



Fig. 4: Cape Krio (A. Büyüközer)

and towers[7]. In the western and eastern parts of the island, independent defence lines have been established (Fig. 3). In the south of Cape Krio, the land is very steep and consists of cliffs with 90° inclinations in most places (Fig. 4), therefore, making the installation of a defence line redundant. Although the walls in Cape Krio have been preserved only to the ground level in some parts, their outlines can still be observed. In the west of the island, the walls begin at the south-western starting point of a fault line[8], from there on continuing alongside the geological fracture and eventually connecting to the tower (T8) at the entrance of the Military Harbour. Along this line, the construction changes direction in some sections, creating cascades and corners to adapt to the structure of the terrain. There are eight towers in total from the point where the city wall starts up to the entrance of the Military Harbour (Fig. 3). While the walls have mixed and irregular masonry composed of trapezoidal, rectangular, and polygonal shapes (Fig. 5), a more uniform masonry consisting solely of rectangular blocks, was preferred for the towers[9]. Only one or two rows can be seen in most of the rectangular towers, but the fact that the dimensions of the blocks seen in these rows are similar to those of the other towers, which follow propotionally, indicates that the same technique was used for all of them. The conservation of the city walls, especially in the sections consisting of polygonal blocks, is better than the condition of the towers, of which there are only two located in



Fig. 5: Defensive Walls of Cape Krio (A. Büyüközer)

[7] For a detailed assessment of the defense system of Cape Krio, see Büyüközer 2020, 165–206; Büyüközer 2022, 70.

[8] Geological surveys in Knidos point out that the city has undergone at least three major earthquakes or set of earthquakes which have caused the generation of the current topographic structure of the city. The dates of the earthquakes were determined as 18.7, 15.1 and 9.8 thousand years ago, respectively (Şahin *et al*. 2016, 22).

[9] A similar practice can be seen in Halikarnassos' walls (McNicoll 1997, 18; Pedersen 1994, 221–222; Pedersen 2010, 280–283. 308).

the eastern part of the island. For the construction of the southern breakwater of the trade port, the masonry techniques of the western walls were applied to the city walls, starting from the second fault line at the east end, which was used as a quarry. In the towers with extremely poor preservation, masonry consisting of rectangular blocks was preferred. A side entrance in the west walls of Cape Krio, just north of T5, provided access to agricultural terraces in this area.

Mainland

Although the city wall line can be followed clearly on the mainland, it is not possible to see the walls and towers in many sections. Here, the construction starts from the Military Harbour as the continuation of the western walls of Cape Krio and reaches the Acropolis by following the natural rocky border over the terraces. However, even though the wall foundations can be seen alongside the rocky edge, especially after the Round Temple Terrace, the remains of the walls or towers are not visible in most places (Fig. 6). In the east, on the other hand, the walls descend from the rocky area in the eastern part of the Demeter Sanctuary to the shore. From here they follow the coastline and connect to the tower on the northern breakwater of the commercial port (Figs. 2. 7). The part of the wall that once was located to the east of the Demeter Terrace has been almost completely destroyed. The proposed ideas for the city wall and the gate in the area where one of the main entrances of the city is located (also suggested in the city plan prepared by C. T. Newton) will not go beyond assumptions without proper archaeological investigations[10]. The wall can be further traced towards the shoreline, where the topography is steeper. The eastern part of the city on the mainland is the most open and vulnerable area against land-based attacks. For this reason, very large polygonal blocks were preferred and the thickest sections with dimensions ranging from 4.50 to 4.80 meters are located in this area. Due to the damage caused by various factors, the upper edges of the walls are not visible in any part of the remains. As a result of the lack of consensus regarding the number of towers detected during the works carried out by various teams at different times in Knidos, it is impossible to estimate the number of towers on the mainland under current conditions. German researcher A. von Gerkan identified 57 towers in all fortifications during his studies in Knidos[11]. In the research carried out by I. C. Love and his team, the number of towers was stated as 40[12]. A. W. McNicoll, who made his evaluation considering both studies, added 4 more towers to the estimation of A. von Gerkan and determined the number of towers as 61[13]. While more accurate estimations can be made for the walls in the Acropolis region and on Cape Krio, exact results on the mainland are impossible due to their complete destruction on the northern ridge and the eastern portion. The absence of a standard distance between the towers also prevents an estimated result. However, it is possible to make comments on the Tower 14 (T14) nearby the mole of the Military Harbour in the west, the Tower 44 (T44) in the corner where the land walls and sea walls meet, and the Tower 47 (T47) at the beginning of the northern breakwater of the commercial harbour. T14 (Fig. 8) and T47 (Fig. 9) belong to the first construction phase of the fortifications. Both towers are located in the areas that are most exposed to the sea in Knidos. For this reason, the grey coloured rectangular limestone blocks, which can only be seen in a few sections of the city wall, have been preferred for the construction of these towers in order to resist wave intensity. T44 (Fig. 10)

10 Newton 1863, 365; Newton 1865, 171–172.

11 von Gerkan 1924, fig. 10.

12 Love 1968, fig. 2.

13 McNicoll 1997, 55–58.



Fig. 6: Rocky Ridge Extending to the Acropolis (A. Büyüközer)



Fig. 7: Knidos, Main Land and Cape Krio (A. Büyüközer)





Fig. 8: Tower 14 (A. Büyüközer)







Fig. 9: Tower 47 (A. Büyüközer)

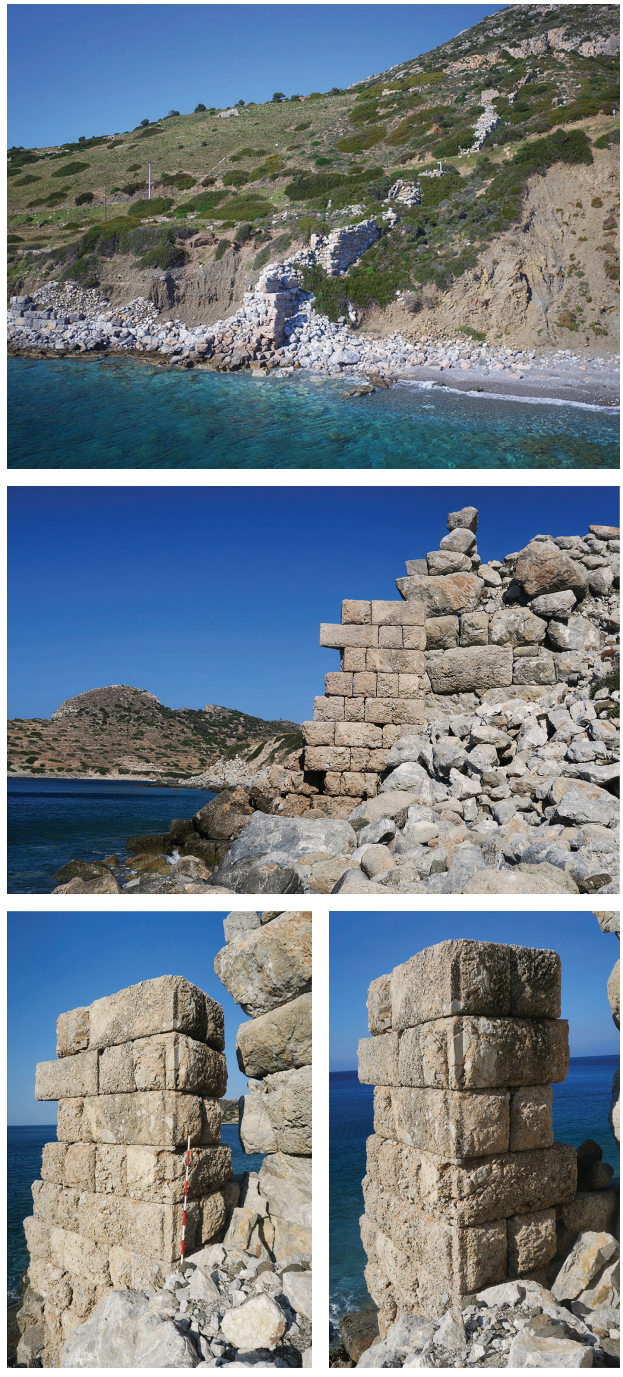


Fig. 10: Tower 44 (A. Büyüközer)



Fig. 11: Acropolis of Knidos (A. Büyüközer)

was added to the defence line afterwards and has a characteristic masonry that can be seen in Tower 8 at the entrance of the Acropolis and Military Harbour. The only access to Knidos from the land was in the east of the city and it is thus most likely that the only main entrance was located there. Although this entrance has not been discovered in the excavations, it must have opened directly to the large main street of Knidos. Additionally, two side entrances preserved at the ground level on the ridge extending from the Round Temple Terrace to the Acropolis, have been identified, which used to provide access to agricultural fields, workshops and necropolis areas.

Acropolis

The Acropolis walls constitute the strongest part of the defence system, which we divide into three sections: the mainland, Cape Krio, and the Acropolis walls. Towers, four small entrances, and fortification walls with different masonry techniques are located here and can be traced in all their glory despite their destruction by time and nature (Fig. 11). The absence of any building remains other than the cisterns in the acropolis fortification suggests that this area served as a 'shelter fortress', which was used by the people of Knidos in times of danger[14]. According to our initial findings, the Acropolis walls must have been built after the construction of those of the mainland and Cape Krio. The most prominent reason behind this idea is the difference in masonry technique between the Acropolis towers and the towers on the mainland, especially the original phase on Cape Krio. While the towers on Cape Krio were built with rectangular blocks using the isodomos technique, a method which is called "double corner bond/masonry"[15] was applied on the corners of all Acropolis towers (Figs. 12–13). This technique consists of a very characteristic use of a double bond stone/lintel being placed next to each other in the second row of the corners of the towers and terrace walls. It can mostly be seen in structures where bossage blocks were used. Furthermore, it is considered that this technique, which was invented by the architects of Maussollos, has been used continuously for around 150 years

[14] A similar situation can be seen in the Kaunos Acropolis (Özen 2017, 72).

[15] Pedersen 2001/2002, 109; Pedersen – Ruppe 2016, 563–568.



Fig. 12: Fortification of Akropolis (A. Büyüközer)



Fig. 13: Double Corner Bond at Tower 31 (A. Büyüközer)

after its invention[16]. The appearance of this masonry style in all of the acropolis towers, which differs from other sections of the city walls, indicates that there is a slight time difference between their construction dates.

Evaluation

Knidos city walls, which are the physical signs of urban identity, independence, power and eagerness to defend themselves, do not have a homogeneous structure. The walls were built with irregular polygonal blocks in some sections, rectangular and

[16] Pedersen – Ruppe 2016, 566.

trapezoidal blocks in others and skilful combinations of all three in some areas. Although the construction exhibits the use of different techniques, all of the towers were built with rectangular blocks, except for the parts where reparations were conducted. Both the technical differences within the walls of the city fortifications, as well as the dissimilarities between the masonry techniques used for the walls and the towers indicates that either the walls may have been built during different periods or by different hands altogether. A similar situation is observed in the walls of Halikarnassos, the first suggestion for the differences there being that various groups may have taken part in the construction due to the necessity for the city wall to be finished as soon as possible[17]. Based on the accounts of Arrianos (*An.* I. 23. 6),[18] the second proposal is related to repairs of the parts that were destroyed during the sieges[19]. Although both the change in material and the local shift in masonry technique in some sections point to the repair of the walls, they do not cover large areas. We know of an unsuccessful siege in Knidos undertaken by Philip V in 201 BC (Polyb. XVI. 2.1.). This siege may have damaged the walls to a certain extent, but there is no archaeological evidence to suggest any serious destruction. Different topographic conditions are thought to be effective in the block selection for the city walls in Amos[20]. It is stated that polygonal blocks may be preferred in the steeper parts of the topography and rectangular blocks in relatively flat areas. In our studies in Knidos however, we could not collect any data supporting this idea. Although the wall sizes between T1 and T3 in the west of Cape Krio are located on a flat topography compared to other areas of the western walls, this part has the characteristic masonry consisting of polygonal blocks. Similarly, while the walls between T44 and T47 on the mainland follow a straight line, this section was built with large-sized polygonal blocks. According to our preliminary evaluations, the most plausible explanation for the use of different masonry techniques in Knidos city walls is that the land was shared amongst different workgroups in order to complete the project in a short amount of time[21]. Besides Halikarnassos, similar practices have been identified in Zenobia[22], Messene[23], and Thasos[24].

Additional differences in masonry techniques appear between the outer side of the walls and the side facing towards the city. The use of more regular and qualified masonry for the exterior could be explained with a protection-oriented functionality as well as a representative character[25]. In Messene, larger-sized blocks were used in

17 McNicoll 1997, 43.

18 Arrianos reports that Alexander the Great destroyed Halikarnassos.

19 McNicoll 1997, 43.

20 Saner 1994, 282.

21 In Messene, trapezoidal blocks, which reduce the vulnerability of limestone, are used in the northern half of the city wall, while *isodomos* masonry technique is seen in areas where softer material was used. Only in the area around the Arcadia Gate in the north, limestone material, which was brought from a special quarry and suitable for rectangular *isodomos* masonry, was used (Brasse – Müth, 2016, 90–91).

22 It is explained that the Zenobia city wall was constructed by a better educated group with more qualified workmanship in the north (Bessac 2016, 133–139).

23 The different craftsmanship in the northwestern part of the city walls of Messene are explained by the presence of masters implementing old and new fashioned applications (Giese 2010, 93–95).

24 In the city walls of Thasos, on the hillside overlooking the sea and the plains, workmanship which exhibits the marks of different teams has been documented (Grandjean 2011, 392–400).

25 Brasse – Müth 2016, 98–99.

the outwards-facing sections and most evidently around the Arcadia Gate[26]. While the exterior of the city walls of Pednelissos[27] and Oinoanda[28] have more qualified workmanship, smaller, irregularly cut polygonal or trapezoidal blocks were used in the sections facing towards the city.

There are also differences in the masonry techniques of the walls and towers in Knidos. For Halikarnassos, where similar practices were observed, it was stated that the towers were more exposed to the attacks than the walls and more qualified masters might have worked on them[29]. This proposal is also acceptable for the T1–T6 towers on Cape Krio, but it is disputable for the towers T7–T8 as well as those located in the east of the mainland. The towers T1–T6 on Cape Krio have a square layout and were all built from rectangular blocks. Therefore, we cannot attribute these different masonry techniques only to the involvement of different masters. These towers were either rebuilt in place of former towers that belong to the first construction phase and became unusable for some reason, or were added later[30]. The differences in the masonry technique and scale of T8 can be explained by its location at the entrance of the harbour. However, a similar situation can be seen in T44[31], which is located at the intersection of the sea walls and land walls to the east of the mainland. The tower, where the 'double corner bond' technique was applied, differentiates itself from the city wall in this area in terms of construction material, block sizes and masonry technique. Additionally, the lack of an organic connection between the two constructions is proof that the tower was added at a later date. The most important evidence for suggesting the towers with this specific masonry technique were built in different periods is the inconsistency in material and workmanship detectable at the junction of the wall between T6 and T7 with the latter being situated on Cape Krio (Fig. 14). In T7, a masonry technique was used consisting of string and bond stones/lintels and instead of the hard grey limestone blocks, a yellowish tinted, relatively soft limestone was preferred. The city walls and defence towers of Knidos are dated to the 4th century BC[32]. However, in terms of masonry technique, T7 is similar to the buildings of the 3rd and 2nd century BC rather than the end of the 4th[33]. It would be unwise to assume that there could not have been an earlier tower in the place of T7 when the city wall was first built since it is located in a very strategic position. The walls of the Cape Krio fortifications, which are extending from the south of T7, and the walls of T7 itself are different in size, and repairs and additions are clearly visible (Fig. 15). The tower of the first

26 Brasse – Müth 2016, 98.

27 Laufer 2010, 173, fig. 8–9.

28 McNicoll 1997, 120–126.

29 McNicoll 1997, 43.

30 During the excavations we carried out in T8, a row of walls 1 meter north of the north west corner of the existing tower was identified in a single row. We think that this wall is related to the tower built here during the first construction phase of the walls. Excavations must be completed for the final assessment. In addition, our excavations in the tower have documented that in the late antiquity the tower was supported in at least three directions to prevent it from sliding.

31 McNicoll 1997, fig. 11.

32 McNicoll 1997, 74; Nossov 2009, 51; Pimouguet-Pédarros 2000, 331.

33 A. W. McNicoll stated that the tower was dated to the middle or the end of the Hellenistic period by the researchers while he believes it was built during the 2nd century BC (McNicoll 1997, 59, n. 78). One important structure exhibiting great similarity with "T7" in terms of masonry technique is the building called "St. Paul's Dungeon" in Ephesos (Winter 1994, 38–39; Karlsson 1994, 144–146, fig. 1). The walls of the Miletos Theater, which are dated to the Hellenistic Periodperiod, also show similar characteristics to T7 (Karlsson 1994, 147, fig. 4).



Fig. 14: Late Classical Wall and Hellenistic Tower (A. Büyüközer)

building phase in this area was either destroyed or the quadrilateral tower, which was not functional due to its location, had been abandoned. In any case, the existing tower and the walls associated with it were completely removed and replaced with a more functional, larger, round-shaped tower, which was free from the disadvantage created by the corners. In our opinion, this change is not only limited to T7 but also included T8 and the wall between the two towers. T8 stands out from other towers on Cape Krio due to its masonry technique and dimensions but it also has an upper floor where heavy weapons would have been placed, presuming it was originally intended as multi-storey as it is understood from the two separating walls, which are positioned orthogonally in the interior[34]. Although there is no other example of two separating walls in a tower during the Classical Period, it has had widespread use in Hellenistic defence systems[35]. The development of the siege techniques in the Hellenistic period caused the towers to become multi-storey structures that were suitable for firing heavy weapons[36]. The entrance of the Military Harbour was evidently rearranged during that period, possibly due to destruction[37] or as a precaution against evolving assault weapons. With this arrangement, the city walls, located at the lower level between the two

[34] Catapults were originally used as attack weapons, but due to their use as defence weapons over time, changes regarding the shape and size of the towers occurred. Wider areaswere needed to house more arms as well as carry heavy weapons and bullets (Jansen 2016, 116).

[35] Pedersen – Ruppe 2016, 575.

[36] Marsden 1969, 105–155; Garlan 1974, 291–328.

[37] In addition to enemy attacks, at least two earthquakes causing serious destruction of the urban structure have been detected. One of them is dated to the Hellenistic period and the second to the Late Roman/Early Eastern Roman period (Altunel *et al*. 2003, 137–151). It should also be noted that repairs in city walls and towers may be related to earthquakes.

towers, were moved to the upper level, which was more suitable for active defence. As a result, it is seen that a new alteration was made in the construction, the first phase of which was dated to the 4th century BC, starting from T7 at the entrance of the Military Harbour. This development was not only limited to the entrance, it also included some of the harbour[38] and Acropolis walls. Thus, innovations specific to the military architecture of that period could be applied in the new sections. This comprehensive arrangement must have been made in the 3rd century BC as it is widely agreed upon that the "double corner bound" technique was first used around approximately 370 BC during the reign of Mausolus, though it was not limited to the time of the Hecatomnid Dynasty, and persisted until approximately 250/200 BC[39]. The fact that this technique, which has not been observed in the towers of the first construction phase, appears in the towers added later indicates that this alteration took place during the 3rd century BC when the technique was in widespread use.

Topographic features and strategic decisions have been effective in determining the thicknesses of Knidos' city walls. The city planners have not set any standards for the diameter of the walls, as shown by the fact that in areas where the topography was considered to be relatively unfavourable for defence, the wall thickness was immediately increased. While the construction of fortifications was not needed in the rocky area in the south of Cape Krio, since this region already had naturally occurring topographic features facilitating defence (fig. 4), the tower and city walls were built in the west and east by considering the land faults. The towers had no gates, windows or loopholes, but their extensive destruction makes it difficult to define these arrangements. In this case, the defence might have been conducted simply by creating a platform at the top of the tower and the walls. There is no evidence of stairs to reach the wall-walks on the city walls. For this, wooden stairs could have been used. Philon (Poliorketika, I. 15-16) suggests the wall-walks consisted of wooden beams or planks carried by wooden piers and states that the wall could have been isolated by lifting these timbers when necessary[40]. When the fortification of Knidos was combined with the topography, it gained an even stronger structure.

Dating

There are different opinions regarding the dating of the city walls, especially those in Karia in Western Anatolia, which were built in the 4th and 3rd century BC. Researchers working on the defence systems of Karian cities stated that the cities in Anatolia were not able to establish city walls under Persian domination because the Persians would not have allowed it[41]. In this regard, L. Karlsson suggests the defence structures in Caria must have been built in the period between Ada and Demetrius Poliorcetes, rather than the period between Maussollos and Idrieus[42]. According to him, some of the walls in Halikarnassus and Myndos date back to the reign of Massollos; some sections of the walls in Telos, Nisyros, Amyzon and Kaunos go back to Idrieus' time, those in Alinda and Priene date back to the period after Idrieus, around 334 BC, and the walls in the other centres, including Knidos, are dated to a time after 330 BC[43]. However, in a new study on the city walls of Alinda, A. N. Konecny and P. Ruggendorfer propose the period of Massollos for

38 Büyüközer 2019, 220, fig. 6.

39 Pedersen – Ruppe 2016, 566.

40 Information on the wooden wall-walks were found in the settlements such as Merdivenlikuyu (Durugönül 1998, 46–47, fig. 28a), Oinoanda (McNicoll 1997, 123) and Myra (Konecny 1997, 57–58).

41 Lawrence 1979, 122; McNicoll 1997, 71. Same statement was also made for Priene (Wiegand – Schrader 1904, 45).

42 Karlsson 1994, 153.

43 Karlsson 1994, 153.

the date of construction[44]. S. Özen also points to the development activities of the Hekatomnids for the Kaunos city walls[45]. According to P. Pedersen, the fortifications in the 4th century BC were carried out in order to strengthen the Persian authority[46]. A. W. McNicoll dates the walls of cities such as Halicarnassos, Iasos, Myndos, Alinda and Alabanda to the time of the Hecatomnid Dynasty[47] and the walls of the city of Knidos to 330 BC[48]. This dating coincides with the suggestion of L. Karlsson and has been accepted by researchers such as K. Nossov[49] and I. Pimouguet-Pédarros [50].

L. Karlsson argues that archaeological excavations are not always the most effective way to date the walls and historical process of cities and that masonry techniques and towers are more important in determining the ages[51]. For instance, excavations in Miletus and Corinth did not yield satisfactory results for dating the walls[52]. However, with the help of archaeological data obtained in excavations in Kaunos[53] and Labraunda[54], a more consistent dating for the defence systems has been established in recent years. Since no excavations have been carried out so far regarding the city walls of Knidos, the excavation works we started on T8 at the entrance of the Military Harbour constitute the first attempt. Although our work in this area is still in progress, no archaeological data to help us date the tower has been retrieved yet. The fact that the city walls and towers were built directly on the rocky terrain structure raises doubt as to whether satisfactory results will be obtained in possible future excavations. Therefore, at this stage, other criteria will be emphasized in the dating of the city wall.

Knidos city walls were constructed with polygonal stone blocks in some places, while rectangular and partially trapezoidal blocks were used in a few other sections, as well as an occasional elaborate combination of all three. Although the existence of different masonry techniques suggests the walls could have been built in different periods, the fact that the city wall plan is of the *Geländemauer* type and follows a consistent line indicates a construction within a single plan. Therefore, it is not possible to date using the masonry technique of the city walls that do not have a homogeneous structure.

The situation in the towers is almost the same. Since the two towers on the eastern walls of Cape Krio are at the foundation level, no assumptions can be made regarding their structural features or the construction dates. The first six towers with a square plan (T1-T6) out of the eight towers on the western walls can also not be dated according to the masonry technique. As explained above, the circular planned towers T7 and T8 at the entrance of the Military Harbour were constructed within the scope of the rearrangements in the 3rd-2nd BC and therefore they are impractical for determining the first building phase of the city wall. At this

44 Konecny – Rugendorfer 2014, 742.

45 Özen 2017, 77–79; See also the article of S. Özen in this book.

46 Pedersen 2010, 273, fn. 11.

47 McNicoll 1997, 15–45.

48 McNicoll 1997, 71–74.

49 Nossov 2009, 51.

50 Pimouguet-Pédarros 2000, 331.

51 Karlsson 1994, 142. There was very little stratigraphy research done in the city walls and other defensive structures, and while some of the excavated areas had very few archaeological data, others had none (Müth *et al*. 2016, 5).

52 Winter 1994, 30.

53 Özen – Özen-Kleine 2019, 203–207.

54 Vergnaud 2015, 317–330.

point, the historical course of the city should be examined to uncover the history of the walls. As L. Karlsson stated, the historical course of the cities is the most consistent and important criterion for dating their fortifications[55]. A period of activity took place in Knidos in the 4th century BC, which was interpreted as a change of location by some researchers. During this period, a system suitable for an orthogonal plan was created on the archaic and classical settlements of Knidos[56]. Within the framework of this planning, the area to the north of the mainland was reserved for religious and public buildings, while the perimeter of the harbours was used for commercial harbour structures and the remaining parts served as residential areas[57]. For the new planning, which was created on the basis of a grid plan, large terraces were constructed upon which important structures were built and later decorated with the works of the most important sculptors of the period. R. Özgan states that Scopas, Bryaxis and Leochares, the most famous sculptors of the high classical era, worked in Halikarnassos in 360–350 BC and they also produced works for Knidos in the same years[58]. The most important work that comes to mind in Knidos, the Naked Aphrodite sculpture of Athenian Praxiteles is dated to 364–361 BC by A. Corso[59] and 360 BC by I. Jenkins[60]. Some researchers suggest a broader timeline for the statue, dating it to around 350 BC[61]. In addition, during the excavations carried out by C. T. Newton, the statues of Demeter and Persephone, as well as some animal sculptures were found in the Demeter Sanctuary. These findings, which are exhibited in the British Museum at present, are dated to the middle of the 4th century BC[62]. Since these famous sculptures point to a time around 360–350 BC, an urban planning project must have been carried out in Knidos at the latest in the second quarter of the 4th century BC and as a result, the development activities must have started[63].

The city wall cannot be considered independent of urban planning. For this reason, the idea suggesting zoning activities started in the city without building a city wall is not plausible. To organize a settlement, the defence problem must first be dealt with. Therefore, the places where the city walls will pass through must be determined before the city plan is created. Regarding the establishment of the city of Thourioi, which is said to be planned by Hippodamos, Diodoros (XII. 10. 6-7) states that "*...they threw a wall about it, and founding a city there...*". Vitruvius (I. 6. 1) emphasizes a similar situation and uses the expressions "*Their circuit being completed, it behoves us to consider the manner of disposing of the area of the space enclosed within the walls, and the proper directions and aspects of the streets and lanes. They should be so planned as to exclude the winds*". According to this data, except for additions and repairs, Knidos city

55 Karlsson 1994, 142.

56 von Gerkan 1924, 117–118, fig. 10.

57 Doksanaltı 2007, 8–17; Büyüközer 2013, 140–147.

58 Özgan 2009, 97.

59 Corso 1997, 92; Corso 2004, 352.

60 Jenkins 2008, 53–57, fig. 32–33.

61 Özgan 2009, 97, fn. 16.

62 Jenkins 2008, 39–42, fig. 21-25; Ridgway 1997, 249–250.

63 Furthermore, in the fill layers of the settlement terraces in Cape Krio, a large amount of pottery shards belonging to the black glazed and red figured Attic vessels dated to the late 5th century BC and the first quarter of the 4th century BC, as well as tripods and locally produced black lined vessels dating to the beginning of the 4th century BC were found. The fact that these occur in the filling layer used to form the terraces supports the view that the new and general planning of the city was made in this period (Love 1968, 134; Doksanaltı 2007, 12–13).

walls must have been completed to a large extent in the second quarter of the 4th century BC.

Conclusion

In the 4th century BC, the defence walls and towers all over the Mediterranean region developed greatly due to the establishment of new empires and new borders that emerged accordingly[64]. One important figure of this development is Dionysios I, who was the Tyrant of Syracuse in 405 BC. With the emergence of the catapult invented by Dionysius I in 399 BC, attack and defence systems developed rapidly[65]. This allowed the establishment of stronger walls and towers connected to the city wall. The wars and changing defence strategies during these political developments led to new advancements in siege techniques[66]. All these factors caused the reconstruction of the defence systems of many cities, including Knidos.

While planning the city wall of Knidos, strategic decisions and opportunities provided by the land were used with a pragmatic approach, and the shape of the land has been an important factor in the construction. Considering the topography, sections such as naturally fortified cliffs or rocks were rationally included in the city outline. This situation had a deterrent effect on those who intend to attack the city and prevented them from implementing their war strategies since they could not use the land for their firearms and other weaponry. In addition to this, they were not able to bring ancient warfare equipment such as chariots, siege towers and ram heads close enough to the city walls or towers to get into proper position. Except for the east of the mainland, the only direction Knidos could be attacked from was the sea. The entrance to the Military Harbour was also highly protected against threats from the sea. Unlike other towers in Cape Krio, both T7 and T8 were sized to accommodate artillery weapons[67]. The harbour entrance was narrowed with a wall extending from T8, into which a 'V' shaped loophole was built. On the T8's axis on the mainland, another tower is located on the breakwater with a rectangular shape close to a square, which controlled the harbour entrance. Inside the tower, there is a 0.85 meter gap overlapping with the wall passing through the tower in Cape Krio, resulting in the narrowing of the harbour entrance. As far as we know from the account of Strabo (14, 2, 15), such harbours could be closed with a chain when necessary. The space overlapping with the wall axis is the space through which the chain that was used to close the harbour entrance passed. The area behind this gap is where the mechanism for stretching and loosening the chain (winch) can be located. This defence line, which can be actively defended against enemies, was supported by a small navy according to Strabo (14, 2, 15).

Prof. Dr. Aytekin Büyüközer
Selçuk Universitesi, Güzel Sanatlar Fakültesi,
Arkeoloji Bölümü
TR- 42130 Konya
aytekinbuyukozer@selcuk.edu.tr
Orcid No: 0000-0001-7788-4404

64 Pedersen 2010, 269.

65 Marsden 1969, 48–64.

66 McNicoll 1986, 305–313.

67 For artillery weapons to be placed on the towers, the 6 x 6 meter towers in Cape Krio would not have been very suitable. Along with the advantages of the land, these small towers must have been thought to be sufficient for defense, but the tower sizes were increased at the entrance of the Military Harbour. Among the different types of towers in Heraclea at Latmus, the most important ones are the large artillery towers. Their dimensions are larger than 10 x 10 meters. There are loopholes on the first floor and rectangular windows on the upper floor. The ground floor is divided by walls (Krischen 1922, fig. 27). The T8 has dimensions of 9.5 x 9.5 meters and T7 14.20 meters in diameter, and they are suitable for heavy weapons.

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The Karasis Kalesi (Kozan, Adana)

Mustafa H. Sayar

Abstract

The structures I present here were first identified by myself in 1994 on Karasis Mountain, located within the Kozan district of Adana, and published in 1995 to be introduced to the scientific world. Since neither an inscription nor a coin could be found on the mountain where Karasis Kalesi/Castle is located, it is not known by whom the castle was built. Some ideas can be put forward about the construction date of the Karasis Kalesi only by evaluating the historical events that took place during the period when this region was in the hands of the Seleucid Empire.

The Seleucid kings attached great importance to the territory of Kilikia and especially to the Kilikian Plains in terms of securing land transportation connections between Syria and Anatolia, as it was located just north of Antiocheia and its surroundings, where the capital city of the kingdom was located. The Karasis Kalesi should have begun to be built during the process of determining a new border within the framework of the agreement made with Rome and its allies in 188, after the Seleucid king Antiochos III lost his sovereignty in the lands of Anatolia extending to the Taurus Mountains after the heavy defeat in the Magnesia war in Western Anatolia in 189. Antiochos III needed an ostentatious royal structure as a prestige project while trying to recover militarily and politically in the lands of his kingdom after his heavy defeat. The presence of the residences of the kings, the reception hall, and 9 cisterns in the upper castle built on the summit of the Karasis Mountain indicates that this place was planned to live for a long time. In accordance with this evaluation, as the possible beginning date of the construction of the Karasis castle, the time right after the defeat of Antiochos III by the Roman army and its allies in 189 on the Magnesia plain, or, more likely just after the envoys of Antiochos III signed the Apameia agreement with the representatives of the Roman state in 188, can be suggested. The reason why the Karasis fortress was abandoned before its construction was completed is probably the murder of Antiochos III by temple officials while plundering the Bel temple in the Elymais region in 187. The fact that the insides of the cisterns were plastered indicates that they were used during construction. The dating of most of the pottery visible on the surface of the Karasis Kalesi to the 2nd century BC gives an idea about the period when the construction of the castle began.

Keywords: *Karasis Fortress, Kilikia, Antiocheia, Seleucid*

The ruins located on a mountain called Karakesme to the south of the Taurus mountain range in the north of the Kozan district of Adana province in the Cilician plains today are called the Karasis Kalesi (Fig. 1). The Karasis Kalesi, which was discovered by the author of these lines during the surveys carried out in Kozan and its surroundings in 1994 and introduced to the world of science, consists of magnificent defense structures that seems to have been abandoned before it was completed[1] (Fig. 2). The Istanbul Branch of the German Archeological Institute, which participated in the surveys carried

[1] For the news about the find of the castle in Karasis Mountain, see Sayar 1995, 279–282; Sayar 1999, 125 –136. The existence of the castle on the Karasis mountain in the region was noticed by the travelers wandering around in the territory in the 19th century, but since they did not climb to the top of the mountain, they thought that this castle was one of the



Fig. 1: Map: Map of Cilicia Pedias in Antiquity



Fig. 2: Karasis, Mountain (M. H. Sayar)

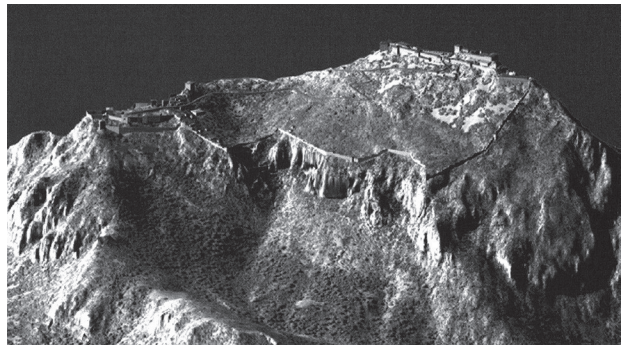


Fig. 3: Karasis, upper and lower castles, IstMitt 57, 2007 371

out by Istanbul University between 2003 and 2005, accomplished an architectural documentation work on the ruins on the Karasis Mountain[2]. With the works completed in 2005, it was not possible to obtain a clue that would determine the name of the Karasis castle in ancient times, which was determined to be abandoned when the construction was about to be completed[3].

The structures on the Karasis Mountain, whose summit is 1056 meters above sea level, consisted of two different building areas, Upper and Lower Castle (Fig. 3). The Lower Castle was intended for the accomodation of the military unit stationed here (Figs. 4–5). The Upper Castle was reserved as the residence of the Citadel commander or members of the Seleucid dynasty or the Seleucid king who came directly to the castle[4] (Figs. 6–7).

On the blocks of the walls of the Karasis Kalesi, which were cut from the rocks at the top of the mountain and built of polygonal and isodomic blocks (Figs. 8–9) in accordance with the landscape, there are letters that are thought to belong to the stonemasons (Figs. 10–11). When these are examined as a whole, it is understood that they are incised within the scope of a certain system[5]. It is thought that the letters have a numerical symbology and were used in the calculation of the labor of the Seleucid army members who worked for the

medieval castles which have hundreds of examples on the Taurus mountain range. Favre – Mandrot 1878, 128; Hogarth – Munro 1893. The travelers wandering around in this region in the second half of the 20th century mentioned about a castle called the Karasis Castle, but since they did not climb the Karasis Mountain, they did not give information about the characteristics and the date of this castle; Çam 1969, 60; Hild – Hellenkemper 1990, 291; If these travelers had reached the summit of the Karasis Mountain, they would have immediately realized that the castle here was very different from the medieval defense structures in the Taurus Mountains and they would have introduced this important defense structureof the ancient period to the world of science in detail in the 19th century.

2 For the preliminary report of the field work, s. Hoffmann – Sayar 2007, 365–468.

3 For the documentation work done on the Karasis Mountain in 2003 and 2005 see Hoffmann – Sayar 2007, 365–468.

4 See Radt 2010, 195–217.

5 See Radt 2009, 269–294.



Fig. 4: Lower castle on the Karasis Mountain (M. H. Sayar)



Fig. 5: Lower castle on the Karasis Mountain (M. H. Sayar)



Fig. 6: Upper castle on the peak of Karasis Mountain (M. H. Sayar)



Fig. 7: Upper castle, audience hall (M. H. Sayar)



Fig. 8: The fortifications of the lower castle of Karasis (M. H. Sayar)



Fig. 9: Outer wall of the granary (M. H. Sayar)



Fig. 10: Letter of a stonemason (M. H. Sayar)



Fig. 11: Letter of a stonemason (M. H. Sayar)



Fig. 12: Lower castle and granary from north (M. H. Sayar)



Fig. 13: Granary on the Karasis Mountain (M. H. Sayar)



Fig. 14: Granary on the Karasis Mountain (M. H. Sayar)



Fig. 15: Entrance of the fountain house on the west slope of the Karasis Mountain (M. de Vos Raaijmakers)



Fig. 16: Fountain House on the west slope of the Karasis Mountain (M. de Vos Raaijmakers)



Fig. 17: Fountain House on the west slope of the Karasis Mountain (M. de Vos Raaijmakers)

construction of the building[6]. The granary on the north end of the Karasis Kalesi was intended for the guards and personal of the residence of the king, especially for the care in the case of a long siege (Figs. 12–14). The Fountain House on the west slope of mount Karasis was built in addition to the nine cisterns on the mountain for the water supply[7] (Figs. 15–17).

The elephant relief above the entrance of one of the towers of the Lower Castle gives a clue about who built the castle (Figs. 18–20). The elephant was used as a royal stamp on the coins of some of the Seleucid kings. For this reason, it appears as a strong possibility that the Karasis Kalesi was built by one of the Seleucid kings.

From the available data it cannot be determined which of the Seleucid kings built the castle. Since there was neither an inscription nor a coin found during the survey work carried out at the Karasis Castle, it could not be understood at what period of the Seleucid Kingdom this castle was built. Trying to obtain clues about who built the Karasis Kalesi through evaluations to be made within the scope of the historical events that took place in Kilikia and its surroundings during the Seleucid period seems to be the only possibility for dating this important building for now.

The reason for building the Karasis Kalesi on the road between Kilikian Plains and Kappadokia

6 See Bachmann 2008, 77–78.

7 Raaijmakers *et al.* 2011, 22–29.



Fig. 18: Tower with elephant and shield on the lower castle of Karasis (M. H. Sayar)



Fig. 19: Tower with elephant and shield relief on the lower castle of Karasis (M. H. Sayar)



Fig. 20: Elephant relief on the entrance of the tower in lower castle of Karasis (M. H. Sayar)

at a location that dominates the whole plain from the north, was probably the emergence of the geostrategic role of the region in the political events that took place in Kilikia before the establishment of the Seleucid Kingdom after the death of Alexander. With the founding of the capital city of the Seleucid kingdom under the name Antiocheia in the basin of the Orontes=Asi river, Kilikia was also organized as a region that must have been under its sovereignty for this new state, whose lands extended from India to the Eastern Mediterranean and Anatolia (Fig.1).

The Karasis Mountain is at a location that can control the road connecting Antiocheia, the capital city of the Seleucid Kingdom, to Kappadokia, the Central Anatolian plateau, via Çukurova. Due to this strategic location, the units of the Seleucid army, which were supposed to be deployed on the Karasis Mountain, would be able to prevent or at least pause an attack from the north towards the capital of the Seleucid Kingdom and force the capital Antiokheia to take measures before it is too late. If the Seleucid king and members of the dynasty had to leave the capital due to an external security problem, the castle built on the Karasis Mountain could serve as a shelter. Even if the castle of Karasis was surrounded by the enemy, it would take a long time to be captured, and it was in a position to withstand the siege for a long time. The large spaces and a silo structure[8] in the Karasis Yukarıkale, a covered spring at the foot of the mountain, strong defense walls in the Lower and Upper Castle, and casemates and fortification towers built wide enough to place a catapult are noteworthy. What political and military necessity obliged the Seleucid Kingdom to build such a sophisticated fortress? The wars between Alexander's successors during the last quarter 4th century and 3rd century BC indicate that the Kilikian Plains was the scene of many political events.

After the death of Alexander in 323 in Babylon, Pleistarchos of Macedonia took charge of the territory of Kilikia. In 321, during the negotiations between Alexander's successors in the town of Triparadeisos, Kilikia remained under Antipatros' responsibility. Two years after the battle of Ipsos, in 299, Demetrios Poliorketes came to the territory of Kilikia. Pleistarchos remained under

[8] Bachmann 2011, 171–181.

pressure in this situation and fled to his brother Kassandros in Makedonia. When Kassandros died in 298, Demetrios declared himself as the king of Macedonia. In 294, the territory of Kilikia remained under the sovereignty of Seleucos Nikator, who founded the Seleucid kingdom. The new ruler of Kilikia founded the city of Seleukeia in the basin of the Göksu river[9]. Seleukos, who won the power struggle against Lysimachos, one of the generals of Alexander, in the battle of Kurupedion in 281, was killed near Lysimacheia in the Gallipoli peninsula in 280. During the reign of his son Antiochos I, Kilikia was under the control of the Ptolemaic kingdom, and during the time of Antiochos Teos, it was stated that the Ptolemies were removed from the territory of Kilikia. In 246, during the time of Seleucus Kallinikos II, who succeeded him, the Ptolemies regained the control of Kilikia. In the power struggle between the Seleucids and the Ptolemies, Cyprus and the Eastern Mediterranean coast and the Southern Anatolian coast were the regions that were constantly tried to be held by both kingdoms. During the time of Seleucos III, Kilikia was dominated by the Ptolemies. Antiochos III, who sat on the throne of the Seleucid Kingdom in 223, had made a secret agreement with Philipp V in 202. In 197, Antiochus III began the offensive against the Ptolemaic settlements in Cilicia[10]. He captured Anatolian lands in a short time with his fleet and land army. However, in 190, the Romans and the kingdom of Pergamon acted together in Western Anatolia and eliminated the gains of Antiochos III in Anatolia. In 189, Antiochos III was defeated by the Romans in the plain of Magnesia and had to evacuate Anatolia as far as the Taurus Mountains with the agreement made in Apameia in 188[11]. In 187, Antiochus III was killed while plundering a temple in the Elymais area to get the war compensation he had to pay to Rome and the Kingdom of Pergamon. First his elder son Seleukos, and then, in 175, his younger son Antiochos IV ascended the throne. During his time, as in many territories of the Seleucid kingdom, IV. Antiochos changed the names of many cities to Antiokheia and Seleukeia. Antiochos IV wanted to consolidate the relations between the Seleucid kingdom and the cities in the Kilikian Plains, giving them some important privileges and new rights. With the death of Antiochos IV in 164, it is clear that the sovereignty of the Seleucid kingdom in Kilikia was gradually decreasing.

As it can be understood from all these political developments and historical events, the Seleucid kings treated Kilikian Plains as the core region of their sovereignty, just like Syria. For this reason, they gave great importance to keeping constant contact between Kilikia and Syria by land. After the defeat of Magnesia in 189 and after the Apameia agreement in 188, when Antiochus III had to sign the harsh peace conditions[12], Karasis Kalesi might have been built as a kind of border post as a defense, observation and, when necessary, as a shelter against the attacks from the north on the Amik Plain and the Orontes basin, where the capital of the Seleucid kingdom is located.

Antiochos III, had to have the Karasis Kalesi built in order to take precautions against the dangers that might come from the north on one hand, while on the other hand to take measures against the unrest and revolts that occurred within the territory of his kingdom. With this giant project, Antiochos also foresaw regaining the kingdom and especially the prestige he lost in his army[13].

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9 For Seleucos I Nicator, the founder of the Seleucid Kingdom see Mehl 1986.

10 Pol. 18, 39, 3; Liv. 33, 19, 8–20; Porph. FGH 260 F 46; Schmitt 1964, 271. 278; Sherwin-White – Kuhrt 1993, 202.; Errington 1989, 271–278; Ma 1999, 82–83; Hölbl 2004, 123.

11 Marek 2010, 288.

12 Marek 2010, 290.

13 About that Karasis Castle was built as a show of power see Bachmann 2008, 67–81; Hoffmann 2011, 63–86; Radt 2011 b, 37–61.

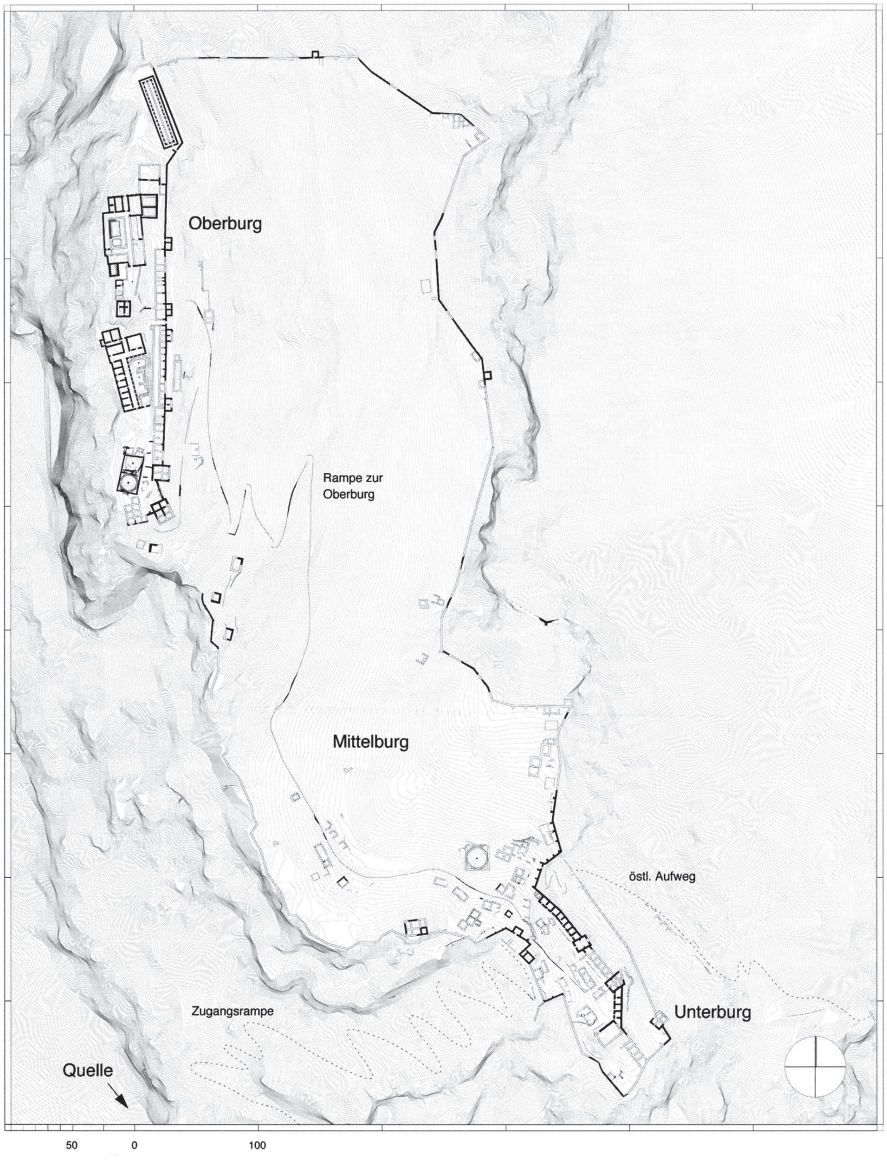


Fig. 21: Karasis, upper and lower castles, IstMitt 57, 2007, 372 (M. H. Sayar)



Fig. 22: Karasis, fortifications between upper and lower castles of Karasis (M. H. Sayar)

Considering the political developments in Kilikia and Syria, after the year 189 when the Magnesia war was fought or 188 when the Apameia peace was signed, it is reasonable to think that the construction of the defense structures at Karasis Mountain as a prestige project may have started during this period[14]. In fact, the peace of Apameia meant the beginning of the end for the Seleucid kingdom. The construction of the structure should have been continued until 187, when Antiochos III was killed on Elymais[15]. Most likely, the construction activity was stopped when the news of the king's death was heard.

During the survey, it was understood that the walls of a room in the upper castle, which is thought to be a mere reception hall, were plastered (Figs. 21–22). In addition, it was found out that only one of the 9 open cisterns was plastered. These data show that the building activity on the Karasis Mountain was terminated suddenly. In addition, the small number of pottery finds that can be collected from the surface can be dated to the 2nd century BC[16].

Another Seleucid king, who ordered the construction of the enormous project on the Karasis Mountain could have been Antiochos IV Epiphanes. It could also be thought that, in 175 BC, Antiochos IV, who wanted to return his kingdom to its former glorious days, had the defense structures on the Karasis Mountain built as a prestige project to emphasize that his kingdom was still strong enough to resist Rome and its allies[17]. Antiochos IV did not send all the elephants in the Seleucid army, which were supposed to be handed over to the Kingdom of Pergamon after the peace of Apameia[18]. After the death of Antiochos IV in 164, all the elephants in the Seleucid army were handed over to the Romans and were killed horribly[19]. The elephant relief at the entrance of one of the Lower Castle towers should not be considered in connection with anti-Roman policy of Antiochos IV. Because the elephant was used as the coat of arms of the Kingdom until Pompeius liquidated the Seleucid Kingdom in 64 BC and arranged part of the kingdom's territory as a Syrian province.

Considering the situation of the Seleucid Kingdom during the 2nd century BC, and after the death of Antiochos III, considering that neither during the rule of Seleucus IV, nor during the time Antiochos IV, the Seleucid state did not have the financial means to realize this great project, it should be kept in mind that it is a weak possibility that construction of the castle on the Karasis Mountain was started after Antiochos III. Therefore, Karasis Kalesi, must have been a great project that was started by Antiochos III with the intention to become a last symbol of defense and resistance after the Apameia agreement in 188 and was left unfinished with the murder of Antiochos III in 187. However, when it is taken into consideration that there was no political development

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14 Pol. 21, 14, 7; 21, 17, 3; 21, 21, 7–9; 23, 1–10; Liv. 37, 56, 1–6; About the state of the city-states in Anatolia after the Magnesian war see Baronowski 1992, 450–461. For an example of a study that evaluates the situation in Anatolia as a result of the Magnesian war and the peace of Apameia from the perspective of Pergamon and Seleucids and compares it with the attitude of Rome see Koehn 2007, 201–213.

15 Antiochos III. was killed while plundering the Bal temple in the Elymais area; Diod. 35, 3. 29, 15; Iust. 32, 2, 1–2; Strab. 16, 744.

16 Polla 2011, 87–96; See Raaijmakers et al 2011, 19–35 on the classification and dating of the pottery finds during the survey conducted around the foothills of the Karasis mountain.

17 For ideas on the possibility that Antiochos IV had built this castle, see: Radt 2011 a, 63.

18 On Antiochos IV. Epiphanes' show of power against Rome and his efforts for the consolidation of his kingdom, see: Mittag 2006, 282–295 and 336–341.

19 For elephants in the Seleucid army, see: Krebs 1964, 208–211; Bar-Kochva 1976, 76 *et al.*; Marasco 1984,313; Scullard 1974 (passim).

that would require the Karasis Kalesi to be built before the Apameia agreement signed between Rome-Pergamon and the Seleucid kingdom in 188, and that the construction of a military structure of this kind would not mean anything after the death of Seleucid King Antiochos IV in 164 BC, it is most likely that the construction of this important castle was realized between 188 and 164 in the first half of the 2nd century BC.

Prof. Dr. Mustafa H. Sayar
İstanbul Üniversitesi Edebiyat Fakültesi,
Tarih Bölümü A-12
Ordu Caddesi, Vezneciler, Laleli-Beyazıt
TR- 34459 İstanbul

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Archaeometric Analyses of Keçi Kalesi/Castle

Ali Akın Akyol – Yusuf Kağan Kadıoğlu

Abstract

Keçi Kalesi/Castle, located at the summit of Alaman Mountain (approximately 300 m high) near Belevi Village in the Selçuk District of İzmir, has attracted attention in every period of history due to its strategic location provided by its wide view. With its history, dating back to the Hellenistic period, the castle continued its existence in time during the Roman, Byzantine, Seljuk and Ottoman periods. In addition to being in a position to see the entire Menderes Plain and controlling the trade routes in this region, this has increased the importance of the castle both in military and economic terms. The historical ruins, that cannot be examined comprehensively in terms of documentation of its construction materials, were investigated by the Historical Materials Research and Conservation Laboratory (MAKLAB) of Ankara Hacı Bayram Veli University, Faculty of Fine Arts, Department of Conservation and Restoration of Cultural Properties, and the Earth Sciences Application and Research Center (YEBİM) Laboratories of Ankara University. Spot tests and conductometric analyzes were applied to the structural materials of the city walls to determine the water-soluble salt content and types after the documentation studies. Physical properties of stone and brick / tile samples were determined by basic physical tests, petrographic properties by thin section optical microscopy analysis, and chemical properties by XRF analysis. According to the results of the archaeometric analyses, marble and local limestones were used in the city walls. Unlike building blocks, bricks and tiles with their high salt content and low physical parameters, are in degradation processes at varying rates with different raw material contents and production technologies. A mixture of lime and clay is used as a binder in mortars with an original and homogeneous content. Brick fragments were also found in the aggregate content of bricks / tiles, which are classified under 4 groups, show an aggregate structure compatible with the local rock structure and have unique characteristics.

Keywords: *Keçi Castle, Spot Tests, Physical Tests, Thin Section Optical Microscopy Analysis, XRF Analysis*

Introduction

Keçi Castle is located within the boundaries of Belevi town, 9 km away from the Selçuk district of İzmir province. The castle was built on the Alaman Mountain, at an altitude of 300 m. Keçi Kalesi is a castle with the characteristics of a military station built at a point that dominates the road to Ayasuluk road and from the north to the Smyrna and Sardes roads. Control of the mountainous terrain on both sides of the Küçük Menderes River can be achieved from this castle. The Alaman Mountain was known as "Galesion" in ancient times. During this time, the region gets its importance from the fact that Saint Lazaros lived here and from the monasteries he established. According to the tradition, Lazaros devoted his life to God by sitting on a pillar, resisting all kinds of natural conditions at the summit of Galesion. On top of the hill, he established the Messiah, Virgin Mary and Holy Resurrection Monasteries and the Galesion Hill, which gained a religious significance, became a settlement place where hundreds of monks lived in a short time[1].

[1] Öztürker 2016, 3

Although there is not much data about the Galesion Hill during the period between the 11–13th centuries AD, it is known that at the beginning of the 13th century, the region came under the rule of the Iznik Empire of Thedor Laskaris. Since it protects important roads, especially at a point where it can foresee and inform a possible attack on Ayasuluk Castle, it is thought that the Keçi Castle was built during the Laskaris Period[2]. The castle features an irregular rectangular plan. The structure, which consists of an inner castle, was surrounded by outer walls in the west and north connecting to the inner castle, thus increasing the defense with a double-tier wall system in the north and the west. The reason for this architectural form can be explained by the fact that the castle lies at an important strategic point on the roads leading to Ayasulluk and Küçük Menderes Valley.

The Archaeometric study of Keçi Kalesi' building materials was realized in 2010 within the scope of "Keçi Kalesi Survey Restitution Restoration Project Construction Works" (Project Managing: Kalan Engineering Architecture Trade and Construction Ltd.) by using the technological facilities of the Historical Materials Research and Conservation Laboratory (MAKLAB) of Ankara Hacı Bayram Veli University, Faculty of Fine Arts, Department of Conservation and Restoration of Cultural Properties, and of the Earth Sciences Application and Research Center (YEBİM) Laboratory of Ankara University under the name of "İzmir, Belevi Keçi Kalesi Building Material Analyses". With this study, it is aimed to investigate and document the construction technology by using archaeometric methods on the structural materials (stone, brick / tile and mortar) in a way that will serve the conservation of the Keçi Kalesi.

Materials and Methods

The samples from the Keçi Kalesi were first evaluated visually, photographed, documented, and coded (Table 1). Within the scope of archaeometric studies, the physical properties of stone and brick / tile samples were assessed with basic physical tests (unit volume weight, water absorption capacity and porosity), and the total amount of soluble salt in water and pH values of the same samples were determined by conductometric analysis. Acidic aggregate / binder and the particle size distribution in the aggregate (granulometric) analyzes were applied to the mortars. The petrographic properties of the structural samples were determined by thin section optical microscopy analysis and their chemical properties by PED-XRF analysis.

Structural materials, which can visually be perceived as strong/durable, are adversely affected by climatic, environmental, and anthropogenic (vandalistic or heavy touristic activity) effects; they may undergo deterioration, such as salinization, cracking, rupture, lichenation, etc. Physical properties are technical expressions of the properties of building materials that can be defined within specified standard limits. Basic physical tests (unit volume weight, water absorption capacity, and

Mat'l Group Codes	Materials	# of Samples
AKK-T*	Stone Samples	7
AKK-B	Brick (10) and Tile (1) Samples	11
AKK-H	Mortar Samples	22
AKK-D	Soil Sample	1

Table 1: Keçi Castle structural and environmental material groups (A. A. Akyol – Y. K. Kadıoğlu)

[2] Foss – Winfield 1986; Mercangöz 1984

Samples	UVW-Sat'd (g/cm^3)	UVW-Dry (g/cm^3)	WAC (%)	P (%)	Stone Type
AKK-T1	2.67	2.52	2.27	5.71	Marble
AKK-T2	2.73	2.63	1.41	3.71	
AKK-T3	2.71	2.64	1.04	2.75	
AKK-T5	2.70	2.64	0.77	2.04	
AKK-T6	2.61	2.40	3.34	8.01	
AKK-T4	2.60	2.50	1.49	3.73	Limestone
AKK-T7	2.97	2.64	4.13	10.92	Serpentine
Avg. (Marble)	**2.68**	**2.57**	**1.77**	**4.45**	**Avg. (Marble)**

Table 2a: Basic Physical Tests results of the stone samples from Keçi Castle (A. A. Akyol – Y. K. Kadıoğlu)

Samples	UVW-Sat'd (g/cm^3)	UVW-Dry (g/cm^3)	WAC (%)	P (%)	Type
AKK-B1	2.56	1.43	30.84	44.14	Brick
AKK-B2	2.58	1.30	38.23	49.64	
AKK-B3	2.53	1.48	28.29	41.56	
AKK-B4	2.57	1.56	25.00	39.07	
AKK-B5	2.50	1.75	17.04	29.88	
AKK-B6	2.64	1.76	18.92	33.32	
AKK-B8	2.63	1.50	28.85	43.17	
AKK-B9	2.66	1.45	31.28	45.44	
AKK-B10	2.80	1.84	18.50	34.13	
AKK-B11	2.60	1.39	33.54	46.53	
AKK-B7	2.54	1.45	29.47	42.84	Tile
Avg. (Brick)	**2.61**	**1.55**	**27.05**	**40.69**	**Avg. (Brick)**

Table 2b: Basic Physical Tests results of the brick/tile samples from the Keçi Castle (A. A. Akyol – Y. K. Kadıoğlu)

porosity) were applied to determine the strength of the materials. With the help of the dry weights of the samples taken directly and their buoyancy (in water) and their saturated weights (the aqueous weight provided to reach the pores under 50 torr pressure in pure water), the unit volume weights (saturated-dry UVW, g/cm^3), the water absorption capacity (WAC%) and the porosity (P%) values were determined[3] (Tables 2a, 2b).

Salts, that are naturally present in the content of different building materials or having dissolved in water and then transferred by water as a result of capillary action on the surface or pores of the materials, provide information about the chemical changes that can occur both within the material itself and in the structure of other materials with which it is associated. The amount (total) and types and pH values of the water-soluble salt of the stone, brick/tile, and soil samples from Castle were determined (Table 3). For the determination of total salt measurement in samples, 5 grams of the sample taken in 25 ml of water was centrifuged

[3] RILEM 1980

Samples	pH	SS (%)
AKK-T1	7.35*	0.40*
AKK-T2	8.25	1.68
AKK-T3	7.80	2.06
AKK-T4	7.60	0.35
AKK-T5	8.15	2.16
AKK-T6	8.25	2.98
AKK-T7	8.33	0.37
AKK-D1	8.10	1.83
Avg. (Stone)	**7.96**	**1.43**

Samples	pH	SS (%)
AKK-B1	8.06*	1.37*
AKK-B2	8.10	1.40
AKK-B3	8.17	1.64
AKK-B4	8.08	0.77
AKK-B5	8.32	0.34
AKK-B6	8.51	0.50
AKK-B7	8.12	1.02
AKK-B8	8.21	1.46
AKK-B9	8.35	1.09
AKK-B10	8.45	2.33
AKK-B11	8.28	1.69
Avg. (Brick)	**8.24**	**1.24**

(*) in 100 mL distilled water

Table 3: pH and total salt (SS) tests in Keçi Castle stone, soil and brick/tile samples (A. A. Akyol – Y. K. Kadıoğlu)

for 1 hour and filtered, and then standard sodium hexametaphosphate was added to it. The total salt contents of the samples prepared for analysis were recorded with the conductivity meter (Neukum Series 3001 brand pH-temperature-conductivity meter), then the results were obtained as a percentage by weight (w/w%) using the relevant equations[4].

In order to determine the aggregate and binder ratios of the mortar samples taken from different zones and structures of the Keçi Kalesi, the samples taken first to dry weighing were then treated with dilute acid (5% HCl) to be purified from their binder (total carbonate content; CO_3^{2-}) contents. The mortar samples, which were separated from lime and all carbonate contents (binder) by filtering, washing, and drying processes and reduced to their aggregate part, were weighed again after drying at room temperature, and the total amount of binder and aggregate (w/w%) was obtained (Table 4). The systematic sieving process (TSE, 2012) was applied (with 63–1000 μm sieves) to the non-carbonate aggregates of the samples to determine the aggregate particle distributions (granulometric analysis) (Table 4).

Thin sections of the structural samples (stone, brick / tile and mortar) were prepared and examined under an optical microscope. Thin sections were prepared directly for stone, brick and tile samples, and by hardening for the mortar samples, showing all the layers from the outside to the inside in the samples[5]. LEICA Research Polarizing DMLP Model optical microscope was used in the examinations. Photographs were taken with a Leica DFC280 digital camera connected to the microscope, and evaluations were made using the Leica Qwin Digital Imaging Program. The rocks and minerals that make up the aggregate were identified by the Point Counting Program (Tables 5a–5c).

X-ray Fluorescence Analysis (PED-XRF) was performed on samples selected from the groups determined by thin section optical microscopy analysis (Tables 6a–6c and Fig. 3). After the samples selected for analysis were pulverized in agate mortar, 32 mm discs were formed, then each disc,

[4] Black *et al.* 1965; Brady – Weil 2004; Means – Parcher 1963

[5] Kerr 1977; Rapp 2002

Samples	TB (%)*	TA (%)*	<63 µm	63-125 µm	125-250 µm	250-500 µm	500-1000 µm	>1000 µm
AKK-H1	38.99	61.01	2.27	4.80	9.80	15.12	21.71	46.31
AKK-H2	52.48	47.52	2.72	4.32	8.56	15.38	22.14	46.88
AKK-H3	51.21	48.79	2.52	3.75	8.92	15.49	21.86	47.46
AKK-H4	45.18	54.82	3.52	3.35	6.92	14.89	24.72	46.60
AKK-H5	46.80	53.20	2.45	3.42	7.33	15.52	24.61	46.67
AKK-H6	38.45	61.55	2.02	3.14	6.58	16.04	26.40	45.83
AKK-H7	48.42	51.58	2.30	4.04	8.65	14.85	22.49	47.66
AKK-H8	49.55	50.45	2.36	3.62	7.73	14.77	22.21	49.31
AKK-H9	52.58	47.42	2.09	3.91	9.40	15.39	20.69	48.52
AKK-H10	49.10	50.90	1.79	3.06	9.01	16.71	22.97	46.46
AKK-H11	55.60	44.40	2.97	5.11	10.77	18.98	24.92	37.24
AKK-H12	50.93	49.07	3.55	4.22	9.87	17.85	21.80	42.70
AKK-H13	50.21	49.79	3.40	4.50	9.81	15.42	18.32	48.56
AKK-H14	48.16	51.84	2.75	3.96	9.32	15.70	20.96	47.31
AKK-H15	45.54	54.46	3.85	4.28	8.94	14.49	20.15	48.29
AKK-H16	46.31	53.69	3.12	5.01	9.65	15.05	19.23	47.95
AKK-H17	45.80	54.20	3.72	4.61	9.57	16.95	21.53	43.61
AKK-H18	61.99	38.01	4.55	6.23	12.58	21.29	24.38	30.96
AKK-H19	36.05	63.95	2.93	3.67	7.28	14.58	20.33	51.20
AKK-H20	42.94	57.06	3.04	4.01	8.36	15.06	21.60	47.93
AKK-H21	54.09	45.91	3.44	5.38	10.43	13.90	18.01	48.84
AKK-H22	46.92	53.08	3.03	3.05	6.92	15.60	27.41	43.99
Avg.	**48.06**	**51.94**	**2.93**	**4.16**	**8.93**	**15.87**	**22.20**	**45.92**

(*) TA: Total Aggregate Ratio. TB: Total Binder Ratio

Table 4: Aggregate/binder and granulometric analyzes of Keçi Castle mortar samples (A. A. Akyol – Y. K. Kadıoğlu)

mixed with a chemical (wacks) used in XRF analysis, was placed in the sample area of the instrument and analyzed[6]. In this study, X-LAB 2000 model PED-XRF (Polarized Energy Dispersive-XRF) spectrometer was used. All elements from atomic number 11 sodium (Na) to 92 uranium (U) could be analyzed with the spectrometer. The sensitivity limit of the device is 0.5 ppm for heavy elements and 10 ppm for light elements. In the analysis, basic and minor elements were given as oxide percentages (%), while trace elements were given at a concentration of one per million (ppm). In the analysis, the USGS (United States Geological Survey) standards and as reference GEOL, GBW-7109, and GBW-7309 were used.

The chemical contents of mortar samples, determined by PED-XRF analysis, also helped to generate Cementation Index (CI) data. Cementation Index is a classification expressed as the ratio of the part dissolved in acid to the part dissolved

[6] Shackley 2011

Stone Samples	Rock Type	Hardness (Mohs)	Rocks & Minerals*
AKK-T1. AKK-T2 AKK-T3. AKK-T5 AKK-T6	Marble	~3	The granoblastic textured structure is formed by calcites with 0.3 mm grain size.
AKK-T4	Recrystallized Limestone	2 - 3	There are opaque minerals in the void (12%) structure, mainly containing karstified calcites.
AKK-T7	Serpentine	4 - 5	It contains pyroxene, tremolite, actinolite and opaque minerals.

Table 5a: Petrographic features of Keçi Castle stone samples (A. A. Akyol – Y. K. Kadıoğlu)

Brick & Tile Samples	T (°C)	P (%)	Rocks & Minerals*	Descriptions
AKK-B1. AKK-B7 AKK-B8. AKK-B11	900-950	5	Q, Ç, Pl, By, Op, TK (2%)	They were fired in high temperatures and they have fine grained structures
AKK-B2. AKK-B3 AKK-B4. AKK-B5	900-950	3	Q, Ç, Pl, Gn, Op	They have aggregates showing homogeneous distribution as a result of sieving.
AKK-B6. AKK-B10	850-900	2	Q, Ç, Pl, TK (3%)	They have coarse aggregate structures.
AKK-B9	700-800	2	Q, Ç, C, K, Pl, Op, TK (20%)	Fired in low temperatures.

Table 5b: Petrographic features of Keçi Castle brick and tile samples (A. A. Akyol – Y. K. Kadıoğlu)

Mortar	MTB (%)	MTA (%)	Matrix Binder Ratio (100%)				Matrix Aggregate Ratio (100%)		
			Lime	Clay	Çm	Gypsum	Rocks & Minerals*	TK	Org
	35	65	85	15	-	-	100 (Q, K, Ç, M, Gn, Op)	-	-

(*) By: Biotite, C: Calcite, Ç: Chert, Çm: Cement, Gn: Gneiss, K: Limestone, M: Marble, MTA: Matrix Total Aggregate Ratio, MTB: Matrix Total Binder Ratio, Op: Opaque Minerals, Org: Organic Content, Pl: Plagioclase, Q: Quartz, TK: Brick Particles

Table 5c: Petrographic properties of Keçi Castle mortar samples (A. A. Akyol – Y. K. Kadıoğlu)

in bases to determine the hydraulic properties of lime mortars (Table 7). The binder (lime) category (hydraulic property) and strength properties of the mortars can be evaluated with the help of the Cementation Index data obtained from the chemical composition properties of the samples (Boynton, 1980).

Analysis Results and Evaluations

Stone Samples

The (structural) stones that form the walls of the Keçi Castle are mostly marble, less often limestone (AKK-T4) and serpentine (AKK-T7) type stones. The saturated / dry unit volume weights of marble samples on which basic physical tests were applied are 2.61–2.73 g/cm^3 (avg. 2.68 g/cm^3) / 2.40–2.64 g/cm^3 (avg. 2.57 g/cm^3), their total water absorption capacity is between 0.77–3.34% (avg. 1.77%) and their total porosity is between 2.04–8.01% (avg. 4.45%) (Table 2a). With their structural characteristics, stones with low density and high porosity yield lower strength data. The AKK-T6 sample, which has a more porous structure than the marble samples, gives the lowest strength data, while the AKK-T5 sample gives the highest strength data. When the stone samples are evaluated collectively, the limestone sample has lower strength data than the marble samples and the serpentine sample has higher strength data (Table 2a).

Element	AKK-D1	AKK-T2	AKK-T3	AKK-T6	AKK-T7	Marble Avg.
Na_2O	0.072	0.120	0.110	0.110	0.930	**0.113**
MgO	1.63	1.22	0.035	0.031	10.36	**0.427**
Al_2O_3	12.49	0.130	0.097	0.301	13.24	**0.176**
SiO_2	32.86	0.566	0.601	0.882	42.34	**0.683**
P_2O_5	0.508	0.005	0.005	0.005	0.102	**0.005**
SO_3	0.301	0.049	0.022	0.022	0.093	**0.031**
Cl	0.015	0.022	0.020	0.017	0.016	**0.019**
K_2O	1.69	0.008	0.008	0.008	0.095	**0.008**
CaO	10.99	57.49	58.86	58.31	9.27	**58.22**
TiO_2	0.701	0.010	0.009	0.017	0.705	**0.012**
V_2O_5	0.023	0.002	0.002	0.002	0.045	**0.002**
Cr_2O_3	0.018	0.004	0.002	0.002	0.054	**0.002**
MnO	0.096	0.005	0.001	0.007	0.105	**0.004**
Fe_2O_3	5.47	0.066	0.035	0.155	9.77	**0.085**
LOI*	33.54	40.32	40.42	40.98	13.33	**40.57**
Mat'l Type	Soil	Marble	Marble	Marble	Serpentine	**Marble Avg.**

(*) LOI: Loss on Ignition

Table 6a: PED-XRF analysis results in Keçi Castle stone and soil (AKK-D1) samples (A. A. Akyol – Y. K. Kadıoğlu)

Element	AKK-B4	AKK-B6	AKK-B10	AKK-B7	Brick Avg.
Na_2O	0.390	0.110	0.079	0.500	**0.193**
MgO	5.43	7.30	16.12	3.36	**9.62**
Al_2O_3	20.44	14.65	10.30	20.83	**15.13**
SiO_2	48.31	44.48	47.89	48.80	**46.89**
P_2O_5	0.198	0.124	0.074	0.187	**0.132**
SO_3	0.175	0.250	0.088	0.131	**0.171**
Cl	0.019	0.056	0.011	0.046	**0.029**
K_2O	3.41	2.10	0.857	3.42	**2.12**
CaO	1.85	11.01	5.20	3.55	**6.02**
TiO_2	0.965	0.746	0.507	0.970	**0.739**
V_2O_5	0.028	0.024	0.021	0.032	**0.024**
Cr_2O_3	0.015	0.028	0.166	0.016	**0.070**
MnO	0.080	0.160	0.139	0.062	**0.126**
Fe_2O_3	10.07	6.66	8.76	9.89	**8.50**
LOI*	8.39	12.39	9.34	8.04	**10.04**

Table 6b: PED-XRF analysis results in Keçi Castle brick and tile (AKK-B7) samples (A. A. Akyol – Y. K. Kadıoğlu)

Element	AKK-H1	AKK-H2	AKK-H7	AKK-H13	AKK-H18	AKK-H19	AKK-H22	Avg.
Na_2O	0.072	0.072	0.077	0.067	0.075	0.083	0.081	**0.075**
MgO	5.21	8.00	4.18	11.51	3.60	1.28	0.919	**4.96**
Al_2O_3	2.03	2.45	1.30	2.36	3.00	2.74	3.71	**2.51**
SiO_2	18.87	15.83	11.04	17.16	13.75	17.59	13.99	**15.46**
P_2O_5	0.062	0.062	0.026	0.039	0.080	0.059	0.076	**0.058**
SO_3	0.084	0.263	0.139	0.164	0.155	0.161	0.166	**0.162**
Cl	0.028	0.058	0.029	0.034	0.021	0.024	0.019	**0.030**
K_2O	0.403	0.524	0.293	0.513	0.441	0.487	0.605	**0.467**
CaO	34.41	30.70	41.86	23.88	38.89	35.53	40.32	**35.08**
TiO_2	0.179	0.187	0.124	0.146	0.210	0.199	0.228	**0.182**
V_2O_5	0.014	0.010	0.007	0.008	0.011	0.009	0.005	**0.009**
Cr_2O_3	0.061	0.012	0.007	0.011	0.022	0.077	0.011	**0.028**
MnO	0.026	0.030	0.020	0.031	0.031	0.043	0.041	**0.032**
Fe_2O_3	1.63	1.74	1.06	1.73	1.85	2.61	2.27	**1.84**
LOI*	36.30	40.33	39.56	42.46	37.79	39.64	37.53	**39.09**

Table 6c: Results of PED-XRF analysis on Keçi Castle mortar samples (A. A. Akyol – Y. K. Kadıoğlu)

Mortar Samples	CI	Lime Type	Lime Type Notations	
AKK-H1	1.36	NC		
AKK-H2	1.16	NC	Fat Lime (FL)	: <0.30
AKK-H7	0.70	HL	Weakly Hydraulic Lime (WHL)	: 0.30 - 0.50
AKK-H13	1.31	NC	Moderately Hydraulic Lime (MHL)	: 0.51 - 0.70
AKK-H18	0.99	HL	Hydraulic Lime (HL)	: 0.71 - 1.10
AKK-H19	1.47	NC	Natural Cement (NC)	: 1.11-1.70
AKK-H22	1.09	HL	Natural Cement & Cement (NC/C)	: 1.70<
Avg.	1.16	NC		

Table 7: Cementation Index (CI) data for Keçi Castle mortar samples (A. A. Akyol – Y. K. Kadıoğlu)

The total amount of soluble salt in water and the pH values of the stone samples were determined. The pH values of the samples (independent of the stone type) are between 7.35–8.33 (avg. 7.96) (Table 3). The total salt content of the same samples varies between 0.35–2.98% (avg. 1.43%) (Table 3a). It was found that stone samples with different rates of porous structure were salinized at very high rates (> 0.15% indicates high amount of salinization in the soil[7]).

Stone samples petrographically examined by thin section optical microscopy analysis are of three different types; mostly classified as marble, limestone (recrystallized) and serpentine (Table 5a). While the marble and limestone samples (showing karstification as the product of deterioration), which are the building blocks, belong to the local formation, the serpentine (AKK-T7) sampled from the rubble debris to the north of the fortress does not belong to the stone texture of the vicinity.

[7] Dursun *et al.* 2008





Fig. 1 (above and below): View from the curtain walls and the gate (North) of the Keçi Castle (A. A. Akyol – Y. K. Kadıoğlu)

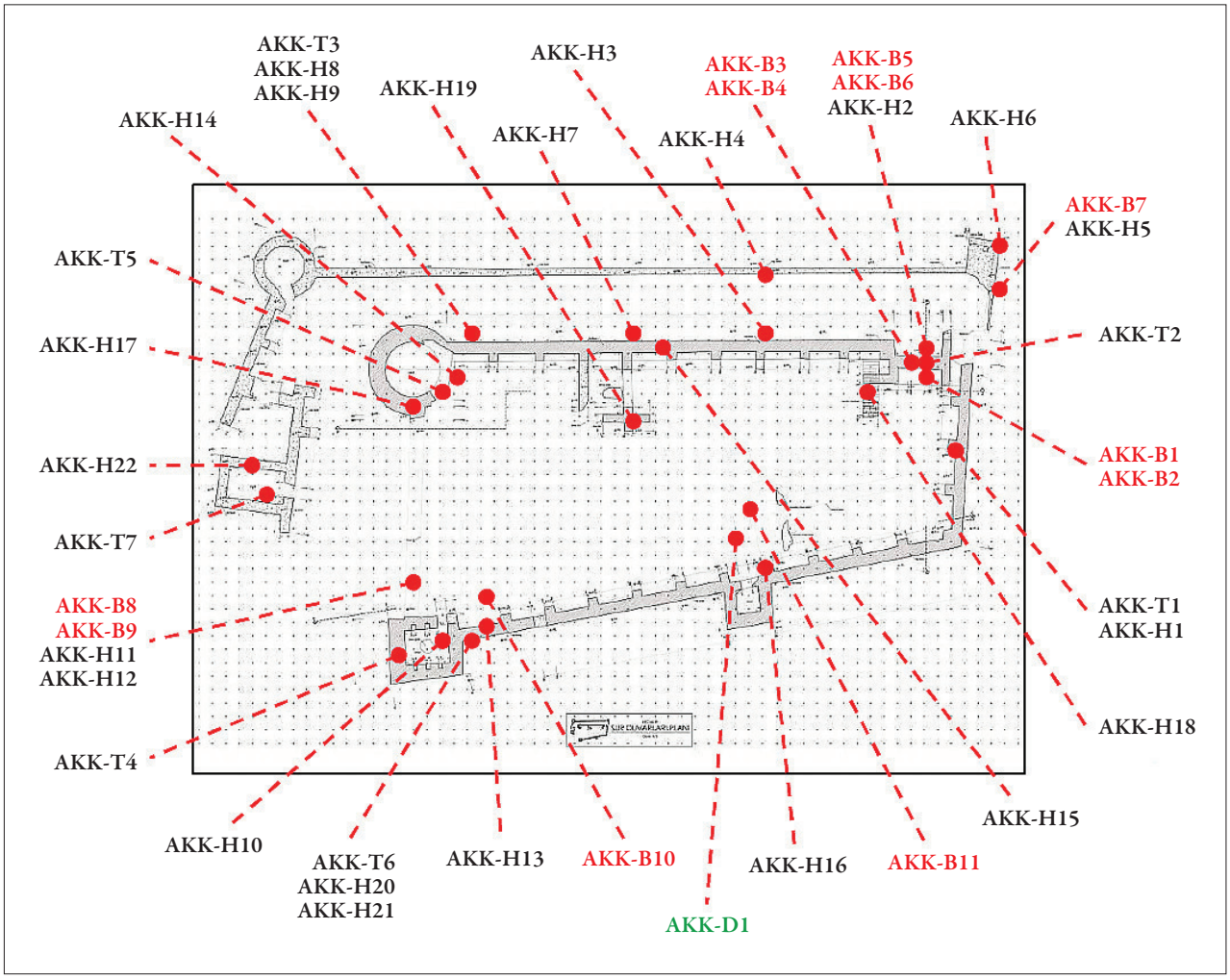


Fig. 2: Sampling of the structural materials of the Keçi Castle (Map: Kalan Ltd.)

The geological origin analysis of the stones is the subject of another long-term academic study.

The chemical compositions of the stone samples (marble and serpentine) were determined by PED-XRF analysis (Table 6a). The chemical composition of the marble samples are (in in descending order) CaO (avg. 58.22%) and LOI (total carbonate, avg. 40.57%) (Table 6a). The chemical composition of the serpentine (AKK-T7) sample (in decreasing ratio) SiO_2 (42.34%), LOI (total carbonate, 13.33%), Al_2O_3 (13.24%), MgO (10.36%), Fe_2O_3 (9.77%) and CaO (9.27%) (Table 6a). The petrographic rock structures of the stones can also be traced from their chemical structures.

Brick and Tile Samples

Basic physical tests were applied to the samples of bricks and tiles (AKK-B7) sampled from the rubble debris of the Keçi Castle masonry (the arch of the gate) and the collapsed walls. When the physical test data of the brick samples are evaluated, the saturated / dry unit volume weights are, respectively, 2.50–2.80 g/cm^3 (avg. 2.61 g/cm^3) / 1.30–1.84 g/cm^3 (avg. 1,55 g/cm^3), their total water absorption capacity is between 17.04–38.23% (avg. 27.05%) and their total porosity is between 29.88–49.64% (avg. 40.69%) (Table 2b). When the basic physical test data of the tile sample are evaluated, the saturated / dry unit weight is 2.54 g/cm^3 / 1.45 g/cm^3, the total water absorption capacity is 29.47%, and the total porosity is 40.69% (Table 2b). With low unit volume weight

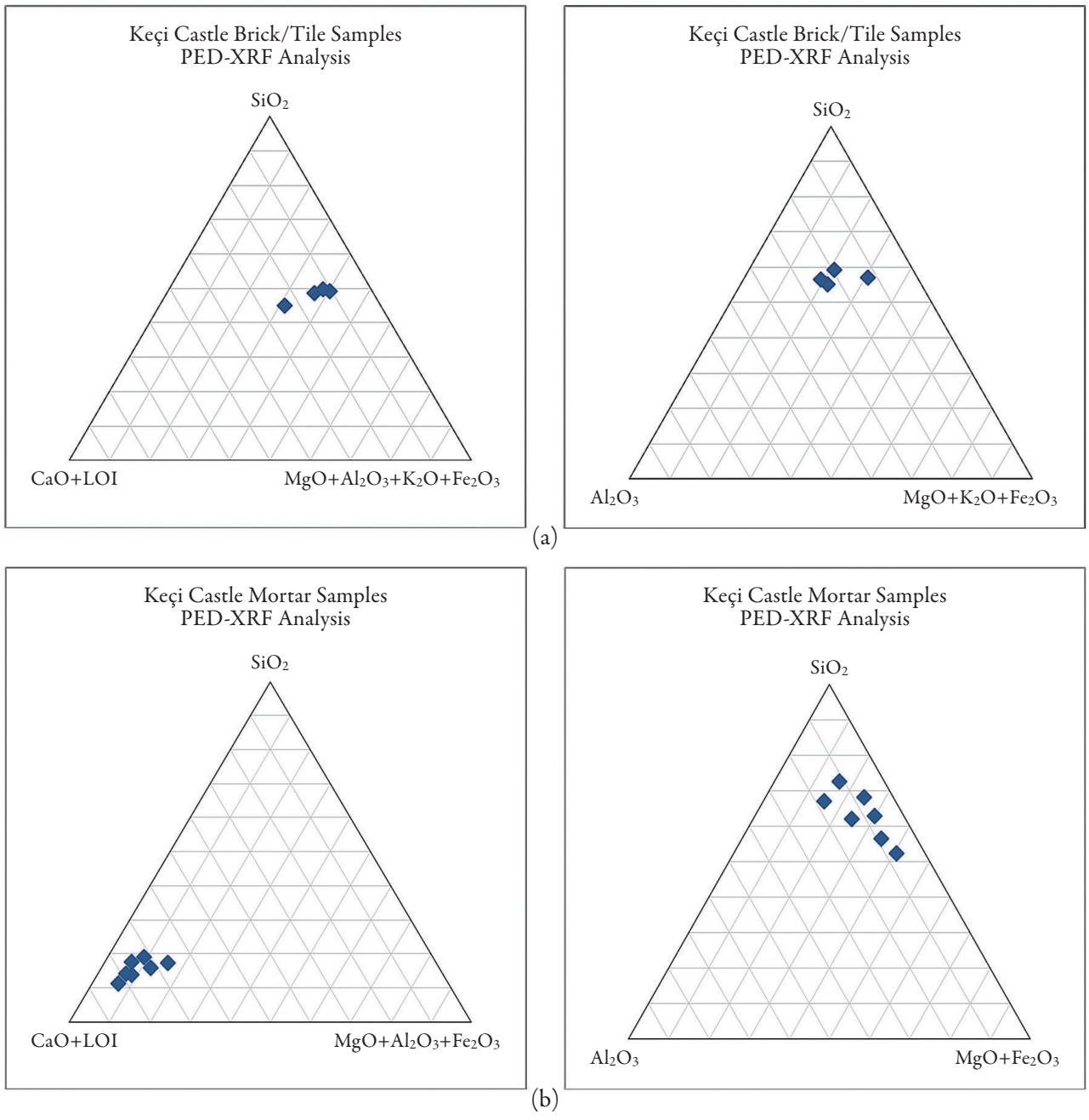


Fig. 3: Grouping of Keçi Castle (a) brick/tile and (b) mortar samples according to the main components of PED-XRF analysis (A. A. Akyol – Y. K. Kadıoğlu)

(with UVW below 1.80 g/cm^3) and high porosity (with porosity above 30%), the brick and tile samples have low (such as AKK-B5, AKK-B6 and AKK-B10) and very low strength values (such as AKK-B2, AKK-B9 and AKK-B10[8]) (Table 2b).

The total salt content of the brick and tile samples is between 0.34–2.33% (avg. 1.24%), and their pH values are between 8.06–8.51 (avg. 8.24) (Table 3). The porous samples contain high levels of salinization in the basic medium. The bricks and tiles with structural characteristics are among the materials which have the destructive effect of salinization at a higher rate than stones in humid environmental conditions.

[8] Özışık 2000

The petrographic properties of the brick and tile samples were determined by thin section optical microscope analysis. The brick samples are classified under 4 different groups (Table 5b). The only tile sample (AKK-B7), with its petrographic structure similar to the brick samples, is classified under the group containing the brick samples AKK-B1, AKK-B8 and AKK-B11. Considering the porous structure (porosity), carbonate content and clay structure of the samples, the brick and tile samples were manufactured by firing at 700–950°C (Table 5b). The AKK-B9 brick sample with its calcite and limestone content is the sample that has undergone very low firing. The matrix void ratio of the samples is between 2–5% (Table 5b). The aggregate content of the samples consists of aggregates with fine (<0.5 mm, such as AKK-B1), average (0.5–1.0 mm) and coarse (<1.0 mm, such as AKK-B6) size. The aggregate content of the samples is heterogeneously distributed and of angular structure. Brick fragments (2%, 3% and 20% of the total aggregate) were also found in the aggregate content of the brick and tile samples (Table 5b).

The chemical composition of brick and tile samples was determined by PED-XRF analysis. The chemical content of brick samples consists of (in descending order) SiO_2 (avg. 46.89%), Al_2O_3 (avg. 15.13%), LOI (total carbonate, avg. 10.04%), MgO (avg. 9.62%) Fe_2O_3 (avg. 8.50%), CaO (avg. 6.02%) and K_2O (avg. 2.12%) (Table 6b). The brick samples analyzed and the tile sample have very similar chemical contents (Fig. 3a). In the grouping made according to their chemical content, the AKK-B10 sample differs from the other samples (Fig. 3a). The CaO (lime) determined in the content of the samples has penetrated into the structure of the bricks from the mortars of the joints over time. When the strength properties of the samples are evaluated in terms of their chemical content (with contemporary brick criteria); for samples with high strength, their structure should contain more than 30% SiO_2, less than 10% CaO and less than 8% Fe_2O_3[9]. The SiO_2, CaO and Fe_2O_3 contents of the studied samples are quite compatible with the mentioned ratios (Table 7a). Based on this, it is possible to say that the strength of the samples reflects a relatively standard and above-standard quality product.

Mortar Samples

With the acidic aggregate / binder analysis, the total binder / aggregate ratio of the mortar samples that form the joint and rubble fillings of the stone and brick (such as AKK-H12) masonry of the castle walls of the Keçi Castle and inner structures of the castle (bastion, entrance gate, arch pillar, cistern and stairs) has been determined. The total aggregate (non-carbonate) contents of the mortar samples are between 38.01–63.95% (avg. 51.94%) (Table 4). With an evaluation made only in terms of total aggregate / binder ratios, it was determined that the mortar samples had high total aggregate contents (except AKK-H18) (Table 4). The total aggregate ratios of the mortars are generally compatible with the 2:1 (aggregate:binder) mixture ratio seen in traditional / standard applications. The mortars have very similar aggregate / binder contents. This can be explained by the similar construction technique, the use of raw materials of the same origin or the application within the same period.

The aggregates obtained after the acidic treatment of the mortars, which were sampled from the joint and rubble fillings of the stone and bricks of the castle, were systematically screened and the granulometric separations were made with 6 different partitions in the range of <63 μm – >1000 μm (Table 4). The clay / silt (<63 μm Ø) sized aggregate ratio in mortar samples is between 1.79–4.55% (avg. 2.93%) (Table 4). The aggregate content of the samples with very coarse sand size (>1000 μm Ø) is between 30.96–51.20% (avg. 45.92%) (Table 4). The silt / sand size aggregate content of the samples are made up of aggregates

[9] Özışık 2000

other than total clay / silt and very coarse sand (At the rate complementing to 100%). The main aggregate content of the mortar samples is composed of aggregates of average, coarse and very coarse sand sizes (500–1000 μm and >1000 μm Ø) together[10] (Table 4).

The mortars sampled from the Keçi Castle were petrographically examined in detail by thin section optical microscope analysis. The mortars, whose aggregate / binder compositions were examined, were classified under one group with their fairly homogeneous structures (Table 5c). It was determined that the binder content of the mortar samples, all of which are unique, consisted of lime (85%) / clay (15%) binders (Table 5c). The total matrix aggregate content of the mortars determined by optical microscopy analysis is 65%, which is compatible with the acidic aggregate / binder ratios (Table 5c). It was understood from the thin sections that the physical structures of the aggregates of the mortar content mostly show a fractured / angular, very coarse-grained structure.

The main (> 1%) element content of the samples is (in descending order): LOI (total carbonate, avg. 39.09%), CaO (avg. 35.08%), SiO_2 (avg. 15.46%), MgO (avg. 4%). 96), Al_2O_3 (avg. 2.51%) and Fe_2O_3 (avg. 1.84%) (Table 6c). The chemical contents of the mortar samples analyzed are very similar to each other. It can be said that the construction technology of the castle is similar in terms of its stones and bricks as well as its mortars (Fig. 3b). When the samples are grouped in more detail according to their chemical contents, this similarity can be observed in lime content, but not in clay structures (Fig. 3b). In other words, while total binder / aggregate ratios are similar, there are variations in clay content (represented by SiO_2, Al_2O_3, MgO and Fe_2O_3 elements) (Fig. 3b). Predictably, during the construction phase, rough masonry does not require precise / careful workmanship. However, the presence of a dolomitic [$CaMg(CO_3)_2$] structure in the mortars was also understood by the high MgO contents of the samples (Table 6c). Dolomite is formed by the partial or complete replacement of CaO from limestone by MgO. Similarly, the presence of high MgO content in the structure of the soil sample, taken in front of the southwestern bastion of the castle (Table 6a), indicates that the mortars were produced using local materials.

From the data obtained by PED-XRF analysis of mortar samples cementation Index (CI) values were obtained (Table 7). These data, which give an idea about the strength properties and lime types of mortars, show that the samples are mostly hydraulic in character (HK and DÇ) in similar lime types. The CI values of the mortar samples are between 0.70–1.47 (avg. 1.16) (Table 7). The CI data of the mortar samples also provide indirect data on the strength of the samples: The samples with high CI data are also high in hydraulicity and / or strength properties. The mortars sampled from the castle have high CI data, that is, they are high in strength (Table 7). The chemical composition of these mortars has low CaO ratio, whereas SiO_2, Al_2O_3, Fe_2O_3 ratios are high.

Soil Sample

The total salt content of the soil sample (AKK-D1) sampled in front of the southwestern tower of the Keçi Castle is 1.83%, and the pH of the sample in the basic environment is 8.10 (Table 3b). The conductivity measurement of the soil sample indicates a very high rate of salinization. The chemical content of the soil sample is (in descending order): SiO_2 (32.86%), LOI (33.54% of total carbonate), Al_2O_3 (12.49%), CaO (10.99%), Fe_2O_3 (5.47%), K_2O (1.69%) and MgO (1.63%) (Table 6b). The soil sample has a very high carbonate content.

[10] Wentworth 1922

Conclusion

The samples consisting of structural and environmental materials (stone, brick / tile, mortar and soil) from Keçi Kalesi (Belevi, İzmir) were analyzed, identified, classified and documented in archaeometric aspects using various analytical methods. With the material analysis, it is aimed to create an important basis both in terms of defining and documenting the castle structurally and choosing the equivalent material to be selected in restoration applications. The original / structural materials of the fortress walls and the castle interiors should be preserved with appropriate conservation / restoration approaches. For these applications, the professional service of the conservation experts should be used.

The structural stones used in the construction of the castle are mostly marble and to a lesser extent limestones. These structural stones directly reflect the local rock formation in the vicinity. The marble and limestones to be used in stone repairs can be obtained from local rock formations in structure compatible with the original stones. It is recommended to examine whether the stones to be used before and during restoration applications are suitable for repair or not from a petrographic perspective.

The bricks that make up the walls of the castle should be preserved in their present state and in repair applications bricks specially produced in the light of the data obtained through analysis should be used.

The stone / brick joint and rubble filling mortars of the castle and inner castle structures (bastion, entrance door, arch pillar, cistern and stairs) have a lime / clay mixed binder content. In repair applications, it is recommended to prefer mortars containing natural lime that are compatible with the original mortars. In the repair applications of mortars:

- In the binder containing 20% lime to be mixed homogeneously,
- An aggregate (non-carbonate), consisting of 45% crushed and sieved local material (average 67% coarse / very coarse sand size, 30% very fine / fine / average sand which is 3% composed of clay / silt mixture at a ratio of <63 μm), which is compatible with the mortars whose dispersion is analyzed.
- 20% ground, sieved limestone powder /chips,
- 12% volcanic clay / tuff powder (pozolonic type) and
- lime mortar containing 3% brick fragments are recommended to be used.

The lime mortars recommended are (natural) repair mortars consisting of slaked lime. These types of mortars are more durable in the medium- and long-term structures in terms of strength. It is not recommended to use gypsum (with its non-damping property) and cement (intense salt content) materials at any stage of the restoration of the mortar contents. During the restoration phase, it is recommended to first perform trials and monitor those in order to understand whether the proposed mortar contents are compatible with the original material.

Doç. Dr. Ali Akın Akyol
Ankara Hacı Bayram Veli Üniversitesi
Gölbaşı Kampüsü, Güzel Sanatlar Fakültesi, D Blok
TR- 06830 Gölbaşı / Ankara

Prof. Dr. Yusuf Kağan Kadıoğlu
Ankara Üniversitesi, Yerbilimleri Uygulama ve
Araştırma Merkezi (YEBİM)
Gölbaşı 50. Yıl Yerleşkesi, Bahçelievler Mh.
TR- 06830 Gölbaşı / Ankara

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Gadara und das westliche Kleinasien – Wissenstransfer in der Fortifikationsarchitektur

Brita Jansen

Abstract

Gadara, today's Umm Qays, was situated in the Koile Syria and thus obviously not in western Asia Minor. And yet this remarkable fortification from the Seleucid period can contribute more to the study of the fortification buildings in western Anatolia than might initially be expected.

The fortress, built in carefully ashlar masonry, can be dated to the second quarter of the 2nd century B.C. through stratified excavations by the German Archaeological Institute. Antiochos III had the region 198 BC occupied from the Ptolemies. However, since shortly afterwards he embarked on military operations in western Asia Minor, the newly conquered region was probably only secured by one of his successors with the establishment of a garrison base in Gadara. The wall is built from the existing soft limestone in a rational but extremely carefully executed construction method. The construction technique clearly shows influences from different regions such as Palestine, Syria and Egypt.

However, particularly significant is the shape of two pentagonal towers, which as elements of a sophisticated military technology secured the southern flank of the fortress. A closer examination of their basic form yielded the surprising finding that the specific shape of their ground plan has very close parallels, especially in Lykia and Karia. These similarities can best be explained by the presence of Antiochos III and his troops in both regions. In the present article the thesis is therefore put forward that both the fortifications in western Asia Minor and the fortress in Gadara are based on the instructions of military architects who traveled with the Seleucid army.

Keywords: *Koile Syria, pentagonal tower, Seleucid army, Antiochos III, fortress, Lykia, Karia*

Gadara, das heutige Umm Qays, lag in der Koile Syria und damit weit ab vom westlichen Kleinasien. Und dennoch könnte diese bemerkenswerte Befestigung aus seleukidischer Zeit womöglich mehr zur Erforschung dortiger Bauten beitragen, als zunächst zu erwarten wäre.

Der Ort im Nordwesten Jordaniens bildete in römischer Zeit Teil des Städtebundes der Dekapolis, in dem sich die sog. Poleis Hellenides der Region zusammengeschlossen hatten. In dieser Zeit erreichte sie ihre höchste wirtschaftliche und kulturelle Blüte und zugleich ihren größten Umfang. In hellenistischer Zeit dagegen beschränkte sich die Siedlung auf einen Hügel am Rande eines auf ca. 350 m ü. NN gelegenen, dreieckigen Plateaus, das vom Yarmūktal im Norden, dem Jordangraben im Westen und dem Wādī al-ʿArab im Süden abgetrennt wird. An dessen östlichen Rand erhob sich die Akropolis noch einmal um ca. 30 m. über ihre Umgebung und gewährte der dort eingerichteten Festung somit eine strategisch äußerst günstige Position, von der aus der schmale Zugang von der Jordanischen Hochebene gut zu kontrollieren war.

Nach Norden reicht der Blick weit über das Yarmūktal und die Golanhöhen. An guten Tagen ist der Hermon im südlichen Antilibanon zu sehen. Nach Nordwesten lässt sich am Westrand des See Genezareth die Schwesterstadt Tiberias überblicken.



Abb. 1: Gadara. Befestigung. Grundriss über dem topographischen Plan von Bührig/Hartl-Reiter (2012, Ausschnitt) mit Rekonstruktionsvorschlag (blau) für die Gesamtanlage der ersten Phase, ohne Maßstab (B. Jansen)

Im Westen liegt das Plateau, das mit seiner fruchtbaren Erde eine wichtige Lebensgrundlage bildete. Auch Wasser war in der Region ausreichend vorhanden. Nach Südwesten lässt sich durch das benachbarte Wādī al-ʿArab tief in das Jordantal blicken. Dort liegt als weitere Dekapolisstadt Scythopolis.

Während sich die Stadt in römischer Zeit bis weit auf das Plateau ausdehnte, beschränkte sich die Siedlung in hellenistischer Zeit noch auf den Hügel und hatte eine Grundfläche von nur ca. 4-5 ha. Dieser Bereich, der hier auf dem Plan (Abb. 1) von einer blauen Linie umgeben ist, wurde ab dem späten 19 Jh. von einem osmanischen Dorf überbaut. Während sich die Stadt in römischer Zeit vor allem nach Westen ausdehnte, blieb die Grenze im Süden und im Osten über die Jahrhunderte bestehen. Hier konnten bei Ausgrabungen des Deutschen Archäologischen Institutes unter der Leitung von Adolf Hoffmann wichtige Abschnitte der Befestigung ausgegraben werden[1]. Außerdem wurden in Vorbereitung der Errichtung eines Parkplatzes weitere Abschnitte von den jordanischen Behörden mit Bulldozern freigelegt. Damit liegt jetzt ein ca. 235 m langer Abschnitt der Südflanke frei. Zusätzlich konnte noch ein Turm der Ostflanke untersucht werden[2].

Die gut erhaltene Südflanke besteht aus einem zweifach verspringenden Kurtinenabschnitt, der auf beiden Seiten von einem Rechteckturm begrenzt wird (Abb. 2)[3]. Der östliche Turm 1 ist noch in einer Höhe von bis zu 2,5 m erhalten und in seinem Grundriss nahezu vollständig zu

[1] Hoffmann 2000; Hoffmann – Bührig 2013.

[2] Die Auswertung der archäologischen und architektonischen Befunde an der Süd- und Ostflanke der hellenistischen Befestigung erfolgte im Rahmen einer Dissertation: Jansen 2020.

[3] Jansen 2020, 51–90, danach die folgenden Beschreibungen.

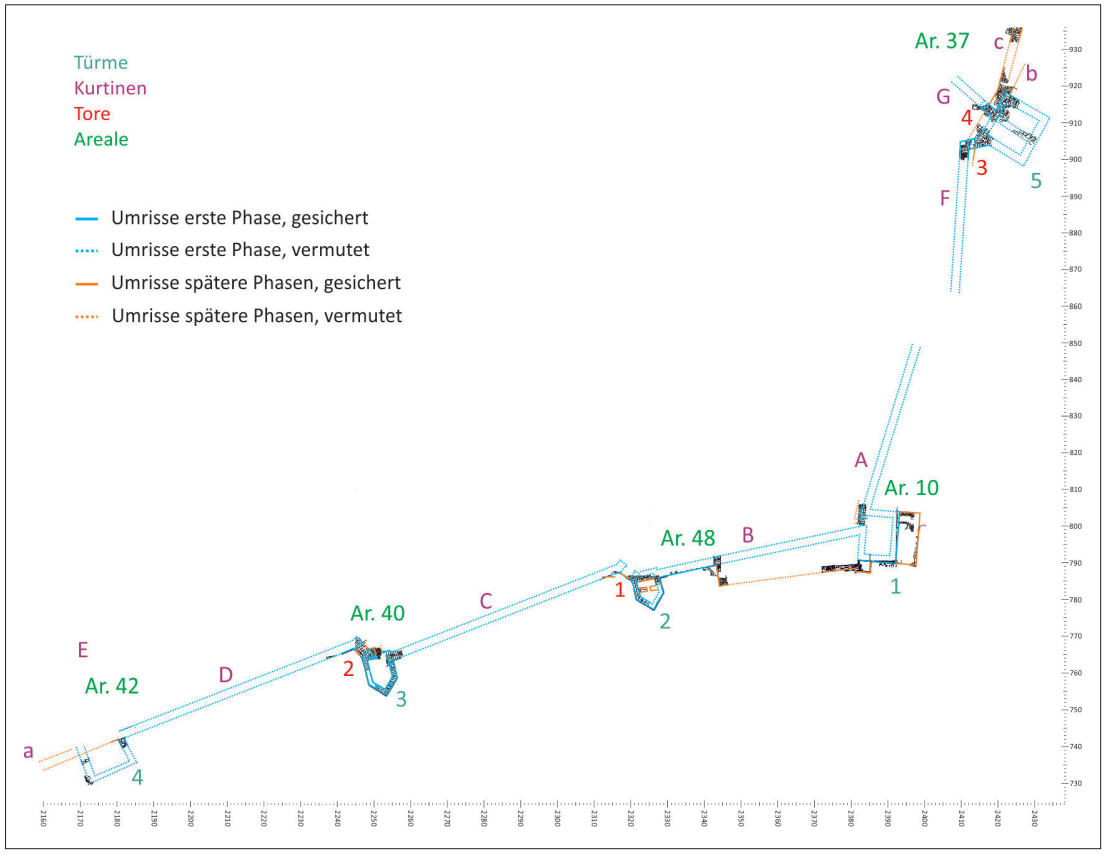


Abb. 2: Grundriss der Süd- und Ostflanke mit Rekonstruktionsvorschlag, M. 1:2000 (B. Jansen)

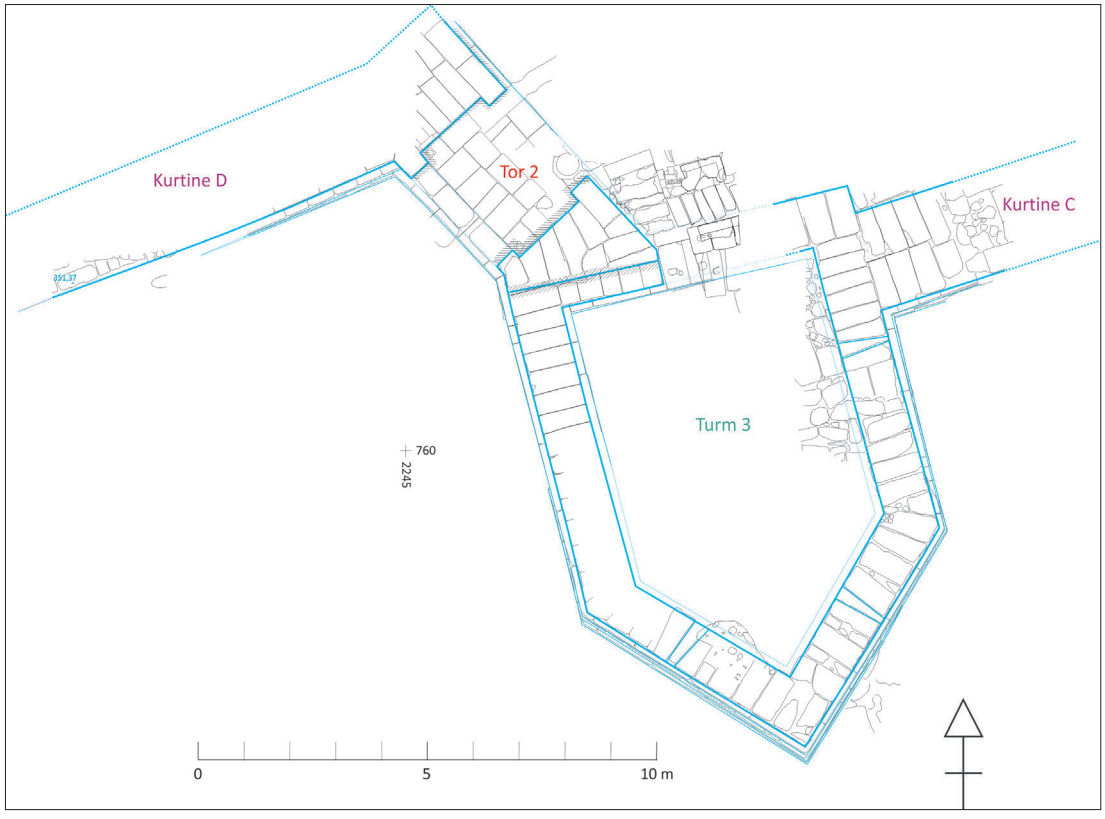


Abb. 3: Turm 3 mit Tor 2, Grundriss (B. Jansen)

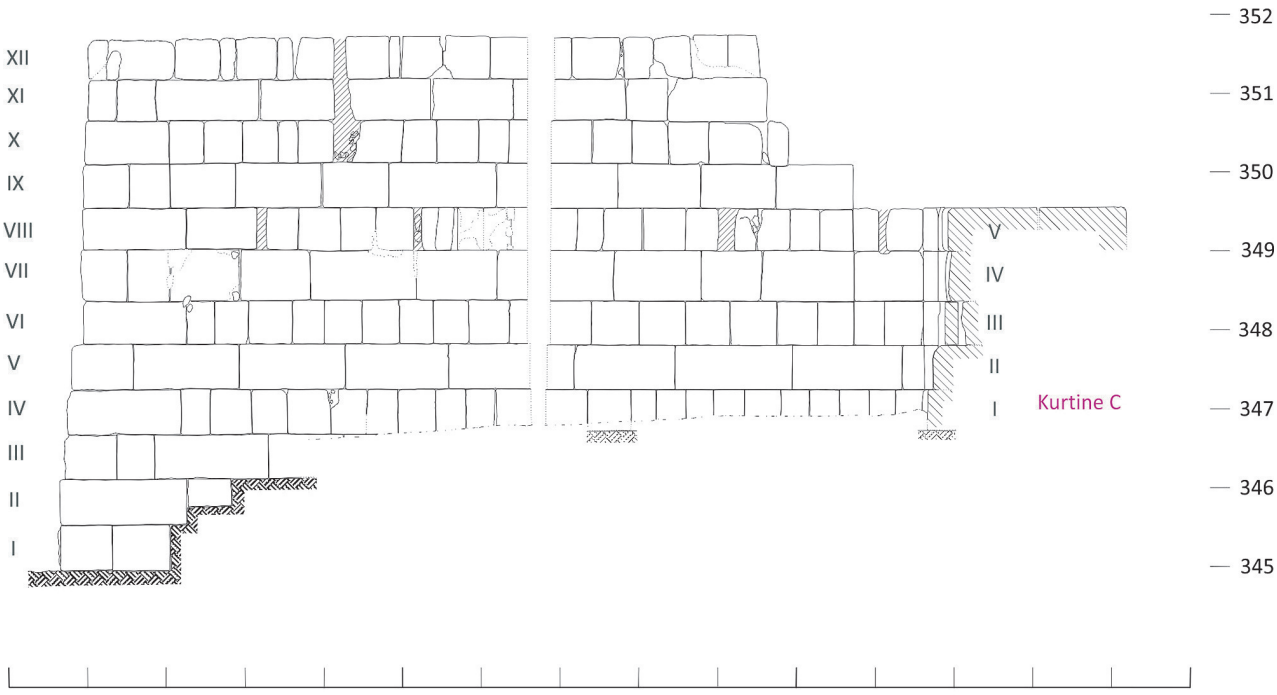


Abb. 4: Turm 3, Ansicht von Osten (B. Jansen)

rekonstruieren, während von dem westlichen Turm 4 nur noch geringe Bettungsspuren vorhanden sind. Der Mauerverlauf zwischen diesen beiden Türmen folgt nicht genau den Höhenlinien, sondern fällt nach Westen leicht ab. Hier wurde ein in das benachbarte Wadi vorkragender Geländesporn in die Befestigung mit einbezogen. Von der Ostflanke sind lediglich der Ansatz der Kurtine A an Turm 1 sowie die Überreste des Nordostturmes, Turm 5, bekannt. Jener war der größte der bekannten Türme, und er war als einziger mit einer Zwischenmauer besonders stabil ausgeführt.

In die sägezahnartigen Versprünge der Südflanke war jeweils ein Tor eingelassen, das von einem begleitenden Fünfeckturm geschützt wurde. Vor allem der westliche Turm 3 ist mit bis zu 6,8 m Höhe noch sehr gut erhalten, so dass sich daran und an dem benachbarten Tor 2 noch zahlreiche Details der Konstruktion ablesen lassen (Abb. 3. 4). Durch die exakt parallelen Pentagonaltürme erhielt die Südflanke eine sehr regelmäßige Struktur (Abb. 5). Außer den beiden Toren neben den Fünfecktürmen waren in die beiden vom Turm 5 abgehenden Kurtinenabschnitte Tore eingelassen. Damit sind bisher insgesamt vier Tore bekannt,

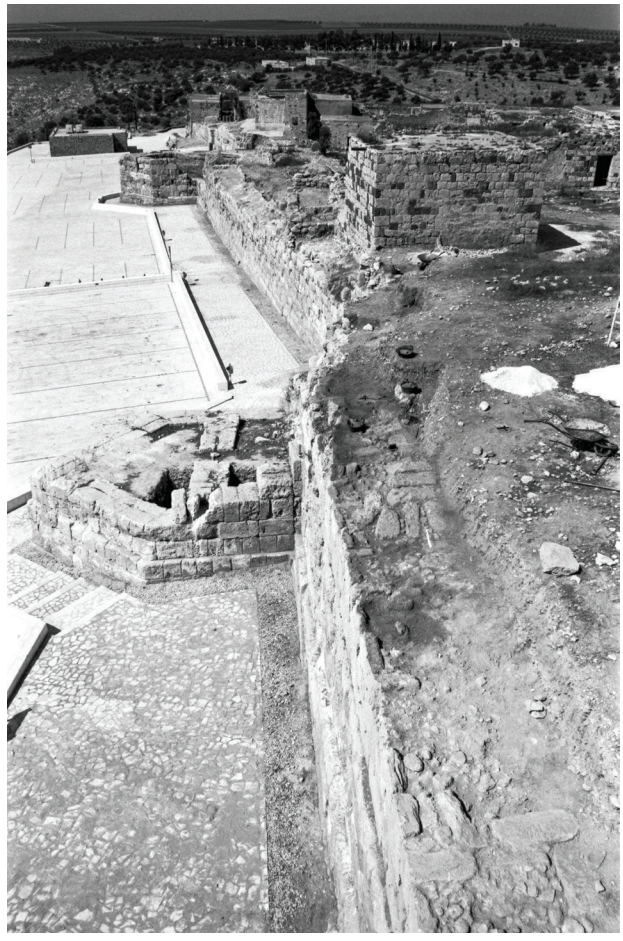


Abb. 5: Südflanke, Ansicht von Osten (R. Wieczorek, DAI Berlin)

die mit Durchgangsbreiten zwischen 1,8 und 2,6 m eher bescheidene Maße haben. Anhand der Bogenansätze an drei dieser Tore lässt sich rekonstruieren, dass sie von Segmentbögen überwölbt waren. Diese Bogenvariante wurde in der Region in römischer Zeit beliebt, jedoch findet sich bisher kein weiteres Beispiel aus hellenistischer Zeit. Eine Herleitung der Form aus der verlorengegangenen alexandrinischen Architektur wird vorgeschlagen[4].

An Tor 2 waren noch die beiden Angelsteine mit bronzenen Pfannen erhalten, so dass die Maße der zweiflügeligen Tür genauer bestimmt werden können (Abb. 3). An demselben Tor ist noch der Ansatz eines Balkenkanals erkennbar, womit belegt ist, dass das Tor mit einem hölzernen Riegel verschlossen werden konnte[5].

Die Südflanke der Befestigung war zu Beginn der Arbeiten unter bis zu knapp sieben Meter hohen Schuttschichten verborgen. Der Abtrag dieser Schichten erbrachte hinreichend Material, um die Errichtung und einige wesentliche Entwicklungen der Anlage relativ sicher zeitlich einzuordnen. Damit erübrigte sich die Notwendigkeit, anhand von Mauerwerksformen oder poliorketischen Entwicklungen, auf Grundlage der historischen Quellen oder mit Vergleichen zu anderen Bauten über die zeitliche Einordnung spekulieren zu müssen, wie es bei zahlreichen anderen Bauten der Fall ist[6]. Die stratigraphische Einordnung der Bau- und frühen Nutzungszeit erlaubt eine relativ sichere Datierung der Anlage in das zweite Viertel des 2. Jhs. v. Chr. und damit in die Zeit der seleukidischen Herrschaft in Gadara[7].

Die Region hatte seit der Schlacht bei Ipsos 301 v. Chr. zum ptolemäischen Herrschaftsbereich gehört. In den ersten drei Syrischen Kriegen blieben die Versuche der Seleukiden, sich der Region zu bemächtigen, erfolglos. Erst im Vierten Syrischen Krieg konnte Antiochos III. 218 v. Chr. Gadara einnehmen. Nach dem Bericht des Polybios (Hist. V 71,3) reichte der Bau der Belagerungsgeräte schon aus, um die Bewohner zur Übergabe ihrer Stadt zu bringen. Er nennt Gadara in diesem Zusammenhang den „festesten Ort in der Region".

Allerdings konnten in Gadara keinerlei Spuren einer vorseleukidischen Befestigung gefunden werden. Es kann angenommen werden, dass ein benachbarter Tell, der im Wādī al-ʿArab liegende Tall Ziraʿa mit mächtigen Mauern aus der Bronzezeit, der ptolemäische Vorläufer Gadaras war[8].

Nach der Niederlage bei Raphia 217 v. Chr. gegen die Ptolemäer musste Antiochos III. die Region zunächst wieder verlassen. Die zunehmende Schwächung der Ptolemäer nutzte der Seleukide aber im Fünften Syrischen Krieg für einen erneuten Angriff. Bei Paneion errang er 200 v. Chr. den kriegsentscheidenden Sieg. Bis 198 v. Chr. hatte er dann Koilesyrien ganz in seinen Besitz gebracht. Die Festung Gadara wird aber wohl nicht unmittelbar nach der Einnahme durch Antiochos III. errichtet worden sein. Die stratigraphisch begründete Datierung in das zweite Viertel des 2. Jhs. v. Chr. spricht vielmehr dafür, dass sie erst von einem seiner Nachfolger angegangen wurde. Darauf soll später noch eingegangen werden.

Der gute Erhaltungszustand der freigelegten Südflanke lässt weitreichende Beobachtungen zur Bauweise und Funktion des Bauwerkes zu. Als Material wurde der anstehende weiche, aber witterungsanfällige Kalkstein direkt vor Ort abgebaut. Der in horizontalen Schichten anstehende Stein eignete sich gut für die Zuarbeitung von regelmäßigen Quadern. Die Verwendung eines annähernd modularen Formates erleichterte eine Vorfertigung von Quadern, die in

4 Jansen 2020, 157–159.

5 Jansen 2020, 73.

6 Zur Problematik der Datierung von antiken Fortifikationen vgl. Müth et al. 2016, 10–15.

7 Die Datierungen beruhen überwiegend auf den Analysen der Keramik von Kenrick 2000 und Konrad 2013, der gestempelten Amphorenhenkel von Jöhrens 2013 und der Münzen von Noeske 2013; vgl. Jansen 2020, 117 f.

8 Dijkstra 2005.



Abb. 6: Kurtine D, Ansicht von Süden (B. Jansen)

unterschiedlichen Ausrichtungen als Läufer oder Binder eingesetzt werden konnten (Abb. 6).

Eine systematische Zusammenstellung der unterschiedlichen Bautechniken und Mauerwerksformen zeigte, dass die verwendeten pseudoisodomen und isodomen Mauerwerksformen nicht auf chronologische Unterschiede hinweisen, sondern von der Dicke und Funktion des jeweiligen Bauteiles abhängig waren (Abb. 7). Die Mauern der Türme sind aus Lagen von Bindern im Wechsel mit Lagen von Läufern gebildet. Letztere sind bei den Rechtecktürmen liegend, bei den Fünfecktürmen stehend versetzt (Abb. 4), woraus sich ein pseudoisodomes bzw. isodomes Mauerwerk ergibt. Vermutlich war diese Differenzierung auf die Erfordernisse der Wehrtechnik und eines reibungslosen Bauablaufes zurückzuführen. Bei den Kurtinen war der abgestufte Sockel ebenfalls aus abwechselnden reinen Binder- und reinen Läuferlagen gebildet. Das aufgehende Mauerwerk dagegen war wohl als einziges nicht massiv geschichtet, sondern aus einer Art Füllmauerwerk mit Kompartimentmauern gebildet. An der Fassade ergab sich dabei ein isodomes Mauerwerk mit in jeder Lage regelmäßig wechselnden Läufern und Bindern (Abb. 6).

Auch die militärische Funktion lässt sich anhand der noch vorhandenen Turmreste weiter analysieren[9].

Der Abstand der Türme zueinander liegt zwischen 56 und 67 Metern, so dass die Verteidigung der dazwischen liegenden Kurtinenabschnitte gut gewährleistet werden konnte. An den Fünfecktürmen waren noch Schießscharten in zwei verschiedenen Größen vorhanden (Abb. 3. 4). Die im unteren Geschoss waren mit einer Höhe von ca. 57 cm vermutlich für stehende Bogenschützen vorgesehen, die im oberen Geschoss mit einer Höhe von 159 cm wohl für kleine Bogenkatapulte. Es ist davon auszugehen, dass es darüber noch ein drittes Stockwerk gab. Dieses dürfte Fenster gehabt haben, aus denen mit mittelgroßen Steinwerfern geschossen werden konnte. Davon zeugen noch zahlreiche Steinkugeln, die im Verlauf der Ausgrabungen gefunden worden sind. Ihr Gewicht korrespondiert mit der angenommenen Größe der eher kleineren Geschütze, die in den Gadarener Türmen aufgestellt gewesen sein dürften.

Das militärische Konzept wurde durch Schlupfpforten ergänzt, die sich jeweils in der Ostmauer der beiden Fünfecktürmen öffneten (Abb. 4. 5). Von hier war es Soldaten möglich, überraschend auszufallen, den belagernden Feind anzugreifen und anschließend durch ein anderes Tor die Festung wieder zu betreten. Diese Schlupfpforten wurden aber wohl schon sehr bald wieder geschlossen, eventuell sogar schon während der Bauphase. Das könnte darauf hinweisen, dass die Festung nicht mehr über das notwendige Personal verfügte, um eine ursprünglich verfolgte Strategie der aktiven Verteidigung zu verfolgen.

Ein besonders auffälliges Element der Gadarener Befestigung stellen die beiden pentagonalen Türme dar. Obwohl ihre Form von dem Militärtheoretiker Philon von Byzanz (I,3; I,44–45) besonders empfohlen wird, sind nur relativ wenige Beispiele bekannt. Der besondere Vorteil der Form beruht darauf, dass von vorne aufprallende Steingeschosse abgelenkt werden (Abb. 8). Während ein Beschuss durch die Verteidiger ins unmittelbare Vorfeld nicht möglich ist, können die

[9] Ausführlich dazu Jansen 2020,119–126.

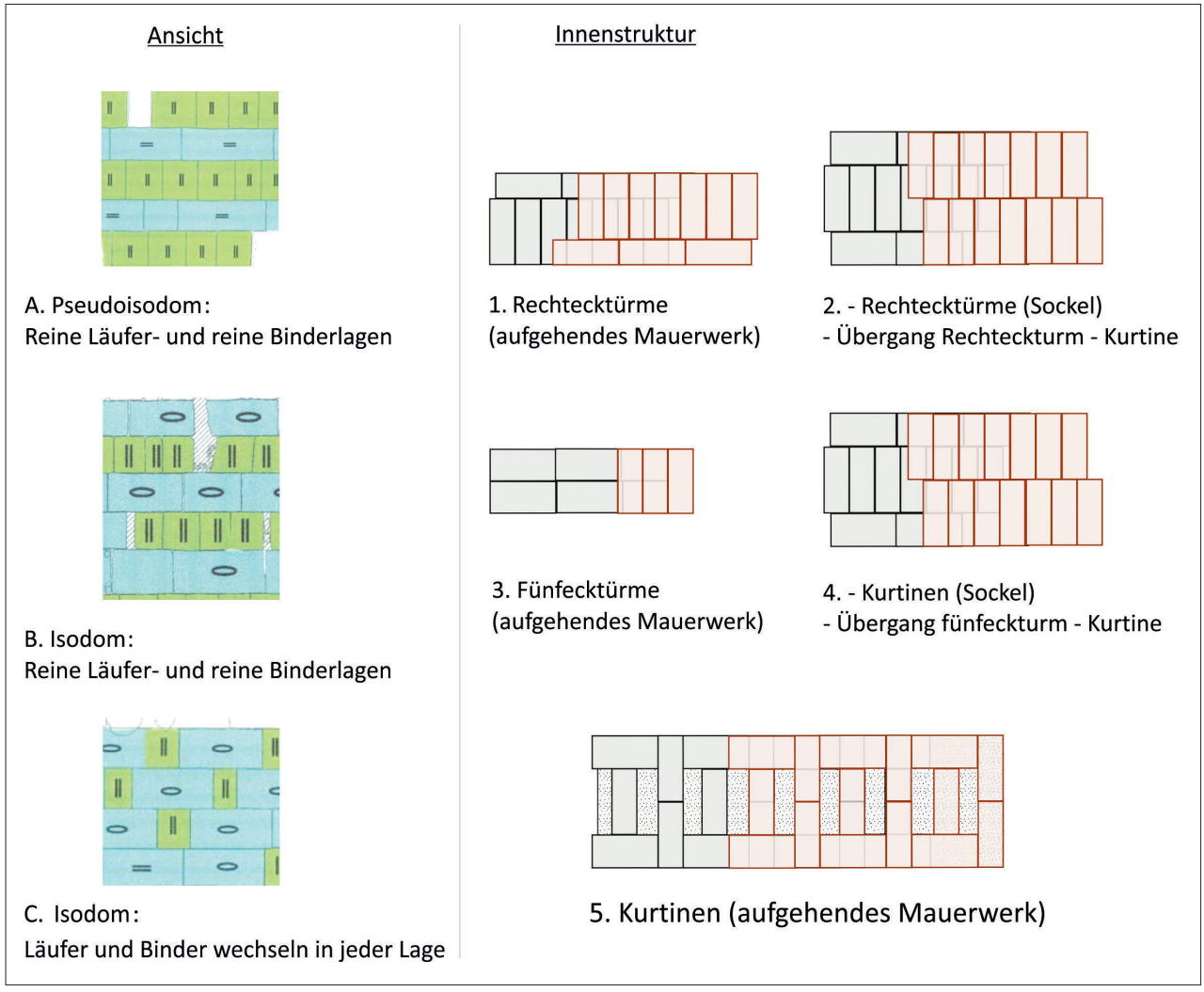


Abb. 7: Schema der verwendeten Mauerwerksformen (B. Jansen)

Seiten gut abgedeckt werden[10]. Eine Aufstellung aller bekannter Fünfecktürme der vorchristlichen Zeit ergab, dass an 14 Befestigungen ein oder mehrere Fünfecktürme eingebaut wurden[11]. Nicht alle diese Türme sind in hinreichendem Maßstab publiziert. Die größerformatig publizierten Türme sind hier in einer Graphik zusammengestellt (Abb. 9). Ihre geographische Verbreitung reicht von Tivissa in Spanien bis nach Dura Europos in Syrien. Auch in Taxila in Pakistan ist eine Befestigung mit Fünfecktürmen bekannt, die allerdings nur sehr kleinformatig publiziert ist.

[10] Zu unterschiedlichen Schussfeldern von Türmen unterschiedlicher Grundform vgl. Marsden 1969, 141–150.

[11] Dies sind: Akraiphia, Samos, Alabanda, Labraunda, Orak Kale, Hyllarima, Harpasa, Oinoanda, Patara, Paestum, Dura Europos, Taxila, Tivissa und Gadara, dazu ein ausführlicherer Katalog: Jansen 2020, 152–157. Ein weiterer Turm in Kos ist bisher noch nicht im Katalog erfasst, er ist aber auch lediglich auf einem sehr kleinformatigen Plan publiziert: Rocco – Livadiotti 2011, fig. 1.



Abb. 8: Turm 3, Ansicht von Süden (R. Wieczorek, DAI Berlin)

Es zeigte sich, dass nahezu allen diesen Türmen sehr exakte geometrische Formen zugrunde lagen, die aufgrund ihrer Konstruktionsweise in drei Modelle unterschieden werden können. Die einzige Form, die von Philon von Byzanz beschrieben wird, ist hier als Modell C genannt: es handelt sich um ein Quadrat mit einem vorgesetzten gleichseitigen Dreieck. Diese Form ist nur von zwei Türmen aus Tivissa in Spanien bekannt und nur bedingt als fünfeckiger Turm zu bezeichnen, da die vordere Spitze nur im Sockelbereich, nicht aber im Aufgehenden ausgebaut ist[12].

Modell A wird aus einem regelmäßigen Sechseck gebildet, bei dem die der Kurtine zugewandte Ecke wegfällt. Die dem Feind zugewandte Spitze hat hier einen Winkel von 120°. Beispiele sind Türme auf Samos und in Labraunda sowie vermutlich ein weiterer auf Kos[13].

Die beiden Türme in Gadara folgen dem Modell B, das aus einem Quadrat mit einem vorgesetzten rechtwinkeligen, gleichschenkeligen Dreieck besteht. Diese Form ist unter den bekannten Türmen am häufigsten zu finden.

Keiner dieser Grundformen lassen sich drei der hier abgebildeten Türme zuweisen. Das ist zum einen ein Turm in Dura Europos, dessen Form sich alleine aus der optimalen Ausnutzung eines kleinen Geländespornes oberhalb eines Wadis erklären lasst[14], sowie ein Turm in Harpasa[15], dessen Spitze stark zu einer Seite verdreht ist, aus der von einem gegenüberliegenden Geländesporn Angriffe ausgehen konnten. Ein Turm im italienischen Paestum fällt ebenfalls aus den sonstigen Schemata heraus[16].

Interessant ist die geographische Verteilung der Türme: Außer in Gadara finden sie sich vor allem in Karien und Lykien, ein einzelner auch in Akraiphia in Böotien. Die Übereinstimmung mit der geometrischen Grundform ist so frappierend, dass kaum von einem Zufall ausgegangen werden kann. Es stellt sich daher die Frage, auf welchen gemeinsamen Ursprung diese Turmformen zurückzuführen sind. Zunächst könnte erwartet werden, dass der Entwurf der Türme dem Militärschriftsteller Philon von Byzanz zugeschrieben werden kann, der die Form von fünfeckigen, aber auch von sechseckigen Türmen besonders empfiehlt. Es war aber schon erwähnt worden, dass die einzige Form, die Philon konkret beschreibt, die von Modell C ist, die aber nur im spanischen Tivissa zu finden ist.

12 Moret 2009.

13 Zu Samos: Kienast 1978, 83–91; zu Labraunda: Vergnaud 2014, 114–120.

14 Leriche 2016, 17.

15 Debord – Varinlioğlu 2010, 39–43.

16 D´Ambrosio 1990.

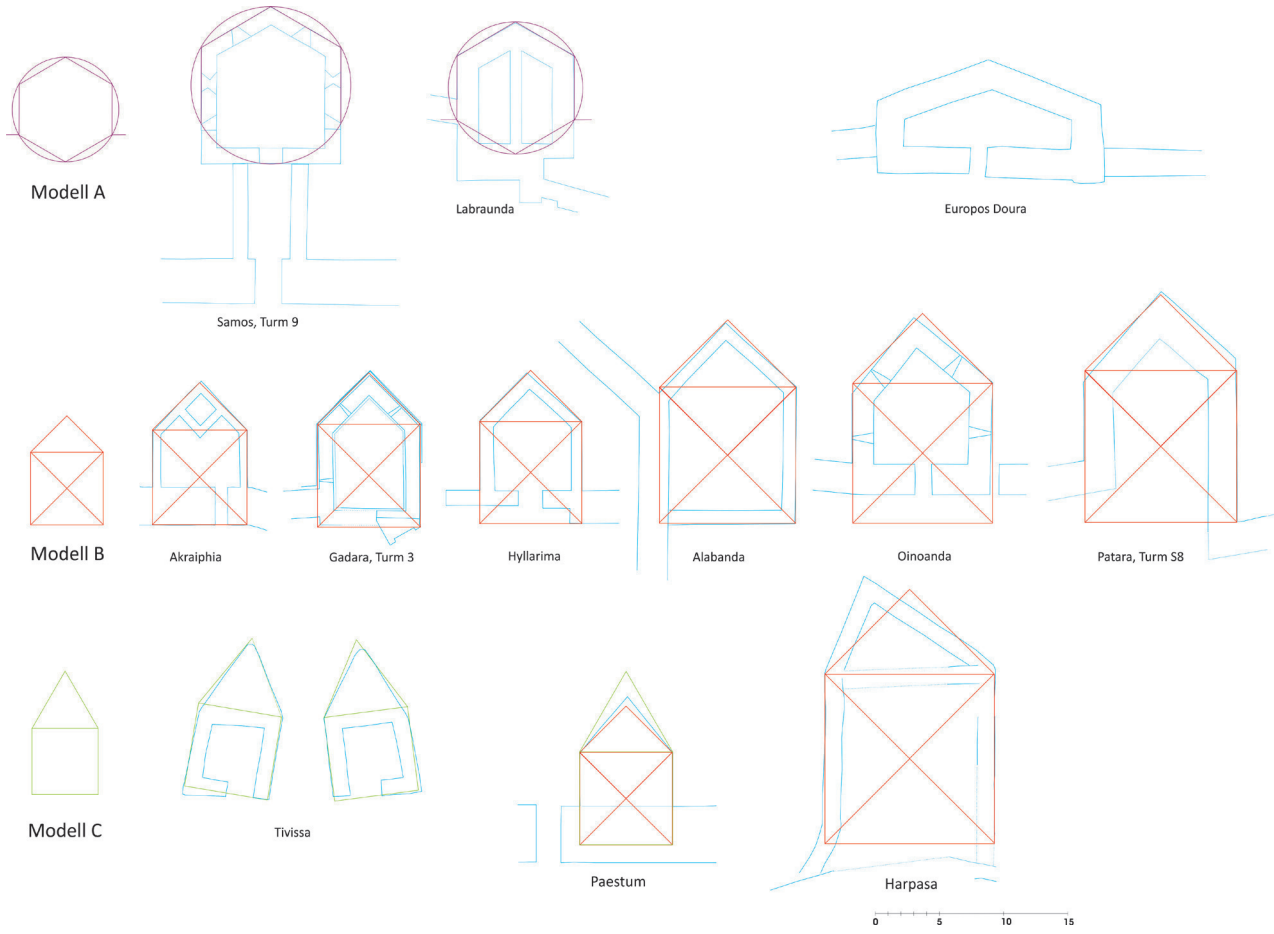


Abb. 9: Modelle von Pentagonaltürmen (B. Jansen)

Die bekannten spätklassisch-hellenistischen Türme folgen dagegen nahezu alle den Modellen A und B. Es soll deshalb die Gegenprobe gemacht werden. Es ist bekannt, dass in spätantiker und byzantinischer Zeit viele Ideen hellenistischer Militärtheoretiker wiederaufgenommen wurden. Als nach den Jahren der *pax Romana* wieder auf äußere Gefahren reagiert und Verteidigungsanlagen gebaut werden mussten, fanden auch die Schriften des Philon von Byzanz wieder Beachtung, wie sich an verschiedenen Merkmalen ablesen lässt. Gerade Pentagonaltürme erlebten dann geradezu eine Renaissance.

Aber im Gegenteil zu den spätklassisch-hellenistischen Türmen zeigen ihre Grundformen eine viel größere Divergenz; der Winkel in der Spitze liegt breitgefächert zwischen 55 und 106°[17]. Das zeigt, dass diesen Bauten keine einheitliche geometrische Grundform zugrunde liegt, wie sie für die spätklassisch-hellenistischen Bauten offensichtlich ist. Damit wird deutlich, dass die Schriften des Philon nicht oder zumindest nicht allein die Grundlage für die genannten spätklassisch-hellenistischen Fünfecktürme gebildet haben könnten. Denn wäre ihre Form in seinen Schriften genauer beschrieben worden, müsste sie sich auch in den spätantiken Türmen deutlich wiederfinden. Wahrscheinlicher ist, dass ein uns heute nicht mehr erhaltenes Manual, eventuell mit genauen Konstruktionszeichnungen versehen, verwendet wurde, das v. a. den Bauten im lykisch-karischen Raum zugrunde lag.

Mit Blick auf die geographische Verteilung stellt sich dann die Frage, warum ausgerechnet

[17] Vgl. eine Auflistung bei Jansen 2020, 150 mit Anm. 742.

das weit abgelegene Gadara ähnliche Türme hat wie die im lykisch-karischen Raum, aber keine Vergleiche im direkten Umfeld. Eine Antwort auf diese Frage könnte die Beobachtung geben, dass alle diese Regionen sich zumindest zeitweise im Herrschaftsbereich von Antiochos III. befanden. Dieser hatte nach der Einnahme Koilesyriens im Fünften Syrischen Krieg auch Gebiete in Lykien, Kilikien und Karien eingenommen. Auch in Böotien, wo in Akraiphia ebenfalls ein Fünfeckturm gefunden wurde, der wie der in Gadara der Grundform besonders streng folgt, konnte sich Antiochos III. im Römisch-Syrischen Krieg 192/91 v. Chr. kurz durchsetzen.

Nach der stratigraphisch begründeten Datierung wurde nicht unmittelbar nach der Eroberung Gadaras auch mit der Errichtung der Befestigung begonnen. Grund dafür könnte sein, dass Antiochos III. 197 v. Chr. von Syrien direkt ins westliche Kleinasien übersetzte, wo er weite Landstriche einnahm, bevor er auch seine Hand nach Griechenland ausstreckte. Erst nach dem Frieden von Apamea 188 v. Chr. musste er die Regionen bis zum Taurus wieder aufgeben. Ein Jahr später starb er, sodass die Errichtung der Festung von Gadara wohl erst einem seiner Nachfolger zuzuschreiben ist.

Die großen Übereinstimmungen im Grundriss lassen vermuten, dass die Türme in Gadara ebenso wie alle vergleichbaren Bauten im westlichen Kleinasien und in Akraiphia auf dieselben Pläne oder Anweisungen von Militärarchitekten zurückzuführen sind, die mit dem Heer umherzogen. Und diese Architekten dürften im Dienst von Antiochos III. und seinen Nachfolgern gestanden haben.

Die Bauten in Lykien, Karien und Akraiphia sind nicht sicher datiert, überwiegend wird nur eine grobe Einordnung in spätklassisch-hellenistische Zeit angenommen. So muss zunächst ungeklärt bleiben, ob sie tatsächlich alle auf die Pläne der Architekten von Antiochos III. und seinen unmittelbaren Nachfolgern zurückzuführen sind oder ob die Seleukiden Ideen übernommen haben, die sie an bestehenden Festungen im westlichen Kleinasien kennengelernt haben.

Bis gesicherte Datierungen von weiteren Bauten vorliegen, soll von der kleinen Festung im abgelegenen Gadara aus aber die verwegene These aufgestellt werden, dass allen diesen Bauten dieselben Bauvorschriften zugrunde lagen, die vermutlich mit den Militärarchitekten von Antiochos III. in Verbindung zu bringen sind. Daran zeigt sich auch, wie militärtechnisches Know-How im riesigen seleukidischen Reich transferiert wurde.

Dr. Brita Jansen
German Protestant Institute of Archaeology Amman
P. O. Box 183
11118 Amman
Hashemite Kingdom of Jordan

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Diese Publikation geht auf ein Kolloquium zu Fortifikationsbauten in Westanatolien zurück, das im Herbst 2019 in Dalyan / Kaunos stattgefunden hat. Anlass waren eine erstmals systematisch durchgeführte Dokumentation und Analyse der kaunischen Befestigungsbauten, die einen wissenschaftlichen Austausch und eine neue Zusammenschau der jüngsten Forschungen an westanatolischen Fortifikationen lohnend erscheinen ließ.

Der vorliegende Kolloquiumsband, der Beiträge zu Befestigungen in Kaunos, Knidos, Priene, Selçuk (Keçi Kalesi), Halikarnassos, Pedasa, Termera, Theangela, Alazeytin, Kaplandağ, Kozan (Karasis) und Gadara (Umm Qays) enthält, möchte einen Beitrag zur Erweiterung des Kenntnisstandes dieser so wichtigen Bauten leisten.

This publication stems from a colloquium on fortification structures in western Anatolia that took place in autumn 2019 in Dalyan/Kaunos. The reason for the symposium was the first systematic documentation and analysis of the Kaunian fortifications, thus making a scientific exchange and a new synopsis of the most recent research on western Anatolian fortifications seem worthwhile.

The present colloquium volume, that contains contributions to fortifications in Kaunos, Knidos, Priene, Selçuk (Keçi Kalesi), Halikarnassos, Pedasa, Termera, Theangela, Alazeytin, Kaplandağ, Kozan (Karasis) and Gadara (Umm Qays), contributes to the expanding state of knowledge of these so important buildings.

Nomos Verlagsgesellschaft

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