



T.C. KÜLTÜR VE TURİZM
BAKANLIĞI

CİLT 1



38. ARAŞTIRMA SONUÇLARI TOPLANTISI



Kültür Varlıkları ve Müzeler Genel Müdürlüğü

**42. Uluslararası Kazı, Araştırma ve
Arkeometri Sempozyumu**

38. ARAŞTIRMA SONUÇLARI TOPLANTISI

CİLT 1

**23-27 MAYIS 2022
DENİZLİ**

T.C. KÜLTÜR VE TURİZM BAKANLIĞI ANA YAYIN NO: 3735/1
Kültür Varlıkları ve Müzeler Genel Müdürlüğü Ana Yayın No: 196/1

Editör

Dr. Candaş KESKİN

23-27 Mayıs 2022 tarihlerinde Denizli’de düzenlenen 42. Uluslararası Kazı, Araştırma ve Arkeometri Sempozyumu Pamukkale Üniversitesi’nin katkılarıyla gerçekleştirilmiştir.

e-ISSN: 2667-8837

Grafik Tasarım

Nihal KARAPEK

Kapak Fotoğrafi

Bilge YILMAZ KOLANCI, Attouda Araştırmaları 2021.

Not: Araştırma raporları, dil ve yazım açısından Dr. Candaş KESKİN tarafından denetlenmiştir. Yayımlanan yazıların içeriğinden yazarları sorumludur.

Ankara 2023

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FIELDWORK AT PHOENIX 2021

Asil YAMAN*

Phoenix/Phoinix (Φοῖνιξ) is an Ancient Greek *deme* located near the modern village of Taşlıca, district of Marmaris. The settlement is located in the southwest part of the Bozburun Peninsula (SW Turkey) which is also known as the Carian Chersonese, a political sub-region of ancient Caria, or the Rhodian Peraia, especially in the Hellenistic period (Held, 2005, p. 86-88, 96, fig. 2; Cahn, 1970, p. 200; Meiggs, 1972, p. 556, Nr. 6).

The first systematic and intensive archaeological explorations of Phoenix were initiated in 2021 by a multidisciplinary team whose work was conducted under the *aegis* of the Ministry of Culture and Tourism of Turkey, General Directorate for cultural heritage and museums¹.

The research area comprises the Söğüt and Taşlıca villages and includes not only the ancient site of Phoenix but also extends to the neighbouring towns of Thysannous in the north and Kasara towards the south (Map: 1). Today, the areas covered by Taşlıca and Söğüt villages are both vulnerable to illicit excavations and looting of artifacts. The cultural and natural heritage in the southwestern part of the peninsula is heavily threatened by urban and agricultural expansion which is changing the landscape visually, and also endangering the biodiversity. We truly believe that our multidisciplinary and new generation holistic approaches will advance awareness, education, preservation, and promote the documentation archaeological remains and cultural heritage in Phoenix and its environs.

Facing these challenges with a great sense of responsibility, the first year of the fieldwork mainly focused on intensive surveys and documentation of the core of the settlement in the Sindili plain where Phoenix stands. Researches have been carried out in Hisartepe, which consists of the fortified acropolis of the site, the Apollo sanctuary (Kızlan church), and the necropoleis of Burgaz Tepe and Tülü Tepe.

HİSAR TEPE, THE ACROPOLIS

Hisar Tepe, dominating the Sindili plain, is located 4 km south of modern Taşlıca village, and consists of the fortified acropolis of Phoenix (Figure: 1). This territory constituted the main fieldwork area in 2021. Our research on the Hisar Tepe revealed that the multi-layered fortifications of Phoenix are partly preserved and built with local grey limestone. The architectural evidence indicates that the first inhabitants of Phoenix built a gradual defense system on the acropolis designed with an inner and outer walls (F1).

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1 We would like to warmly thank the General Directorate for Cultural Heritage and Museums for their permission and generous support. We are also grateful to the state representative Tuba KONUK from Bilecik Museum for her endless efforts.

Our research on the acropolis indicate that the walls are mostly preserved in the northern and western parts, whereas the eastern side of the defense walls seems to be substantially damaged. However, owing to the steep nature of the terrain, it is possible that there was no wall built on the southern part. The data that we gathered from the fortifications support the previous hypothesis proposed by I. Pimouguet- Pidarros (1994, p. 247).

Observations on the walls point out that the masonry is mostly isodomic except for the repairs and late additions, but it is clear that the walls were built with different construction techniques. They seem to have been repaired by the later inhabitants of Phoenix with smaller scale limestones bound with hard white mortar, which possibly shows the Byzantine period usage of the acropolis. The wall thickness varies but generally measures around one meter and the elevation is preserved roughly up to three meters high at some points. We identified at least three well-preserved *bastion* on the eastern side of the fortifications.

The strategic position of the Hisar Tepe on Sindili Plain which controls the northern and southern routes between the ancient Portus Cressa (Serçe harbour) and Thysannous, might suggest that Hisar Tepe was chosen as a military garrison by the first builders.

Investigations on the acropolis were extended through the south-eastern side of the hill which gave us the opportunity to re-explore an inscription carved directly onto the bed-rock (Figure: 2). The inscription has a 90-line long text, which dates to the 3rd century BCE according to A. Bresson (1991, p. 144-148, no. 149)². It has a list of donors who contributed financially towards the construction of a temple dedicated to Dionysos. Since the inscription is *in situ*, it is possible that one of the eastern terraces of the acropolis might have been the host of the naos of the Dionysos. In any case, it provides us important economic and religious insight into Phoenix's community and highlights the connections with the Rhodian state. During the campaign on the southeastern side of the acropolis, we discovered an open area supported by an individual terrace wall. According to the architectural finds, such as exedra blocks, sculpture bases, inscribed rock-cut niches, and stoa remains, this area might be described as one of the public areas of the settlement like an agora or a sacred area. Besides the architectural data, we also collected Cnidian and Rhodian amphora sherds dating back to 3rd and 2nd century BCE within this *locus*.

Another well-preserved and notable building on the acropolis that we identified among the vegetation is located on the southern end of the hill. It is covered with small limestone walls and includes white mortar. We also collected from this area several ceramic sherds dated to the mid and late Byzantine period, which give a glimpse of the settlement activity on the acropolis during the Middle Ages.

2 The epigraphic material is being investigated by Anna SİTZ and Koray KONUK who have started to re-assess the published material and investigate the new inscriptions that were discovered at Phoenix in 2021.

Another discovery made during the 2021 campaign and related to the acropolis is the ancient path measuring approximately 800 m. long passing through the north necropolis of Phoenix and connecting the acropolis to the Apollo sanctuary. In the next campaign, we plan to document the rest of the ancient roads and nearby remains which continue to Kasara (Asardibi), Prinari (Gedik) and Portus Cressa (Serçe Limanı).

THE TEMPLE – CHURCH

One of the main structures of Phoenix is located approximately 2.5 km southwest of the modern village of Taşlıca and about 500 m from the acropolis (Oğuz, 2013, p. 196; Dürrbach & Radet, 1886, p. 258). In the light of the plan features, there is no doubt that the existing building is a church. However, the church was placed on the foundations of an earlier building whose architectural elements of a Doric structure belonging to the Hellenistic period were used as spolia. Among these re-used blocks is an inscription dedicated to Apollo that was used on the walls of the building. Based on these data, the building was included in the literature as both a temple of Apollo and a church (Figure: 3-4). Although the temple-church is generally in the east-west direction, there is a 10 degree shift in the northeast-southwest directions.

Large blocks (limestone/marble) were used in its construction. However, their analyzes were not made and therefore their quality and sorts could not be determined. Although the term black marble is used for the material in the literature, it is not possible to reach a definite judgment on this subject unless analyzes are made. Only the materials constituting the foundation, floor and walls of the building have been preserved. The material used in the top covering and doors were not preserved. However, it should be necessary to consider the possibility that wood has been used in the top covering and doors. There are technical details such as clamps and dowels on the blocks. This shows that metal was also used as a binding material, at least during the period of the temple. The data on the foundation of the building come from the west facade. On this facade, under the podium, there are semi-finished and partially protruding blocks, varying from place to place, with an average height of 34 cm and a width of 35-86 cm.

The entrance to the Byzantine church is from the west side. Here, a 76 cm tall step is needed to provide access to the door. However, no block used for this purpose has been found in the area. No traces of crepidoma were detected on the front faces of the podium blocks located on the western facade of the building. This situation provides evidence that the Hellenistic temple entrance should be located in the east.

Unless excavations are carried out in the area, it is not possible to determine the plan of the Hellenistic temple and to make predictions about it. However, the absence of crepidoma provides evidence that the temple is not peripteros or dipteros. In this case, three suggestions remain for the temple plan type. First: it is a structure consisting only of naos, where no columns are used. Second: it has a templum in antis plan type. Third:

it is a structure in which the prostylos plan type was applied. No columns were detected in the area. However, a stylobate block corresponding to the bottom of the column was detected. Thus, the presence of the stylobate block rules out the first of the three suggestions presented above. There remain templum in antis and prostylos plan types. It can be suggested that a solution to this problem can be found to a large extent by carrying out excavation works.

The plan of the building, which was converted from a temple to a church in the Byzantine period, can be seen to a large extent. However, the rubble heap and destruction at the back of the church cause some difficulties. The building consists of a narthex and three naves. In the literature research, it has been suggested that the back side of the middle nave is a semicircular apse and the side naves are rectangular (Ruggieri, 1989, pl. 6). However, the destruction of the back side of the building did not make it possible to obtain data on this area.

Apart from the orthostats, many blocks with different functions that should not have been used in the original wall were found on the church walls. Among the blocks in question, there are triglyph-metopes belonging to the frieze of a Doric structure, architraves, cornices and some profiled blocks belonging to tombs. Owing to the use of spolia blocks in the building, the wall thicknesses show differences and the wall thickness can vary between 70-78 cm. The best preserved wall of the building is the wall separating the narthex and the naves, and its height is 3.03 m. Although there is evidence of clamps, dowel and croebar holes in the building, we have observed that they were not used intensively.

Two inscriptions were found on the northern jamb blocks of the north nave door. The first inscription points to Apollo (ΑΓΟΛΛΩΝΟΣΙΙΕ, Dürrbach & Radet, 1886, p. 258; Ruggieri, 1989, fn. 12; Bresson, 1991, p. 149, no. 151), and the second inscription to Eleithya (Ελειθύας, Bresson, 1991, p. 149-150, no. 152).

In the light of the current data, we believe that the building has two phases. In its first phase, it was a temple where there may have been worship of Apollo or Eleithya or both. Based on the above mentioned Apollo inscription (Bresson, 1991, p. 149, no. 151), it is possible to date the temple between 250-100 BCE. It is possible that this dating will be placed within a narrower time period with detailed studies to be carried out in the area.

Then, the building was converted into a church in its second phase. No data to provide definitive evidence regarding the date of the church could be found in the area. The building is usually dated to the end of the 5th century / the beginning of the 6th century CE (Ruggieri, 1989, p. 358).

THE CERAMIC STUDIES: CHRONOLOGICAL OVERVIEW

Ceramic finds picked up during the survey were subjected to a first assessment, and we were lucky to see the densities, chronological continuity, presence, or the absence of some popular imported potteries. Among these finds, the earliest datable sherd, which might belong to a *kotyle*, can be dated to the first quarter of the 6th century BCE which alters what we hitherto knew of the chronology of Phoenix. As a result, a *terminus post quem* for settlement activities at Phoenix can now be placed in the Archaic period.

The canonical Rhodian and so-called Rhodian local amphoras, and especially the mushroom type and Cnidian amphoras, were also popular at Phoenix during the Hellenistic period. On the other hand, the absence of the early Roman imperial period pottery gives a hint about a *hiatus* which shows similarities with the other settlements on the Bozburun Peninsula (Held, 2005, p. 85-100; Gürbüz, 2021, p. 219- 249; Yaman, 2022, p. 113-128). However, the existence of some red slip wares such as LRC Hayes Form 3, LRD Hayes Form 9 and globular amphora sherds show us the continuity of the settlement in late antiquity. However, we should note that the latest datable sherds belong to the 7th century CE in Phoenix and there might be another gap on material culture until the 11th century (Figure: 5).

The glazed sherds from the Acropolis clearly show the mid and late byzantine activities on Hisar Tepe. We will expand the ceramological researches next year and plan to make archaeometric analysis on the local produced sherds to enlighten our knowledge about pottery production and their distributions in the region.

MAPPING AND DOCUMENTING

An area covering 90 hectares was mapped and documented for the Phoenix Archaeological Project. UAV Photogrammetry was used for the best description of the topography. Numerous Ground Control Points (GCPs) have been installed in the documentation area and these GCPs will be used to georeference aerial photographs and are temporary tarpaulin which does not damage the site. GCPs were measured with Spectra SP60 model GNSS receivers, at 15 epochs, 2 times with 1 hour intervals, using the RTK (Real Time Kinematics) technique with sub-cm sensitivity. The RTK technique works with at least two receivers. With the use of one as a base station and the other as a rover, it provides sub-cm accuracy with instantaneous corrections from the Base (Figure: 6).

Two flights were made with the DJI Phantom 4 Pro model drone. General flight was made at 3.9 px/cm GSD (Ground Sampling Distance) resolution. The Ground Sampling Distance (GSD) is the distance between two consecutive pixel centers measured on the ground. High resolution flight is flown closer and has a resolution of 1 cm/px. Data such as Orthophoto, 3D Model, DEM data and Dense Point Cloud were produced from the flights. The aerial photographs were taken as an overlay in proportions and a Stereo Model

was created. A 1/1000 topographic map was produced from stereo models by using 3D Glasses with precision method. Coordinated data from all disciplines (geophysics, architecture etc.) can be processed on the topographical map produced (Figure: 7).

However, since we have large data from different disciplines and data will be entered regularly every year, the data must be recorded and stored in a certain systematic way. We created the GRID system to provide this systematic and we added this system to the GIS database. This GRID system covers the entire documentation area of 25mx25m intervals. Each cell is uniquely named in a particular order. The created GRID system can be used with GNSS receivers as basemap data. Thus, we can instantly know which cell we are in and record the data with its coordinates and original name. This GRID system will provide us great convenience in archiving stratified data in the coming years.

An inventory of the funerary structures visible on the surface was undertaken. These are spread over a large area ranging from the eastern and southern slopes of Burgaz Tepe (Figure. 8) to those of Tülü Tepe further south. The northern limit is the lower slope above the temple-church, the southern limit is the southern hillside of Tülü Tepe. The sloppy nature of the terrain led to the development of numerous terraces whose retaining walls are mostly well preserved. The aim of our study was to document these funerary terraces whose construction techniques range from rough dry stone walls to neat ashlar stone masonry. We identified a total of 58 of these terraces which were numbered and arranged (north to south) following the ancient path leading from the temple-church towards the acropolis.

Funerary terraces fall into two groups: those on which the presence of tomb markers can be seen, and neatly built terraces without a marker whose construction techniques are similar to the first group. Other more modest terraces were probably used for burial purposes, but apart from the fact that these simple terraces are intertwined with their funerary counterparts, there is no other evidence on the surface indicating a burial function. We cannot give a definite answer without excavation. Likewise, it is not possible to propose reliable dating without obtaining archaeological material. However, we were able to make some chronological evaluations with the building stones and masonry techniques and shapes used in the terraces. Mentioned above, the earliest datable sherd found so far at Phoenix, which might belong to a *kotyle*, and dated to the first quarter of the 6th century BCE, was found on the ancient path going through the Burgaz necropolis. It is likely that this archaic sherd came from one of the tombs overlooking the path. Funerary markers are usually stepped marble blocks which are either rectangular or pyramidal in shape and are culturally distinctive of this area. Most of these tombstones have fallen down the slopes, but some examples are still in their original position, still standing on their purposefully built terraces (Figure. 9). A few more complex funerary structures round in shape were identified and will be the subject of a more detailed study during the next campaign.

Integrated Geophysical Investigations

Geophysical studies have been carried out around the Apollo sanctuary of Phoenix. Integrated geophysical surveys of 2021 were conducted by Geoim Ltd between 20-25 October 2021 on the parcels around the Apollo sanctuary located approximately 1.75 km southwest of Taşlıca village. In these studies, in order to document the subsurface distributions of buried archaeological features, various techniques such as magnetic gradiometer, electrical resistivity tomography (ERT), induced polarization tomography (IPT), georadar (GPR) and seismic tomography (SRT and MASWT) were used (Drahor, 2006; Drahor *et al.*, 2007; Drahor, 2011; Drahor *et al.*, 2015); Drahor 2019; El-Qady *et al.*, 2019). Thus, by making use of the different physical properties of the subsurface, the images of the subsurface structures around the Apollo sanctuary were obtained. Archaeological prospecting is a general name given to non-destructive methods used in archaeological sites. This branch of science has shown an interdisciplinary development in the world and after a certain time, all the researches made for the purpose of prospecting in archaeological areas have started to be defined under this general term. Although geophysical methods are widely used in this research area; investigations are also carried out in prospecting branches such as remote sensing, geochemistry, Geographic Information Systems (GIS), positioning (GPS), thermal sensing. Today, archaeological research needs such techniques, and thus, while the rate of usage of archaeological prospecting rapidly increases, significant developments occur in methods on the other hand. The most widely used method in archaeological prospection is the geophysics. The main reason for this; in addition to the success and speed of geophysical methods used in archaeology in identifying buried archaeological objects, it is the investigate of the relevant area without creating any disruptive effects. It is very difficult to come up with a good excavation strategy before excavating an archaeological site, as archaeological sites are often covered with a thick layer of soil. However, archaeological structures buried under the ground by using geophysical methods become visible by making use of their different physical properties. Thus, with short-term geophysical surveys conducted on large areas, many features such as the extent, distribution, depth, quality and shape of buried archaeological structures can be revealed. After such a study, archaeologists working in the field can create an effective excavation strategy and have important findings in a short time.

DATA ACQUISITION

Before starting the geophysical investigations, grid points were created by using a Trimble R4 GNSS system GPS device in order to conduct integrated geophysical surveys in the areas determined within the scope of the archaeological surveys of the ancient city of Phoenix. Geomagnetic surveys were carried out on a total of 7 grids, each measuring 20 x 20 m. The data were collected using a Geoscan FM256 type gradiometer with line spacing of 1 m and sampling interval of 0.5 m on the specified grids. Georadar surveys were carried out on 3 grids of 20 x 20 m and 2 grids of 10 x 20 m, using a

GSSI SIR 3000 device and a 270 MHz antenna. In this study, data were obtained with line spacing of 1 m and sampling interval of 0.02 m. ERT surveys were achieved by measurements made on 12 lines in the NW- SE direction within an area of 22 x 29 m near the Apollon Sanctuary. In this study, ERT data were collected using an AGIUSA multi-channel resistivity/IP device. During the study, the line spacing was determined as 2 m and the sampling interval as 1 m. In addition, an ERT and IPT study was conducted to determine the groundwater-related environments in the region, which is located in the Sindili region SW of the ancient city of Phoenix, on a line with 295 m. In this study, ERT and IPT data were collected with measuring intervals of 5 m on the line. The seismic study was carried out using a Geometrics Geode seismograph on a W-E oriented line near the Apollon Sanctuary. In this study, SRT and MASWT data were collected with a line length of 25.5 m and a distance of 1.5 between geophones. The SRT study was accomplished via 40 Hz and the MASWT study via 4.5 Hz geophones (Figure. 10 -14).

PUBLIC ARCHAEOLOGY AT PHOENIX: CULTURAL AND ECOLOGICAL HERITAGE PROGRAM

Besides the scientific studies, we also carried out a cultural and ecological heritage education program for children who live in the region³. The main objectives of the program were helping children to recognize, understand and protect the cultural and ecological heritage of the land they live in and transfer the heritage they have to future generations. Raising individuals who are sensitive to archaeology and related issues, who have gained awareness as well as tolerance towards different cultures and their own, who are conscious and responsible, are among the expectations of the project.

For this purpose, we collaborated with the local bureau of the Ministry of education, the Mediterranean conservation society, and the creative drama organisation named Müzede Drama. During the field season, we educated more than a hundred children in Söğüt Elementary school for three weeks. We plan to continue this program for the next five years systematically⁴.

FILLING THE GAP: ORAL HISTORY INTERVIEWS

In 2021, we also conducted the oral history interviews with the elderly people of modern Taşlıca village and recorded oral histories. The local stories, photographs, letters and other artifacts can be a very effective way of capturing information that is difficult to obtain by any other means. Oral accounts can serve to complement other kinds of information significantly.

3 The Cultural and Ecological Heritage Program is ongoing under the Public Archaeology Program which is directed by Işıl GÜRSU MASSA.

4 We are grateful to the officers of the local bureau of the Ministry of Education, Marmaris District Governorate, to the members of the Mediterranean Conservation Society and the creative drama leader Ms. Gül BULUT. This program was made possible thanks to their support and endless efforts.

We gathered very useful information about the local culture, food, and local stories from the late Ottoman and early Turkish republican periods. We will expand the oral history interviews to document the other intangible heritage elements in Söğüt village in the following years.

RURAL ARCHITECTURE DOCUMENTATION AND PRESERVATION PROGRAM

We started to document the traditional residential architecture, windmills, cistern structures, agricultural terraces and religious sites of Taşlıca (Fenaket), Söğüt, and Aziziye (Karamaka) villages located in the southwestern part of the Bozburun Peninsula which falls within the scope of the project. The program aims to record the tangible and intangible cultural values of the region, to increase awareness of the traditional architectural texture, and to keep our common heritage alive. Rural areas subject to the project are located on the borders of the Marmaris District Bozburun Peninsula, where domestic and foreign tourism is intense. Therefore, these areas are open to destruction due to population growth and irregular construction. In Taşlıca and Söğüt villages, where human and natural destruction continues today, no study on traditional architecture has been conducted before. In order to protect the local texture, which is losing its unique identity day by day, holistic and sustainable conservation strategies will be determined by using basic working methods in the field of architecture. During the fieldwork season, the main body of our work was to document the traditional architectural elements in Taşlıca (Fenaket), Söğüt and Aziziye (Karamaka) villages, to make detailed descriptions and take detailed photographs. Methods such as digitizing the data obtained from field studies through programs such as Autocad and making an inventory by processing it into a digital database is also applied. This program is carrying out and managing the process with a scientific team consisting of different disciplines in order to keep historical and local values alive and to make them sustainable. We plan to extend the documentation process to the Phoinikidou (Fenaket) Greek village in 2022.

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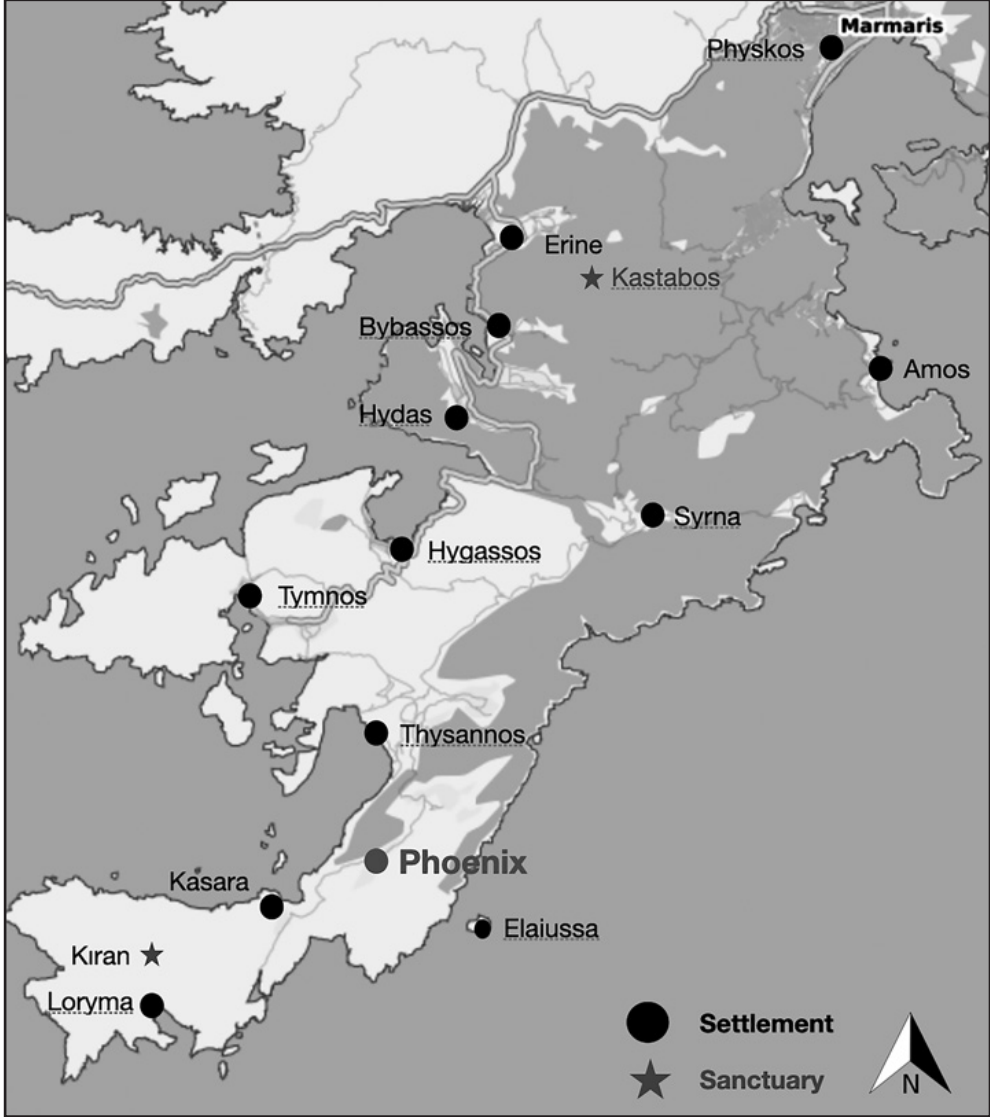
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Map 1: Map of the Carian Chersonese (PAP archive).



Figure 1: Aerial view of Hisar Tepe (PAP archive).



Figure 2: Bedrock inscription listing donors towards the construction of a temple of Dionysos (PAP archive).



Figure 3: The temple-church, the western side (PAP archive).

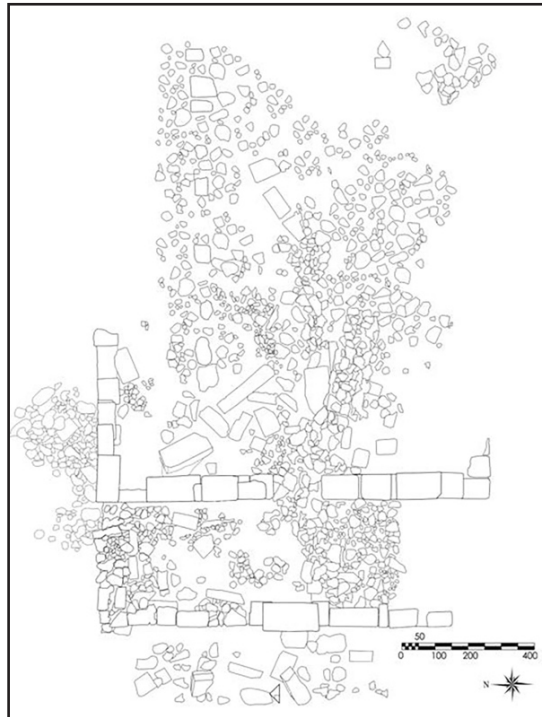


Figure 4: Ground plan of the temple-church (PAP archive).

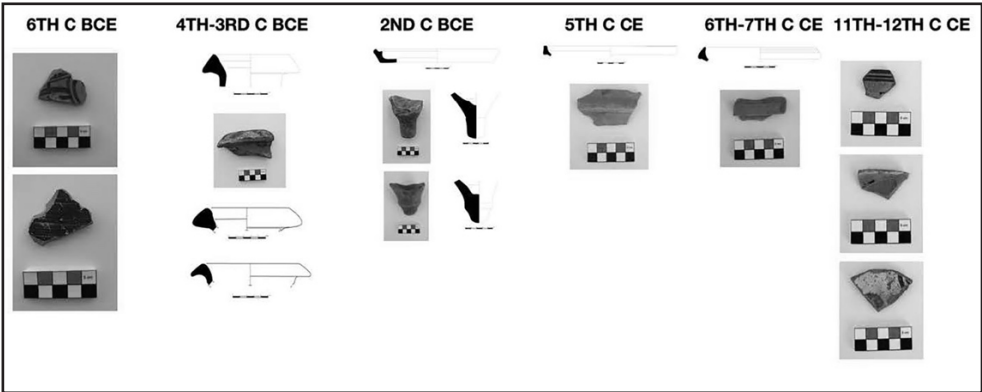


Figure 5: Chronological overview of the ceramics (PAP archive).

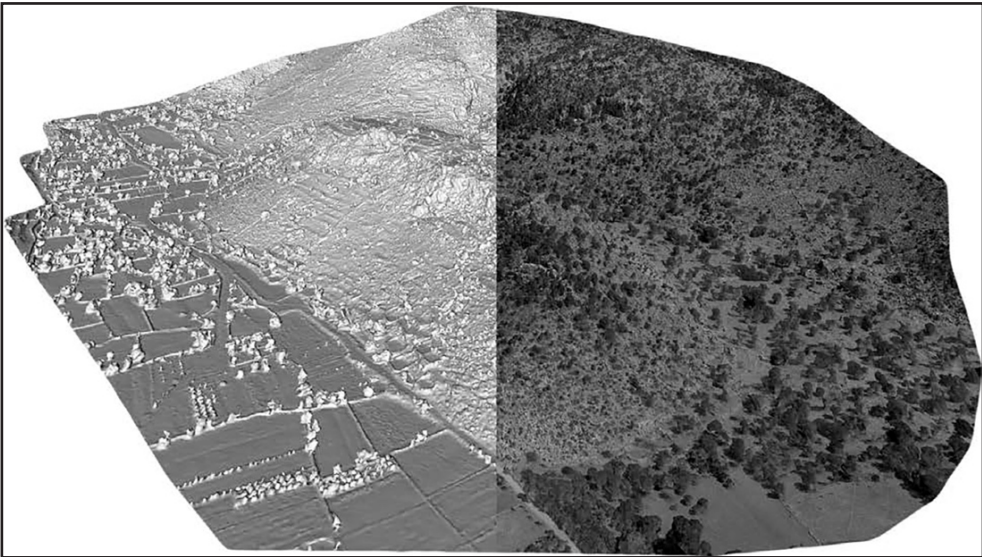


Figure 6: Image from the 3D model: solid-textured (PAP archive).

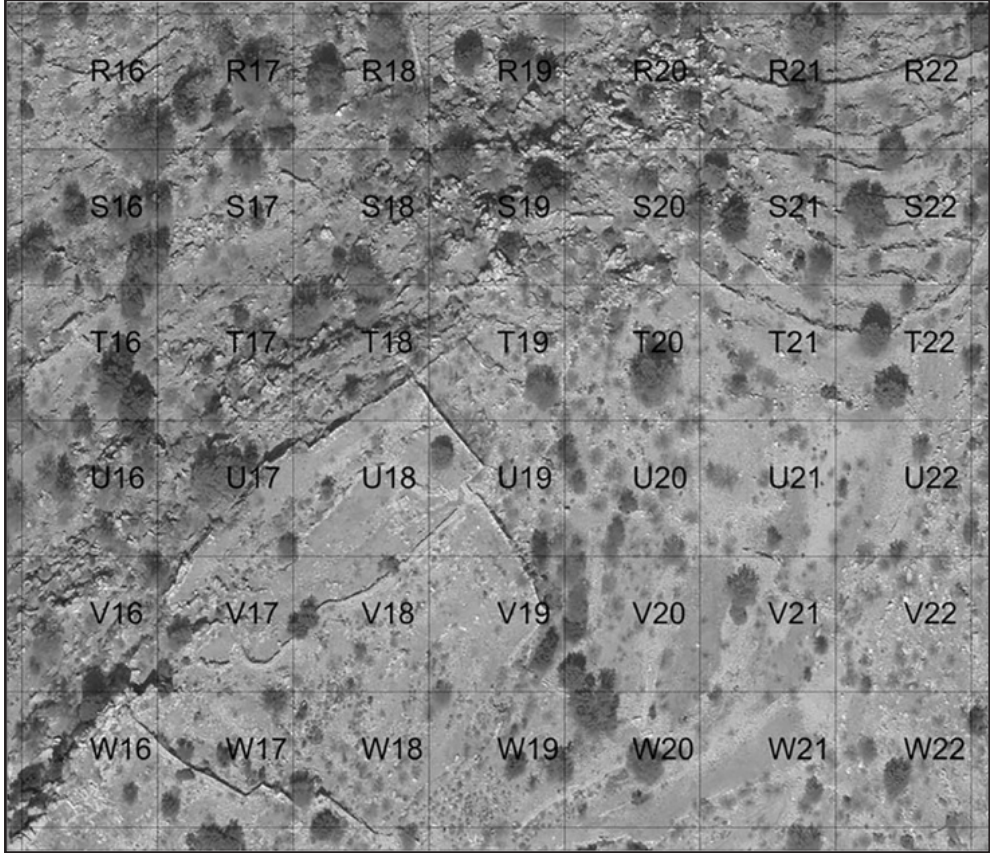


Figure 7: A section from the GRID System (PAP archive).



Figure 8: Funerary terraces on the lower hillside of Burgaz Tepe (PAP archive).



Figure 9: Terrace (MT 8) with stepped rectangular funerary marker in situ (PAP archive).



Figure 10: Comparison of the results of the integrated geophysical studies carried out in the north of the sanctuary. (a) Magnetic gradiometer (b) ERT depth slice (0-0.375 m), (c) georadar depth slice (0-0.5 m), (d) georadar depth slice (0.5-1.5 m) (PAP archive).

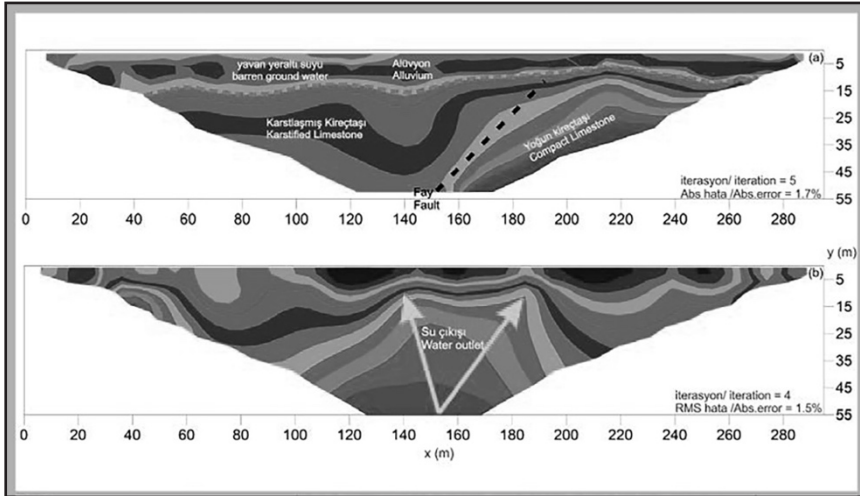


Figure 11: Two-dimensional models and interpretation of the hydrogeological ERT and IPT study in Sindili region (PAP archive).

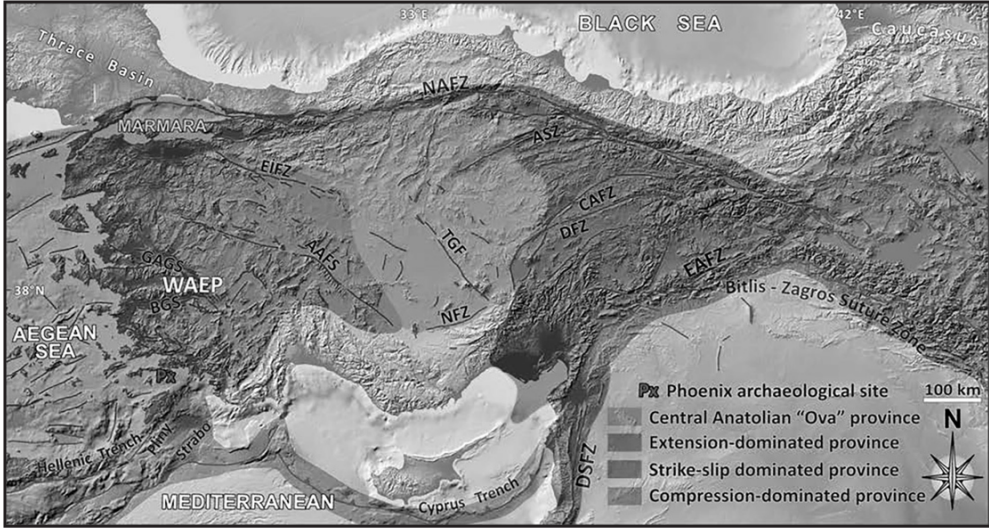


Figure 12: Geological map (PAP archive).

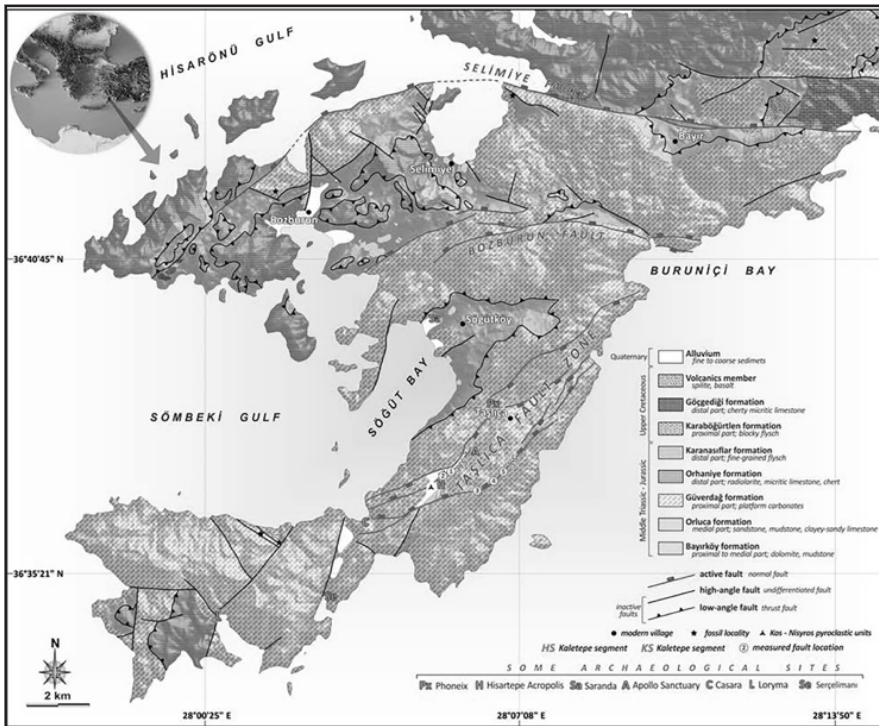


Figure 13: Geological map of the Bozburun Peninsula (PAP archive).



Figure 14: Geological features of the site (PAP archive).



Kültür Varlıkları ve Müzeler Genel Müdürlüğü