

The Harbour at Aphendrika During The Early Byzantine Period and the Maritime Activity on the North-Eastern Coast of Cyprus

Marko KIESSEL-Ahmet M. SAYMANLIER-Meray TALUĞ*

Öz

Erken Bizans Dönemi'nde Aphendrika Limanı ve Kıbrıs'ın Kuzey-Doğu Kıyısındaki Denizcilik Faaliyeti

Bu makale, Erken Bizans Dönemi'nde Kıbrıs'ın kuzey-doğu kıyılarında yerlerince araştırılmamış kırsal deniz alanlarına yeni bakış açıları sunmaktadır. Aynı şekilde, Aphendrika'daki az araştırılmış kıyı alanına ve muhtemelen antik Hellenistik Urania ile özdeşleştirilebilecek olan Karpaz yarımadasının doğu kesimindeki doğal liman koyuna odaklanmaktadır. Kayaya oyularak inşa edilmiş az sayıda liman tesisleri ve kırsal ekonominin kalıntıları olarak kabul edilebilen zeytinyağı üretimiyle bağlantılı ağırlık taşları ve pres yatakları, invaziv olmayan yöntemlerle yer ve havadan araştırılmış ve belgelenmiştir. Bu esnada, liman körfezinden, sığ sulardan ve körfezin yakın çevresinden toplanan önemli miktardaki yüzey parçası, belgelenmiş ve tipolojik olarak sınıflandırılmış, arkeolojik depoya kaldırılarak daha fazla tahribattan ve yok olmaktan kurtarılmıştır. Aphendrika'daki tarihi alanla ilgili daha önce yapılan birkaç sınırlı çalışmaya, limanları veya demirleme yerleri olan diğer antik Kıbrıs yerleşimlerinin analizine ve kendi saha analizlerimize

* Marko KIESSEL, *Prof. Dr.*, Department of Archaeology, Arkin University of Creative Arts and Design, Kyrenia, North Cyprus, Mersin-10, Turkey. E-posta: marko.kiessel@arucad.edu.tr. ORCID No: 0000-0002-3944-5467.

Ahmet M. SAYMANLIER, *Dr. (M. arch)*, Department of Interior Architecture, Cyprus International University, Lefkoşa, North Cyprus, Mersin-10, Turkey. E-posta: ahmets@ciu.edu.tr. ORCID No: 0000-0001-9496-211X.

Meray TALUĞ, *(M. arch)*, Department of Architecture, Cyprus International University, Lefkoşa, North Cyprus, Mersin-10, Turkey. E-posta: mtalug@ciu.edu.tr. ORCID No: 0000-0001-7951-8387.

dayanan makalede; limanın ve büyük ölçüde bilinmeyen yerleşiminin, kıyıyı yerel hinterlandına bağlayan ve özellikle kıyı deniz trafiğini çeken bir geçit emporionu olarak hizmet ettiği savunulmaktadır. Amfora spektrumu ağırlıklı olarak Doğu Akdeniz olan alanda, Geç Roma Amforası 1 hâkim olarak yer almaktadır. Ayrıca, kaldıraç ve vidalı preslerin izlerine sıklıkla rastlanması, limandan ihraç edilen üretim fazlasının bir kanıtı olarak yorumlanmıştır. Bu dönemde, kırsal ekonominin muhtemelen yerel seçkinler tarafından kontrol edildiği düşünülmektedir. Kıbrıs'ın güney kıyısındaki Erken Bizans yerleşimleri için de benzer şekilde onaylanan bu seçkinler, 6. yüzyıldan kalma iki kilise ve zengin bir kırsal mülkten kaynaklanabilecek tek bir mermer pilaster başlığı aracılığıyla somutlaşmaktadır. Son olarak, Apendrika'dan elde edilen sonuçlar, Kıbrıs'ın kuzey-doğu kıyısında, Girne ve Andreas Burnu arasında, daha önce bilinen ve potansiyel olarak yeni antik liman veya demirleme yerlerine ilişkin bir harita, literatür ve fiziksel araştırmadan elde edilen verilere dahil edilmiştir. Potansiyel olarak yeni alanların belirlenmesi, adanın kuzey kıyısındaki denizcilik faaliyetinin, önceki araştırmalarda açıklanandan daha yoğun olduğu sonucuna yol açan, özel olarak geliştirilmiş gösterge niteliğindeki kriterlere dayanmaktadır.

Anahtar Kelimeler: Kıbrıs, Geç Roma, Erken Bizans, arkeoloji, kıyı yerleşimi, liman, demirleme, deniz geçidi, amfora

Abstract

This paper offers new insights into the under-researched rural maritime sites of Cyprus's north-eastern coast of the Early Byzantine period. It focuses on the likewise under-researched coastal site at Apendrika and its natural harbour bay in the eastern part of the Karpas peninsula, which can probably be identified with the ancient Hellenistic Urania. Its few built and rock-cut harbour facilities and the remains of the rural economy, such as weightstones and press-beds linked to olive oil production, were investigated and documented by non-invasive methods, by a ground- and aerial survey. A considerable amount of surface sherds from the harbour bay, its shallow water and the bay's close surroundings were rescued from further destruction and disappearance, transferred to the archaeological depot, documented and typologically classified. Based on a few limited earlier studies about the historic site at Apendrika, on the analysis of other ancient Cypriot sites with harbours or anchorages and on our own site analyses the paper argues that the harbour and its largely unknown settlement served as a gateway emporion which connected the coast with its local hinterland and attracted especially coastal maritime traffic. The amphora spectrum is predominantly Eastern Mediterranean, among which the Late Roman Amphora 1 dominates. Abundant traces of lever-and-screw presses attest to a surplus production which certainly was exported through the harbour. The rural economy was probably controlled by a local elite. This elite who has similarly been attested for Early Byzantine sites at the south coast of Cyprus materializes through two 6th-century churches and a single marble pilaster capital which might derive from a wealthy rural estate. Finally, the results from Apendrika were embedded into data gained from a map-, literature- and physical survey concerning previously known and potentially new ancient harbour or anchorage sites on the north-

h-eastern coast of Cyprus, between Kyrenia and Cape Andreas. The identification of potentially new sites is based on specifically developed indicative criteria, leading to the conclusion that the maritime activity on the island's north coast was more intensive than described in previous scholarship.

Keywords: Cyprus, Late Roman, Early Byzantine, archaeology, coastal settlement, harbour, anchorage, maritime gateway, amphora

Introduction

This paper presents results of a non-invasive ground and aerial research project about the archaeological area of Aphendrika in the alluvial plain on the north-eastern coast of the Karpas peninsula, a few kilometers east of ancient *Carpasia*. It aims to provide new insights into the generally under-researched area of Aphendrika, and specifically its harbour bay, by discussing the findings and finds with regards to the early Byzantine period and in the context of known and previously unknown potential harbour- and anchorage sites of the north-eastern coast, while linking the known and potential new harbour- and anchorage sites to a set of indicative criteria, especially to traces of olive oil production (figs. 1-2). The main work on site was conducted from 2016-2019 by permission of local authorities. Since then, the project focuses on the analysis of unmovable and movable findings/finds¹. A comprehensive monographic publication about the harbour, including all, also the pre-Byzantine finds, is planned for the future.

Aphendrika and its immediate surroundings were investigated by relatively few studies and surveys². The identification of the site with the Hellenistic *Urania*, mentioned by Diodoros Siculus and Nonnos, goes back to D. G. Hogarth³. The only proper excavation in the area was conducted by E. Dray and J. du Plat Taylor who focused on several coastal and mainly Classical-Hellenistic chamber tombs south of the western plateau next to the natural bay that features the harbour remains (fig. 2, N)⁴. The location of *Urania* is assumed close to that harbour, for example by E. Öztepe, although no hard evidence exists so far⁵. About 700 m off the coast three dilapidated Early- to Middle-Byzantine churches (fig. 2) sit at the foot of a ridge, which features the few rock-cut remains of an “acropolis”⁶. The Panagia Chrysiotissa and Aso-

1 M. Kiessel thanks to co-authors A. M. Saymanlier and M. Taluğ for their considerable contribution to the project (site documentation, research, image editing, drawings of ceramic sherds), and to the Department of Antiquities of the Turkish Republic of Northern Cyprus (Eski Eserler ve Müzeler Dairesi) for all its support, especially to Ms. Elif Karaça, Ms. Nihal Özkayalar, Mr. Bilal Kızılkaya and Ms. Simten Güleç Kışmır.

2 Hogarth 1889, 85-88; Durugönül 2002; Bekker-Nielsen 2004, 167-168; Öztepe 2007, 149 (with further literature).

3 1889, 85–86; Hill 1940, 166 n. 2 (on Aphendrika and Diodorus Siculus). See also Mitford 1980, fig. 1 (Urania); Leonard 2005, 27, 94, 113-114; Princeton Encyclopedia of Classical Sites (Ourania) <<http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.04.0006%3Aalphabetic+letter%3DO%3Aentry+group%3D3%3Aentry%3Dourania>> (25.10.2023).

4 Dray – du Plat Taylor 1951, 57-123.

5 Öztepe 2007, 149.

6 Hogarth 1889, 86-87, mentions to have seen a tomb with an Archaic Cypriot inscription close to the few rock-cut remains of the so called “acropolis”, and proposes an Archaic date for the beginnings of the

matos churches have been fairly studied. They go back to the 6th century and were rebuilt with barrel vaults probably in the early 8th century, not long after the Arab raids of the mid-7th century⁷. Another localisation of *Urania*, about one and a half kilometers to the east, close to Exarkhos Bay, is suggested by the mapping of A. Ulbrich, in an area where the remains of Archaic to Hellenistic tombs occur. Exarkhos Bay is mentioned by G. Hill, who suggests the existence of an ancient harbour, probably meaning an anchorage as traces of built harbour structures do not exist⁸.

It has been pointed out that the current field boundaries in the whole area, the abandoned rural buildings of the 19th-20th centuries and the to-be-discussed built remains close to the harbour bay are oriented parallel or perpendicular to the slight south-west/north-east course of the coastline and of the southern ridge of the alluvial plane. And as a nearly linear course of a Roman road was suggested by T. Bekker-Nielsen just at the bottom of that ridge passing through the ecclesiastical remains at Aphendrika, the field boundaries and built structures would also be oriented parallel or perpendicular to the Roman road, a fact that made M. Kiessel propose that the current parcellation reflects an ancient system of cadastres (figs. 2-4)⁹.

The harbour site of Aphendrika in the plot *Limionas* is geomorphologically attractive¹⁰. It is a natural bay of about 170 m width, protected by a protruding rock formation on both sides of the approximately 60 m wide opening of the bay, featuring a thin sweet water spring on the southern shore, and being easily accessible from the land (figs. 2-3). Most Byzantine harbours share these features¹¹. Whereas its western neighbour, the harbour of *Carpasia* is mentioned in ancient sources as *limen*, for example in the *Stadiasmos* of the 3rd-4th centuries, the ancient authors remain silent about *Urania's* harbour¹². Previous scholarship mentions and maps this site but its visible and less visible remains were neither discussed in detail nor published¹³. The closer sur-

“acropolis”-citadel and settlement. We could not relocate/confirm the existence of this tomb and cannot, for the time being, comment on the supposed Archaic date of the “citadel”. See also Balandier 2002, 205, who proposes an early Byzantine fort of the 7th century, and Stewart 2010, 164, fig. 4, who suggests the possibility of a Pagan temple on the “acropolis”.

7 Stewart 2010, 164-165, 172 (on the first phases of the 6th century with reference to older scholarship), 180-182 (on the rebuilding in the early 8th century with critical discussion of older scholarship). See also Papageorgiou 1993, 40, 42, fig. 9 (first phases in the 6th century); Papacostas 1999, II, 10 (rebuilding in the 9th-10th centuries); Maguire 2012, III, 13-15 (6th century date of the first phases suggested by marble fittings), 119-129 (detailed images); Zavagno 2017, 121 (rebuilding in the early 8th century); Kaffenberger 2020, II, 28 (first phase of the Panagia in the 6th century; no preference for either of the previously suggested dates for the rebuilding, 8th or 9th-10th centuries).

8 Ulbrich 2008, 442 pl. 59, also mentioning generally that Ourania had been settled since the early Iron Age while referring to encyclopedic sources; Kiessel 2017 (Archaic to Hellenistic tombs); Hill 1940, 12 (Exarkhos bay).

9 Kiessel et al. 2019, 372; Bekker-Nielsen 2004, 167-168.

10 Cadastral map Rizokarpaso village – Ayia Triadha, sheet I.38.E.1.

11 Veikou 2015, 41-42; Kalmring – Werther 2017, 1-2.

12 Leonard 2005, 111, 113.

13 Hogarth 1889, 86, 88, mentioning a “quay” and four bollards; Dray – du Plat Taylor 1951, 57, fig. 20, with an early mapping; Nikolaou 1966, 99, mentioning the “quay” and bollards; Papageorgiou 1993, 40, 42, mapping its location too far to the east and mentioning “ruins of some public buildings by the shore”;

roundings feature remains of tombs, a shipyard (?), a “quay”, a fortified wall, and underground remains, which were discovered in aerial surveys¹⁴. For the documentation of the remains, aerial photography, and manual and GPRS measuring were employed. For figures 3, 6, 21 and 26 several vertically shot aerial images were merged¹⁵. The collection of surface sherds in the closer surroundings of the documented structures (figs. 3-4) and from the shallow areas of the bay targeted all rims, bottoms, handles and larger body-sherds of fine and coarse wares¹⁶.

In order to integrate this coastal site into the wider context of coastal activity (in late antiquity) on the northern coast, M. Kiessel conducted site visits between Kyrenia and Cape Andreas based on previous scholarship and mapping, which are, however, not necessarily related to maritime aspects – considering specific diagnostic features for the suggestion of possible harbours/anchorages (figs. 1, 5). Published archaeological studies/surveys on coastal rural settlements, their harbours, anchorages and hinterland on the north coast of Cyprus are scarce¹⁷. This situation is also a consequence of the political status of Northern Cyprus since the division of the island in 1974. S. Hadjisavvas conducted a limited but thorough survey of a part of the northern coast, in the areas of Akanthou and Dhavlos. So far, the most comprehensive survey on ancient harbours/anchorages of the north coast has been provided by J. R. Leonard¹⁸.

Built evidence in the vicinity of the harbour bay prior to the Early Byzantine period

The rock-cut and mainly Classical and Hellenistic dromos chamber tombs on the rocky plateau west of the harbour bay are oriented toward the sea and the bay (figs. 2-3)¹⁹. Tomb monuments or markers did not survive. The

Leonard 1995, 238-240, fig. 11, mapping its location and defining it as “harbour” compared to “port” and “anchorage”. On ancient sources: Leonard 2005, 27, 113-114.

14 Aerial and underwater investigation have also revealed a stretch of rubble stones that runs for about 20-30 m on the edge of a shallow underwater cliff. This sole underwater structure shall be discussed at another occasion.

15 As the tidal range in Cyprus is only 30 cm (Galili et al. 2016, 186) the manually measured values ASL around the harbour bay are based on a reference value (measured on 16.08.2017) which marks the level difference between water surface and a floor of the “quay”. The values’ relative accuracy was confirmed by the GPRS documentation of the harbour structures (see fig. 4). Its absolute results were 40-60 cm higher. The discrepancy, however, is irrelevant for this study.

16 A collection of underwater sherds was initially not planned but eventually loose sherds were rescued because of diving activities of third parties in the harbour bay, obvious moving of sherds by those third parties and the possibility that sherds had been removed or were about to be removed.

17 See a mapping of the few conducted surveys in Papacostas 1999, III, fig. 254; Papacostas 2001, 110, fig. 6.1. Without focus on harbours/anchorages: Catling – Dikigoropoulos 1970; Catling 1972; Symeonoglou 1972; Hadjisavvas 1992.

18 Hadjisavvas 1991; Leonard 1995. Leonard 2005 provides a comprehensive catalogue of sites on the south coast of Cyprus. The reader is asked to contact the author for catalogue information on sites in Northern Cyprus (2005, 634). Our trial to get in contact with Leonard by email in October 2017 was unsuccessful. For *Soloi*, *Lapethos*, Kyrenia, *Carpasia* see Marangou 2002, 266-286.

19 Dray – du Plat Taylor 1951, 57-123, mention the then already looted tombs on the plateau. They belong

orientation of tomb monuments toward a harbour or the sea was common in the Classical and Hellenistic periods: It was part of the individual or collective self-representation that indicates the value of harbours as social spaces²⁰. Although practical considerations like the availability of rock next to the sea might have been important for the choice of location at Aphendrika, it demonstrates that self-representation and the harbour as social space played a role also in small sized Classical-Hellenistic settlements²¹. Although Aphendrika belonged to another category of settlements, the lack of Hellenistic stone-built facilities reminds nevertheless of Milet's Lion Harbour during Hellenistic times, which featured a non-paved surface and a natural waterline without quay sides²².

A “quay” and underground remains

The structure 2 at the slight slope of the southeast shore of the bay (figs. 3-4, 6-8) was mentioned by D. G. Hogarth and K. Nikolaou as quay. Noticing its distance to the sea Hogarth suggested a coastal uplift²³. It is oriented on a southwest-northeast axis. Its western side is badly preserved but its length can be traced **18.8 m along its southern (rear) side**, which is set against the sandy slope. Its rubble core is still framed on the north-, east- and south sides by 0,45–0,50 m thick walls. Its overall depth amounts to approx. 5 m, its preserved maximal height to 1,62 m. The framing walls in a pseudo-double-shell technique consist mainly of segments of irregularly shaped, roughly hewn stones (for straight outer surfaces), alternating with larger hewn stones (very rarely well-hewn re-used ashlars) which cover the whole width of the wall²⁴. The building featured two different levels. As part of the original lower floor level flooring slabs were observed *in situ* at 3,36 m ASL close to the front (figs. 6-8). This floor probably covered completely a wall-framed rectangle of approx. 4,55 m x 3,55 m and was apparently open to the north. The eroded surrounding (floor) level was possibly 60 cm higher, as it can be concluded from the remains at the rear wall. The almost complete absence of roof tiles is an argument for an unroofed building unless tiles were reused elsewhere.

to the same type like those further south-west which Dray – du Plat Taylor excavated. Among the latter the earliest tomb (nr. 42) may derive from the very late 6th century BC, according to Carstens 2006, 150, 178, see also Dray – du Plat Taylor 1951, 70. Possibly also the architecture of tomb 38 with its shaft dromos and rounded chamber (Dray – du Plat Taylor 1951, 68, fig. 26) is of an early date because this morphology is usual until late Cypriot Archaic II, according to Dray and du Plat Taylor (1951, 28 (group I)), and Carstens (2006, 127-128, n. 15, 147), however, neither Dray and du Plat Taylor (1951, 68) nor Carstens have considered this possibility.

20 Pirson 2014b, 637–641.

21 A few ashlar on the shore on the eastern side of the bay, northeast of the “quay” (fig. 4, nr. 4; Kiessel et al. 2019, 376-377, fig. 10), belonged to a corner structure. Parts of it might still be covered by the sandy slope on the bay's southeastern flank. Although being certainly ancient a more precise date cannot be suggested.

22 Pirson 2014b, 629.

23 Hogarth 1889, 88; Nikolaou 1966, 99.

24 Similar Early Byzantine technique, for example: Manning et al. 2002, 37, fig. 4.1. Similar vernacular technique: Ionas 2003, 145-146.

Roman hydraulic concrete is absent²⁵. Also, gypsum mortar has not been noticed, as it is recorded for example in the Late Roman church at Maroni-Pettrera. Instead, an earthy–sandy material (occasionally including sherds) was observed in between the rubble, which reminds of the earth–filling of *Carpasia*'s late–antique town wall²⁶. Traces of a permanent effect of seawater on the facade do not exist. And as the sea level on the north coast of Cyprus was very stable in the last 2000 years²⁷, building 2 cannot have been a quay in the proper sense at which ships were accommodated²⁸ because it stands on a ground at 2,34 m ASL. Nevertheless, it may be compared with structures in the southern and western harbours of Kapticikada where several walls ran parallel to the shore: Single-shell walls with a seaside facade and filled with rubble towards land are interpreted as stabilizing structure of quays. The building technique at Hellenistic Kapticikada reminds W. Held of the Early Byzantine moles of *Bybassos*. Apparently, the technique did not change much throughout the centuries²⁹.

The interpretation of structure 2 is also linked to underground remains of buildings which were recorded about 38 m to the east but which most probably continue under the bushes and sand south of it (fig. 3)³⁰. Based on satellite data the underground remains measure approx. 62 m x 50 m altogether. At least one elongated building of about 6–8 m width can be identified which is oriented southwest–northeast. Buildings of this form, located close to a shore, remind of warehouses, such as the two *horrea* at Dreamer's Bay, Cyprus, which measured 24,4 m x 8,8 m, and the Hellenistic *horrea* at *Bybassos*³¹. Because of the parallel alignment of the likely warehouse structure with building 2 (figs. 3–4)³², and because harbour warehouses are usually located directly behind or alongside a quay³³, building 2 had most probably a quay-like function. It could have served the organization, counting and weighing of goods. Loading/unloading cargo might have been conducted by placing a gangway to the shore as it is shown, for example, on a mosaic at Piazza Amerina³⁴.

The bay was especially suitable for smaller sized ships, for example for Early Byzantine coastal freighters with flat rounded hulls, made for heavy cargo but fitted to shallow waters and easy beaching on sandy shores, like the Yassı Ada, Port Berateau II and the Pantano Longarini shipwrecks³⁵. These ships could have easily been steered close to the shore next to the “quay”.

25 On the technology: Wilson 2011, 47, 52.

26 Manning et al. 2002, 23, 36. *Carpasia*: Du Plat Taylor – Megaw 1981, 238.

27 Galili et al. 2016, 210–212 (who investigated eight sites on the north coast but not directly the coast at Aphendrika).

28 Definition of “quay”: Ginalis 2014, 32.

29 Held 2014, 369–371, figs. 15–17 (371 referring to fig. 10).

30 See also the aerial photo in Kiessel et al. 2019, 372, fig. 3.

31 Leonard – Demesticha 2004, 194–195, fig 7 (Dreamer's bay); Held 2014, 361, fig. 5, 363; Held 2011, 446–447 (Bybassos). The elongated building could also be a portico from which storage spaces were accessed (*stoa* type but equal function).

32 See also Kiessel et al. 2019, 372, fig. 3.

33 Ginalis 2014, 48.

34 Fergiani 2018, fig. 7.

35 Rieth 2015, 88–89; Kampbell 2015, 91, 98. See also Ginalis 2017, 201; Leidwanger 2020, 44–53.

A *terminus post quem* for building 2 is suggested by the ceramic material from the rubble between the frontal and rear wall: two Late Roman Amphora 1 (LRA 1) rim fragments and one fragment of a red-slip plate (Phocaeen ware) which were exposed by erosion (figs. 9-11). The amphora rims belong to the later forms of the LRA1 of the 6th-7th centuries (see section “Amphoras and maritime connectivity” below). Possibly the “quay” and the warehouse are linked to the construction of the Panagia Chrysotissa and Asomatos churches in the 6th century. Indicative may be the fact that despite a considerable number of surface sherds derives from the investigated area finds beyond the 6th/7th centuries are almost completely missing. However, the building technique is rather inconclusive³⁶. Therefore, a relation to the rebuilding of the churches in the early 8th century or even later cannot completely be ruled out. However, based on a) the probable function of the underground remains as warehouse, b) their proximity to and parallel alignment with the “quay” (suggesting a functional connection) and c) the chronological range of the ceramic material we would like to suggest an Early Byzantine date for the “quay”³⁷.

A shipyard (?)

The area of the south-western shore of the bay (nr. 1) is about 100 m distant from the “quay” and slopes about 3 m from the scarce remains of a rubble stone building (?) towards rock-cut structures close to the sea (figs. 3-4, 21-24). A few roof tiles around the remains uphill might suggest a roofed building, which appears to be aligned with the “quay” and fortification. Most of the rock-cut structures closer to the sea are probably the result of quarrying. However, the four narrow grooves at the western side were possibly related to the hauling of ships. Two of these, 0,20-0,25 cm wide, run parallel to the slope for about 9 m (figs. 21-22). The other two grooves, about 40 cm wide and 10-20 cm deep, cross the first two uphill and run next to each other for about 4 m downhill, with a modest slope of 21 cm (figs. 21, 23). The rock surface of the remaining approx. 11 m toward the sea is eroded by wave impact (fig. 21). The more clearly hewn western groove continued possibly originally to the sea and functioned as a “keel-slot” of a slipway. In this case, the groove was possibly a base for a “wooden runner” on which a keel could slide³⁸. It is also possible that the groove served as footing for the axis of a “ladder”, consisting of “crossbeams” at regular intervals³⁹. In either case, wooden crossbeams needed to be laid into the water in order to bridge the modest gap between water and rock surface⁴⁰, as it is similarly done in the contemporary shipyard in Kyrenia’s historic harbour (fig. 25). The example demonstrates that cross-

36 This conclusion is confirmed by the observations of W. Held about Kapicikada and *Bybassos*, and further complicated by the wall technique which could even be of relatively recent date, see Ionas 2003, 145-146.

37 For the warehouse an earlier (Roman) date cannot be ruled out. The “quay” might have been adjusted to it.

38 Examples of 20 cm width/35 cm depth: Baika 2013, 241.

39 Baika 2013, 242-243, fig. A12.8; Ginalis 2014, 63-64.

40 Baika 2013, 245, about underwater wooden cladding of hauling ramps.

beams do not necessarily need fixation, neither on the shore, nor in the water. Moreover it suggests how the hauling of a ship by means of a wooden cradle⁴¹ and crossbeams might have worked, possibly also at Aphendrika.

The rock surface around the “keel-slots” does not show traces of a superstructure. However, also nowadays permanent built facilities are not necessary when building wooden [sailing] ships⁴², as also the Kyrenia harbour proves. As the area is covered largely with hard (eroded?) soil more “keel-slots” might exist underneath the surface further to the east, possibly where four bollards (?) are placed. “Bollard” 1 is a re-used molded limestone block, possibly from a cornice, nr. 4 is a fragment of a limestone column shaft (fig. 24), nr. 2-3 are smaller ashlar blocks⁴³. However, missing clear traces of the impact of tying ropes and the size of blocks, 2-3 raise doubts about their function. Despite the Late Roman/Early Byzantine sherds from the area and despite the alignment of the uphill building (?) with the “quay” a date for the slipway/“keel-slot” is not proposed.

A fortification (?)

On the eastern plateau a wall (nr. 3) is preserved a few centimeters aboveground and can be traced from near the cliff of the bay eastward for about 50 m (figs. 3-4, 26). According to our data from aerial photography it continues possibly underground to the east. Over the visible length, it is continuously 5 m thick and built in the same pseudo-double-shell technique with a similar rubble/earth filling, compared to the “quay”. It is interrupted by a gateway of 5,5 m width. West of the gateway collapsed stones from the southern face of the wall were recorded (fig. 26, see inserted image). The wall’s thickness is an argument for a fortification. *Constantia* was equipped with a town wall, which varied from 1 m to 4 m. The rubble core of *Constantia*’s, *Amathus*’ and *Carpasia*’s 7th-century fortifications were framed to a large extent by well-hewn ashlar⁴⁴. Their absence at Aphendrika’s harbour raises doubts but does not rule out the possibility of a fortified structure. For *Amathus*’ and *Constantia*’s walls which display traces of a hasty construction, masonry from older buildings was used. Possibly well-hewn building material was not available for the construction of the wall at Aphendrika’s harbour or was robbed from it and reused elsewhere.

Fortifications were important for harbours that needed to host naval forces, especially concerning provincial sites of the 7th, 8th and 12th centuries⁴⁵. However, traces of naval forces, such as shipsheds, do not exist. According to C. A. Stewart the Arab raids of the 7th century initiated a concept of fortification, as suggested by the cases of gatehouses of *Amathus* and *Constantia*.

41 Baika 2013, 242-243.

42 Pirson 2014a, 346-347, fig. 8.

43 Probably these are the four “bollards” mentioned by Hogarth 1889, 86, 88, and Nikolaou 1966, 99. On bollards: Ginalis 2014, 38-39.

44 Stewart 2013, 289-290, 293-294, 301; Du Plat Taylor – Megaw 1981, 238, 249.

45 Veikou 2015, 48.

Whereas their fortifications - and of *Carpasia* - enclosed cathedrals and probably episcopal palaces⁴⁶, the few traceable remains at Apendrika introduced here are related to the harbour only. Yet, the connection with a harbour is a feature shared esp. with *Carpasia*.

Plenty of late antique sherds around the wall, such as handles and rims of the LRA1 amphora type (see the following section) and sherds of red-slip ware, make a coherent planning plausible, as well as its alignment with the “quay” (figs. 3-4) and its identical technique. Therefore, the “quay”, the fortified wall and the warehouse might all date back to the Early Byzantine period.

Amphoras and maritime connectivity

Amphora sherds dating from the 1st millennium B.C. to the Early Byzantine period derive from the shores of the bay, its surroundings and the shallow areas of the bay. **By far the biggest number of Late Roman/Early Byzantine amphora rims from the shores and surroundings stems from 23 units of the “Late Roman Amphora 1”.** Two rims represent the early form of the 4th-5th centuries⁴⁷ (fig. 12), two others remain unclear. The majority of 19 rims belong to later forms and go back to the 6th-7th centuries (fig. 13)⁴⁸. The LRA 1 carried wine or olive oil. The securely attested production centers are the south coast of Cyprus, north Syria and Cilicia⁴⁹. The four to six fragments of the late Roman, Eastern Mediterranean amphora type “Robinson M273/Samos Cistern type” carried probably wine (fig. 14)⁵⁰. Wine from the Levante was transported in two “LRA 4” amphoras (fig. 15)⁵¹. Possibly one rim belongs to the 4th-century “Africana 3A” for wine/fish sauce, originated in Tunisia and well-attested in Beirut. The Tunisian 4th/5th-century “Keay 36” is represented possibly also by one rim (figs. 16-17)⁵².

From the shallow areas of the bay movable (not concreted) Late Roman/Early Byzantine amphora fragments derive (fig. 18): up to 31 rims and five individual handles of the “LRA 1” of which possibly two rims belong to the “LRA 13”; again the majority of 24 rims belong to later forms that date back to the 6th-7th centuries. Sherds of “LRA 13”, another Cypriot product, were not identified securely⁵³. The characteristics that are most relevant are an everted rim and a rim diameter of 5-6 cm⁵⁴: probably two rims and possibly four rims

46 Stewart 2013, 301, fig. 11. On a supposed 7th-century fort on the “acropolis”, mentioned in our introduction, overlooking the early Byzantine churches of Apendrika see Balandier 2002, 181 (“refuge?”; “fortin?”), 200, fig. 7, 205.

47 Pieri 2005, 70-74, pl. 1-11; Demesticha 2014, 601-602, 605, fig. 1.

48 Pieri 2005, 75-76, pl. 15-18; Pieri 2007, 315-316, figs. 3-4; Demesticha 2013, 173, 176, fig. 3.

49 Rautman 2000, 321; Demesticha 2013, 70-71.

50 Rauh et al. 2013, 161, fig. 14; Pieri 2005, 133-137, pls. 50-54; Pieri 2007, 311, fig. 14.11; Opait 2014, 443-444, 449-450, figs. 22-29; Meyza – Baginska 2013, 150, figs. 10d-e.

51 Pieri 2005, 101-114; Meyza – Baginska 2013, 143-144, figs. 8b-d.

52 See for the types the amphora-database of the University of Southampton <https://archaeologydataservice.ac.uk/archives/view/amphora_ahrb_2005/index.cfm> (25.10.2023).

53 Demesticha 2005, 170-173, figs. 1-3, 175-176; Rauh et al. 2013, 162-165, on both LRA 1 and 13.

54 Amphora-database 2023.

altogether belong to the LRA13 (fig. 19); additionally, one “LRA 2” rim from the Aegean occurs (fig. 20)⁵⁵; the “Agora M 273/Samos Cistern” type (certain: two; probable: four; possibly altogether: eight); one rim of the “LRA 4”; very probably one foot of the carrot-shaped Eastern Mediterranean “LRA 7”⁵⁶.

Mainly from the shore derive not precisely identified nine rims and about 24 feet of which 13 are slightly conical or cylindrical spikes that might belong to the 1st-2nd centuries types Dressel 2-4, Agora M 54 or to the Roman-period Rhodian amphora⁵⁷.

Precise statistics of provenance as introduced by A. Kaldeli for the city of Amathus and M. Rautman for the rural settlement at Kalavassos-Kopetra during the Late Roman period cannot be provided yet: at Amathus amphoras from within Cyprus amount to 63,3%, followed by Cilicia/Lebanon (3%), southern Levant/Egypt (20,8%), Aegean (7,8%) and western Mediterranean (5,2 %). Rautman, on the other hand, observed a significant import from Cilicia/Syria (59,3%), followed by Cyprus (15,5%), southern Levant/Egypt (1,3%) and Aegean (0,1%)⁵⁸. The spectrum of all amphoras from Aphendrika’s harbour, ranging from the 1st millennium B.C. to the Early Byzantine period, is clearly dominated by Eastern Mediterranean types. Moreover, the percentage of 70% of LRA1 among all Early Byzantine amphora finds at Kalavassos-Kopetra⁵⁹ matches with our results of 76-82%. In Amathus and Kourion traces of kilns of the LRA1 “coincide conveniently with the presence of olive presses”⁶⁰ - olive presses as documented in considerable numbers in the area of Aphendrika, see below.

The relatively large number of LRA1 and similarly datable amphora fragments prove that the harbour of the settlement at Aphendrika was very active in the Early Byzantine period, with a peak during the 6th-7th centuries compared to the 4th-5th centuries (45-47 individual amphoras compared to 15-23; neglecting five jars that date between 4th-7th centuries). The finds demonstrate also that the bay served trade activity latest since the Hellenistic period.

Olive oil production

Sites of production of local products play a role in relation to harbours⁶¹. The number of eight weight stones, two press beds, and three crushing basins in the surveyed area (figs. 2, 27) indicates **intensive olive oil and/or wine production**. The surplus was probably exported through the harbour. In this case, a local amphora production can be assumed.

All eight weight stones of the type Hadjisavvas 2(b) belong to lever-and-screw presses, the four best-preserved ones demonstrate standardized

55 Pieri 2005, 85-93.

56 Rauh et al. 2013, 160-161, figs. 12-13.

57 Meyza – Baginska 2013, 139, figs. 3d-g; amphora-database 2023.

58 After Leidwanger 2013, 235.

59 Rautman 2000, 321.

60 Papacostas 2001, 113.

61 Kalmring – Werther 2017, 2.

dimensions: Dm: 1,20 m or 1,30 m; H: 0,85 m; 0,70 m; 0,90 m; 0,90 m (fig. 27). The examples of weight stones of lever-and-screw presses, catalogued by S. Hadjisavvas, are all associated with oil production and dated to the 4th-7th centuries⁶². The use of the lever-and-screw press in late antique Levant probably indicates surplus production for export, according to T. Lewit. A “second wave of diffusion” of that technology in the eastern and southern Mediterranean during the 4th-5th centuries is linked to the agricultural-economic boom of these regions. Late antique surplus production is confirmed for the Levant, Egypt, Cyprus and Turkey where it correlates with an increase of screw-operated presses. Wealthy rural buildings attest to a flourishing economy⁶³. Excavations and surveys in Cyprus also confirm an increased density of rural settlement for the 5th-6th centuries. Lewit argues that the diffusion of the screw was triggered by commercial demands⁶⁴. The economic resources necessary suggest rich landowners whose residential villas are recorded in France, Spain and Italy. However, during the ‘second diffusion’ of the screw in the eastern Mediterranean the relation between the screw-operated press and rich land-ownership in the Levant and Cyprus is less obvious as it occurs also within smaller rural settlements. Lewit suggests these settlements were occupied by tenant farmers and owned by “absentee landlords”⁶⁵. Yet, considering the modest character of rural settlements in late antique Levant and Cyprus that are usually associated to a nearby church⁶⁶, the olive and wine presses might have belonged to those churches which also might have been responsible for innovation and investment. This view is also supported by the fact that the provision of pressing facilities to the village community by the local church authority was still usual in Cyprus in the 20th century⁶⁷.

However, a probably late antique marble pilaster capital which was found with a few LRA1 handles in the close vicinity of the remains of an olive press, including a weight stone of the type Hadjisavvas 2b, a millstone (Dm: 1,38 m; H: 0,38-0,40 m) and many roof tiles (figs. 2, nr. 1, 28), might suggest the presence of a wealthy rural estate in the area of Apendrika. These findings remind of the example of a 7th-century (?) oil mill in Salamis which had been installed in an older luxurious residence featuring an interior pilaster decoration⁶⁸.

Further traces of olive oil production, namely fragments of weight stones of lever-and-screw presses, were observed by the M. Kiessel close to the Melandryna monastery, at Achaion Akte (4), the Panagia Pergameniotissa (VIII), and Agios Epiphianos (IV), in the case of the latter two cases in conjunction with sherds of LRA1 (figs. 1, 5)⁶⁹.

62 Lewit 2012, 140 after Hadjisavvas 1992, 84. The appearance of type 2 is linked to the introduction of the lever-and-screw press according to Hadjisavvas 1992, 61.

63 Lewit 2012, 140-143.

64 Lewit 2012, 143-144.

65 Lewit 2012, 146-147. On powerful landowners Zavagno 2017, 145. About the alleged absence of the western Mediterranean *villa* in Cyprus Hadjisavvas – Chaniotis 2012, 161.

66 Lewit 2012, 147-148; Rautman 2000, 318.

67 Ionas 2003, 31, 36.

68 Argoud et al. 1980, 52; Hadjisavvas 1992, 45-46.

69 See also Papacostas 1999, III, fig. 283, for the mapping of clusters of “perforated monoliths” of olive

Harbours and anchorages on the north-eastern coast of Cyprus

Neither Pliny nor Ptolemy mention harbour facilities in Cyprus explicitly, only the names of coastal towns. Only Augustean *Strabo* and the probably 3rd-4th centuries *Stadiasmos* attest to Roman harbours specifically⁷⁰. Whereas J. R. Leonard and A. de Graauw discuss/map also a few maritime sites west of Kyrenia⁷¹, esp. *Lapethos*, the scope of our investigation is limited to the coast between Kyrenia and Cape Andreas based on accessibility and the (still) relatively undisturbed situation of coastal sites (figs. 1, 5).

A. de Graauw's database lists eight confirmed ancient settlements/harbours, based on ancient written sources and/or archaeological data, between Cape Andreas (Kleides islands (7)) and Kyrenia (1), from east to west: *Urania* has been located close to Exarkhos Bay, a little further east of Aphendrika⁷²; Aphendrika (6); *Carpasia* (5); *Achaion Akte* (at Galounia) (4); a site close to Dhavlos; *Aphrodisium* (area of Akanthou) (3); *Makaria* (west of Moulos) (2); a site close to the Melandryna monastery, east of Agios Amvrosios; Kyrenia (1).

J. R. Leonard mentions four locations between Cape Andreas and the Roman harbour of Kyrenia: *Urania* (harbour) (6), *Carpasia* (harbour) (5), *Aphrodisium* (harbour) (3), *Makaria* (harbour) (2). Additional two confirmed/hypothetical locations are listed based on the observations of 19th-20th centuries harbour sites, as indicated by coastal carob storage buildings: *Yialousa* and *Dhavlos*, both are addressed as ancient anchorages⁷³.

Additionally, this study (re-)considers data from Kitchener 1885, Hogarth 1889, Symeonoglou 1972, Hadjisavvas 1991/1992, Papageorghiou 1993, Papacostas 1999, Papageorghiou 2010 and Maguire 2012. Additional eleven probable anchorage locations are suggested based on the combination of several of the following diagnostic features⁷⁴: 1) natural protected bay and/or sandy beach, possibly as end-point of a valley with 1b) river or spring; 2) presence of ancient/Early Byzantine coastal and/or off-coast settlement in the closer area (according to previous scholarship); 3) existence of (ancient) built structures close to the shore; 4) ancient/Early Byzantine pottery sherds at the shore/coast, esp. of amphoras, esp. of LRA1; 5) traces of olive oil/wine production in the coastal areas, indicating a possible export of surplus, in conjunction with settlement traces and possibly with 6) (Byzantine) church

press installations in the areas of the Melandryna monastery, of the Panagia Pergamieniotissa, and of the site I west of Cape Andreas (our fig. 1, nr. 7).

70 Leonard 1995, 232; Leonard 2005, 105-113, 509.

71 Leonard 1995; Leonard 2005, 105-106, fig. 14; de Graauw 2016 <<http://www.ancientportsantiques.com/docs-pdf/>> (25.10.2023). See also Catling – Dikigoropoulos 1970, 38, fig. 1 and Catling 1972, 2, fig. 1 for a mapping of Early Byzantine sites close to and east of *Lapethos*.

72 De Graauw 2016. See also Leonard 1995, 233, fig. 6.

73 Leonard 1995, 235, 240, figs. 7, 11. In 2014 a Hellenistic (-Roman) olive press was excavated closer to the sea at Yialousa which increases the probability of the presence of an anchorage (Dep. of Ant. report EEM 42-14/14; we owe thanks to the director Ms. E. Karaça for this information).

74 On locating Roman harbours/anchorages, especially the inconspicuous (Cypriot) ones, see also Leidwanger 2020, 159-166, 177-180.

architecture - which in case it dates beyond the Early Byzantine period might suggest an Early Byzantine predecessor or a reoccupation of a more ancient site; 7) carob storage buildings linked to 19th-20th centuries harbour sites (after the approach of Leonard 1995 who, however, did not include the coastal carob storages close to Agios Amvrosios, Phlamoudi and Galounia).

The suggested eleven additional anchorage sites from east to west, among them at least five Late Roman/Early Byzantine sites (bold Latin numbers), are:

I) site where traces of an olive press were recorded close by⁷⁵; **II)** site “two miles” west of Aphendrika, mentioned by D. G. Hogarth as ancient village, to be found at a bay between Stilokavas/Varkouopetra, judging from remains of ashlar and a mortar-paved floor close to the shore; straight parallel structures underwater, between the shore and a small island, in conjunction with a considerable number of amphora fragments, were first interpreted as built moles/breakwaters in 2020 but recent investigations revealed them to be natural “sandwiched” rock-formations; however, the approximately 115 m long structures might have served as a natural breakwater⁷⁶; **III)** at least one bay in the area of the churches Agios Thyrsos and Agios Photios⁷⁷; **IV)** site at “Agios Epiphanius”, marked by H. H. Kitchener and mentioned as medieval on Hogarth’s “Map of the Carpass”, east of *Achaion Akte* (4)⁷⁸; **V)** site equipped with a little bay to the west and east, occupied in the Early Byzantine period but previously not included among potential harbour/anchorage sites⁷⁹; **VI)** bay close to the church Agios Sozomenos; **VII)** small bay with carob storage in the Phlamoudi area⁸⁰; **VIII)** bays close to the churches Agios Mikallou and Agios Charalambos, north and east of the settlement at the Panagia Pergamieniotissa⁸¹; **IX)** small bay near the river-bed of “Boghaziou Potamos”⁸²; **X)** small bay with carob storage at the coast of Agios Amvrosios; **XI)** bay(s) in the area of Alakati.

Among the harbours/anchorages, listed by de Graauw and Leonard, the sites Kyrenia (1), *Achaion Akte* (4), *Carpasia* (5) and *Urania* (at Aphendrika) (6) are settlements known to have existed in the Early Byzantine period according to previous scholarship⁸³. Among the nine Early Byzantine sites the areas of I, IV, VIII, *Achaion Akte* (4) and of Aphendrika provide traces of Early Byzantine olive press installations (see above). And as the area of the Melandryna monastery features weightstones of (oil-related) lever-and-screw

75 On the press Papacostas 1999, III, fig. 283.

76 Hogarth 1889, 88. See the mapping of Kitchener 1885. The Dep. of Antiquities, Famagusta office, has been informed about this site and its anchorage.

77 On the late-antique predecessor of the mid-Byzantine Agios Photios: Maguire 2012, III, 21-22.

78 Kitchener 1885; Hogarth 1889. On *Achaion Akte*: Hadjisavvas 2010, 83, fig. 2.

79 Papacostas 1999, III, fig. 259, after Hadjisavvas 1991.

80 On the area of Phlamoudi: Symeonoglou 1972; Hadjisavvas 1991.

81 On a late-antique brick-floor with fishbone pattern in the surrounding of Agios Mikallou: Kaffenberger 2020, II, 68 nr. 23. On the late-antique predecessor of the Panagia: Maguire 2012, III, 2-3.

82 Marked by Kitchener 1885.

83 Hadjisavvas 1991, 29; Papageorghiou 1993, 40-43; Papacostas 1999, III, fig. 259.

presses that were dated between the 4th-7th centuries⁸⁴, it can also be counted among the Early Byzantine sites (fig. 5).

Maritime connectivity, rural economy, the late antique north coast of Cyprus and Aphendrika

Older network models of maritime connections concentrated rather on major overseas ports to which secondary port cities were connected, such as Roman *Amathus* on Cyprus⁸⁵. For many smaller-sized Roman-Byzantine harbour towns which featured few built harbour facilities, for example at the Lycian coast, it was not necessary to be connected directly to overseas maritime trade but sufficient to participate on a secondary level⁸⁶. Moreover, at the Byzantine shores of the Balkans, similarly as in the Levante, even larger towns did not have sophisticated harbour installations. Like in countless small maritime settlements, these sites were geomorphologically convenient⁸⁷.

J. Leidwanger suggests that the poorly equipped (Late Roman) sites he investigated on the southern coast of Cyprus are more than a third sublevel of harbours. Instead, these “emporion”⁸⁸ functioned alongside the larger ports on a regional level with different merchants and economic mechanisms. These sites did not need much or no infrastructure and were visited by small ships with small cargo sizes⁸⁹. This hypothesis is related to data gained from the Stanford Geospatial Network Model of the Roman World, modified by D. Heher et al. 2017, according to whom partially overlapping regional clusters communicated with each other through few major connecting nodes⁹⁰. Such intra-regional or cluster-connecting nodes were harbours like *Nea Paphos* or *Amathus* which were designed for larger ships, any weather and possibly any season. Port taxation might have been an additional reason for avoiding the hubs of this larger network⁹¹.

The late antique Cypriot countryside, as investigated mainly in the southern part of Cyprus, was probably not cut loose from the cities, administratively, culturally and economically. However, trading agricultural produce of new local markets may have become possible through “cross-over points between the agrarian and maritime spheres” which did not exist in the earlier Roman

84 Lewit 2012, 140, after Hadjisavvas 1992, 84.

85 Leidwanger 2013, 236. See also Feuser 2016, 2, 12.

86 Feuser 2016, 10-11.

87 Külzer 2017, 235-236.

88 We prefer this term over “port”, after Veikou 2015, 40, 49.

89 Leidwanger 2013, 236. About principal and secondary ports see also Wilson 2011, 54, and Feuser, 2016, 2, who did not consider Veikou 2015 when claiming that Leidwanger’s small database would allow only temporary conclusions. Leidwanger 2015, 159, however, separates artificial harbours “complete with built structures” from secondary emporia that range from “developed ports with storage warehouses and other facilities to simple anchorages”. On small and medium-sized coastal sites also Leonard – Demesticha 2004, 190.

90 Heher et al. 2017, 205-206, figs. 9-10; ORBIS <orbis.stanford.edu> (25.10.2023). See also Leidwanger 2020, 98-109.

91 Leidwanger 2013, 237. See also Veikou 2015, 52.

era⁹². M. Veikou calls these new coastal settlements (the aforementioned emporia) in the Eastern Mediterranean of the 5th-7th centuries “gateway communities”. They were oriented towards the sea, often close to a still busy late antique city and communicating with the local hinterland⁹³. This hinterland was probably only a few kilometers deep, confined by political and/or natural boundaries while further local “gateway” harbours were in a maximal distance of a day’s journey⁹⁴. These communities hosted a small population of farmers, craftsmen, fishers and sailors, were “neither wholly urban nor wholly rural”, and were equipped with religious architecture and of a certain wealth but did not possess all civic features. Usually, they did not feature built harbour facilities⁹⁵. “Pragmatism” prevailed over “monumentality” as it is suggested also for the late antique southern Levant⁹⁶. The biggest expansion of the road network on Cyprus in the Late Roman era coincides with the increase of these gateway harbours. Probably a rural elite, including the Church, controlled agricultural and industrial production and trading mechanisms of the countryside, possibly being involved also in the regional maritime network⁹⁷. During the 6th-7th centuries the surplus production was probably provided to military units of the new *quaestura exercitus* including Cyprus, Caria, the Aegean islands, Scythia and Moesia II - in rugged containers that were standardized in terms of volume rather than design, like the LRA 1/LRA 13 class⁹⁸.

The picture of Roman-Early Byzantine (maritime) settlement development of the north coast of Cyprus is still incomplete. As of October 2023, the ORBIS network model included only the major nodes *Lapethos* and Cape Andreas (*Kleides* islands), while the mapping of Leonard 1995 displays rather long distances between a few maritime sites. Our mapping suggests a stronger coastal activity (fig. 1). It includes the additional hypothetical anchorage sites and resembles more the dense mapping of the north coast east of Kyrenia by Catling – Dikigiropoulos⁹⁹. It also displays similarity to the density of coastal sites of (Early) Byzantine Balkan and Greece¹⁰⁰.

The harbours/anchorages were of vital importance for the gateway settlements of the Eastern Mediterranean¹⁰¹. After the mid-7th century decline set in due to the decline of the long-distance maritime trade and the Arab raids. In their aftermath, the settlements survived for a while within regional

92 Leidwanger 2013, 237 (citing J. Ulriksen). See also Papacostas 2001, 109.

93 Veikou 2015, 49-50. On a maritime site at Zygi-Petrini: Papacostas 2001, 116.

94 Feuser 2016, 8-9.

95 Veikou 2015, 51-52. On the wealth of 5th-7th centuries Cyprus and its rural settlements: Rautman 2000, 318, 326-327; Papacostas 2001, 109.

96 Leidwanger 2013, 23.

97 Leidwanger 2013, 238. See also Zavagno – Kızılduman 2018, 248 on local landowning elites beyond the mid-7th century. On the Church’s role: Ginalis 2017, 203; Manning et al. 2002, 77. Keane 2021 is a recent addition to the subject. Its contribution to the north coast of Cyprus does not go beyond Ginalis 2017, 203, Leidwanger 2013, Manning et al. 2002, 77, and Veikou 2015, in our opinion.

98 Military organization, design, volume: Rauh et al. 2013, 164-165.

99 Catling – Dikigiropoulos 1970, 38, fig. 1; Papacostas 1999, III, fig. 255.

100 See Külzer 2017, 236, fig. 1.

101 Veikou 2015, 48.

networks¹⁰². That picture seems to correspond more or less to the situation on Cyprus' north coast despite the few available data about the settlements and their harbours/anchorages. According to A. Papageorghiou all Early Byzantine settlements were abandoned after the mid-7th century, however, "not completely"¹⁰³. H. W. Catling observed that the settlements in the Kormakiti area east of Kyrenia lasted from the Roman period to the 8th century, after which they were relocated¹⁰⁴. The Karpas peninsula, however, was less affected by the Arab raids, according to Papageorghiou, as the Agias Trias settlement was abandoned not before the end of the 8th century¹⁰⁵. This fits to Stewart's results who dates the rebuilding of the 6th-century *Chrysiotissa* and *Asomatos* churches at Aphendrika to the early 8th century¹⁰⁶. The associated settlement must have been a religious center in the Early Medieval/Middle Byzantine period¹⁰⁷. This reminds of the development of coastal sites in Lycia where for the early 7th century decline and abandonment are documented, followed by recovery in the 8th century and after. The recovery is suggested mainly on the basis of traces of the rebuilding of churches¹⁰⁸. The rebuilding at Aphendrika in the early 8th century is, therefore, a strong argument against Hogarth's hypothesis of a withdrawal to the local hinterland site *Agridia* after the Arab raids¹⁰⁹. The location of the churches about 700 m off the coast made Papageorghiou conclude that the (Hellenistic) *Urania* had already moved inland during the Roman period¹¹⁰ - although so far, no hard evidence exists that the older settlement was situated (only) close to the harbour. Papageorghiou and Stewart do not provide further insights about the settlement at Aphendrika and its harbour.

It is likely that the "quay", the fortification and the warehouse go back to the 6th century, when the first phases of the Panagia Chrysiotissa and Asomatos churches were built, although later dates (or an earlier date in case of the warehouses) cannot completely be ruled out. Based on these facilities the bay could be classified as a third-level harbour: below major overseas ports and in between the ashlar- and/or cement-built harbours like the Hellenistic-Roman *limen kleistos* of *Nea Paphos* and the Roman harbour of *Carpasia*¹¹¹ on one side, and the Early Byzantine anchorage at Alaminos-Latourou Chiftlik¹¹² on the other side which did not feature any built facilities. Aphendrika's harbour would be very similar to the findings at Dreamer's Bay which include many

102 Veikou 2015, 50. On the effect of the Arabic expansion also Heher et al. 2017, 210-211.

103 Papageorghiou 1993, 40-41.

104 Catling 1972, 5, 79-81; Papageorghiou 1993, 43; Papacostas 2001, 109.

105 Papageorghiou 1993, 49.

106 Stewart 2010, 182. See also our introduction concerning the early phases of these churches. On decline and continuities after the mid-7th century also Zavagno 2017, and for the Karpas peninsula Zavagno – Kızılduman 2018, 247-248.

107 Papageorghiou 1993, 40, 42, fig. 9; Stewart 2010, 164.

108 Foss 1994, 48, 50.

109 Hogarth 1889, 88.

110 Papageorghiou 1993, 40, 42, fig. 9.

111 On Amathus, Nea Paphos: Leonard 2005, 500, 507–508, 585-590. On Carpasia: Leonard 2005, 28, 111, fig. 10; Maguire 2012, I, 40–41, II, fig. 1.12; Stewart 2013, 301 fig. 11.

112 Leonard – Demesticha 2004, 195-197.

5th-6th centuries surface sherds, a number of (probably Roman) warehouses, an ashlar-built breakwater/mole and two possibly Hellenistic-Roman *necropoleis*¹¹³. The lesser importance of Aphendrika's harbour might also be evident due to its neglect in ancient sources. However, other aspects mentioned previously need to be considered in the assessment of the importance of its harbour: Even larger Byzantine towns did not need necessarily sophisticated harbour installations, while Aphendrika's two 6th-century churches are proof of a major center and abundant traces of olive oil production of the 4th-7th centuries attest to a surplus economy. This gateway community reminds of the flourishing Early Byzantine *emporion* at Agios Georgios near Pegeia north of *Nea Paphos*, featuring three basilicas, agricultural implements, a natural anchorage and underwater findings of 6th/7th-century amphoras. Although it lacked harbour installations, it served as a stopover from Egypt to Constantinople¹¹⁴.

Larger ships might have anchored within Aphendrika's harbour in small numbers in the middle of the bay while the cargo was cleared by smaller boats. Direct involvement in intra-regional shipping, for example to/from the relatively close harbours of the Levante, possibly via the stopover of the Kleides islands, cannot be ruled out, see the example of Agios Georgios¹¹⁵. For smaller sized ships, such as the Early Byzantine coastal freighters, the bay was certainly a frequent destination. According to the ceramic evidence, the harbour fell into disuse after the 7th century, at least concerning the trade based on ceramic containers.

Aphendrika's local hinterland, except from the closer surroundings to the east and west within the alluvial plain, is certainly the site *Agridia* with its middle Byzantine church architecture on a high-plateau to the south¹¹⁶. This hinterland is a few kilometers deep¹¹⁷. Traces of activity prior to the Byzantine period exist, including a path which leads from Aphendrika to *Agridia*, with signs of cartwheels and ancient sherds. The natural boundaries of this hinterland are defined by the shorter distance from the plateau to the northern alluvial plain with its harbour, compared to the distance and steeper slope to the southern coast of the Karpas peninsula.

113 Leonard – Demesticha 2004, 192-195, figs. 4-7.

114 Veikou 2015, 50, 52.

115 According to Leidwanger 2020, 212-213, available (ceramic) data (from the southern coast of Cyprus) suggests that the regional maritime activity in Late Antiquity worked mainly east to west, from Cyprus/Cilicia/northern Levant toward the Aegean. The ceramic finds from Aphendrika as introduced above support this view.

116 Hogarth 1889, 88. On Saint Filon ad *Agridiam*: Kaffenberger 2020, II, 412.

117 For the types of hinterland see: Feuser 2016, 8-9.

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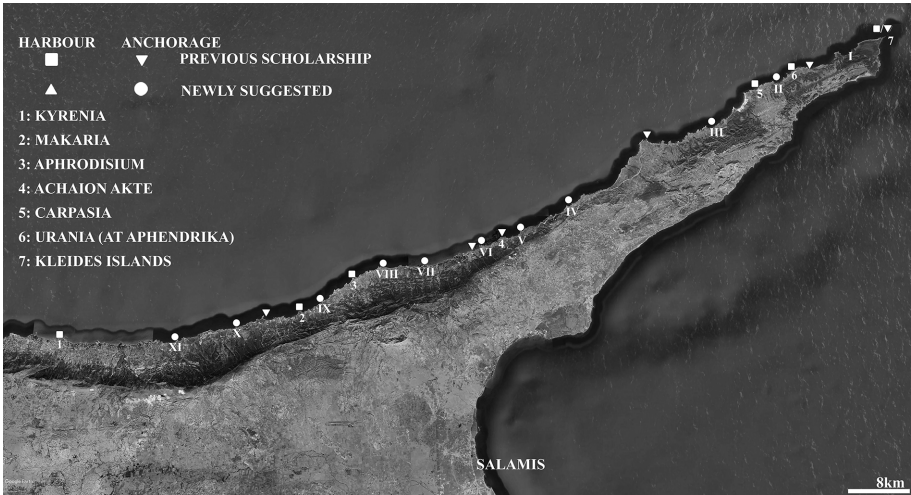


Fig. 1 Cyprus, north coast, from Kyrenia to Cape Andreas (GoogleEarth, edited by authors).

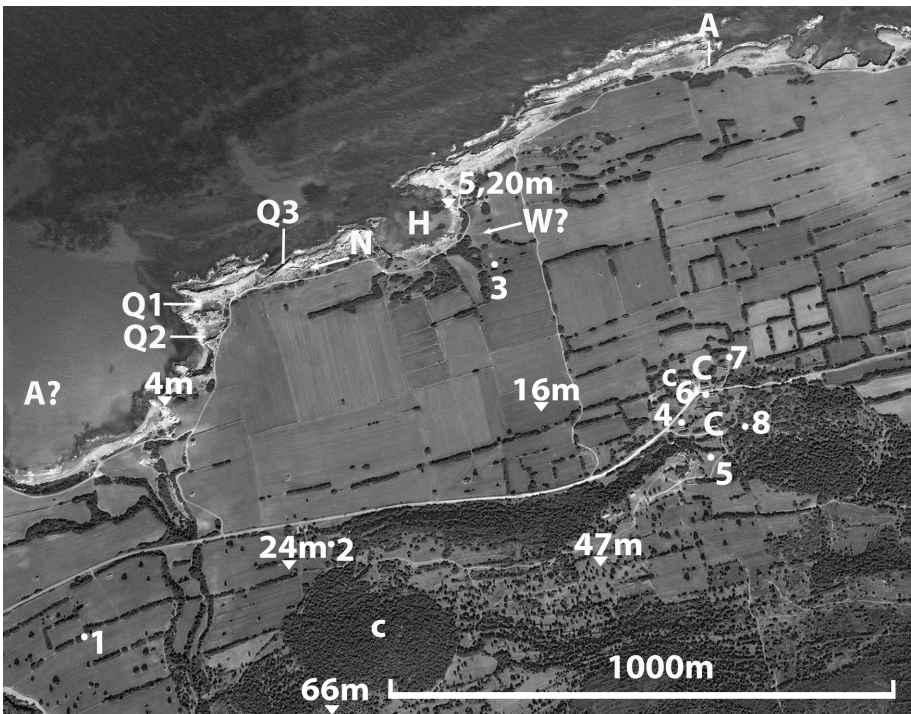


Fig. 2 Research area, western part. “Aphendrika” at nrs. 4-8. 1: weightstone / millstone; 2, 3: weightstone; 4: weightstone / press beds / crushing basin; 5: crushing basin; 6: weightstone / crushing basin; 7: weightstone / press bed; 8: stone container for liquids; A: anchorage; C: churches of the Panagia Chrysotissa and Asomatos; c: church; H: harbour; N: necropolis; Q: quarry; W: warehouses (GoogleEarth, edited by authors).

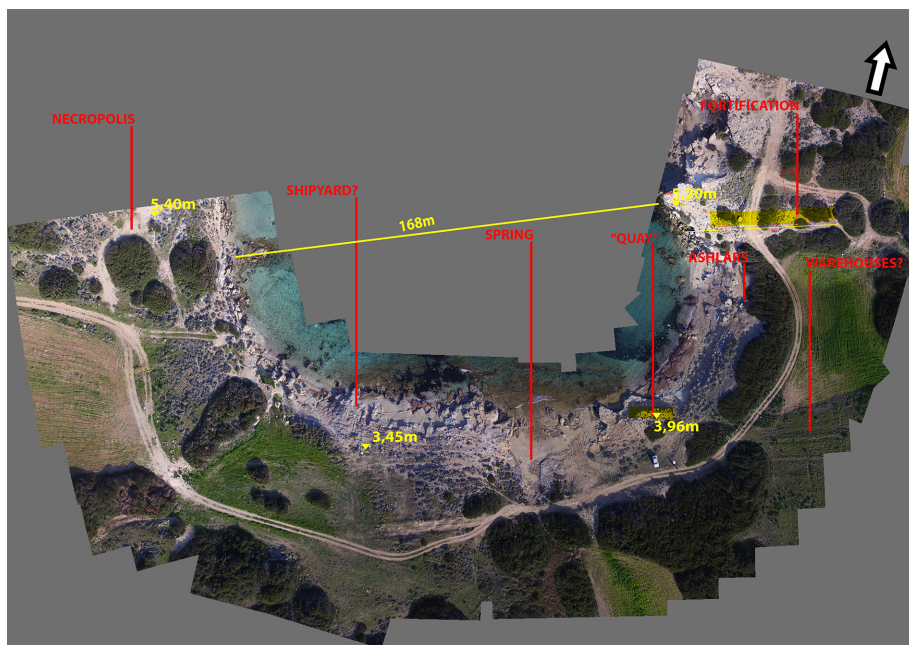


Fig. 3 Aerial documentation of the harbour bay (H) with ancient remains (authors).

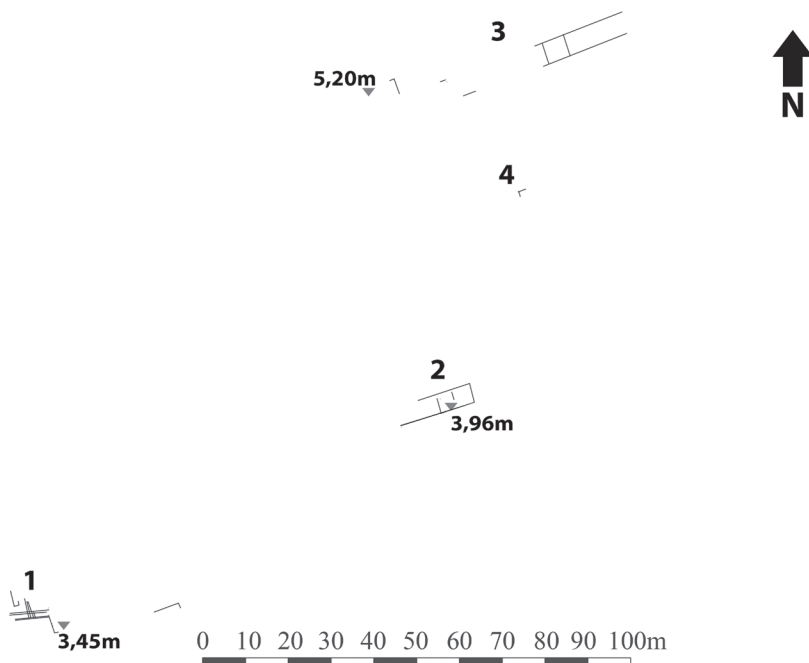
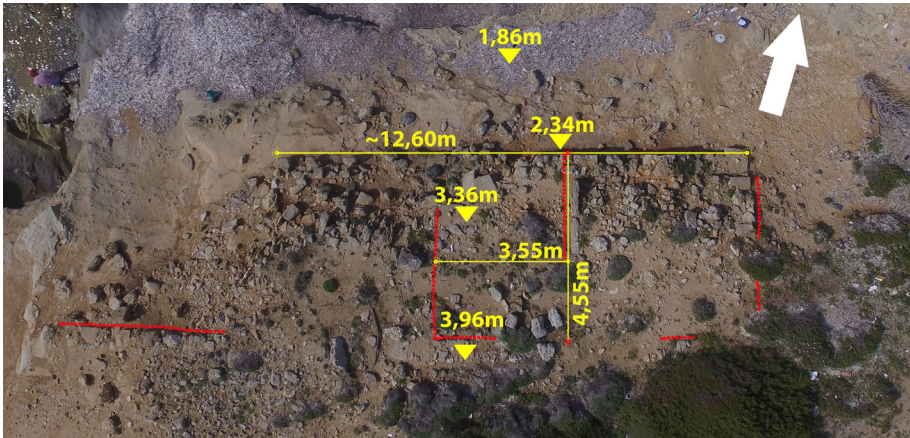


Fig. 4 Schematic (GPRS-) plan of the remains around the harbour bay, from shipyard to fortification (authors). 1: shipyard (?); 2: "quay"; 3: fortification (?); 4: ashlar structure (authors).

Coastal site/ bay	Harbour or anchorage confirmed according to previous scholarship (based on written sources and/or archaeological evidence)	Natural protected bay and/or sandy beach	River/ stream/ spring nearby	Ancient/early Byzantine coastal and off-coast settlement in the closer area (according to previous scholarship)	(Ancient) built structures close to shore/coast	Ancient/early Byzantine pottery sherds at shore/coast	Traces of olive oil/wine production	Church architecture (close shore) to	Carob storage on shore
Kyrenia (1)	X	X		X	X				X
XI: East of (1); area of Alakati/Alagadi		X	X	?	?	X		X (2)	
X: Shore of Agios Amvrosios/Esentep		X	X	?		?			X
West of (2); area of Melandryna monastery	X	X	X	?	?	X	X	X (1)	
Makaria (2) =Moulos/Küctikerenköy	X	X	X	X	X	X			
IX: site near "Boghaziou Potamos" (Kitchener 1885)		X	X	?	?	X			
Aphrosidium (3), area of Akanthou/Tatlisu	X	X	X	X	X	X		X	X
VIII: settlement at the church Panagia Pergamienotissa, with the bays at churches Agios Mikallou to the north and Agios Charalambos further east		X	X	X	X (at Agios Mikallou)	X	X	X (3)	
VII: site at "Spiti tou Kleanthous", area of Phlamoudi (Kitchener 1885)		X	X	X	?	?			X
Coast at Dhavlos/ Kaplica, west of VI	X	X	X	X	?	?			X
VI: area around church Agios Sozomenos		X	X	X	?	?		X	
Achaion Akte (4) = "Limionas" at Galoumia/Glima islands (Kitchener 1885)	X		X	X	X	X	X		X
V: site recorded by Hadjisavvas 1991/Papacostas 1999		X	X	X	X	X			
IV: site "Agios Epiphanius" (Kitchener 1885)		X	X	X	X	X	X	X	
East of IV = "Limionas", in the area of Yialousa/ Yenierenköy (Kitchener 1885)	X	X	X	(X: Agias Trias)	?	?	X		X
III: at least one site/ bay in the area of churches Agios Thyrsoi/Agios Photios		X	X	X	?	?		X (4)	
Carpasia (5)	X	X	X	X	X	X		X	
II: Site at "Stilokavas/ Varkouopetra" (Kitchener 1885)		X	X	X	X				
Urania (6) at Aphendrika	X	X	X	X	X	X	X	X	
Exarkhos bay, east of Aphendrika (6) (Urania?)	(X)	X	X	X		X	X		
I: site at "Kordylia Nisha" (Kitchener 1885)		X	X	?	?	X	X		
Cape Andreas and Kleides islands	X		(X?)		?	?			

Fig. 5 Harbours / anchorages on the north coast of Cyprus, between Kyrenia and Cape Andreas. Roman numbers: additional potential anchorage sites, not discussed in scholarly writing about harbours/anchorages of the north coast. Bold letters: Late Roman/Early Byzantine sites.



Figur 6 Aerial documentation of the “quay”. South-east shore (authors).

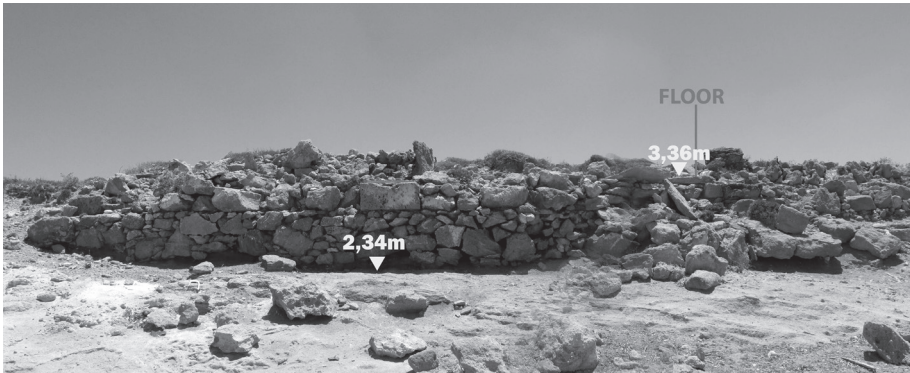
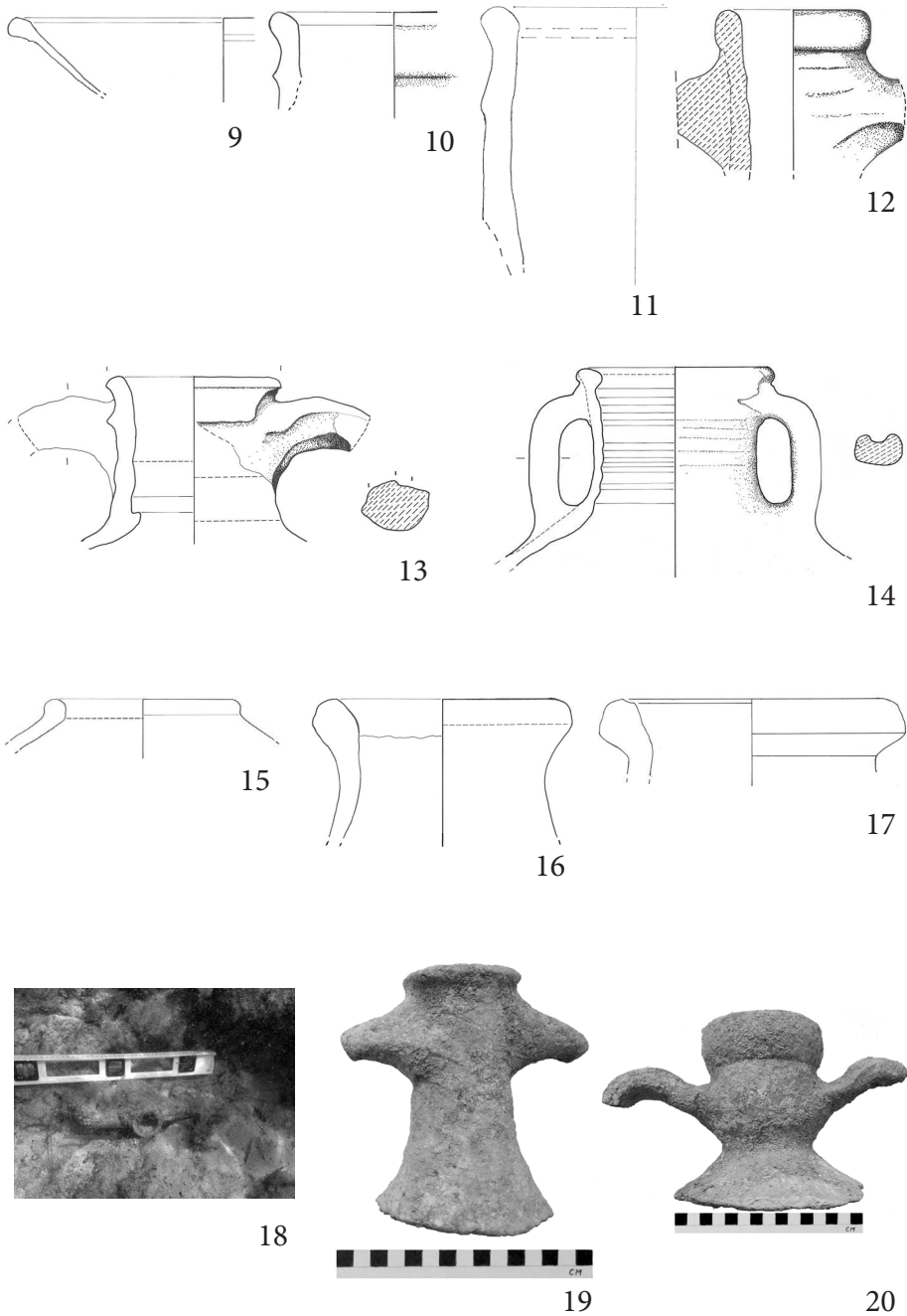


Fig. 7 Front (north) elevation of the “quay” (authors).



Fig. 8 Detail of the front elevation of the “quay” with flooring slabs (authors).



Figs. 9-20 pottery sherds from the area of the harbour. 9-11: from the rubble core of the “quay”. 18: Underwater documentation (LRA1). Drawings M 1:3 (authors).

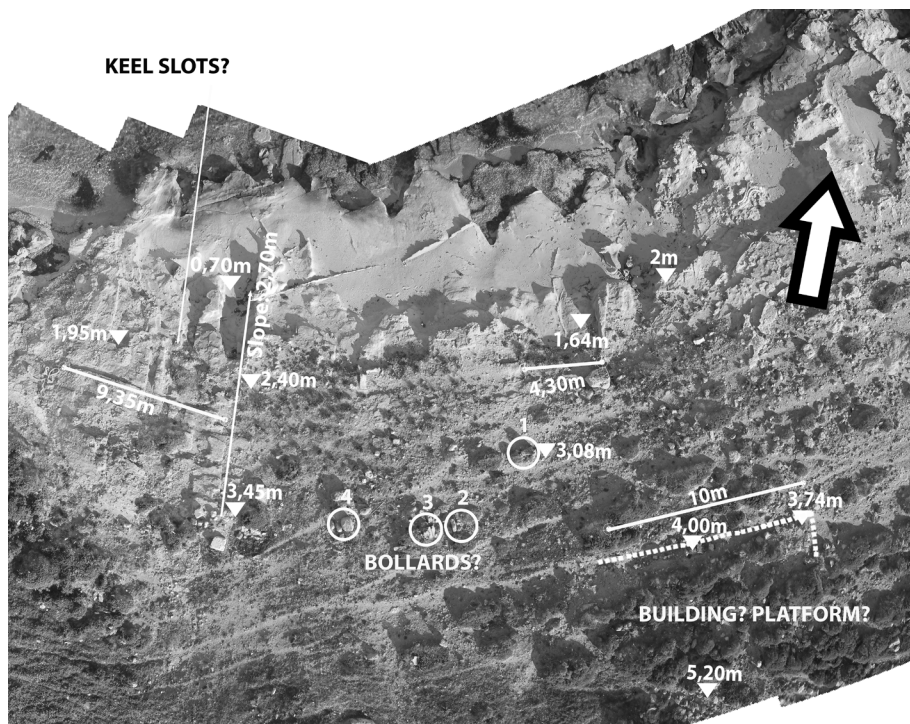


Fig. 21 Aerial documentation of the shipyard (?). South shore (authors).

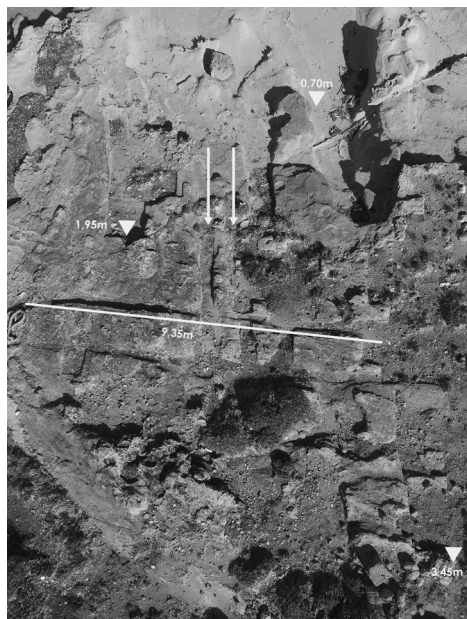


Fig. 22 Aerial close up of the area around the potential keel-slots (authors).



Fig. 23 Rock-cut keel slots (?). From south (authors).



Fig. 24 Fragment of a limestone column (see Fig. 21, nr. 4), possibly a bollard, seen from west (authors).



Fig. 25 Contemporary shipyard in the historic harbour of Kyrenia, Cyprus (authors).

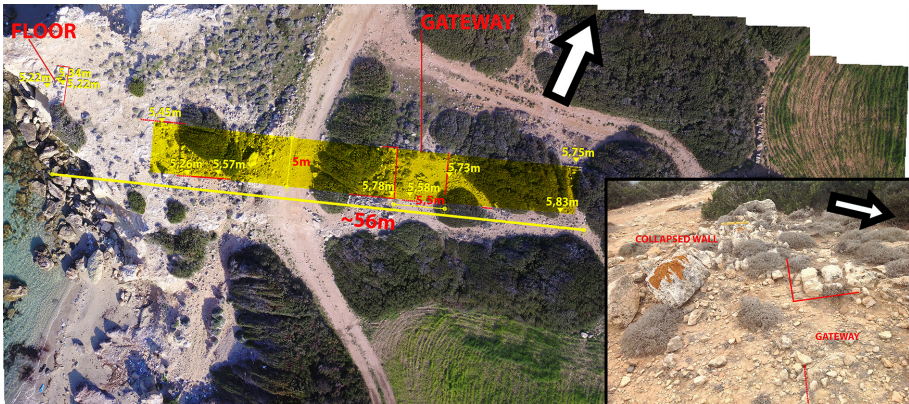


Fig. 26 Aerial documentation of a fortification (?) on the eastern plateau. The detail shows the southern side of the gateway from the east (authors).



Figur 27 Weightstone nr. 2 (Hadjisavvas type 2b), see Fig. 2. From north (authors).



Figur 28 Pilaster capital, found close to weightstone nr. 1, see Fig. 2 (authors).