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CYPRUS

An Island Culture

*Society and Social Relations
from the Bronze Age to the Venetian Period*

edited by

Artemis Georgiou

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PREFACE

This volume presents the proceedings of the 9th annual conference in Postgraduate Cypriot Archaeology (POCA 2009), which was held at the Ioannou Centre for Classical and Byzantine Studies, University of Oxford from the 19th to the 21st of November 2009. POCA 2009 encompassed 24 presentations by postgraduate students and young researchers, coming from a number of institutions and universities in Europe and the United States. The meeting provided a unique opportunity for the new generation of Cypriot archaeologists to present their work and interact in a friendly and productive environment.

The conception of a conference at which postgraduate students of Cypriot Archaeology could present their ongoing research was first conceived by Dr Kirsi Lorenz, who organised the first Postgraduate Cypriot Archaeology meeting at the University of Cambridge in 2001. From that year onwards, POCA continued as an annual meeting and has been successfully organised by a number of universities in the United Kingdom, Ireland, Cyprus and Belgium. Nowadays, POCA has become a well established international institution for students in Cypriot Archaeology. This growth of the POCA meetings coincides with the increasing popularity of Cypriot Archaeology itself, which has been established in recent years as a significant discipline in its own right.

Following the tradition set by the organisers of POCA 2005 in Dublin, and judging by the high standards and original contribution of the 9th POCA meeting, it was decided that the proceedings should be published. All papers were subject to anonymous peer-reviews in order to ensure the quality of the papers presented in this volume.

The keynote article of this volume is based on the plenary presentation by Edgar Peltenburg. In this contribution, Professor Peltenburg discusses the political landscape of Cyprus during the Late Bronze Age, attempting to combine textual and archaeological sources. The rest of the volume's contributions are divided in three sections. The first, entitled "Settlements, Burials and Society in Ancient Cyprus" begins with a paper by David Sewell, who presents new results from the excavations at the Chalcolithic cemetery of Souskiou-*Laona*. The following contribution by Lisa Graham discusses the ceramic production of the Early and Middle Bronze Age, based on new excavations from the necropolis of Kissonerga-*Ammoudhia*. In the subsequent articles, Luca Bombardieri presents preliminary results from the ongoing excavations at the site Erimi-*Laonin tou Porakou* and Artemis Georgiou compares and contrasts the topographical, architectural and artefactual characteristics of two short-lived Late Bronze Age settlements, Pyla-

Kokkinokremos and *Maa-Palaeokastro*. Anna Georgiadou presents the ceramic production from a significant tomb discovered at Lapithos and discusses matters of chronology and circulation in the Early Geometric period. In the following contribution, Duncan Howitt-Marshall presents the underwater activities at the site *Kouklia-Achni* and discusses problems and perspectives. Finally, this section closes with the contribution by Philippa Steele, who examines the linguistic and archaeological evidence for the “Eteocypriot” language.

The second section of this publication is entitled “Religion, Cult and Iconography in Ancient Cyprus” and begins with a paper by Matthew Spigelman, re-examining the relation of copper and cult in the Late Bronze Age. In the following articles, Katarzyna Zeman-Wisniewska discusses gender aspects of the Cypriot terracotta production in the Early Iron Age and Aurélie Caribillet scrutinizes the relation of Hathor, the Great Goddess and the production of copper in Cyprus. The paper by Anja Ulbrich presents the votive sculpture from the sanctuary at Maroni-Vournes and explores the cult and iconography at this religious context.

The final part, entitled “Ancient Cyprus and the Mediterranean” is dedicated to the contacts of ancient Cyprus with the Mediterranean world. Lesley Bushnell discusses the role of Cyprus in relation to the circulation of Mycenaean perfumed oil. Anna Paule presents her ongoing doctoral research on the jewellery of Cyprus and Greece and attempts to reproduce the relation of these two areas in the Late Bronze Age and Early Iron Age. In the subsequent contribution Alexander Vacek explores the connections between the production of Greek and Cypriot pottery during the Geometric period. The following article by Iva Chirpanlieva contextualises the presence of Attic pottery from Kition and draws interesting results on the significance of this pottery in this particular context. Caroline Autret elaborates on the production and circulation of amphoras in Cyprus and Cilicia during the Early Roman era and discusses the relations between these two areas. Finally, Iosif Hadjikyriakos presents the Venetian elements in the iconostasis of Cyprus and examines the connotations of these aspects for the Medieval society of the island.

The papers included in this volume cover a wide time-span, ranging chronologically from the Chalcolithic period to the Medieval times. They present the results of new archaeological excavations and research, and comprise archaeological, anthropological and scientific approaches to the material culture of ancient Cyprus.

ABBREVIATIONS

Journals and Book Series

<i>AA</i>	<i>Archäologischer Anzeiger</i>
<i>AASOR</i>	<i>Annual of the American Schools of Oriental Research</i>
<i>ActaArch</i>	<i>Acta archaeologica</i>
<i>AfO</i>	<i>Archiv für Orientforschung</i>
<i>AJA</i>	<i>American Journal of Archaeology</i>
<i>AnatSt</i>	<i>Anatolian Studies. Journal of the British Institute of Archaeology at Ankara</i>
<i>AntJ</i>	<i>The Antiquaries Journal. The Journal of the Society of Antiquaries of London</i>
<i>AntK</i>	<i>Antike Kunst</i>
<i>ARA</i>	<i>Annual Review of Anthropology</i>
<i>BASOR</i>	<i>Bulletin of the American Schools of Oriental Research</i>
<i>BCH</i>	<i>Bulletin de Correspondance Hellénique</i>
<i>BSA</i>	<i>Annual of the British School at Athens</i>
<i>CAJ</i>	<i>Cambridge Archaeological Journal</i>
<i>CCEC</i>	<i>Cahier du Centre d'Études Chypriotes</i>
<i>CurrAnthr</i>	<i>Current Anthropology</i>
<i>IEJ</i>	<i>Israel Exploration Journal</i>
<i>IJNA</i>	<i>International Journal of Nautical Archaeology and Underwater Exploration</i>
<i>JAnthArch</i>	<i>Journal of Anthropological Archaeology</i>
<i>JAR</i>	<i>Journal of Archaeological Research</i>
<i>JFA</i>	<i>Journal of Field Archaeology</i>
<i>JHS</i>	<i>Journal of Hellenic Studies</i>
<i>JMA</i>	<i>Journal of Mediterranean Archaeology</i>
<i>JNES</i>	<i>Journal of Near Eastern Studies</i>
<i>JOBG</i>	<i>Jahrbuch der österreichischen byzantinischen Gesellschaft</i>
<i>JRS</i>	<i>Journal of Roman Studies</i>
<i>MDOG</i>	<i>Mitteilungen der Deutschen Orient-Gesellschaft zu Berlin</i>
<i>MeditArch</i>	<i>Mediterranean Archaeology. Australian and New Zealand Journal for the Archaeology of the Mediterranean World</i>
<i>OJA</i>	<i>Oxford Journal of Archaeology</i>
<i>OpArch</i>	<i>Opuscula archaeologica</i>
<i>OpAth</i>	<i>Opuscula atheniensia</i>
<i>QDAP</i>	<i>Quarterly of the Department of Antiquities in Palestine</i>
<i>RDAC</i>	<i>Report of the Department of Antiquities, Cyprus</i>
<i>RLA</i>	<i>Reallexikon der Assyriologie und vorderasiatischen Archäologie</i>
<i>SIMA</i>	<i>Studies in Mediterranean Archaeology</i>
<i>SMEA</i>	<i>Studi micenei ed egeo-anatolici</i>
<i>TelAviv</i>	<i>Tel Aviv. Journal of the Tel Aviv University, Institute of Archaeology</i>
<i>WorldArch</i>	<i>World Archaeology</i>
<i>ZA</i>	<i>Zeitschrift für Assyriologie und vorderasiatische Archäologie</i>

Other Abbreviations

Bichr	Bichrome
BISI	Black Slip
CA	Cypro-Archaic
CG	Cypro-Geometric
DP	Drab Polished ware
EBA	Early Bronze Age
EC	Early Cypriot
EPG	Early Protogeometric
FS	Furumark Shape
HBW	Handmade Burnished ware
LBA	Late Bronze Age
LC	Late Cypriot
LChal	Late Chalcolithic
LG	Late Geometric
LH	Late Helladic
LM	Late Minoan
MBA	Middle Bronze Age
MC	Middle Cypriot
MChal	Middle Chalcolithic
MG	Middle Geometric
MM	Middle Minoan
Psc	Pendent semicircle(s)
PWP	Proto-White Painted
RLWM	Red Lustrous Wheelmade ware
RP	Red Polished ware
RPSC	Red Polished South Coast ware
SM	Submycenaean
WP	White Painted
WPWm III	White Painted Wheelmade III

THE ANCHORAGE SITE AT KOUKLIA-*ACHNI*, SOUTHWEST CYPRUS: PROBLEMS AND PERSPECTIVES

Duncan S. Howitt-Marshall

Introduction

Maritime connectivity has played a key role in the social, political and economic development of Cyprus from prehistory to the modern age. Mineral rich with copper, the island was drawn into the international frenzy of trade and exchange in the Late Bronze Age (LBA *c.* 1650–1100 BC, traditionally Middle Cypriot [MC] III to Late Cypriot [LC] III), the height of which in the 14th and 13th centuries BC had a fundamental impact on the future development of social and political organisation. Exploitation of copper during this period facilitated the emergence of an economic elite, which controlled the trade of luxury imports and prestige items (Steel 2004, 150) and shifted the paradigm of early society on the island from small-scale provincial settlements to large-scale regional urban centres.

The advent of international trade, an early form of “globalisation”, and the establishment of an economic elite on Cyprus in the LBA was made possible by dramatic developments in ancient boat- and shipbuilding technology. The arrival of the square-rigged sail at the beginning of the second millennium BC (McGrail 2001, 112) and the construction of deep-hulled wooden vessels prompted an increase in seafaring and mercantile activity in the eastern Mediterranean. Indeed, advances in seafaring technology significantly decreased the risk of going to sea and Bronze Age mariners were able to transport raw materials and luxury goods in large robust vessels along established trading routes. Sea-going vessels were able to carry large cosmopolitan cargoes of prestige items, ceramics and raw materials from port to port around the region, and many may have been representative of centralised commercial ventures. Cypriot urban centres were very much at the forefront of maritime trade and exchange, especially Enkomi, Kition and Hala Sultan Tekke on the east and southeast coast of the island.

It is something of a paradox that Palaepaphos on the southwest coast was missed off the maritime archaeological map despite being such an important political and religious centre during the LBA and Iron Age. In the western district more emphasis was placed on the harbour facilities

at Nea Paphos during the later Hellenistic and Roman periods, which became the largest military and commercial port on the island by the end of the first millennium BC (see Daszewski 1981; 1987; Hohlfelder 1992; 1995; Hohlfelder and Leonard 1993; Leonard and Hohlfelder 1993; Leonard *et al.* 1998). Yet little has been done to investigate the nature and development of maritime communication along this coastline in earlier periods, especially in the vicinity of the ancient settlement at Kouklia (Palaepaphos), the site of the first capital of the Iron Age Paphian Kingdom. Following the discovery of 120 stone anchors at the nearby site of Kouklia-Achni in 2005 (*Fig. 7.1*), this paper is a first attempt to give focused insight into the problems and perspectives of studying maritime connectivity in southwest Cyprus during the later prehistoric and protohistoric periods.

Southwest Cyprus in context

The setting of this research has its origin in the long-established tradition that southwest Cyprus is a distinct geographical region of the island (*e.g.* Rupp 1987), with a unique and dynamic cultural history. It is ostensibly the most remote region of Cyprus, furthest away from the continental landmasses of western Asia and the ancient civilisations of Anatolia, the Levant and Egypt. The region's early archaeological record was until the mid-1970s viewed as displaying a lack of material outside of a few notable Neolithic and Chalcolithic sites, and the only major urban settlement of any prominence in southwest Cyprus during the LBA was Palaepaphos.

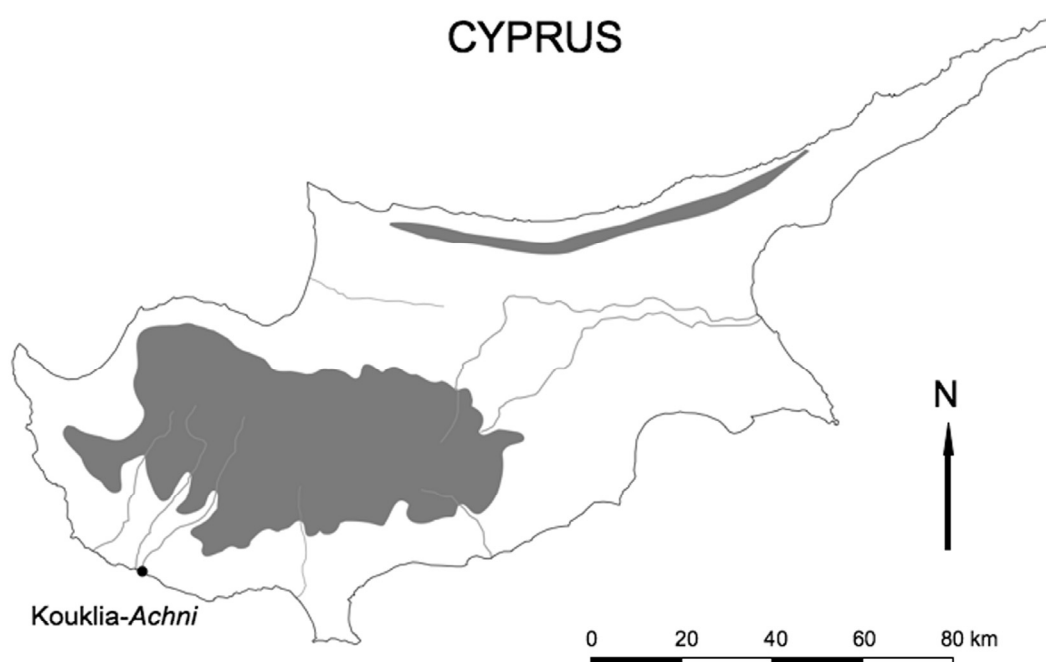


Figure 7.1: Map of Cyprus showing the location of Kouklia-Achni. The shaded areas indicate land over 400 m (Illustration by Blake Sawicky and Duncan S. Howitt-Marshall).

Since that time, however, the region has undergone a number of systematic, diachronic archaeological surveys, including Rupp (1981), Rupp *et al.* (1984; 1986; 1992; 1993), Maier and von Wartburg (1985) and the ongoing work of Maria Iacovou and the Archaeological Research Unit of the University of Cyprus at Kouklia (Palaepaphos) (Iacovou 2008, 263–289). Despite the paucity of visible monuments that relate to the structure and formation of urban settlements in the wider area, these studies have yielded a great deal of information on the archaeo-cultural record of Palaepaphos throughout the LBA and Iron Age. Palaepaphos was also the site of the famous Sanctuary of Aphrodite, and despite its obvious geographical orientation towards Greece and the Aegean, many artefacts found display an amalgam of artistic styles and traditions from the Near East and Egypt. Regardless of the relative physical isolation, cultural contacts with the outside world were seemingly diverse and imported items indicate trade relations with Syria and the Levant during the LBA and Early Iron Age, as well as Crete and the Aegean.

The Greek historian and geographer, Strabo (63/64 BC-c. 24 AD) mentioned Palaepaphos and its harbour in his *Geographica*, as well as other mooring places along the southwest coast. He attributes the founding myth to Agapenor, an Arcadian king washed ashore in a storm on Cyprus while voyaging home from the Trojan War. The text explicitly mentions that the settlement was situated “at about 10 stadia above the sea” and has “well-built temples” (Strabo XIV.6.3). Current efforts to locate the original harbour by Maria Iacovou and the Palaepaphos Urban Landscape Project have tentatively concluded that the area to the east of the terrace on which the Paphian Sanctuary is situated provides the most likely candidate (Iacovou 2008, 271). This low-lying area is called *Loures*, which literally means “strips”, and would have once formed a well-protected cove in antiquity. Yet the location of the offshore anchorage to the south of Palaepaphos at Kouklia-*Achni* adds an interesting twist to the debate. What was the nature and extent of harbour facilities that served the Paphian Kingdom in the Iron Age? Could the anchorage at Kouklia-*Achni* be an earlier maritime terminus that once served the southwest region in the Bronze Age?

Fieldwork 2005–2007

In early 2005 I was introduced to Dr. Filios Saziedes, a practising cardiologist from Limassol with a life-long passion for the sea. Like so many underwater archaeological discoveries around the world, local knowledge and assistance from fishermen, divers and sailors is crucial to the protection and preservation of submerged cultural sites. In May 2005 Dr. Saziedes told me about an area approximately two and a half kilometres south of the modern village of Kouklia where he had sighted a number of large stone anchors lying on the seabed. This area is clearly visible from the coast road travelling from Limassol to Paphos and is situated off a small spit of land adjacent

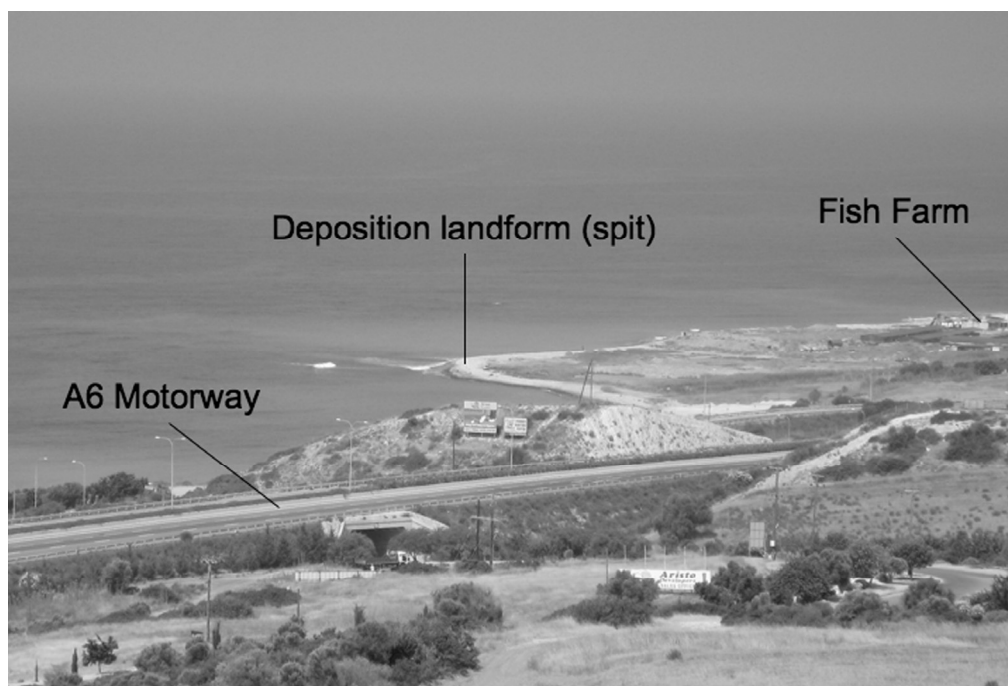


Figure 7.2: View of the anchorage site at Kouklia-Achni facing west. The A6 Motorway (Limassol to Paphos) in the foreground runs adjacent to the old coast road (B6), and a fish farm is located to the right of the site. A wave can be seen breaking over a submerged rocky outcrop to the left of the spit as sediments travel along the length of the landform; evidence of westerly winds and the longshore drift (Photo by Blake Sawicky).

to a modern fish farm (Fig. 7.2). We snorkelled approximately 50m from the shoreline and promptly located 15 or so stone anchors in 4 to 5m of water. The seabed in this area consists mainly of rocky outcrops and dense sea-grass meadows (*Posidonia oceanica*), and the anchors were situated in clusters of twos and threes in deep troughs and around the edges of the outcrops. From the outset it was clear that the site was an anchorage or mooring haven of some significance.

The anchors were recognisably similar to shapes and types classified by Honor Frost in other contexts around Cyprus and the eastern Mediterranean as Middle and Late Bronze Age (Frost 1970a). Only a small number of underwater surveys around the island have located so many stone anchors in one place – significantly Sturt Manning and his team at Maroni in the late 1990s (Manning *et al.* 2000; Manning *et al.* 2002), Honor Frost’s work at Kition and Hala Sultan Tekke (Frost 1970b), and the early surveys by Jeremy Green off Cape Andreas in the late 1960s (Green 1973).

Subsequently, in the summer of 2005 an underwater search and survey was launched in collaboration with the Cyprus Department of Antiquities and members of the Institute of Nautical Archaeology at Texas A&M University, with financial and logistical support from the THETIS Foundation. The team spent three weeks in June and July searching the area using basic diver-deployed

shallow water swim-lines. Divers worked their way out from the shoreline in pairs and methodically searched broad swaths of the seabed. Visibility was excellent on most days (15 to 20m) and during the course of the first season 120 stone anchors were discovered, including 24 three-holed “composite” anchors and 96 single-holed “weight” anchors (Howitt-Marshall and Leidwanger in press; Leidwanger and Howitt-Marshall 2006; 2008). Each anchor was photographed *in situ* using 1m and 0.5m scale sticks and a north arrow. A draft sketch was made followed by a series of careful measurements: anchor height, width, thickness

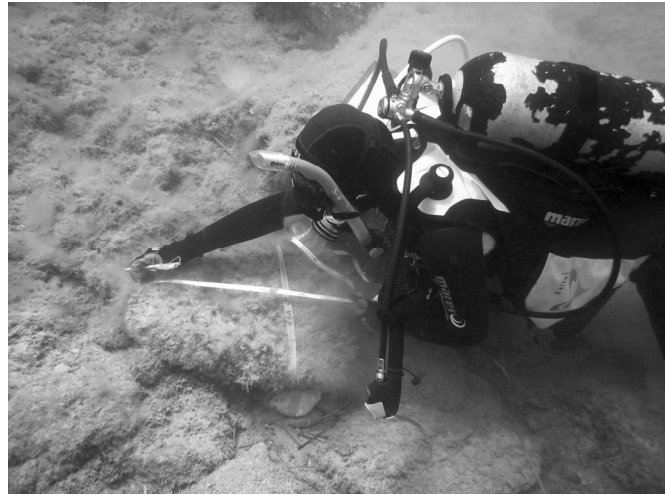


Figure 7.3: Stalo Eleftheriou, a diver-qualified archaeologist from the Cyprus Department of Antiquities, recording stone anchor “KSA 018”. Note the thick layer of marine algae covering the anchor and surrounding seabed. These dense deposits of vegetation help to conceal the anchors from would-be looters (Photo by the author).

and the diameter of the hole(s) (Fig. 7.3). These dimensions were then entered into a data spreadsheet and scale drawings were made of each anchor (Fig. 7.4). A weighted line was attached to a surface marker buoy (SMB) and each anchor was position-fixed from the surface using a hand-held GPS (Fig. 7.5).

Two more swim-line surveys were carried out in 2006 and 2007 to establish the full extent of the site, including a series of overlapping sweeps with a sidescan sonar further offshore. General purpose nautical ropes were laid across the seabed at 20m increments and each end of the 200m swim-lines were position-fixed by an SMB. Pairs of divers made their way along the lines recording depths and seabed topography, noting the positions of anchors en route. The sidescan sonar survey in 2006 was conducted by trailing a towfish behind the motor vessel, *Alexia II*. This gathered important data on any anomalies in the offshore approaches to the site, and gave a general impression of the nature of the seabed. It was found that the approaches were generally flat and featureless expanses of fine grain sand, pockmarked with rocky outcrops and dense meadows of sea-grass. Much of the sidescan sonar survey was conducted beyond depths achievable by scuba diving, but anomalies within safe range (i.e. to 30m) were verified accordingly.

The discovery of so many stone anchors on the seabed at Kouklia-*Achni* presents us with a number of problems in terms of understanding their context and origin. The underwater zone is strewn with rocky outcrops and sea-grass, and without any clear stratigraphic levels, analysis of these artefacts is condensed to basic typologies based on shape and size. These typologies were primarily established following the discovery of stone anchors in stratified and datable contexts

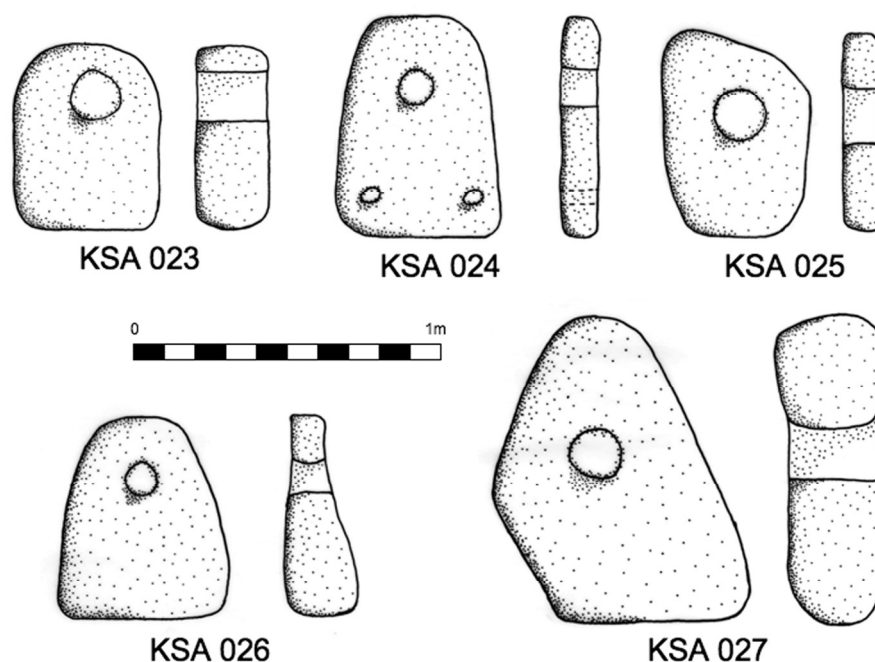


Figure 7.4: Scale drawings of five stone anchors recorded at Kouklia-*Achni*. These examples are a cross-section of the various shapes and types located at the site, including a three-holed “composite” anchor, single-holed “weight” anchors, and a large triangular Byblian anchor “KSA 027” (Drawings by Polly Westlake and the author).

on land, including temple complexes and tombs. Yet attributing a specific stone anchor to a specific region is fraught with problems, and is prone to the assumption that regional shapes and forms remained unchanged for centuries. Following the groundbreaking work on stone anchors in the eastern Mediterranean by Honor Frost (see discussion below), Dan McCaslin developed a refined typology for the LBA based on shapes, but conceded that stone anchors by themselves are not enough to determine sustained maritime communication (1980, 116). In the case of Cyprus, however, there are a number of sites that have contributed to our understanding of the broader significance of stone anchors in the LBA, as well as the characteristic styles that are particular to the eastern Mediterranean region.

For example, one stone anchor from the coastal settlement at Enkomi bears a distinctive Cypro-Minoan inscription (see McCaslin 1980, 26–27, fig.13.1). It was found at the bottom of a well and according to the excavator, Porphyrios Dikaios, may have been a votive offering (Dikaios 1969–71, 891). Stone anchors found at Hala Sultan Tekke were located in habitation levels, including walls, and several fragments were found in tombs, which may suggest a funerary connection (McCaslin 1980, 25). At Kition, Karageorghis cites dozens of votive anchors in a temple context located in stratigraphic levels dating to the 13th and 12th centuries BC (Karageorghis 1976, 60). Perhaps the most striking thing about the temple complex at Kition is

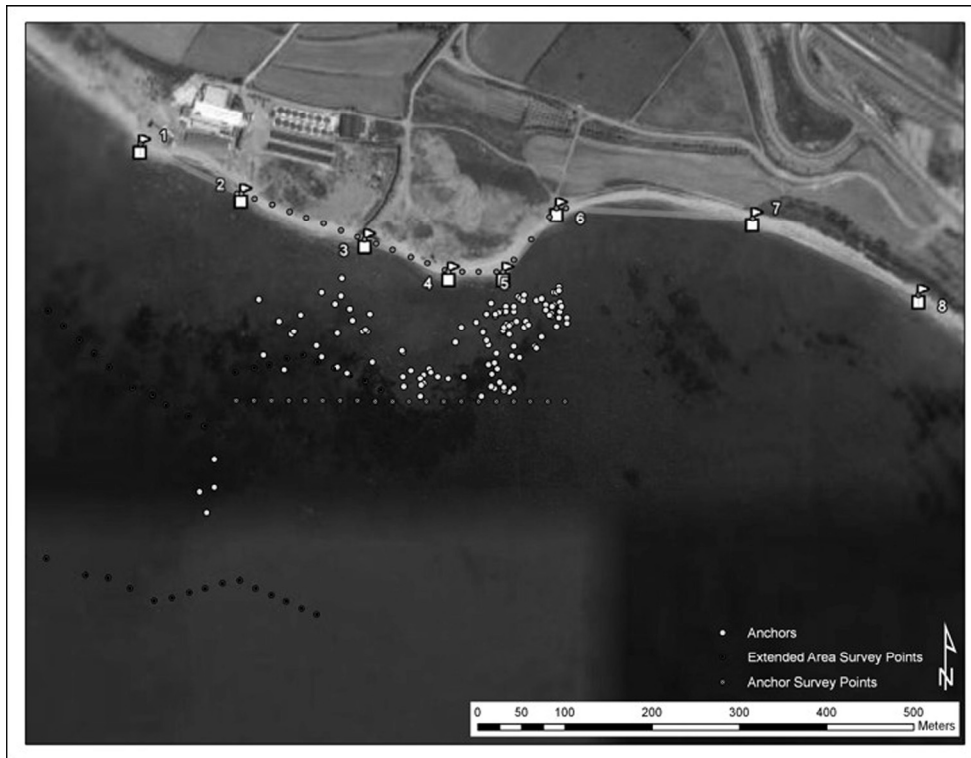


Figure 7.5: Satellite image of the anchorage site at Kouklia-*Achni* showing the positions of survey points (swimlines) and individual stone anchors (Justin Leidwanger and the author. Image source: Google Earth).

its close proximity to the copper workshops and the harbour; stone anchors may have provided an association between metallurgy and religion (McCaslin 1980, 25).

A few words on stone anchors

It was the pioneering work of Honor Frost in the 1960s, 1970s and 1980s that led to the first established typology of stone anchors in the eastern Mediterranean (Frost 1963a; 1963b; 1969a; 1969b; 1970a; 1970b; 1970c; 1973; 1979; 1982; 1986). The two main types of stone anchors found at Kouklia-*Achni* are composite and weight anchors. These types were classified by Frost primarily on their function: three-holed composite anchors for sandy and rocky bottoms, and single-holed weight anchors for low-lying reefs and rocky sea beds. We know from iconography and shipwreck archaeology that ancient vessels carried more than one of each type of anchor in anticipation of the various sea bottoms encountered en route. For example, the LBA merchant ship discovered at Uluburun off the southwest coast of Anatolia was carrying 24 stone anchors of both types when it sank in the late 14th century BC (Steffy 1994, 36–37).

At Kouklia-*Achni* the 120 anchors range in size from 30cm to over a metre in length. As the project was only granted a survey permit no anchors were excavated for weighing or stone sampling, but based on sheer size I estimate a number of anchors to be well in excess of 500kg.

The shapes range from simple ovals and crudely-carved rectangles to carefully crafted trapezoids and triangular forms. This last shape is reminiscent of examples found in the Levant, particularly the Neve-Yam group recorded by Ehud Galili and his team in the 1980s (Galili 1985; 1987; Galili *et al.* 1994). These triangular anchors with apical pierced holes have been classified by Frost (1970a, 381) as Byblian, and there are several examples from Kouklia-Achni that fit the visual characteristics and indices laid out by Galili *et al.* (1994, 97–106).

One of the most striking aspects of the assemblage of anchors at Kouklia-Achni is the disparity between the number of composite and weight anchors at the site. There are exactly three times as many weight anchors, 96 compared to 24. The reason for this may be very simple: the smaller single-holed weight anchors may in fact represent line weights. Indeed, Green (1973, 171–175) describes the principle of anchors and anchor-lines in his paper on the Cape Andreas Survey. In modern seafaring it is the anchor chain that holds the vessel and not the actual anchor. Metal anchor chains were not available in the Bronze Age, so the principle may have been achieved by the use of multiple single-holed line weights spaced at regular intervals along the hawser line with a large three-holed composite anchor at the end. This may explain the presence of clusters of both types of anchors in close relation to each other on the sea bed. As Green points out, if one anchor on the line gets “fouled” the hawser line may be severed to preserve the rest of the anchors (1973, 175). I would also argue that if the composite anchor at the end of the hawser line was fouled it may have been necessary to cut the rope relatively close to the gunwales of the vessel, thereby resulting in the loss of multiple anchors and line weights.

Environmental factors

In terms of the physical environment it is easy to see why southwest Cyprus has been missed off the maritime archaeological map. Travelling on the coast road from Limassol to Paphos, particularly along the area around *Petra tou Romiou*, the high cliffs on the edge of the Mamonia geological complex plunge steeply into the sea and the coastal plain is very narrow. The coastline is conspicuously devoid of natural bays or inlets for anchorages, and offers little protection from the prevailing winds coming from the west and northwest that blow throughout much of the year (see Murray 1995, 38–43). One of the key questions concerning this study is how much the coastline has changed over the last three millennia. Gifford (1978; King 1987, 10) estimated that sea-level rose approximately 2.52m per 1,000 years from the period 5,000 to 0 BC, reaching 0.5m below its current elevation at the end of that period. Flemming (1969; King 1987, 10) also concluded that sea-level in the Mediterranean has remained approximately at its current position over the last 2000 years. Based on these conclusions it would seem safe to assume that the modern coastline of southwest Cyprus looks more or less as it did at the end of the LBA. Yet we know that this region forms part

of a tectonically complex zone and major earthquakes and other seismic activity were commonplace during this period. Localised subsidence, uplift and inundation from drainage systems have dramatically changed the coastline in the last three millennia and further research needs to be done to provide a more accurate picture of the geomorphology in this region over time.

Andrew McCarthy in his analysis of the nearby Souskiou-*Laona* ridge and the Middle Chalcolithic “Souskiou Complex” in a paper on the Dhiarizos Valley noted that the viewshed from the settlement is conspicuously linear (Peltenburg *et al.* 2006, 101–102). He

suggests that the location of the settlement in relationship to the sea may have been at the “interface” of a key transport route linking the low-lying coastal plain to the uplands of the island's interior. This argument brings into play questions of visibility and the environment, which were critical to site location and communication networks. The site at Kouklia-*Achni* lies at the foot of the Dhiarizos Valley and may well have been intervisible with settlements, cemeteries and other landmarks in the uplands. The deep-time religious significance of this landscape continued to have resonance in the LBA and Iron Age, and the site location of Kouklia-*Achni* may have served as a vital maritime gateway to the Sanctuary of Aphrodite at Palaepaphos.

Archimandrite Kyprianos’ description of the area around Kouklia (Palaepaphos) in *Αρχιμανδρίτου Κυπριανού Ιστορία Χρονολογική της Νήσου Κύπρου* published in Venice in 1788 makes reference to a lake near the sanctuary that was large enough to serve as a port but silted up sometime in Antiquity. Interestingly, he goes on to mention that the still stagnant waters of the lake “made the air unhealthy and caused many illnesses” (Kyprianos 1788, 18). Indeed, longshore drift (the transport of sediments along a coastline) in the direction of the prevailing north-westerly winds along the western seaboard has no doubt been a major factor in re-shaping the coastline since the Bronze Age. Remote sensing in 2006 using sidescan sonar tracked large amounts of sedimentation in the area immediately offshore the nearby Dhiarizos River (Howitt-Marshall and Hühnerbach 2006), and may have been one of the principle reasons why the original port silted

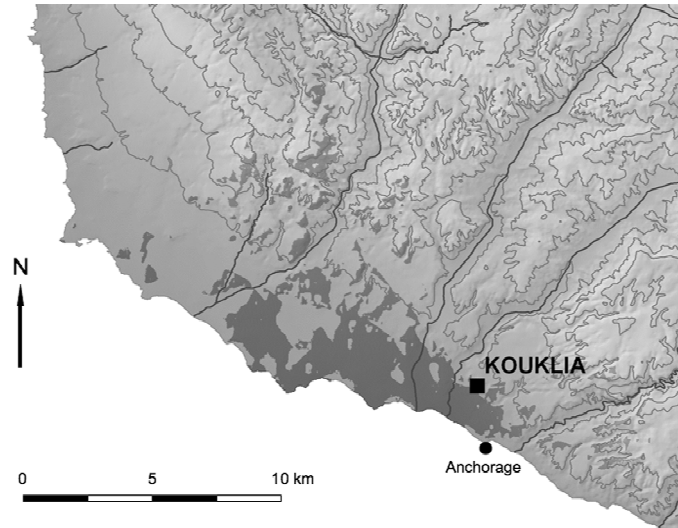


Figure 7.6: Viewshed of southwest Cyprus (shaded areas) from the Kouklia Manor House (Chiflik) based on a 25m digital elevation model. This building overlooks the Sanctuary of Aphrodite and commands a panoramic vista of the surrounding landscape and seascape. The anchorage at Kouklia-*Achni*, however, is not intervisible with the sanctuary complex at Kouklia (Zomenia Zomeni, Geological Survey Department, Cyprus).

up. Maria Iacovou has effectively argued that the port would have been positioned in an area where it would have been inter-visible with the Paphian Sanctuary (Iacovou 2008, 271). Indeed, it seems logical that a coastal settlement would locate the harbour in an area where it can oversee and administer to its operation. Despite the high vantage point and relatively short distance (2.5km) it is not possible to see the anchorage site at Kouklia-*Achni* from the sanctuary at Palaepaphos (*Fig. 7.6*). So, why was the anchorage site located there and what function did it serve?

Prevailing winds and currents in the eastern Mediterranean suggest that Bronze Age ships adopted an “anti-clockwise circulation” when under sail, and it is likely that long-distance voyages were divided into legs-cabotage or tramping (McGrail 2001, 112). Therefore, ships travelling around the basin from ports in Egypt and the Levant may well have sailed via the south coast of Cyprus to destinations in the west. Kouklia-*Achni* would have provided a convenient way-station for mariners needing to take onboard fresh provisions before crossing the open sea to southwest Anatolia and the Aegean. Yet the absence of proper mooring facilities and a harbour mole to provide much-needed protection from the prevailing westerly and north-westerly winds meant mariners may well have had to cut their anchor lines to escape severe conditions in a seemingly unsheltered location. Alternatively, large anchors could have been left *in situ* on the seabed for vessels to affix their mooring lines and weather the storm; a kind of “proto-harbour” or mooring haven (for a full account of the evolution of proto-harbours in the early Levant, see Frost 1995, 1–22). There is certainly no evidence for any kind of harbour construction or engineering in the archaeological record at Kouklia-*Achni*, but more research needs to be done to determine the nature of the coastline during the second millennium BC and whether or not there were bays and natural inlets to provide shelter. A thorough study on the coastal geomorphology of the region is paramount to understanding the changing nature of this coastline at any given period.

Discussion

Despite the unfavourable location of Kouklia-*Achni* in terms of prevailing winds and currents, Honor Frost noted that “seamanship and local knowledge compensate for navigational difficulties” (1995, 1). The conspicuous absence of harbour facilities therefore does not necessarily preclude Kouklia-*Achni* as an important maritime terminus in the Bronze Age. It is important to stress that there are no known harbour moles or breakwaters from Early or Middle Bronze Age coastal sites in Cyprus, or elsewhere in the Levant (Raban 1995, 145). Despite this, numerous coastal sites were being established throughout the region at this time, including Byblos and Ugarit. By the LBA in Cyprus, “primary coastal centres” at Enkomi, Hala Sultan

Tekke and Kition (see Knapp 1997; 2008) were constructing harbour facilities in response to the rising tide of seaborne trade. The physical settings of these maritime sites on the east and southeast coast of the island – better suited for direct trade with emporia on the Levantine coast – illustrate a number of key comparisons to Kouklia-*Achni* in the southwest:

1. The east coast site at Enkomi, located approximately 4km inland on the common estuary of the Pediaeos and Yialias rivers, had an estuarine port with year-round protection from the prevailing southerly winds (Sawicky 2007, 19–20). Seacraft were able to access the port via a navigable channel leading inland from Salamis Bay. Yet despite the sheltered location, the high sediment load of the Pediaeos-Yialias river system eventually silted up the channel at the end of the LBA. Indeed, Lindy Crewe attributes the abandonment of Enkomi in the 11th century BC to the silting up of this channel and the eventual relocation of the site to Salamis on the coast (Crewe 2007, 69; Murray *et al.* 1900, 1; Dalongville and Sanlaville 1980).

2. The site at Hala Sultan Tekke is situated on the western shore of the Larnaca Salt Lake on the southeast coast. Like Enkomi, the harbour facilities were located in the relative shelter of a coastal lagoon with a navigable outlet to the sea. The build-up of alluvium by the mid-LBA eventually rendered the harbour obsolete, and the site was destroyed and abandoned sometime around 1200 BC (Karageorghis 2002, 73).

3. Perhaps the most significant comparison is with Kition, a major harbour town on the southeast coast with a large complex of temples and metallurgy workshops. Its location on a long, exposed stretch of coastline is at odds with Strabo's description of a closed harbour (XIV.6.3) with navigable channels to the sea. A number of studies have attempted to reconstruct the palaeocoastline and find evidence for natural bays or an offshore ridge (*e.g.* Gifford 1978; Morhange *et al.* 2000; Nicolaou 1976). A recent synthesis of this research by Blake Sawicky surmised that Kition was exposed to prevailing southerly winds and was a "less-than-ideal location" for a harbour (2007, 32). The exposed nature of the site and close association with a large temple complex is similar to Kouklia-*Achni*, but its connectivity with production sites in the hinterland and international emporia in the adjacent Levant allowed it to thrive as a major maritime terminus. Kition is a good example of a large coastal settlement that contended with an unfavourable coastline and maintained its position

as a primary centre of production, administration, commercialism and ceremony throughout the LBA and into the Iron Age.

The evidence from the stone anchors at Kouklia-*Achni* presents us with a unique insight into the maritime connectivity of early southwest Cyprus. As problematic as stone anchors are to date and provenance, there are a number of examples found on the seabed that are consistent with shapes, sizes and types located in abundance elsewhere in Cyprus and the eastern Mediterranean. Several anchors are identical to types located in temple complexes at Byblos and Ugarit from the 14th and 13th centuries BC (McCaslin 1980, 44–47). Other examples are consistent with Cypriot anchors recorded in the 1960s and 1970s by Honor Frost and Dan McCaslin from Capes Kiti, Pyla and Greco, as well as Enkomi, Kition and Hala Sultan Tekke (Frost 1970a; 1970b; 1970c; 1973; 1982; 1985; McCaslin 1977; 1980). Perhaps most importantly the anchors span a time period from at least the LBA through the Early Iron Age, stopping before the presence of Classical stone stock and later Hellenistic and Roman lead stock anchors, which are a regular feature of underwater sites around the Mediterranean basin. Theoretically, the anchorage could have been in use throughout the LBA and Iron Age, and silted up sometime in the 4th century BC; the nearby Dhiarizos River pumping vast amounts of sediments into the sea just north of the anchorage, and the long-shore current running north to south pushing these sediments over the site. But the question remains: how did the anchors get there?

- Scenario 1: Accidental deposition

It is highly unlikely that the anchors at Kouklia-*Achni* represent actual shipping losses. Three seasons of underwater search and survey of the site have yielded very few fragmentary and intact ceramic remains, most notably a small number of medieval jugs. Scenario one is that they represent accidental deposition. If the anchors are indicative of vessels becoming snagged on the rocky seabed then what extent of time does the site represent? If we say that the anchorage was in use from the beginning of the LBA (c. 1650 BC) to the 4th century BC, 120 stone anchors represent nine or ten centuries worth of ancient mariners severing their hawser lines in order to cut themselves free, which is not a significantly high number of anchor losses (around 12 per century). What if the site represents a much smaller time period, say only a few decades or at most a century? This line of enquiry relies heavily on understanding the coastal geomorphology of the region, a task not yet tackled by this study. The promontory around which the anchors are situated, however, is most probably a recent build-up of riverine silt. Remote sensing offshore in 2006 tracked large amounts of silt that has spewed out from the previously mentioned Dhiarizos

River to the north of the site. Could even more anchors lie underneath the promontory? As it stands, the discovery of 120 stone anchors in one relatively small area is a major find and points to the fact that this site was at one time a busy maritime thoroughfare. But in terms of finding more stone anchors and other artefacts or architectural features relating to an ancient anchorage site, it may be just the “tip of the iceberg”.

- Scenario 2: Deliberate deposition

Another scenario could be the ritual or deliberate deposition of the anchors. Ships’ crews, grateful for safe passage from their point of origin, may have deliberately cut the hawser line to deposit an anchor – a tribute to the Goddess Aphrodite, her birthplace and the Sanctuary nearby. Unpublished votive figurines of the Goddess with uplifted arms, Astarte figurines and a royal dedicatory inscription by the Paphian King Nikokles to the Goddess were recently studied by Dr. Anja Ulbrich at the Paphos Museum (pers. comm. June 2009). These artefacts were located in the area near the modern fish farm and may indicate a possible sanctuary down by the shore dating to the Cypro-Archaic period. This particular stretch of coastal landscape may have had a deep-rooted sacred and religious significance for ancient mariners plying these waters, and the anchorage at Kouklia-*Achni* may well have been the point of disembarkation for pilgrims coming to the famous Sanctuary. One thing we do know is that stone anchors were ritually deposited at coastal sanctuaries in the Levant, famously at the Temple of the Obelisks at Byblos and the Temple of Baal at Ugarit (e.g. Frost 1973; McCaslin 1980), as well as at the sacred quarter at Kition in close proximity to the harbour (Frost 1985; Karageorghis 2002). This may be why there are so many anchors concentrated in one place adjacent to the Sanctuary – the ritual deposition by superstitious seafarers.

Conclusion

Based on the sheer number of stone anchors at Kouklia-*Achni*, it is clear that Palaepaphos was an important maritime thoroughfare from the Middle to the Late Bronze Age in Cyprus. Despite the physical disadvantages of locating an anchorage in an area that was seemingly buffeted by year-round westerly and north-westerly winds, its position on the southwest coast would have served as a convenient way-station for vessels tramping west. The religious importance of the Sanctuary of Aphrodite also brought in significant wealth and tribute to the region, and the large number of stone anchors present offshore perhaps bears testament to an influx of pilgrims and traders from overseas, which encouraged Palaepaphos to flourish during the centuries after the end of the LBA. Even so, before we are able to trace evidence of a much bigger port facility that served

Palaepaphos and the Paphian Kingdom in the Iron Age, I believe that the anchorage site at Kouklia-Achni indicates a level of maritime activity previously unseen in the underwater archaeological record of the southwest region of Cyprus. The anchorage almost certainly predates the much larger Iron Age port and judging by the stone anchors we can confidently conclude that many examples conform to types and styles found in datable Middle and Late Bronze Age contexts.

The coastline has changed a great deal in the last three millennia and much of the modern low-lying coastal zone has been created by the steady build up of silt from the nearby Dhiazos River. Kouklia-Achni was likely a precursor to the later port, a kind of proto-harbour that served the region in the Bronze Age. It may have also been a “purpose-built” anchorage with *in situ* mooring stones that served the Sanctuary of Aphrodite, depositing pilgrims on their way up the sacred way to the famous cultic site. The high number of stone anchors found at this small shallow water site presents us with a unique assemblage of finds relating to early maritime activity in southwest Cyprus. Further study in this area will add an important chapter to the maritime history of the island, as well as the typology of stone anchors in the eastern Mediterranean.

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