Report of the
Department of Antiquities, Cyprus

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Επιστημονικη Επετηρις
του Τμηματος Αρχαιοτητων Κυπρου

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The Underwater Survey at Episkopi Bay: A Preliminary Report on the 2004 Field Season*

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The summer of 2004 saw the second season of underwater survey work in the area of Episkopi Bay and the Akrotiri Peninsula. The six-week season lasted from 28 June through 6 August, though several additional weeks were dedicated to conservation and documentation. Local volunteers joined three American archaeology students from Texas A&M University and Boston University in an effort to explore several new and promising areas. The Department of Antiquities kindly granted permission to extend the survey slightly eastward to include southern Akrotiri. Work therefore focused on this stretch, as well as a possible anchorage to the west at Avdimou Bay.

DREAMER'S BAY

The southern coast of Akrotiri provides an ideal setting to explore Cyprus' maritime trading routes. The rocky cliffs are well exposed to southerly and southwesterly winds, while treacherous rocks and reefs around Cape Zevgari may have claimed ancient mariners who ventured too close to the peninsula's southwest tip. This danger would have been even keener for ships departing Kourion under a square sail, which was perhaps the only rig available until the Hellenistic period.[1] Sailing with the wind abeam, they would have had to work hard to round Zevgari successfully at all, let alone with any room for comfort. Several weeks were spent in 2003 inspecting this treacherous area; the 2004 season focused much attention on an inlet further east known as "Dreamer's Bay."

For some time, archaeologists have been aware of the area around Dreamer's Bay (Akrotiri-*Vounari tou Kampiou*, Fig. 1). At the western edge, a series of foundations for long galleries lie onshore, along with massive surface deposits of pottery. Originally, a 5th- or 6th-century date was adduced for the site based on surface sherds. However, J. Leonard has raised the possibility that this may be the enigmatic "peninsula-like Kourias" of the Augustan geographer Strabo and perhaps also the "Kargaiai" mentioned in the nearly contemporary *Stadiasmos*.[2] Recent inspections here by J. Leonard and S. Demesticha have

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1. Casson 1995, 243-44.
2. Leonard 1995, 232 n. 14, 234 n. 20; The 1st century A.D. Roman natural historian Pliny writes of "Curias," which Leonard also reasonably connects with the "Kourias" of Strabo.

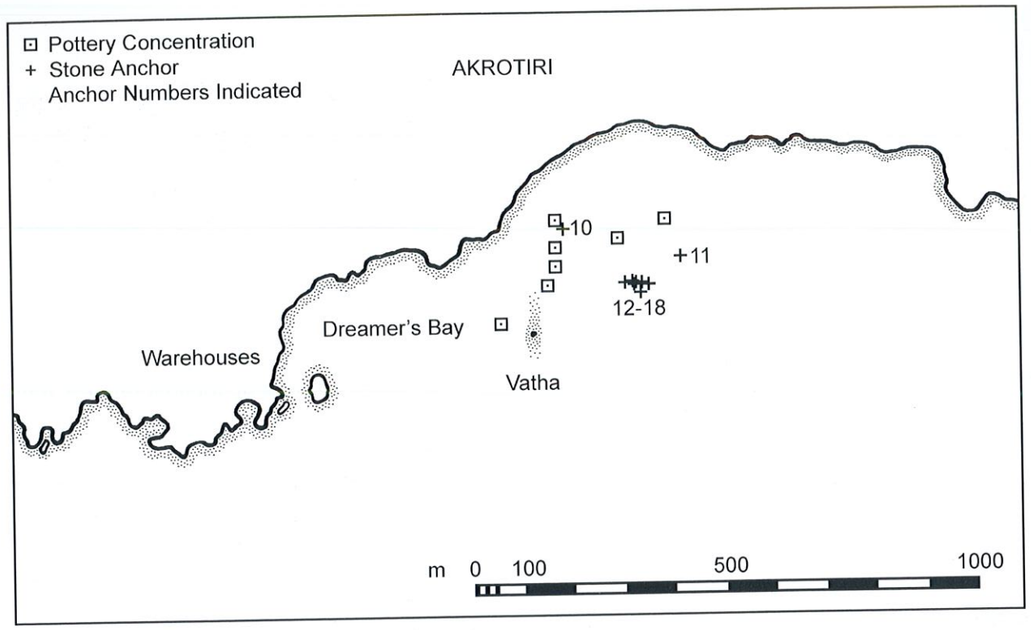


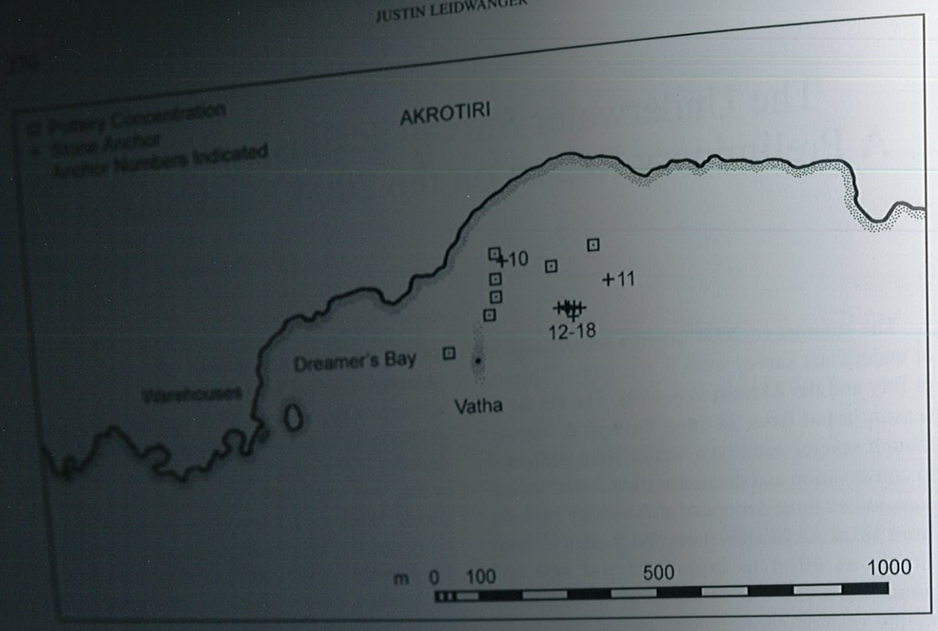
Fig. 1. Map of Dreamer's Bay.

shown that at least some of the pottery on shore dates to the Early Roman period, though a 4th-century B.C. piece hints at an even earlier date. The hitherto unnamed site at Dreamer's Bay could then be contemporary with these literary references.[3] Observations in 2003 by members of the Episkopi Bay Survey team revealed dull black-gloss sherds, supporting the proposed earlier date. It was therefore decided to run divers along closely spaced lines across this bay from west to east in an endeavour to ascertain what periods the underwater pottery represents.

The cove offers substantial shelter due to its opening to the east and southeast. A small island to the south keeps the heaviest waves from entering. The westernmost sector is extraordinarily shallow in places, suggesting that if ships anchored at Dreamer's Bay, they must have remained some distance offshore unless substantial uplift has taken place in the past two millennia. Among these shallows, divers found numerous sherds of amphoras, roof tiles and other coarse ceramics. The majority of sherds were not diagnostic, which is not surprising, considering that this area is a popular snorkeling spot. Archaeologists' suspicion that many of the sherds underwater were indeed Hellenistic was only confirmed when they found an easily identifiable Hellenistic Rhodian amphora handle and rim just to the north. They also uncovered diagnostic Roman and Late Roman ceramics. Thus, evidence underwater, agreeing with that put forth by Leonard and Demesticha, indicates a period of use for this inlet from the Hellenistic era through late antiquity.

Divers located several concentrations of Late Roman and Early Byzantine pottery, including large numbers of LR1 amphoras, primarily in the area north and northeast of the Vatha Rocks. Worthy of note are the quantities of roof tiles, several samples of which were raised for reconstruc-

3. Leonard and Demesticha 2004, 197-200.



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tion and further documentation. No apparent stacking or arrangement hints at an intact wreck, though the finds are sufficiently scattered and numerous to suggest some substantial trade in these ceramic architectural elements. Tile shapes included standard Corinthian-style flat pan and Laconian-style curvilinear. Archaeologists noted only a few cover joints, of semicircular shape, among one concentration. The excavators at Kalavasos-*Kopetra* have verified the importation of roof tiles of the two major styles from outside the Vasilikos Valley, including red Laconian-type tiles from a production centre on the western part of the island.[4] The distinctly red fabric, shape and dimensions from the *Kopetra* examples closely match samples raised for reconstruction (Fig. 2). Furthermore, finger-inscribed *lambda-epsilon* signatures recorded among the finds at Dreamer's Bay have exact parallels from *Kopetra*.[5] It seems that the mechanism of distribution that carried these late antique building materials to *Kopetra* did involve seaborne commercial links along the island's southern coast.

The area northeast of the Vatha Rocks yielded nine stone anchors, two of which came from isolated contexts. The remaining seven were densely packed around the western fringes of a large sandy patch of seabed. These are of drastically different shapes, sizes and forms, including not only weight, but also sand and composite styles, suggesting that they came from several different depositional events, perhaps reflecting diverse origins and probably distinct time periods as well. The minimal thickness and small perforations of one three-holed anchor have very close parallels to pierced stones recovered in later contexts in Israel and elsewhere, showing that this simple technology continued in use into the Byzantine, Crusader and even later periods.[6] Archaeologists found in the general vicinity only a few ceramic sherds, largely of late antique date, including one body sherd encrusted in the hawser hole of Anchor 18. Of course, this could just as easily have been deposited at a much later date. Otherwise, no ceramics had contexts which could add to the interpretation of these anchors.

Fig. 2. Laconian style roof tile from Dreamer's Bay.

The concept of a stone anchor typology presents grave difficulties. Shape and size, while certainly important features, are hardly sufficient to suggest a precise date, let alone cultural origin.[7] One example (Fig. 3) does share general similarities with anchors recovered from the Late Bronze Age shipwrecks at Uluburun and Cape Gelidonya.[8] Additional study is required before drawing conclusions about potential dates and origins of these stone anchors. Also of interest are four large iron concretions, which may be the remains of metal anchors located among the Late Roman and Early Byzantine pottery just to the north.

Regardless of the precise dates of the Dreamer's Bay stone anchors, the group provides good evidence that this inlet functioned as an anchorage from early times, perhaps as early as the Bronze Age. The close proximity and careful arrangement of the seven pierced stones around a sandy patch, clearly visible from the surface, suggest that mariners intentionally selected this area as a suitable anchorage; it is unlikely that they dropped these anchors under emergency circumstances.

4. Rautman *et al.* 1993, 235.
5. Rautman *et al.* 1993, 237 fig. 3.21.
6. Raban 2000; Raban 1990; Frost 1963, 4 fig. 23; Kingsley and Raveh 1994, 10-11.
7. For some of the stereotypes and misdirection among anchor studies, see Kingsley 1996.
8. Wachsmann 1998, 281, 283-85; Pulak 1999, 210-11; Pulak and Rogers 1994, 20, 21 fig. 7.

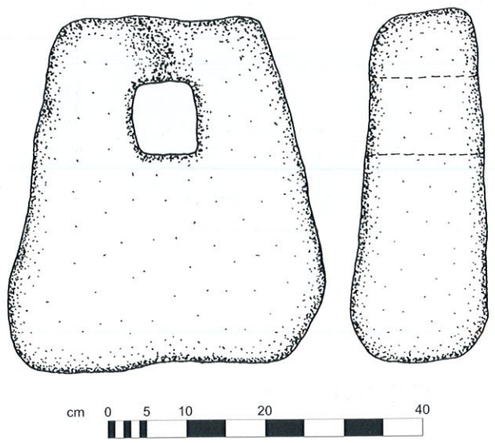

Fig. 3. Stone anchor 14 from Dreamer's Bay.

AVDIMOU BAY

The stretch of coastline from Akrotiri to Cape Aspro lacks ideal natural anchorages. Stormy conditions would therefore have forced ancient mariners into any available small coves offering some degree of refuge, such as Avdimou Bay (Fig. 4). Even though it provides no shelter against the more forceful winter southerlies, the inlet is protected from summer westerly winds and would have proved adequate for the larger part of the sailing season. Furthermore, on the weathered promontory near the cove's western edge, archaeologists noted substantial ceramic scatterings, including amphoras, which may allude to early utilization of this area for some commercial purpose.

In his analysis of Roman harbours on Cyprus, J. Leonard locates in the area of Avdimou Bay the problematic "Treta" mentioned in the *Geography* of Strabo (14.6.3).[9] He also relates the presence of carob stores onshore, which were likely involved in the exportation of this important agricultural commodity.[10] It was here that in A.D. 1426, a Muslim invasion force of 150 ships and 3000 men landed.[11] Today, the cove is still utilised by a small handful of fishing and pleasure craft. With this evidence in mind, the survey team selected Avdimou Bay as the second focus of the 2004 season.

The seabed at Avdimou is typical of those off this coast of Cyprus. Barren sand and sediment extend for great distances at shallow depths, allowing coverage of large areas with swimlines alone or even larger areas with the aid of remote sensing. The centre of the cove, just offshore from a small rocky outcrop, is perhaps the most interesting and unusual. Here bedrock is exposed without substantial sand buildup.

This bedrock provides a solid foundation for a long wide wall perhaps intended to enhance the bay's safety (Fig. 5). A provisional map was created in AutoCAD using offsets measured from a baseline anchored near shore. The construction, primarily of amorphous boulders, extends south for approximately 140m. and reaches over 35m. at its greatest width. The last metres nearest shore are little more than strewn rubble, probably due to relentless pounding from waves. The top of the structure lies just below the surface, some three and a half metres above the sand at its seaward end. Extraordinarily thick masses of poseidon grass roots often masquerade as additional stones, making discernment of the structure's dimensions more challenging. Brief inspection of stones at various points along the outside as well as on the interior revealed no joints or other construction features that might yield chronological clues. Only a scarce few sherds of Late Roman pottery were found, though none in any direct contexts which might shed light on the wall's date.

The ceramics more likely drifted in from an assemblage located just over a hundred metres southwest of the wall, at a depth of only three to

9. Leonard 1995, 233 fig. 5.
10. Leonard 1995, 235 fig. 7.
11. Swiny 1982, 161.

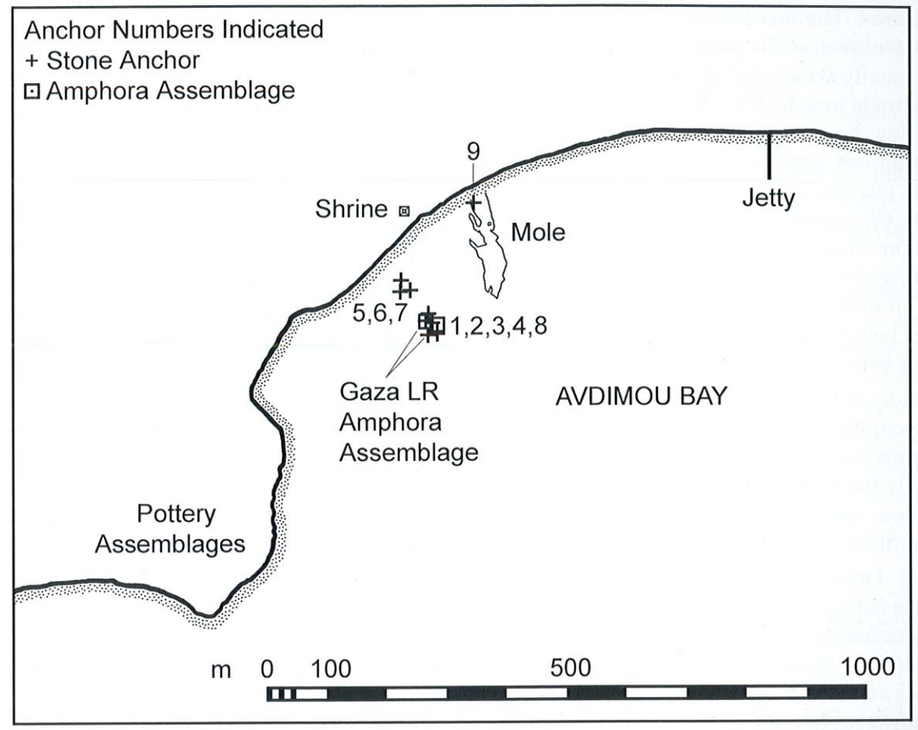

Fig. 4. Map of Avdimou Bay.

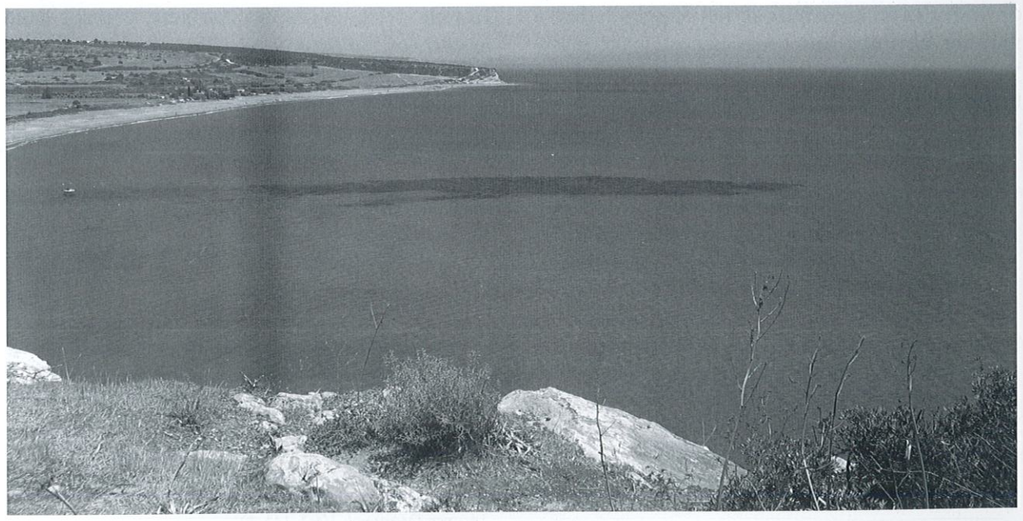

Fig. 5. Underwater construction at Avdimou Bay.

four metres. The jars, though fragmentary, are easily identified as the standard LR4 type from Gaza, usually connected to the widespread late antique trade in wine (Fig. 6).[12] The shape of the simple low rim and conical base, the placement of ridging and handles, and the overall proportions all tentatively point to a date around the 5th or early 6th century A.D.[13] The remains of perhaps more than 30 amphoras lie on the surface, with others clearly buried in sand. Traces of pitch lining on their interiors, including thick flaking patches inside their bases, support the proposition that these jars carried wine.

Besides the Gaza jars, the only ceramics from this assemblage visible on the surface are two other amphoras. One is clearly an Early Byzantine LR1, and therefore could be part of the same deposition. The other amphora, however, seems to be intrusive, given its likely Hellenistic date.

Like Dreamer's Bay, Avdimou Bay also yielded a collection of nine pierced stones, which were concentrated at the centre of the bay. Divers recorded five within the confines of the Gaza amphora assemblage and another three slightly to the northwest. An unusual, lone pierced stone lay among the scattered rubble just inshore from the construction described above. Again, the great diversity of shapes and styles suggests that a number of ships left them behind over many years. Even the two sand anchors demonstrating the most similarity vary greatly in such basic attributes as shape and size of hole. Detailed searches revealed no anchors of metal, the standard choice of late antique mariners.[14] The possibility remains that some of the five stone anchors may be directly associated with the cargo of Gaza amphoras; however, this cannot be proved.

Fig. 6. Late Roman Gaza amphora from Avdimou.

Several factors cast doubt on the identification of at least two of these stones as true "anchors." One of the single-hole stones is certainly too small to have functioned effectively as a weight anchor, and should probably therefore be identified rather as a net or hawser weight.[15] Another, the lone example closest to shore, is of a highly unusual profile, one not likely to have been carved in stone. It retains what appear to be iron stains around the single hole, perhaps from a chain. This use of metal may indicate a much later (possibly even modern) date, especially since use of this anchorage continued into later times. The placement of a hawser hole in the exact center seems unlikely for such a large anchor, as it would have made handling unwieldy. Its proximity to shore raises the possibility that, rather than an anchor, it may have functioned as a makeshift mooring stone, with permanently affixed buoy and line for tying up vessels.

Though open to harsh winter winds from the south, Avdimou apparently offered sufficient protection for some ancient mariners, perhaps from as early as the Bronze Age, though certainly during the Early Byzantine period. The underwater construction near the bay's center may have afforded some additional measure of safety, though its date remains uncertain.

GENERAL OBSERVATIONS AND PLANS FOR THE 2005 FIELD SEASON

Following two years of survey, it is becoming quite clear that Episkopi Bay and Akrotiri were

12. Kingsley 2001, 50.
13. Majcherek 1995, 166-69; Johnson and Stager 1995, 96, 97 fig. 6.1A.
14. van Doorninck 1982, 141-42.
15. Wachsmann 1998, 275 fig. 12.35, 286-88.

links in a thriving maritime commerce, in which Kourion and Akrotiri-*Vounari tou Kampiou* were certainly players. While material that may be as early as Bronze Age has now been documented, the Late Roman and Early Byzantine periods remain the best represented. This preponderance of late antique finds, attested elsewhere along the island's busy shores, highlights the great economic prosperity that characterized this quiet, peaceful province.

Explorations at the harbour/anchorage sites at Dreamer's Bay and Avdimou Bay will doubtless shed light on the string of Cypriot coastal trading centres, a topic of no small importance to this centrally located island. A vastly more detailed picture is emerging from the archaeological evidence amassed by other ongoing survey projects, such as the Cyprus Coastal Survey and the Western Cyprus Underwater Project.[16]

Also of great importance is the small but rapidly growing corpus of shipwreck assemblages in Cypriot waters, which now includes those at Avdimou and Akrotiri. Ideally, when survey work has reached all corners of the island, synthesis of this material will allow informative statistical relationships to be drawn.

Along this stretch of coastline, archaeologists hope to continue the limited investigations that have thus far proven successful. Of paramount importance is the establishment, if possible, of dates for underwater constructions through more extensive inspection and mapping.

The 2004 season was originally conceived as including wide-area remote sensing, an endeavor that unfortunately proved impossible due to logistical complications. The 2005 season should now see the commencement of this type of exploration. The combination of multi beam sonar and magnetometer should prove ideal for this flat, sandy seabed.

16. For results of the longstanding Cyprus Coastal Survey, directed by Mr J. Leonard, see Leonard 1995 and 1997. The recent Western Cyprus Underwater Project is directed by Mr D. Howitt-Marshall.