

# Opportunistic Ports and Spaces of Exchange in Late Roman Cyprus

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**Abstract** Ports served not only as interfaces between land and sea, but as central gathering spaces for economic and cultural exchange. Drawing on case studies from the eastern Mediterranean island of Cyprus, this paper situates opportunistic ports lacking built facilities within a broader socioeconomic context of diverse maritime communications, expanding rural settlement, and increased agricultural productivity during late antiquity. Though simple, these sites served as active agents in the development of new maritime networks as well as local markets throughout their hinterlands, adding flexibility and dynamism to the economic ties between city, countryside, and the wider late Roman world.

**Keywords** Cyprus · Ports · Maritime trade · Late Roman

## Introduction

The construction of a dense network of ports across the ancient Mediterranean world represents a pinnacle of engineering and technology.<sup>1</sup> Archaeologists have long focused on the material remains of Greco-Roman harbors as a window into trade, maritime life, and the practical application of technological knowledge along the shores of the Mediterranean. Investigations of both large and small installations have brought to light a range of features, changes, and improvements of design and materials that allow a reasonably detailed outline of the history of port technology in the ancient world, from the simple coves and

<sup>1</sup> The terms “harbor” and “port” are often used interchangeably in discussion of maritime infrastructure. To avoid confusion here, the common convention is followed by which “harbor” refers to the protected, often partially or fully enclosed space used by vessels for shelter. By contrast, “port” here distinguishes a facility or location at which goods and people can pass between maritime and terrestrial contexts.

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river mouths favored by the earliest seafarers to the ashlar-enclosed basins of the Near Eastern and Greek worlds or the complex concrete structures effected by Roman engineers and described by Vitruvius.<sup>2</sup>

While considerable emphasis has been placed on the most massive and elaborate ports, such infrastructure was not necessarily the norm, nor even all that common for many coastal communities, where maritime communication and exchange were conducted through much simpler facilities, or with no built structures at all.<sup>3</sup> Even during the height of the Roman era, when hydraulic concrete provided seemingly limitless opportunities to create protected installations along the least hospitable coasts, routine maritime activities undertaken along simple beaches reveal the extent to which these technological choices were embedded within a web of non-technical considerations.<sup>4</sup> The employment of a range of different practical solutions underscores how harbor facilities across the Roman Mediterranean responded not only to technological needs and local environmental conditions, but to a range of socioeconomic interests and market structures within individual maritime communities. For example, when the residents of Roman Aperlae outfitted the port that would link them into a flourishing coastal circuit of cabotage along the south coast of Turkey, they opted for only a simple seawall and small jetty. Regardless of technological capacity and financial resources available, the Lycian town developed a facility that suited its socioeconomic situation and maritime networks; these centered on occasional arrivals of small ships that likely stopped very briefly to unload and load before continuing along the coast. The port's natural shelter, few visits by larger or deep-hulled ships, and few lengthy stopovers probably made the decision to invest financial resources elsewhere easy (Hohlfelder and Vann 2000; Hohlfelder 2005). Just as Herod's massive harbor project at Caesarea reflects the sociopolitical ambitions of its builder as much as actual maritime economic need (Holum et al. 1988; Hohlfelder 2003; Raban et al. 2009), simpler solutions and smaller unadorned facilities must be understood as not only technological adaptations to the environment, but the social products of individual communities.

With its wealth of resources, extensive settlement, and diverse coastal topography ranging from sheltered coves to long stretches of exposed beach, the island of Cyprus offers an occasion to investigate how the development of harbors (or lack thereof) reflects the changing socioeconomic landscape of Roman and late Roman communities. From an urban perspective, a dense network of coastal facilities circled the coast and provided considerable maritime capacity long before the island's incorporation into the Roman state.<sup>5</sup> Rather than starting from these largest cities or most elaborate harbor works, I frame this inquiry from the perspective of the many other coastal locations—the unadorned beaches with adjacent anchorages—that served as makeshift spaces of maritime exchange during the period in question: roughly the late first century BC to the mid-seventh century AD. By examining their spatial patterning in relation to settlement and topography, their integration with networks of communication and exchange, and the material record of maritime commerce within the communities that likely used them, we can explore how such facilities served as interfaces between land and sea, and central gathering places for

<sup>2</sup> See generally Frost 1972; Blackman 1982a, 1982b, 2008; Raban 1995; Blue 1997. Vitruvius 5.12 discusses the technology and engineering related to port construction.

<sup>3</sup> E.g. Rougé 1966; Houston 1988; Oleson and Hohlfelder 2011.

<sup>4</sup> See generally Lemonnier 1993; Pinch 1996; for Classical technology in particular, see Greene 2008.

<sup>5</sup> Rickman suggests 50–70 km as a reasonable maximum functional distance among ports across the Roman world, which corresponds well with the average distance of major port cities around the island during the Roman and late Roman periods. See Rickman 2008: 12.

economic, informational, and cultural interaction. I argue that the rise in use of these spaces during late antiquity reflects a new economic agency outside the cities and a loosening of a traditional urban-centered core-periphery model of exchange across the island. Situated within the broader material record of maritime connectivity, these sites appear as active agents in the construction of socioeconomic communities, particularly centered on consumption and local commercial marketing regions outside the city, where they may have served as coastal periodic marketplaces for the exchange of products throughout their hinterlands.

### Ports Without Structures: Opportunistic Coastal and Underwater Sites

Without built structures, sites that functioned as opportunistic ports may be difficult to recognize archaeologically.<sup>6</sup> The routine activities of loading and unloading goods and people can be undertaken from nearly any strip of coast that is accessible in some capacity from both sea and land. So long as vessels can stop, even temporarily, and goods can be maneuvered through the shallows into and out of their cargo holds, a simple unadorned beach might suffice as a port for economic exchange and other maritime activities. Small boats today still utilize similar spaces along the coast of Cyprus. For example, the modern cutting of a small vehicular path into the eroding sea cliffs west of Kourion, originally to facilitate the retrieval of sand for construction, allowed the space to serve thereafter as a small fishing harbor through the addition of a few improvised wooden docks (Figs 1, 2, 3).<sup>7</sup> Where a sandy beach is available and marked by a gentle incline, pulling a vessel ashore provides another possible solution that requires little infrastructure beyond some manpower and perhaps a few timbers or other supports (McGrail 1981: 22; Houston 1988: 560–561 and fn. 42). More durable indicators such as a path or road to the interior, storage facilities, and a source of fresh water for replenishing a ship's stores seem likely in some instances but may not have been necessary in others.

At these opportunistic ports, the telltale archaeological signatures of exchange—coins, weights, recording tablets, etc.—may be few, and surface survey of comparatively inconspicuous sites is unlikely to yield such rare or ephemeral finds. Ceramic and other material remains may be more plentiful, but identifying economic exchange activity may be more difficult. Lost anchors, abandoned moorings, and discarded ballast may represent the remains of port-based exchange, but such remains may also have been left by vessels seeking only shelter along a coast with no intention of local exchange. The casual debris both on shore and off shore of transport amphoras broken at sea or during handling, and the worn or broken cooking and table wares that once served the needs of crews while at sea or anchored, could likewise serve as indicators of an opportunistic port.<sup>8</sup> Any identification of an opportunistic port, particularly from surface survey, is likely to be based on the cumulative weight of many such factors: coastal accessibility and topography, submerged

<sup>6</sup> See generally McGrail 1981: 19–23.

<sup>7</sup> Thanks to F. and A. Garrod and P. Yiakoumi for information on this site. There are traces of a roadway between the cliff top and the nearby Sanctuary of Apollo, as well as a possible ancient passageway from the cliffs above down to the sea, though erosion has destroyed most of this. No evidence of activity was found recently in the waters nearby, though a few finds were reported years ago in the sand, and any artifacts here may have been covered by overburden from the eroding cliff face: see Leidwanger 2004: 19–20 and figs 4–5; Bullard 1987: 61 and figs 28–29; Leonard 2005: 566–568.

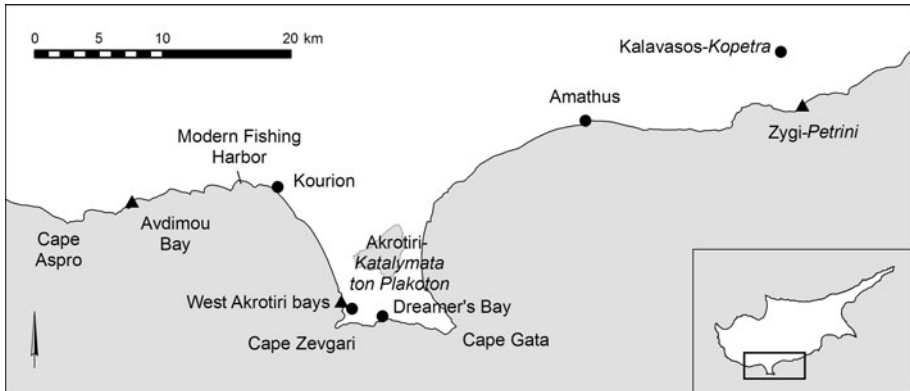
<sup>8</sup> Cf. the vast and diverse quantity of more recent historical finds that attest to exchange and a wide range of other social activities that centered on the jetty at Holdfast Bay, South Australia: see Rodrigues 2002.

**Fig. 1** Overview of the inlet situated beneath the cliffs west of Kourion, with simple fishing port created in modern times visible in the distance (photograph by J. Leidwanger)



**Fig. 2** View of the boats and docks in the opportunistic fishing port located below the cliffs west of Kourion (photograph by J. Leidwanger)

remains near shore, ceramic and other material on shore, etc. When analyzed as part of a wider maritime landscape study of an entire coastline (Westerdahl 1992, 2011), the collective presence of these indicators may allow us to recognize plausible locations that served this maritime capacity. Since the maritime exchange through such ports would have shaped the local record of consumption, a comparison between the ceramic records within their hinterlands and at more distant sites may indicate their economic impact and lend support to their identification.



**Fig. 3** Map of the southern coast of Cyprus showing the three ports and other sites of interest discussed in the text, with inset showing the location of the study area within Cyprus (map by J. Leidwanger)

Three locations along the south coast of Cyprus are discussed here against these background criteria: *Zygi-Petrini*, West Akrotiri, and Avdimou Bay (Fig. 3). Each has been either surveyed by the author (West Akrotiri, Avdimou Bay) or published in sufficient detail to permit close examination (*Zygi-Petrini*). While I argue that these sites shared a common function during late antiquity, they present uneven material evidence and different challenges. Their assemblages were not always investigated with the present goal in mind, a reality that can limit their comparability. Yet the archaeological record is rarely ideal, and any progress toward larger regional economic history requires that we not only approach new sites with these scientific questions in mind, but also maximize the utility of already available data. When each of these three cases is viewed in light of the material and topographical criteria discussed above, the evidence supports a preferential utilization of these locations over other possible coastal spaces. Around its shores, the island of Cyprus offers many case studies of similar maritime activity in the Roman era and beyond.<sup>9</sup>

### *Zygi-Petrini*

Situated less than 20 km east of the major harbor and city of Amathus, near the outlet of the Vasilikos River in south-central Cyprus, *Zygi-Petrini* may have served as an opportunistic port for the towns, agricultural communities, and farmsteads located throughout the adjacent valley (Fig. 3). Investigations here first by the Vasilikos Valley Project and later by the Maroni Valley Archaeological Survey Project suggest a small (up to 2 ha) production site and possible settlement hugging the shore of the narrow low-lying coastal plain, with some additional area likely lost to erosion (Manning et al. 2000: 235). The beach is only minimally sheltered from the predominant seasonal winds from the west (Murray 1995; Heikell 2006: 316–317), and Leonard (2005: 483) suggests that, prior to this more recent erosion, the stretch of coast here would likely have been even more open and unprotected.<sup>10</sup> Architectural features collapsing into the sea seem to represent the remains

<sup>9</sup> For the Roman period, see many of the sites included in the catalogs of Leonard 1995b, 2005: 321–634.

<sup>10</sup> Flemming (1978: 415) observes at Amathus a small rate of subsidence of around 0.13–0.3 m per millennium. If the same general pattern holds for the coastline further east, this would help to account in part for the submergence of onshore remains at *Petrini*.

of several terrestrial structures extending some 150 m and occupied during the late Roman period (Manning et al. 2000: 235–237; Rautman 2003: 241). While little evidence points to settlement or economic activity at the site of *Petrini* prior to the late Roman era, Manning (Manning et al. 2000) reports a probable LR1 (Late Roman 1) amphora production kiln active likely during the sixth and early seventh centuries. Neither Leonard's nor Manning's explorations revealed built maritime infrastructure of any form despite evidence from survey on shore and in the near-shore waters pointing to activity from the Bronze Age through the Roman period and into late antiquity. Several additional late Roman amphora types (southern Levantine LR4 and LR5/6) represent comparatively rare imports within the ceramic record at *Petrini*, but attest to some level of local maritime interaction (Manning et al. 2000: 251). Further evidence for sea transport, including late Roman pottery along with various anchors and other debris, was brought to light by the Maroni-*Tsaroukkas* snorkel survey off the coast just to the east (Manning et al. 2002: 118–121). Designed primarily to shed light on local prehistoric maritime activity,<sup>11</sup> the survey found evidence for comparatively busy seaborne exchange during late antiquity as well. Although the site of *Petrini* remains largely unexcavated, Rautman (2003: 241) reasonably concludes that “[t]he seaside setting and period of occupation suggest that *Petrini* was one of many small commercial points along the S coast that prospered as ships anchored offshore to take on and unload their cargoes.”<sup>12</sup>

*Petrini* was well-situated to take advantage of traffic up the valley and along the coastal road between Amathus and Kition (Bekker-Nielsen 2004: 197–198).<sup>13</sup> Survey by the Vasilikos Valley Project brought to light a variety of sites, including at least 32 early Roman and 44 late Roman sites that collectively attest to considerable settlement and agricultural activity in small outlying villages, farmsteads, and other rural activity areas beyond the better known coastal cities.<sup>14</sup> Almost certainly, the most prominent local center was located 4 km up the river at Kalavasos-*Kopetra*, where Rautman (2000; 2003) demonstrates the vitality of a sixth- and early seventh-century settlement of perhaps 600 inhabitants. The rich ceramic repertoire and range of imports point to the prosperity of this second-tier town and its probable function as a local redistributive center. In light of the agricultural base of the local economy, it seems likely that amphora production at *Petrini* points to a practice of transporting the fertile valley's goods overland or downriver before they were repackaged in containers suitable for shipment over longer distances by sea. Copper, mined from the Bronze Age onward among the foothills further up the river, would have provided another valuable export, probably again through the simple anchorage (Rautman 2003: 237). Despite evidence of extensive earlier Roman settlement in the valley, few hints of significant port-related activities prior to the late Roman era have been brought to light in the area of *Petrini*. Although the coast was evidently serviceable without built harbor works, this opportunistic port seems to have experienced significant maritime use only during late antiquity.

<sup>11</sup> Along with the late Roman material recorded by this offshore survey were quantities of Late Bronze Age pottery suggesting another earlier use of this coastal area as an opportunistic port during the prehistoric period: see generally Manning et al. 2002: 159–160.

<sup>12</sup> See also the discussion in Rautman 2013: 198–199.

<sup>13</sup> Bekker-Nielsen (2004: 197) also posits a potential road branching off from the main coastal road and extending further up the Vasilikos Valley, although no traces remain that might prove this conjecture.

<sup>14</sup> This was likewise a busy period for the territory around Amathus itself: see Aupert 1996: 176–179.

## West Akrotiri

Investigations in 2003–2004 off the Akrotiri peninsula, along the south-central coast between Amathus and Kourion, provide a second case study (Fig. 3). Just north of Cape Zevgari, scattered pottery under water points to the possible use of several small bays as an opportunistic port most likely connected to the small inland settlements and economic activity throughout the southern part of the peninsula (Leidwanger 2004: 21–24; Leidwanger 2009). The bays would appear unlikely candidates for maritime activity since they open directly to the west and are completely exposed to the winds that characterize most of the local sailing season (Fig. 4) (Murray 1995; Heikell 2006: 316–317). As a result, these waters become inaccessible in strong weather, and could hardly have served as anything other than an opportunistic port on a temporary basis. No visible infrastructure, either on shore or in the water, might have provided greater harbor protection or facilitated the loading and unloading of cargo. The narrow rock and sand beaches are backed by a rocky scarp which rises to the south and would have impeded easy direct access inland, implying that communication with the low inland plateau must have passed through the northern end of the bays (Fig. 5). Flemming's (1978: 415) observations of localized subsidence—on the order of 1.1 m per millennium just a few km to the east—may indicate that the ancient shoreline was somewhat farther from the cliffs, leaving a correspondingly wider beach for maritime activity. Even so, these inlets surely accommodated only small vessels with a minimal draught. Given that the low-lying central marshy lands around the present salt lake probably formed only shortly prior to the Roman era, before which the peninsula was an offshore island, sea transport may have been preferable (if not actually necessary in many instances) for local hauling even over short distances.<sup>15</sup> A few reports hint at small roads and paths that may have traversed southwest Akrotiri, connecting such outlying areas to settlements and tying local communications and economy into the larger coastal road circuit, but these have not yet been studied in sufficient detail.<sup>16</sup>

Underwater investigations here remain preliminary, but the ceramic record contains amphoras as well as cooking pots and common wares that offer a window into this maritime activity. The vast majority of finds belong clearly in the late Roman era. LR1 jars are particularly prominent in forms indicative of dates from at least the fifth century into the sixth and seventh centuries, with fabrics perhaps from Cyprus itself as well as the neighboring mainland of Cilicia (Fig. 6). Comparatively few diagnostic sherds indicate earlier or later maritime exchange, and these belong primarily in the Hellenistic and early Roman or more recent (Ottoman) era. The dispersal and fragmentary state of the ceramics are certainly consistent with the remains of occasional dumping of pots broken either en route or else during loading and unloading rather than dispersed shipwreck material.<sup>17</sup> Unfortunately, no visible anchors or other shipboard items attest to specific mooring places, but the shallow and accessible nature of the site may have led to the removal of loose artifacts in modern times.<sup>18</sup> The dense ceramic record here contrasts with the few

<sup>15</sup> On the geomorphology of the Akrotiri peninsula and the chronology of its infill, see Stanley Price 1979: 8; Collombier 1987: 167–168; Leonard and Demesticha 2004: 189–191.

<sup>16</sup> Wessex Archaeology 2002: 9 nos. “WA17” and “WA31”; Sollars 2005: 72, 82; for the coastal circuit of roads along southern Cyprus, see Bekker-Nielsen 2004: 196–197 and map 25.

<sup>17</sup> Cf. Leidwanger 2004, 23–24. Further inspection and analysis of the material assemblages here suggests that this assemblage represents port-based activity; see Leidwanger 2009.

<sup>18</sup> As the inlets remain accessible from the beach to the north, these waters are used by some for swimming and fishing, particularly by spear fishermen.

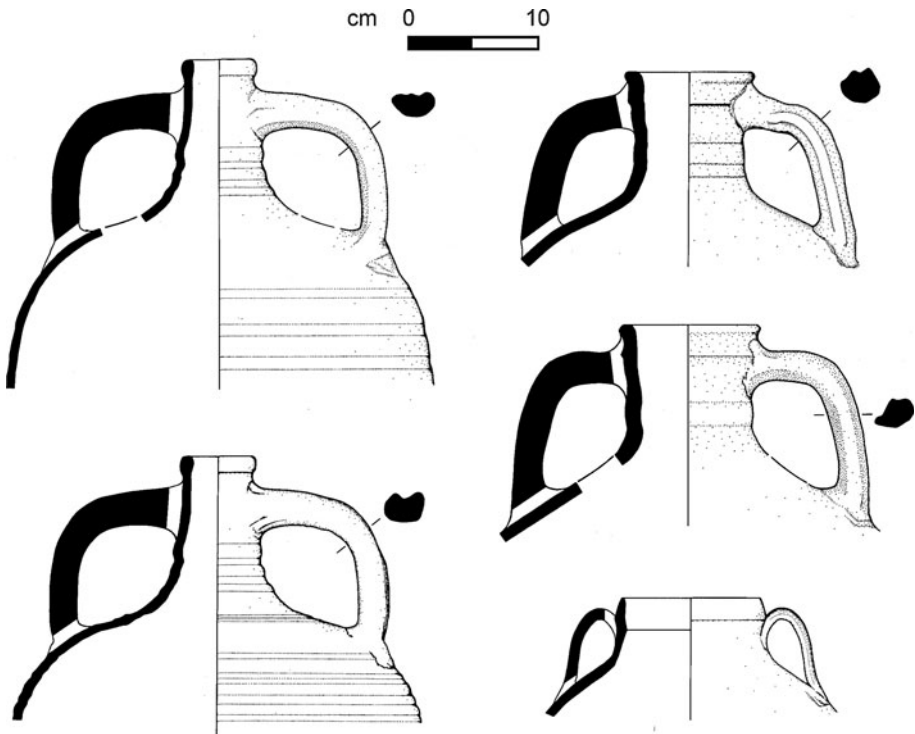


**Fig. 4** Aerial view of the West Akrotiri bays from the west. The narrow beach is set off from the interior by the coastal scarp that rises toward the south, but is immediately accessible just to the north of the bays (photograph by J. Leidwanger)



**Fig. 5** View of the West Akrotiri bays looking south toward Cape Zevgari. Rising to the south, the coastal scarp sets off the bays, which are accessible from the beach to the north, seen in the foreground (photograph by J. Leidwanger)





**Fig. 6** Small selection of ceramic debris probably related to the activities of vessels loading, unloading, and at anchor in the shallows of the West Akrotiri bays. The assemblage here is marked primarily by a number of fragmentary late Roman amphorae imported from around the region of Cyprus and the northeast Mediterranean, but includes as well some discarded common and cooking wares; scale 1:5 (drawings by T. Nowak)

artifacts discovered immediately north and south of these shallow inlets, suggesting the preferential usage of this circumscribed space for maritime economic activity.<sup>19</sup>

Who might have benefited from this facility and the small coastal vessels that occasionally stopped here? Although occupation across the peninsula is known from the pre-Roman era, the chronology of the material record in the bays of West Akrotiri coincides with that of several short-lived late Roman sites located on the interior of the peninsula. In particular, Akrotiri-Katalymata ton Plakoton, situated less than 1 km directly inland presents the most compelling case, both geographically and chronologically (Fig. 3) (Heywood 1982: 174; Sollars 2005: 218). The inlets here are the closest accessible water to this site, where recent investigations by Procopiou have revealed religious structures and associated small-scale settlement during the sixth and seventh centuries.<sup>20</sup> Additional settlements in the south of Akrotiri include the Hellenistic (and perhaps earlier) through late Roman site at Dreamer's Bay, investigated by Leonard and Demesticha (2004;

<sup>19</sup> The area still farther south around Cape Zevgari is likewise rich in archaeological material, but artifacts are considerably less frequent in the intervening area, suggesting two distinct sites of activity: see Leidwanger 2004: 24–26.

<sup>20</sup> See reports from the 2007, 2008, and 2010 field seasons in the *Bulletin de correspondance hellénique's Chronique des fouilles en ligne*: <http://chronique.efa.gr/index.php/> (accessed 7/5/2013).

Leonard 2008: 135–137). The ashlar-built harbor walls and likely warehouse facilities on shore indicate both a larger-scale investment and probably also a more permanent role in maritime transport. Despite the presence of such an all-weather harbor only about 4 km away, it seems probable that the residents of *Katalymata ton Plakoton* took advantage of the comparatively short haul and advantageous location along West Akrotiri for the simple loading and unloading of agricultural produce that did not require more elaborate infrastructure. The local economy may have extended beyond farming, but agriculture would likely have been the mainstay of many in the area, even though arable land was certainly limited (Sollars 2005: 214).<sup>21</sup> Other Roman and late antique activity has been detected at smaller sites throughout the southern Akrotiri area, for which this seems to have been a relatively prosperous period.<sup>22</sup>

### Avdimou Bay

Across Episkopi Bay from Akrotiri, about 10 km west of the ancient city of Kourion, the small Avdimou Bay provided a landing place and shelter which may have functioned as an opportunistic local port for mariners (Fig. 3). Opening to the southeast, the western end of the inlet offered reasonable protection behind the headland from predominant winds in antiquity as it does today (Fig. 7) (Murray 1995; Heikell 2006: 316–317; UKHO 2008: 194). Together with Pissouri Bay immediately to the west, the cove is both one of the best low accessible beaches west of Kourion, and one of the last good sheltering opportunities before Cape Aspro, where the coast turns to the northwest and becomes less sinuous and consequently more exposed to seasonal winds (Fig. 8). Winter storms from the south no doubt proved dangerous, and the few modern fishing and pleasure boats anchoring here depart for better shelter seasonally or during poor weather. The sandy shore offers an ideal opportunity to pull vessels directly onto the beach for loading and unloading, although a number of stone anchors recorded here by a survey team in 2004–2005 indicate that mariners might also shelter in the shallows of the western part of the inlet (Fig. 9) (Leidwanger 2005: 272–274; Leidwanger and Howitt-Marshall 2006: 13–14).<sup>23</sup> Flemming's (1978: 435 fig. 12) estimate of perhaps as much of 1 m per millennium of subsidence for southwest Cyprus underscores that the bay, although currently shallow, would have been still smaller and shallower in antiquity. At just 4 m deep in the area of the anchors, Avdimou Bay could have accommodated only small vessels with a shallow draught. No port infrastructure is visible either on the beach or in the water, although the remains of a single breakwater or mole extend some meters from shore farther to the east near the center of the bay. Now fully submerged, this simple rubble structure provides no clues regarding date, nor was any significant pottery found in the immediate context; the presence of a small shrine, warehouses for storing carobs for export, and an iron pier nearby confirm a later interest in the area (Leonard 1995b: 235 fig. 7).<sup>24</sup>

<sup>21</sup> Commercial transshipment has been suggested as a potentially important component in the economy of Dreamer's Bay, which might indicate why such an extensive facility was chosen: Leonard and Demesticha 2004: 202.

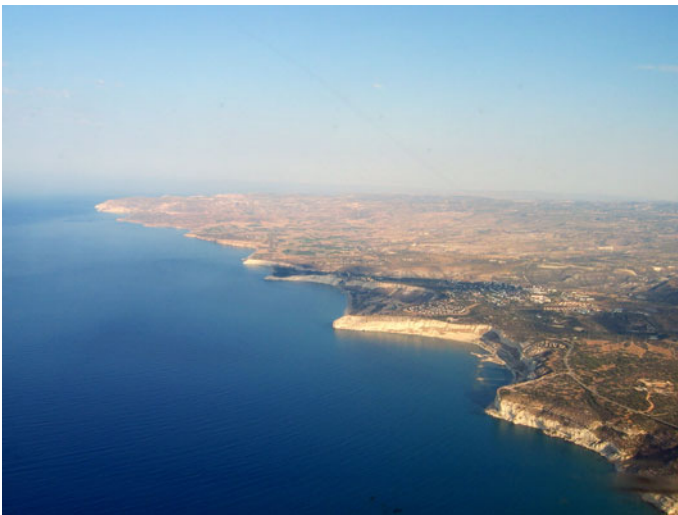
<sup>22</sup> About 1 km inland from Akrotiri's south coast, the sites of *Pano Katalymata* and *Kato Katalymata* were certainly also utilized during this Roman and late antique periods, and perhaps also earlier; see Wessex Archaeology 2002: 9 ("WA 12" and "WA 13").

<sup>23</sup> Though typically associated with the Bronze Age, stone anchors continue to be used in the eastern Mediterranean alongside later and more sophisticated types: see generally Kingsley 1996.

<sup>24</sup> On the later history of the area, see Swiny 1982:161; Leonard 2005: 570–571.

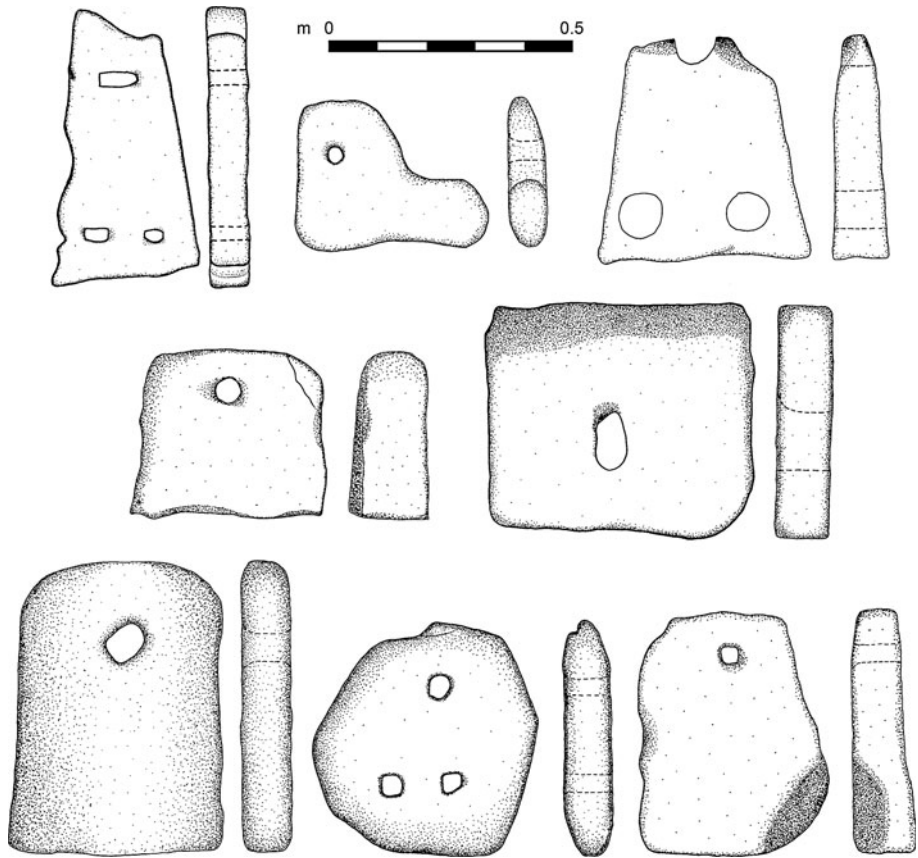


**Fig. 7** View of the beach and cove at Avdimou Bay from the east. Scattered ceramics have been observed on the headland at the far end of the bay as well as around the low hill from which the picture was taken (photograph by J. Leidwanger)



**Fig. 8** Aerial view from the east toward the coastline west of Kourion. The coastal topography gradually changes from high cliffs and less accessible beaches to a lower sandy beach in the distance toward Pissouri Bay and Cape Aspro, before which Avdimou Bay provides one of the first opportunistic ports west of the city (photograph by J. Leidwanger)

Pottery scattered on the weathered headland to the west includes worn sherds with traces of black gloss, raising the possibility of a pre-Roman (Hellenistic?) date for some material, while a few diagnostic amphoras among the surface remains attest to Roman and late Roman activity. Leonard (2005: 569–570) notes quantities of late Roman Palestinian/Gaza amphoras, as well as fragmentary red-slip and other fine wares on shore just below



**Fig. 9** Selection of stone anchors attesting to maritime activity in the shallows of Avdimou Bay; scale 1:10 (drawings by J. Daniel)

the scarp and shrine, and raises the possibility of late Roman amphora production here akin to the situation at *Petrini*, but this remains unproven. Furthermore, he argues that the town of Treta, mentioned by the Augustan-era geographer Strabo (14.6.3), may have been located in the area, which seems possible given the date range for certain of the earliest identified surface finds (Leonard 1995b: 233 fig. 5). Together with the stone anchors and some scattered pottery sherds—ranging from Hellenistic through late Roman—recorded in the shallows, the best testimony to maritime activity here comes from a small assemblage of primarily Late Roman 4 (LR4) amphoras from the southern Levant. Although no more extensive investigations have been undertaken, the spatial patterning and restricted chronological range of jar forms indicates that the group most likely reflects all that remains of a small shipwreck. The assemblage, just east of the anchors, comprises a chronologically discrete group of jars with very little pottery that can positively identified as intrusive. The site is scattered and in poor condition due to its location in a shallow dynamic environment. Even so, multiple visits to the site over two successive years revealed different numbers of amphoras exposed, but no additional material that might contradict this interpretation (Leidwanger 2007: 311–313). With the area functioning as a public beach, modern intervention in the ceramic record is to be expected, and surface finds here and throughout

the rest of the bay may not reflect accurately the full range and extent of deposition in antiquity. Aside from the shipwreck and other archaeological material recorded in the bay itself, little ceramic or other evidence was noted during survey along the coastline further east or around the headland to the west.

The evidence for anchoring, ease of beaching, and the ceramic remains in the water and on shore indicate that the site probably served as an opportunistic port. Situated at the outlet of the (now mostly dry) Avdimou River, the bay may have functioned as a local catchment point for the agricultural produce and other exports. The area exhibits some agricultural productivity in modern times, and although the valley has not been subject to wide-area explorations aiming specifically at Roman material culture, survey has shown evidence for Bronze Age settlement (Swiny 1981). To the west, systematic surveys revealed extensive settlement along the coastal plain and river valleys during both the early and late Roman eras (Lund 1993: 138–139 and figs. 57–58; Sørensen 1993: 189–190), and a variety of Roman and late Roman sites surveyed in the wide hinterland of Kourion to the east indicate considerable occupation of farmsteads that were most likely engaged in mixed agriculture, olive and vine cultivation (Swiny and Mavromatis 2000: 438–442 and 447). There is no reason to doubt that the Avdimou River area was likewise a settled and agriculturally productive region throughout the period of interest here.

### **Hinterlands Without Built Harbors**

The three sites explored here share a number of fundamental characteristics that speak to a common function as opportunistic local ports. None served as the primary facility for any of the dozen or so major coastal cities around the island during the Roman and late Roman era; instead, each was probably linked to a region that consisted of smaller outlying secondary villages along with other dispersed settlements and farmsteads. Each seems to have been utilized without significant submerged architectural features such as breakwaters, moles and quays that might have provided additional all-around protection. While ceramic finds are common on the adjacent beaches, and a few basic structures may have served related functions of production or storage in association with local maritime activity, little evidence suggests extensive built facilities on shore. The shallowness and accessibility of these sites indicate that they primarily served small vessels with minimal draughts. The three sites serve as case studies for what must have been an extensive series of opportunistic stopping points, and indeed other ports might be added to this list from Leonard's (1995b, 2005) catalog of the Cypriot coastline. But the sites analyzed here share an additional characteristic that speaks to the relationship between opportunistic ports and hinterlands, and between the island's major harbor installations and these outlying maritime facilities: whether or not they were in use during earlier periods, each shows evidence of major use during the late Roman era. In observing these sites, I aim to focus on how they may have reflected processes of settlement and economy in the late Roman countryside and in turn helped to shape the development of exchange both throughout their own immediate hinterlands and between such outlying regions and the larger late antique coastal cities on the island and beyond.

If a series of opportunistic ports similar to these served villages and settlements along the nearby shore and inland, particularly throughout the many river valleys and narrow coastal plains that characterize the topography along the south of the island, what economic horizons did these connections open? Such facilities surely gave Cypriots outside

the major coastal cities access to the sea, but what economic opportunities and maritime networks did they bring? Since the late Hellenistic and early Roman countryside appears also to have been widely settled and agriculturally productive, why did the facilities discussed here see more intensive use only during the late Roman period? How might these late antique ports have affected the distribution of agricultural products, the dynamics of urban–rural connectivity, and socioeconomic life more generally in their hinterlands?

Towns, villages, and rural settlements throughout the Roman and late Roman Cypriot countryside have often been characterized as primarily oriented toward the nearest of the dozen or so centers that dominated the island's urban life from the Iron Age onward (e.g. Mitford 1980: 1337–1341; Papageorghiou 1993; Rupp 1997). In the case of *Petrini*, this would have meant a strong—and perhaps even dependent—connection with Amathus to the west; for West Akrotiri and Avdimou Bay, the city of Kourion would have served as the administrative, cultural, and economic center. I suggest that the trend toward increasing utilization of simple maritime facilities during late antiquity reflects one facet of a broader loosening of the locally based core-periphery relationships that are thought to have dominated the earlier economic and social landscape across the island. The main impetus behind utilizing these simple maritime outlets was ostensibly an economic one, for they facilitated more direct access to the sea, and in doing so shifted aspects of distribution within the economic landscape. As surplus agricultural produce for export grew, the products gathered throughout the hinterlands of these simple ports were no longer necessarily channeled through the nearest major coastal centers; direct seaborne relationships to areas beyond the cities also meant new access to imports for non-urban consumers. Certainly short-haul maritime trade and cabotage may have run between these outlying ports and the major urban centers, which probably continued to receive the bulk of larger-scale and longer-distance maritime traffic, while other produce from the countryside may have traveled overland along the extensive coastal road network. But maritime access widened economic horizons, and produce from the towns and countryside no longer had to be coordinated through markets in Amathus or Kourion to reach consumers farther afield.

Testing this hypothesis in full is beyond the scope of the present contribution, which is necessarily limited to building a possible scenario from a sample set of case studies. Additional work on the topic might focus on a greater number of potential sites and a larger body of material evidence, especially the systematic comparative analysis of artifact distributions from coastal urban and extra-urban assemblages around the island. Future efforts would benefit greatly from fieldwork dedicated specifically to the documentation of opportunistic ports. While the very definition of such sites raises methodological challenges associated with secure identification, these casual finds, distinct from shipwrecks and often dismissed, hold considerable potential. The unevenness in the published survey and excavation data presents a critical hurdle, and as indicated above, ceramic or other data from the hinterlands of Avdimou Bay and West Akrotiri is slim. For *Petrini*, however, the extensive publication of the archaeological investigations throughout the Vasilikos Valley—and in particular at *Kopetra*—can be analyzed alongside assemblages quantified by Kaldeli at Amathus, the closest large port city. Comparison of imports provides a quick gauge of the interdependence of these two maritime economies. If the port of *Petrini* was oriented toward that at Amathus, receiving most of its maritime imports by secondary distribution through this city market, we might expect the economic record in the area served by *Petrini* (including *Kopetra*) to reflect a broadly similar, if somewhat diminished, range of products and pattern of consumption. By contrast, if the maritime exchange of *Petrini* was largely independent of its nearby urban center, imports within its hinterland might show a marked departure from those in the archaeological record at Amathus.

The varying methodologies and contexts of these two data sets complicate finer-grained comparisons, but thanks to the detailed analysis and quantification strategies of each project, some broad observations can be made about the amphoras as evidence for maritime connectivity. For the late Roman period at Amathus, Kaldeli (2008: 153–158, 238–241 and 500 tbl. 13 and fig. 23) reports that amphoras from within Cyprus (63.3 %) dominate the record, while those from nearby Cilicia and Syria/Lebanon amount to only a trickle (3.0 %), far rarer than imports from the more distant southern Levant and Egypt (20.8 %) or the Aegean (7.8 %), and less frequent even than examples drawn from the western Mediterranean (5.2 %). The late Roman record at *Kopetra* is restricted to a narrower range of imports as might be expected for a smaller and less central site; at the same time, imports reflect a far higher percentage of the overall amphora assemblage at *Kopetra* than at Amathus. Rautman's (2003: 168–175, 169 tbl. 5.5; Rautman et al. 1999; Rautman 2013) excavations reveal that nearly three-fifths (59.3 %) of the amphora assemblage is comprised of imported jars that can be linked to producers on the neighboring mainland of Cilicia and northwest Syria. Their quantities in fact outnumber those of jars manufactured across Cyprus (at 15.5 %) by a factor of nearly four to one. Amphoras from other origins are relatively few, but include southern Levantine and Egyptian types (1.3 %), and a few Aegean imports (0.1 %), along with some of unknown origin.

One pattern immediately apparent within both assemblages should hardly be surprising for any agricultural economy: a relatively narrow region from which the majority of imports were drawn. The different geographies of this regionalism, however, suggest key differences in maritime networks. At Amathus, maritime links centered on Cyprus itself, and the port city seems to have served as a major local consumer and warehouse for Cypriot agricultural produce from around the island. This internationally connected center also exhibited strong connections to locations outside the island, including along the shores of the eastern Mediterranean and beyond, but with relatively little consumption of products from nearby Cilicia and Syria. By contrast, the majority of amphoras in the record at *Kopetra* were drawn from this narrow region on the mainland. Surely residents of the *Kopetra* area consumed local products from throughout their own and nearby valleys that did not require amphora packaging and so left little evidence in the material record. But of *Kopetra*'s imports that can be traced archaeologically, the strongest connections are markedly different from those at Amathus: largely Cilicia and Syria with a trickle of material from farther abroad. Given its drastically different regional connections, it seems highly unlikely that *Kopetra* represents a simple extension, through *Petrini*, of the more international urban market at Amathus. While some of *Kopetra*'s imports—particularly the more exotic ones—may have passed through Amathus and from there by sea to the beach at *Petrini*, many of the products consumed at *Kopetra* were probably shipped to *Petrini* through other independent mechanisms and likely more distant centers. In some instances, merchants anchoring or hauling up on the shores of *Petrini* may have engaged in cabotage en route from another port on eastern Cyprus or elsewhere, but direct shipments from the neighboring mainland were probably routine.<sup>25</sup> Either way, it seems clear that the opportunistic port of *Petrini* provided a very different and direct maritime gateway and allowed the region of *Kopetra* access to a much wider commercial landscape that went far beyond the major urban center down the coast. Unfortunately, in the case of the other two sites discussed above, the dearth of quantified assemblages means that no

<sup>25</sup> Direct connections between the nearby mainland and Cyprus are well-attested in the early Roman era as well: see Kaldeli 2009, 2013; Autret and Marangou 2011; Autret 2012; Leidwanger 2013.

similar comparison can be made between the ceramics associated with the hinterlands of these ports and those from nearby Kourion.

### Spaces of Exchange: Economic and Social

The contrasting material records left by these urban and extra-urban maritime economies on Cyprus raise the possibility of different models of exchange and socioeconomic functions for major ports and simple outlying facilities. Strong regional ties based on connections to the neighboring mainland argue in favor of short-haul exchange or even cabotage with small vessels, modest cargo sizes and quick trips that could be undertaken by merchants operating outside the grand trans-Mediterranean shipping currents most often associated with Roman trade. Broad network models of maritime exchange—like Arnaud’s (2005) “segmented sailing”—have generally focused on a framework of larger-scale trade among major interlinked hubs to which second-tier port cities were connected.<sup>26</sup> Such may have been the case with late Roman Kourion and Amathus, and Kaldeli’s (2008: 238–241 and 502 fig. 25) analysis shows how products from different regions across the Mediterranean may have followed direct and indirect paths to these centers. Yet it is clear from the markedly dissimilar connections in their material records that sites like *Petrini*, and probably also West Akrotiri and Avdimou Bay, represent more than merely another subsidiary level—a finer-grained series of tertiary links—below this same general network. Instead, their connections belong within another model of exchange that operated alongside these larger Mediterranean structures but on a distinctly regional scale, featuring different maritime merchants and economic mechanisms.

Unlike the larger, longer-distance merchants who docked in the protected harbors at Amathus, Kourion or the island’s other major port cities, the merchants who visited *Petrini*, West Akrotiri and Avdimou Bay probably required little infrastructure. Thanks to their minimal draught, small vessels could be maneuvered close to shore along minor inlets and beaches. A simple mooring stone or post could secure the ship temporarily, long enough for a modest cargo to be unloaded directly in the shallows; the Mediterranean’s minimal tides made beaching a small vessel feasible even for a small crew.<sup>27</sup> This easy lading would have offered key practical and economic advantages for coastal merchants, and Houston (1988: 561) reasonably suggests that it may have been a standard Roman practice in certain circumstances.<sup>28</sup> A scene from a North African mosaic appears to show precisely this procedure, with a vessel being unloaded directly onto the beach while goods are weighed nearby.<sup>29</sup> For merchants like these, simple stone weight anchors were an expedient and inexpensive solution that, while modest by the technological standards of the day, served perfectly well for vessels that were unlikely to venture to sea for long durations or far from home. Such light anchors as those found at Avdimou Bay would only have been practical for small vessels in relatively calm waters; they could have been handled by a single crew member but would have been of little use in adverse winds and rough seas. But

<sup>26</sup> See also Heinzlmann 2010 and Scheidel’s recent ORBIS project: <http://orbis.stanford.edu/> (accessed 7/5/2013).

<sup>27</sup> A partially submerged column at another simple anchorage off the west coast of Cyprus as Dhrousha-Kioni may have served such a purpose: see Leonard 1995a: 133, 137 fig. 4, 138 fig. 6, and 139.

<sup>28</sup> McGrail 1981 and Houston 1988 provide substantial evidence for beaching of vessels up to more recent times.

<sup>29</sup> Houston 1988: 561 fig. 2.



how severe a limitation would this have been for merchants whose main business centered on short hauls along well-trodden paths? So long as their shipments were intermittent (perhaps also seasonal) and quickly accomplished, these small-scale merchants would have little need to venture out in bad weather, choosing rather to wait out poor winds or, if conditions rapidly deteriorated, seeking shelter in the nearest all-weather harbor. The shallow draught and small size that made these merchant vessels eminently practical for short-haul regional commerce also left them ill-equipped for rougher weather and open seas. A built harbor enclosure—if not always technically necessary—may have made better sense for cities like Paphos or Amathus, where more intensive and sustained merchant activity demanded permanent facilities designed to accommodate larger vessels for longer durations in any weather and perhaps also in any season. Given the likely organization of administration and port taxes around these major cities, avoiding such levies may have been one more reason for smaller and less well-financed maritime ventures to operate outside the larger network.<sup>30</sup> This separate and subsidiary group of regional merchant mariners may have operated predominantly from opportunistic ports. The small vessel that wrecked at Cape Zevgari, at the southwest tip of the Akrotiri peninsula, with a load of only a few tons in about 150 LR1 amphoras may represent one such regional merchant (Leidwanger 2007: 308–311).

In light of the fundamental importance and widespread exchange of basic agricultural products, the rise of opportunistic ports would have considerable implications for new economic horizons and the dynamics of commercial ties to nearby cities, and by extension for the socioeconomic lives of those in the hinterlands. While certain aspects of the Cypriot countryside probably remained tied—administratively, culturally, and economically—to the cities, more independence of commercial activity and the development of new local markets may have given non-urban dwellers an advantage in buying and selling produce through alternate channels not available during the earlier Roman era. To the various market towns that served rural Cypriots, these small ports may have added new market spaces for goods heading to or arriving from overseas. With the arrival of a number of merchants from across the sea, the beach itself could serve as a gathering space for occasional market activity, as depicted in the North African mosaic mentioned above. Strabo (14.2.21) describes consumers at Iasos, having heard the bell announcing the arrival of the fishermen, dropping everything to meet the catch. Occasional market activity might account for the ceramics strewn along the beaches at Avdimou Bay and *Petrini*, and the presence of amphora workshops for processing, measuring and weighing, and re-packaging of goods.<sup>31</sup> Studies of contemporary sites in northern Europe have demonstrated a variety of specialized coastal areas that include beach markets, used for short-term storage and exchange among merchants from overseas on a regular basis but with little on-shore infrastructure and no built harbors.<sup>32</sup> Other simple landing places played an integral role for local elites in organizing maritime exchange, serving as “cross-over points between the agrarian and maritime spheres” (Ulriksen 2004: 11).<sup>33</sup> This description holds considerable relevance for the small ports of late Roman Cyprus, where contrasting patterns of

<sup>30</sup> Van Nijf (2008: 291–292) discusses merchants avoiding customs duties in the province of Asia; with Cottier et al. 2008. Holleran (2012: 89–90) mentions selling outside the city of Rome to avoid taxes. How port duties were administered in Roman Cyprus remains unclear. Leonard raises the possibility that farmers in more recent times may have avoided major ports for tax reasons: see Leonard 2005: 745–746, 953–954.

<sup>31</sup> At *Petrini*, as indicated above, and perhaps also at Avdimou Bay: Leonard 2005: 570.

<sup>32</sup> E.g. on the island of Amrum: Segsneider 2002.

<sup>33</sup> See also the variety of simple coastal sites in Ulriksen 1994; Ludowici et al. 2010.

consumption in urban and extra-urban areas speak to new economic mechanisms outside the traditional city-focused market models.

Cyprus had long boasted a well-developed coastal road network from at least the end of the Hellenistic period. The primary purpose for the initial appearance of this transportation infrastructure was surely to integrate the various cities into an efficient urban-oriented political unit, and these cities probably bore the primary burden for their construction and maintenance (Bekker-Nielsen 2004: 99–100). With the province's incorporation into the Roman state and growing settlement and productivity in the countryside, new radial roads began to connect cities with their respective hinterlands in a secondary network tied into this broader circuit (Bekker-Nielsen 2004: 230). The greatest expanse of this road network during the late Roman era coincides with the growing use of opportunistic ports, and in fact small coastal sites like Avdimou Bay appear sometimes to have been deliberately linked to the network through small branch roads during this period (Bekker-Nielsen 2004: 113 fig. 16 and 217–219). The concurrent development of outlying ports and city-centered local road networks raises issues regarding potential shifts in economic productivity across the island, with urban areas taking steps to exert territorial control and to ensure their own supply from their nearby lands and smaller towns. Meanwhile, rural areas opted to engage more directly with separate maritime centers around the island and across the sea. Cities may have remained the focus of certain types of daily, year-round, and especially elite market exchange as well as civic and cultural centers, but the increasing productivity of the countryside indicates new wealth and economic potential outside Cyprus' traditional urban areas. Whether or not they had direct involvement in maritime activity, a rural elite probably controlled substantial sectors of agricultural and industrial production as well as certain mechanisms of exchange (Rautman 2001: 255).<sup>34</sup> Their wealth and economic independence are reflected in their expenditures on public displays and civic pride situated within their own local communities (Papacostas 2001: 115–121).

The utilization of opportunistic ports along the coast of Cyprus represents one indicator of a broader socioeconomic shift during the late Roman period. Not only was the countryside a populous and productive place, but it was also a new locus for maritime exchange that did not always operate along the same urban-centered economic system as in earlier eras. Quite likely, the countryside also served as the setting for social relationships that underpinned this new exchange both overseas and locally. Studies of Roman fairs and markets have demonstrated a considerable tension, backed by legislation, regarding the placement of new markets within about 10 km of cities, which may correlate with the area average consumers might be expected to travel on a reasonably regular basis for goods and services (de Ligt 1991: 46, 1993: 128–129, 238). Moreover, the active suppression of rural markets in their nearby territories may have empowered cities to force peasants into competition within urban marketplaces, keeping prices down and preventing the agricultural goods urban populations required from being shipped overseas (de Ligt 1993: 213–217). At about this distance or slightly more from their nearest city, several villages within the Vasilikos Valley are plausible candidates as hosts of regular or periodic rural markets (Rautman 2001: 247; Rautman 2003: 239–242), and each of the three small ports discussed here was also situated comfortably beyond the catchment of urban markets and the purview of a city-based administration. Even in a highly urban Roman province like Cyprus, we cannot assume that a single core-periphery model dominated all aspects of

<sup>34</sup> See also generally van Dommelen 1993.

socioeconomic life.<sup>35</sup> Cities may have been civic, administrative, and transportation hubs, and had a crucial market function, but other economic networks, with their own spaces of exchange, developed outside the city center. Periodic markets and fairs were the focus of non-commercial interaction alongside commerce,<sup>36</sup> which together promoted the development of regional markets and reinforced the community's own coherence and centrality. According to Libanius (*Orations* 11.230), the countryside around late Roman Antioch developed a dense network of trading relationships based not on urban markets, but rather on a coordinated rotation of fairs that provided reliable exchange among smaller villages. Such testimony about nameless regional merchants is comparatively rare, but the activities of some short-haul mariners may have followed a similar pattern, converging on particular markets within the region that could be reached easily to provide a quick outlet for exchange. The hinterland dynamics illustrated here were in no small part due to new markets made possible by ready access to the sea, and simple opportunistic ports provided the means to open these economic horizons.

Returning to the general issue of harbor and port infrastructure in the socioeconomic landscape of Roman Cyprus, we can see how opportunistic sites shaped maritime interaction around the island and reflect broader trends across the late Roman countryside. There is no reason to believe that Cyprus' larger built harbor basins were underutilized during this period, only that the economic boom and interest in direct maritime outlets did not necessarily prompt new construction projects in many extra-urban areas. Dating back to the Classical and Hellenistic eras and often probably earlier, the island's major built facilities—at Paphos, Salamis-Constantia, Amathus, among others—were constructed as much out of civic pride as economic necessity, and in some cases it seems likely that Hellenistic or later Roman imperial patronage was integral to monumental projects.<sup>37</sup> For ports along the shores of the southern Levant, Kingsley (2001) suggests that late antiquity favored pragmatism over monumentality. The lack of many newly built facilities in Cyprus during this period should likewise not be taken to signal insufficient economic potential for maritime exchange.<sup>38</sup> Rather, it seems that villages and rural communities outside the city centers had little interest in facilities beyond the economically expedient. Since they lack built infrastructure and at times also substantial ceramic assemblages, detecting these small sites presents a number of methodological challenges. Even so, viewing the range of maritime facilities within a common framework as “nodes of density in a matrix of connectivity” might help us to reveal the participants and mechanisms of exchange within these complementary economic spheres (Horden and Purcell 2000:393).<sup>39</sup> Distinguishing the activities of major urban and smaller outlying ports along a coast allows us to investigate the development and interaction of maritime networks, to frame our understanding of socioeconomic relationships between urban centers and the countryside, and to balance

<sup>35</sup> E.g. Koder 1986. For Cyprus, see the model of interaction between Cyprus' capital of Paphos and its hinterland developed in Rupp 1997. See also the discussion of rural–urban interaction in Papacostas 2001: 116.

<sup>36</sup> For the range of interaction, commercial and otherwise, discussed in particular by the rabbinic and literary sources regarding Roman fairs and markets in Palestine, see generally Rosenfeld and Menirav 2005.

<sup>37</sup> Salamis: Flemming 1974; Davies 2012; Paphos: Leonard and Hohlfelder 1993; Hohlfelder 1995; Amathus: Empereur 1995; for Cyprus' network of ports in the Classical era, see generally Theodoulou 2012.

<sup>38</sup> This was by many measures one of the most prosperous periods of antiquity for the island: see generally Papageorgiou 1993; Rautman 2000, 2003: 247–258; Papacostas 2001; Metcalf 2009: 337–378.

<sup>39</sup> Such network thinking is increasingly prevalent in recent studies of maritime connectivity in late antiquity and beyond: e.g. McCormick 2001; Arnaud 2005; Knappett 2011; Malkin 2011.

city-oriented models of exchange against the appearance of greater economic autonomy and agency among towns, villages, and across the rural landscape of late Roman Cyprus.

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