



The 2016 Dana Island Survey Investigation of an Island Harbor in Ancient Rough Cilicia by the Boğsak Archaeological Survey

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Dana Island viewed from the coastal ridge at Kargıcak Strait. Photo by Hilal Küntüz.

Under investigation for the past seven years, the Taşucu Gulf and its hinterland, the region of the Boğsak Archaeological Survey (BOGA; www.bogsakarchaeology.org) was a small, minimally inhabited “frontier zone” of the ancient and medieval Mediterranean world (fig. 1). The limited evidence for urban settlements along this rugged 20 km stretch of coastal terrain was likely the result of the region’s topography, offshore winds, and currents. Approximately 18 km southwest of modern-day Silifke (ancient Seleucia-on-the-Calycadnus), the shoreline turns decidedly mountainous. A 16 km-long coastal ridge closes off the interior from Boğsak in the northeast to Yeşilovacık in the southwest. This towering wall offers only two clear passages to the interior—the small bay at Tahta Limanı and the larger bay at Yeşilovacık—and a few additional sheltered anchorages.

At the southern end of this coastal ridge, the mountain descends to a small low-lying isthmus that connects the littoral to the rugged peninsula of Ovacık. This 3 km-long, broadly rounded peninsula exhibits a small hillock directly east of the isthmus that harbors the remains of ancient Aphrodisias. Settlements elsewhere in the Taşucu Gulf—Manastır (probably ancient Mylai), Ağa Limanı, Boğsak Bay and Boğsak Island (ancient Asteria), Tahta Limanı (probably ancient Palaia), and Dana Island (identified as ancient Pityoussa)—all appear to have developed during the Early Christian era. This coastal avenue furnished a crucial strait for passing maritime traffic, facing as it does a number of immediately offshore islands, including Boğsak, Güvercin, Dana, and Köşrelik Islands—all of which harbor significant archaeological remains.



Figure 1. Google Earth satellite image of the Taşucu Gulf. Editing by Yasemin Aydoğdu.

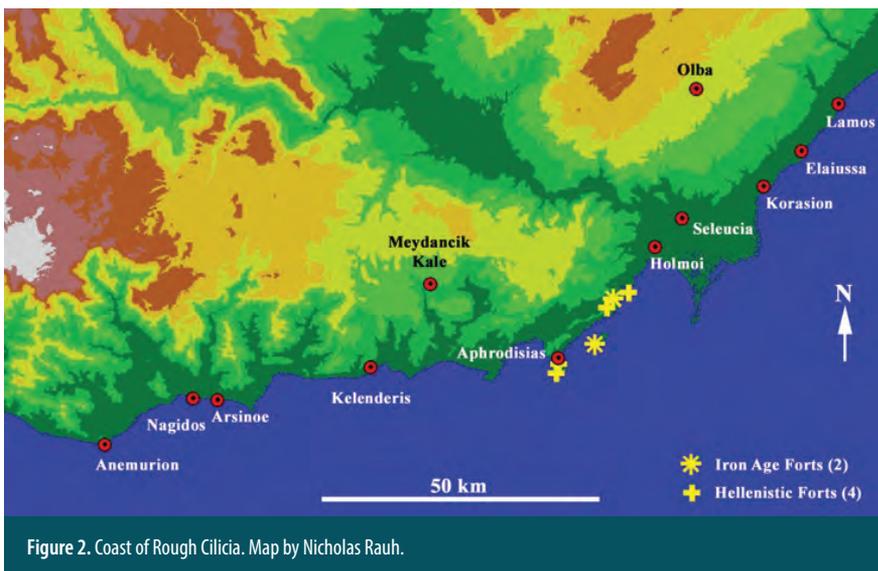


Figure 2. Coast of Rough Cilicia. Map by Nicholas Rauh.

Given the barrenness of this shoreline and its offshore islands, the limited number and capacity of its harbors and embayments, and the proximity of a major settlement in Seleucia-ad-Calycadnum, one should not be surprised by a lack of significant settlements. However, the Taşucu Gulf is equally conspicuous for two additional recurring features: small, dense late antique/early Byzantine settlements (particularly those offshore) and an array of fortified complexes dating to various eras. In all, potentially nine fortifications dating from the Iron Age to the Middle Ages are visible along this coast (fig. 2).¹ This concentration of fortifications seems noteworthy, given the apparent absence of any significant pre-Roman settlements in the same vicinity.

Viewed from a wider vantage, when one divides the Rough Cilician coast from Anemurion to Lamos into three roughly 50 km-long segments, the central segment that concerns us here, between Kelenderis and Holmoi, appears remarkably unsettled (fig. 2). Some four pre-Roman settlements (Anemurion, Nagidos, Arsinoe, and Kelenderis; five counting Meydancık Kale) were situated along the westernmost segment of this coastline, and an additional four (Seleucia, Korasion, Elaiussa, and Lamos) along the easternmost segment. Between Kelenderis and Holmoi, however, only one, Aphrodisias, was situated in the central portion of this coast, and it is impossible to disassociate Aphrodisias from the massive 2 km-long fortification system that stood on the heights directly above the settlement. Purely from a perspective of settlement distribution, therefore, a noticeable gap in pre-Roman settlement existed in the vicinity of Aphrodisias and the Ovacık Peninsula, a region otherwise noteworthy for its high concentration of fortresses. If, as we believe, the fortifications of the Ovacık Peninsula are to be identified with the $\pi\upsilon\rho\gamma\omicron\varsigma$, which an ancient geography placed here on the promontory of Zephyrion (*Stadiasmus* 185), then the remains at this location assume even greater significance due to their association with the Hellenistic frontier delineated by the Treaty of Apameia in 188 B.C.E. According to an admittedly confused source tradition, this treaty

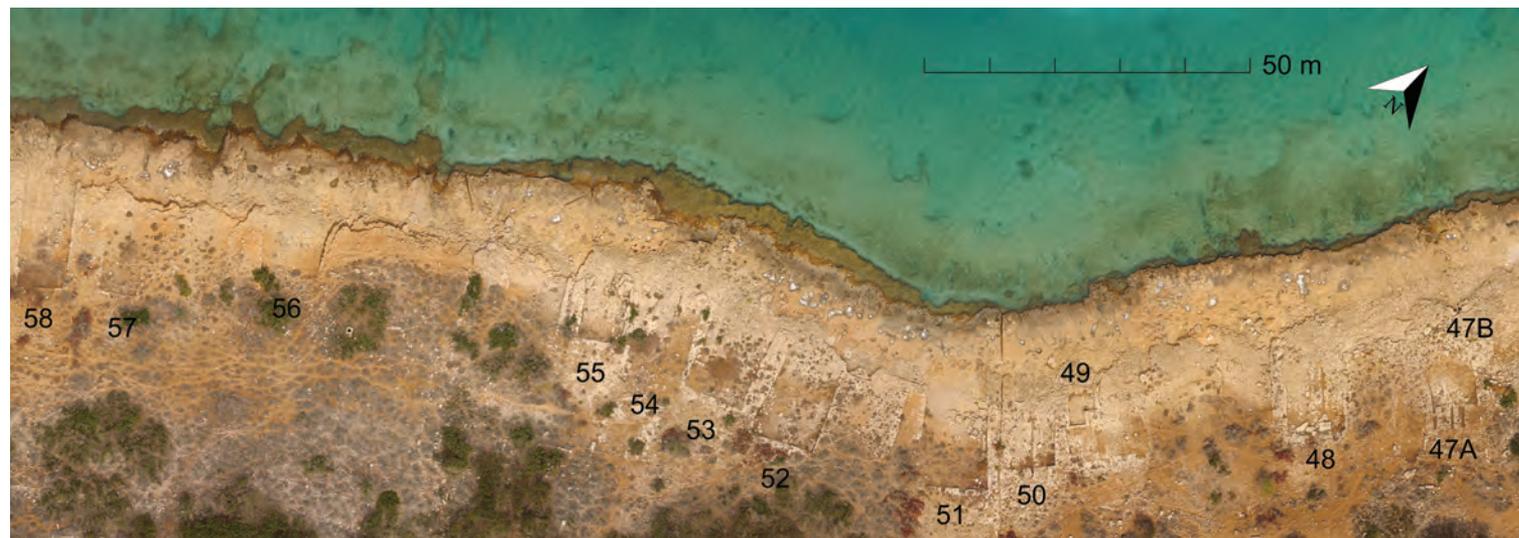


Figure 3. Aerial photomosaic of a southern portion of Dana Island's northwest shoreline, with rock-cut features 47A–58 visible. Photomosaic by Tuğrul Oktaş.

restricted the range of Seleucid naval operations west of a certain promontory (ἀκρωτήριο) or promontories (Polybius 21.43.14; cf. Livy 38.38.9; Appian, *Syr.* 38; Pliny, *HN* 5.22.92; Strabo 13.4.6); Theodor Mommsen (1879: 585; cf. Walbank 1957: 3:160) argued for a single, conspicuous promontory, one that Beaufort (1818: 227) had in fact identified as Cape Cavalière (Ovacık Peninsula). The identification of this westernmost maritime boundary for the Seleucid naval activities is, in turn, corroborated by an analysis of masonry techniques visible in the fortifications thus far

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investigated along this coast. As Rauh et al. (2013: 67–78) noted, Hellenistic fortified remains at settlements west of the Ovacık Peninsula (Anemurion, Kelenderis, Meydancık Kale, and others further west) employ a consistent design of rectangular-dressed ashlar masonry, whereas at Ovacık and at numerous sites east of this boundary (Olba, Korykos Cave, Adamkayalar, Elaiussa, and others) a technique employing Hellenistic polygonal masonry is consistently recorded (Durugönül 1998; Davesne and Le Rider 1989; Autret et al. 2014). This supports the hypothesis that separate, physically demarcated Ptolemaic and Seleucid spheres of influence existed along this coast with the fortifications as Aphrodisias/Ovacık marking their approximate border.²

Admittedly, the entire question of territorial frontiers and boundaries in the ancient world remains debated, given their notoriously porous character, and the variety of polities of various size and stature that boundaries would by necessity delineate. Nor have we taken into account additional, equally important factors such as the likely boundaries (cultural as much as

political) that existed between the coastal settlements of Rough Cilicia and the inhabitants of the interior. As landscape features, frontiers tend to be diachronic, multiscalar, and multidirectional. As Kolossov observes (2005: 619), political boundaries represent the “scars of history ... [that] existed in the remote past ... and sometimes even remain quite visible in the physical landscape.” The terrain being investigated by the Boğsak Archaeological Survey appears to represent a boundary zone throughout much of its history, defined in large part by its topography and environment.³ One of the objectives of the survey project is to investigate the evolving character of this frontier and its impact on maritime communities.

In 2016 the BOGA Team investigated the region's largest island, the 3 × 1.2 km in area, 250 m-tall island of Dana, ca. 2.5 km offshore. Generally identified as ancient Pitusu/Pityoussa, this island was reportedly the setting of a major naval confrontation between the Babylonian king Neriglissar and the Cilician king Appuašu in 557/6 B.C.E. (*ABC* 6). In the *Stadiasmus Maris Magni* (possibly fifth century C.E.), Pityoussa is listed as a maritime landing in the vicinity of Palaia and Aphrodisias. According to the fifth-century C.E. pseudonymous author of the *Acta Barnabae* (11), Pityoussa was likewise visited by the Christian St. Barnabas during his ill-fated voyage from Antioch to Cyprus. Due to a storm, the ship Barnabas and his companions were voyaging on was forced to moor for three nights at Pityoussa. After a long gap in the textual record, the island figures in late medieval portulans and marine maps under the name of Provensale, a toponym still used by sailors in the nineteenth century (Beaufort 1818: 207). Modern visitors record the remains much as they exist today. Having visited or seen the fortress complex at the top of the island's mountain on the south crest in 1811–1812, Beaufort (1818: 206) observed, “A citadel stands on the highest peak; and the whole island presents such means of natural and artificial defense, as to make it probable that it was once a station of great military strength.” When Heberdey and Wilhelm (1896: 98) visited the island in 1891–92, they saw several churches,

graves (house-tombs, sarcophagi, and other unspecified tombs), and several houses, among which one was preserved up to 4–5 m with its door posts and windows still intact. They relate that local inhabitants visited the island's ruins to gather grindstones.

Here we summarize the fieldwork conducted by the survey team on Dana Island during the 2016 season. Pedestrian survey demonstrated that the area of structural remains extends 1500 m along the northwest coast of the island, from near the northern end to the base of the southern end, where the remains of the fortress survive at the crest of the mountain. Mapping of the architectural remains proved challenging due to the overgrown vegetation amid the ruins. Five elements of the survey require comment: 1. The numerous rock-cut features lining the shore; 2. The architectural remains of the settlement; 3. The site limits as revealed by the pedestrian survey; 4. The citadel comprising a church at the southern summit of the island; and 5. The chronology of settlement occupation based on datable ceramic remains.

Rock-Cut Shoreline Features on Dana Island and the Question of Naval Installations

BOGA's reconnaissance visits in 2011 and 2014 revealed the foundations of narrowly spaced structures and rectangular indentations along the northwest shore of Dana Island. BOGA's 2016 survey identified more than sixty major rock-cut features along the island's northwestern shore (some of these are shown in fig. 3). The features, many of which have been severely eroded, may be grouped into at least three main types: building foundations, quarries, and sloped features of unknown function.

Many of the rock-cut features along the northern half of the shoreline appear to be cut foundations for structures, similar to (but shallower than) those found at higher elevations. In most cases (exceptions being the "kiln" and bath structures described below), no wall remains are present, most likely due to later reuse; large quantities of cut building stone on the shoreline would have been an excellent source of spolia. These features are interspersed with cisterns, several of which are partially exposed along the shoreline due to erosion.

Other rock-cut shoreline features may be the result of quarrying, particularly toward the southwestern end of the coast. Indeed, a quarry located near the shore would have greatly



Figure 4. Sloped feature #50 on the northwest shore of Dana Island; inset shows ramp-like trenches cut into back wall of feature. Photographs by Michael Jones.



Figure 5. Ashlar masonry structure in the southern section of the lower settlement. Photo by Gnder Varinliolu.

facilitated transport (Ward-Perkins 1971: 142–43). Some of the potential quarry features are cut in more irregular, "stepped" configurations (on quarrying methods, see Dworakowska 1975: 145–50). Narrow channels (ca. 20 cm wide) associated with some of these features may be stone-quarrying trenches, although other examples may have served as drains or sluices for rainwater.



Figure 6. Aerial 3D mesh of Church II. Mesh by Tuğrul Oktas.

A series of ten or more sloped features along Dana's shoreline is perhaps the most difficult to interpret; Varinlioğlu discovered these features in 2011 and soon thereafter tentatively suggested they may represent ancient slipways for ships (Varinlioğlu 2012). The features (widths 7–10 m, preserved lengths 9–18 m) would have had lengths of 25–30 m if they extended to the modern shoreline, but the area between the shoreline and the preserved features has been heavily eroded by wave action; the features do not appear to continue underwater. The sloped features have straight side walls, typically preserved to a height of 30–70 cm, although due to erosion it is usually difficult to judge their original depths (fig. 4).

Preliminary study of four sloped features indicates gradients of 4.7–6.5°, falling within the range of gradients of classical and Hellenistic slipways for triremes or smaller warships (Blackman and Rankov 2013: 120–21). Had they continued to the shoreline, the features would have been large enough to accommodate civilian or smaller naval vessels. However, several features argue against their definitive identification as slipways for warships. We did not find any evidence of a superstructure to support a

roof (e.g., column plinths or walls, although these may have been built of timber rather than stone), nor was there any evidence of bollards or columns that could be used for hauling vessels ashore (although the inland ends of some of the features remain buried). This contrasts with the five, relatively well-preserved slipways at nearby Boğsak Bay, which have bollards at their back (inland) walls (Harpster and Varinlioğlu 2015: 23–25). The back, slightly angled walls of the Dana features typically have two or more short, ramp-like trenches cut into them (see fig. 4 inset). Multiple, narrow, shallow trenches are often visible in the “floors” of the sloped features, in some cases approximating right angles (this may be a result of quarrying; see Ward-Perkins 1971: 140–41, fig. 1). However, no clear evidence of transverse or longitudinal slots for timber sleepers or runners for keel timbers, typical in slipways and shipsheds for ancient warships (Blackman and Rankov 2013: 107–15), was found. There is, nevertheless, a possibility that wooden cradles, such as those used in the Mediterranean today, could have been used for ancient ships (Blackman and Rankov 2013: 106, 107, fig. A7.2, 109, A7.3).

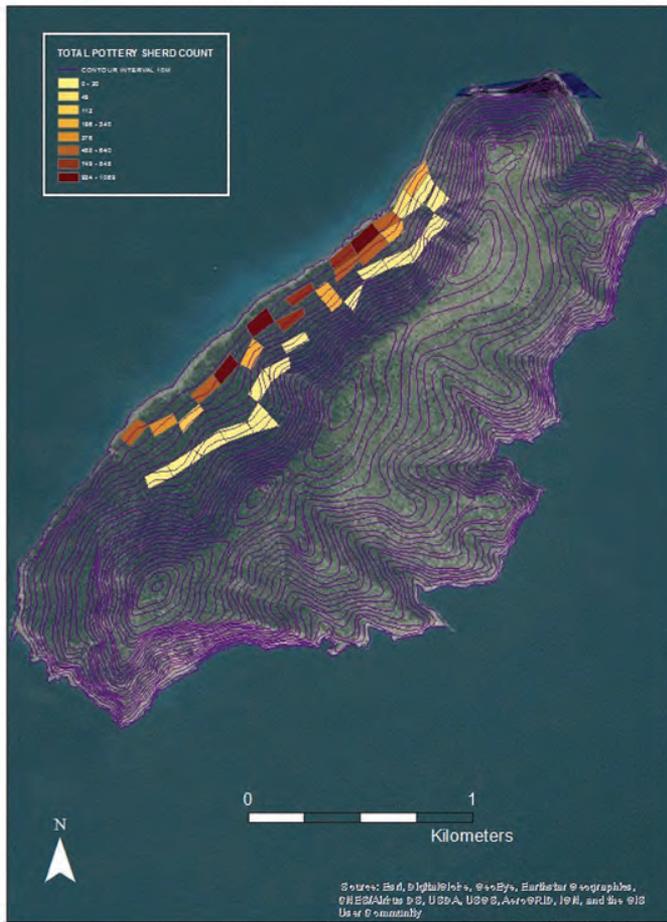


Figure 7. Sherd density. Map by Noah Kaye.



Figure 8. Distribution of funerary remains. Map by Noah Kaye.

Due to the complex nature of the Dana remains and extensive erosion of the ancient shoreline, it may be impossible to determine the function of all of these features. However, it is clear that several types of rock cuttings, serving different purposes, are present. Furthermore, the use of these features may have varied over time: slipways or structure foundations may have later been utilized as quarries, or vice versa. Dana Island provides an adequate anchorage on its northwest coast but lacks a substantial, boulder-free beach for hauling vessels ashore; slipways would thus not be entirely unexpected here. Future research seasons will aim to clarify the origin and purpose of these features.

Architectural Remains of the Settlement

The foundations of narrowly spaced structures and rectangular indentations stretch about 1.5 km along the northwestern coastline of the island. This architecturally developed area extends from the current, severely eroded shore at least 150 m inland, all the way to the base of the central spine that runs the length of the island. Along this line, the settlement is delimited by necropoleis consisting predominantly of chamosorium tombs, interspersed with a small number of rock-cut arcosolium tombs, and even

fewer masonry built vaulted tombs. These cemetery zones may have also functioned as stone quarries that supplied building material for the construction work on the island and possibly elsewhere. The buildings in the lower settlement are built using different types of stone masonry that employed the limestone quarried on the island. Mortared small stonework, mortared rubble stone, and unmortared ashlar masonry are the most frequently used building techniques. The architectural remains in the lower settlement, especially those closer to the shoreline, were heavily pillaged across the ages; as a result, most are preserved less than half a meter above ground and are often concealed by thick brush. Therefore, the identification of their functions is not a straightforward task. An exception is an array of possible domestic structures in the southern section of the settlement, directly behind the shoreline, in a location close to the quarries and necropoleis at the base of the mountain. The most noteworthy remains are a group of contiguous two-storey structures, partially cut out of the bedrock. The walls and arches are built with unmortared, well-dressed ashlar masonry up to the level of the second floor, which was supported by masonry arches and wooden beams. These monumental, ashlar structures are reminiscent of the large building described by Heberdey and Wilhelm (fig. 5).



Figure 9. Aerial photo of the citadel. Photo by Tuğrul Oktaş.

Bath facilities were among the services offered at Dana Island. Near the center point of the settlement immediately on the shore are the remains of what appears to be a bath complex judging from the partially preserved remains of the hypocaust system of its caldarium. In the absence of a natural water source on the island, the bath was supplied by at least three underground cisterns in its vicinity. Along the coastline, there are several dozen rock-cut cisterns or storage pits, which are not always associated with the structures on the terraces behind the coastline. The identification of the function of another brick structure ca. 45 m southwest of the bath is yet unclear. These relatively well-preserved remains are among the few structures using brick masonry in Isauria and Cilicia, where stone masonry is the dominant building technique (Peschlow 2009: 76–78.)

The island had at least five churches, four directly on, or near, the shore, and one inside the fortress on the southern summit (fig. 6). All the churches are three-aisled basilicas, with a narthex, an eastern ambulatory, and possibly a gallery. These employ a combination of building techniques, such as mortared small stonework, rock-cut, and ashlar masonry, using stone blocks spoliated from earlier structures as well as newly quarried on site. Remains of mosaic pavements, small tesserae of colored glass, imported marble capitals and panels that decorated the churches suggest a substantial level of wealth. Like comparable examples in Isauria and Cilicia, these basilical churches possibly date from the second half of the fifth and early sixth centuries. However, because they have been robbed of their architectural sculpture, especially their column capitals, we are yet unable to suggest a closer date range for the Christianization of the settlement. In

their vicinity the team noted a relatively long terrace structure with columns lying nearby (again noted by Heberdey and Wilhelm).

Site Limits and Pedestrian Survey

Over the course of ten days, the team conducted an intensive pedestrian survey across an area of 0.232 km² on Dana Island. Our goals were to define the boundaries of the settlement, establish its chronological phasing, investigate the functional distribution of space within its confines, and, finally, explore the relationship of the island's upper fortress to the coastal core of the site. The bulk of our work consisted of systematic, intensive survey, in which ceramics on the surface were counted by walkers traversing 38 units of ca. 50 × 100 m. By walking large transects, creating both continuous bands of coverage as well as a checkerboard pattern, we defined the edges of the main settlement and located its core. It is far larger than the previously published estimate of 400 m long × 50 m wide (Hellenkemper and Hild 1986: 32). In fact, it measures ca. 1500 m long × 150 m wide. Between ca. 35 and 50 m above sea level, habitation thins out precipitously and gives way to quarries and tombs. The map of sherd density shows the full extent of occupation (fig. 7); it also highlights sectors with the most intensive occupation. We defined the upper limits of the settlement along the island's central ridge, while only the steep coastal bluffs at either end of the beach limited it below. Taken together, the combined data show a more or less continuous band of necropoleis between ca. 35 and 50 m asl (fig. 8). Most areas of a high concentration of tombs were



Figure 10. Paved staircase between the upper settlement and the southern reaches of the lower settlement. Photo by Lucy Greene.

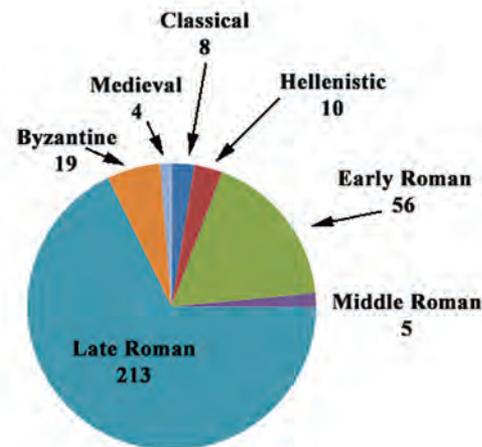


Figure 11. Pie chart table of datable processed ceramic sherds at Dana Island 2016. Chart by Nicholas Rauh.

also associated with heavy quarrying. While the hillside necropoleis and nearby quarries yielded very little pottery, the tombs and mausolea can be dated very generally by their form and the occasional stray sherd to the late antique period of peak occupation on the island. Precisely along this margin, the remains present another widespread characteristic—an area exhibiting countless quarry cuts into the limestone, several exhibiting faces more than 2 m tall. The vast extent of the quarry remains along the lower slope of the mountain and the fact that several of the quarry excavations resemble trenches that extend all the way to the shore (in some instances seemingly aligned with the cuttings on the shore themselves) seems to indicate that an important purpose of the settlement on Dana Island during its peak period of occupation may have been the quarrying of limestone for the construction of nearby settlements such as Tahta Limanı, Boğsak, and perhaps even Manastır. This hypothesis will, however, be tested through the scientific analysis of building materials from these settlements and quarry samples from Dana Island.

Fortress and Church Complex on Mountain Crest of Island

No features were discernible along the steep north, south, or east coasts of the island, but a multiperiod fortress perches atop the southwestern crest. “Beaufort’s citadel,” an approximately 300 × 200 m diamond-shaped complex, is visible from satellite photos (fig. 9). The walls, 2.63 m in thickness, display a preserved height of 1.75 m. The circuit wall has two faces of rough-cut blocks (largest = 43 × 40 cm) and a deep rubble core of chipped stones. Certain pieces of pottery employed in the

rubble core of the wall represent some of the oldest ceramics collected anywhere on the island. These include two pieces of a Cypriot basket-handled amphora (seventh–third centuries B.C.E.) and six Hellenistic amphora sherds, including a Rhodian toe. The circuit wall’s lack of mortar, its reliance on small, irregularly shaped stone blocks on each face, and its chipped stone rubble fill indicate a very early date of construction. It was possibly once covered with earth or dried brick. On the east side, an adjoining wall extends 100 m from the circuit wall in a relatively straight line to the edge of the south cliff. Its blocks are significantly larger (84 × 84 cm), and it appears to be a later modification. At the join of the two walls, the exterior face was raised and reinforced in late antiquity to incorporate a large door (with the lintel block still in place), employing uncoursed mortared rubble masonry. Here, the reinforced wall is preserved in what appears to be its full elevation, 2.95 m. This last addition to the fortification wall is 1.10 m in width, which combines with the initial circuit wall to reach 2.40 m in width.

Within the remains of the circuit wall, the team investigated a large church of basilical plan, a large cistern, and several additional structures. Additionally, pottery remains and wall-fall indicated several smaller buildings within the precinct, notably west of the church. The placement of a late antique church within a pre-Roman fortress has also been observed, for example, on Ören Tepe in southern Pisidia (Aydal et al. 1997). South of the church lies a vaulted cistern, ca. 4–5 × 2–2.5 m and several meters deep, lined with hydraulic cement. The church itself occupies an area ca. 550 m², with standing walls up to ca. 3 m high. Its only apse, oriented east, is enclosed in a straight east wall in such a way to create an ambulatory passage, a feature well known

in Isauria and Cilicia (Hill 1996: 28–36). A small basilical chapel, perhaps a later addition, projects out from the east wall. Different masonry styles observed at the citadel and its buildings, such as pseudo-isodomic, mortared small stonework, and uncoursed mortared rubble, suggest the existence of three or more construction phases over the extent of their use.

The focal points of the settlement, therefore, would appear to have been the structures along the northwestern shore and the citadel at the crest of the mountain directly above the cliffs on the south shore. Other structures visible in aerial photography along the crest of the island were not visited this season.

“...the overwhelming weight of the evidence points to a peak in occupation of Dana Island in late antiquity.”

Between the upper settlement and the southern reaches of the lower settlement, we recorded a 236 m-long segment of a monumental, paved staircase, 1.30–1.86 m wide (fig. 10). The structure of the staircase consists of retaining walls of rough-hewn stones, a stepped surface carved out of the bedrock, and limestone paving stones. The paving stones are well dressed: broad, flat, rectangular blocks, sometimes cut to incorporate the drainage channel that extended the length of the stairway. However, the recorded segment traverses the hillside well above the limits of the lower settlement, which is primarily located below 40 m asl. By contrast, the segment of the staircase that we documented lies between 102 and 161 m asl, and rises with an average grade of 25.3 percent. At its bottom, a guardhouse or gate was visible.

Dating Derived from Ceramic Surface Collections

The survey pottery was thoroughly sorted in the field according to form, fabric, and chronotype. Each sherd was photographed in the field, while only diagnostic pieces were collected and transported to the shore for further analysis. Given our research goals, finewares and amphoras were privileged in our collection and so also in our results. However, in an effort to provide a fuller sample of the true assemblage, cookwares, coarsewares, and commonwares were also collected. As the accompanying pie charts (fig. 11) illustrate, the overwhelming weight of the evidence points to a peak in occupation of Dana Island in late antiquity. This is a pattern that we detected in the diagnostic finewares, one which is also confirmed by comparing results of all other datable sherds. The ceramic remains support the report in the late antique, apocryphal *Acta Barnabae*: a small early Roman settlement had grown large enough in late antiquity to host travelers waylaid by stormy winter weather. However, apart from the minimal finds from the circuit wall of the mountain-top

fortress, there is little evidence of any substantial pre-Roman settlement on Dana Island.

Chronologically, our findings conform to the “rollercoaster demographics” typical of small Mediterranean islands with limited carrying capacity (Bevan et al. 2007: 33–34). An early Roman substrate was identified, but the neighborhoods and churches now barely concealed by thick brush are late antique in date. At its peak, Dana Island was the site of a permanent settlement; a maritime station comprising a large variety of services, including baths, hostels, restaurants, churches, boat repair shops, and provisioning facilities, etc., as well as accommodation for workers. In addition, it possibly functioned as a stone quarry to cut limestone blocks for the development of neighboring settlements such as Boğsak. However, there is scant evidence to suggest any significant level of occupation in earlier or later times. We found no prehistoric artifacts and indeed few pre-Roman ones. All classical/Hellenistic and medieval/early modern ceramics were recorded in but a handful of survey units at the far northwestern end of the shoreline. This suggests that in most periods the island functioned as an occasional, opportunistic port and refuge for sailors. We should also rethink any conjecture of a significant population of crusaders or Provençale merchants resident on the island. Rather, the knights may have used the island as a stronghold and watch point (cf. the Hospitallers’ imprint on the Dodecanese; Zarifis and Brokou 2002).

Notes

1. Aphrodisias (2), Palaia (1), Tahta Limanı (2), Dana (1), Tokmar (1); Kavurkalık (1), Limankalesi (1).
2. Meydancık Kale is particularly noteworthy in this regard, due to the recovery there of a coin hoard demonstrating the existence of a Ptolemaic garrison. It is worth noting that most of the fortifications investigated by the survey were first observed in Google Earth and then ground-inspected. Investigations conducted thus far in Google Earth have failed to yield similar fortification systems in the western segment of this coast, apart from those visible in the sites mentioned.
3. See Eger 2015: 170–71 for the effect of the creation of the Islamic-Byzantine frontier on Rough Cilicia.

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