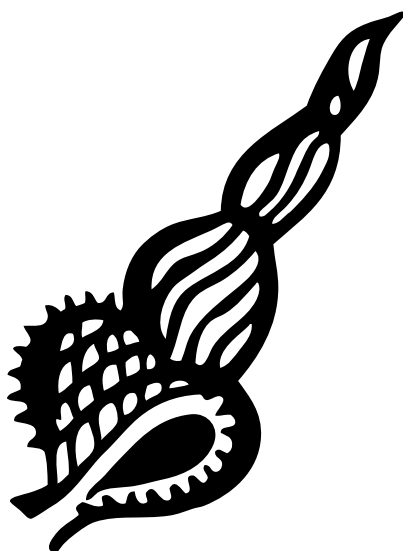


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# **MEDITERRANEAN ARCHAEOLOGY**

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## THE COASTAL TOPOGRAPHY OF ANCIENT TORONE

J. Lea Beness, Richard Dunn, Tom Hillard, Anthony Sprent\*

Classical Torone's relationship to the sea shaped its history, and largely defined its character.<sup>1</sup> Its location ensured that its citizens—like the city's distinctive narrow peninsula jutting out into the 'Toronian' Gulf—would look seawards (**fig. 1**). This more than justifies an interest in the shoreline of the archaeological site, and central to that interest is the question of the location of Torone's harbour.<sup>2</sup> From the time that the Australian Expedition to Torone began work on the site in 1975, the area just off the eastern shore of Promontory 1 and its narrow isthmus (the former probably known in Classical antiquity as the *Lekythos*; Thuc. IV 113: 2) was generally accepted as the location of an anchorage, probably Torone's harbour.<sup>3</sup> Logic underlay that thinking, as each of the other possible locations was eliminated.

The first of these is the superb harbour of Porto Koupho (**pls. I: 1–2; 1: 1–2**), three kilometres to the south, sheltered in all weathers. It is true that this was not only considered part of the territory of Torone,<sup>4</sup> but in Roman (and possibly Hellenistic) times was seemingly thought of as a—if not the—harbour of Torone (see Appendix 1). A proverb circulating in

\* The names of the authors are listed in alphabetical order; this order carries no other significance. Excavations in 1993, 1994, and 1997 were undertaken as a *synergasia* with members of the Greek Department of Underwater Antiquities, led by Dr Chr. Samiou. The finds of those excavations will be published independently by our Greek colleagues. The Australian teams were led by Hillard. Cosmos Coroneos and Tim Smith served with the Australian team as marine archaeologists (the former in 1993–94, the latter in 1993 and 1997) and brought excellent initiatives to the project. Figures 3 and 4 were prepared in draft form by Smith and drawn by Dr Jaye McKenzie-Clark. We thank Professor Alexander Cambitoglou, director of the excavations at Torone, for the opportunity to explore Torone's shoreline and for his guidance and advice. On site, Beness and Hillard were offered considerable advice by Dr John Papadopoulos, at that time Deputy Director of the land excavations. Thanks must also be expressed to Dr Stavros Paspalas, Deputy Director of the AAIA, for assistance, diplomatic and academic; Fiona Crowe for her assistance in the 1994 survey of the submarine features of the south side of Promontory 1; Gabrielle E. Kurth for her assistance in the geological study of Perdikosyia in 1999; and the Macquarie University students who assisted in fieldwork in 1997: Natasha Beach, Caroline Brehaut, Austin Craddock, Jane Goldman, Oliver Laurence, Lydia Matthews, and Mary Yiakoulis. Back in Australia, thanks are due to Julie Trotter (CSIRO) for geological advice; Dr David Phillips (Macquarie University) who has been consulted on matters of Greek history; and Assoc. Prof. Iain Spence (UNE) who has been consulted on matters of military history. Part of this paper, including the discussion of Thucydidean usages, was read by Beness and Hillard to a seminar at the University of Sydney in 1997. They would like to thank those who commented at that time. In the United States, the Departments of Geology and Environmental Science and of History at Norwich University, Vermont, hosted the collaboration of Beness, Dunn, and Hillard in 2005; the

supply of facilities was generous and the hospitality warm. Two anonymous readers of the main appendix have greatly improved the text. They should not be held accountable for what remains.

<sup>1</sup> See Appendix 1.

<sup>2</sup> Archaeology might have been able to provide a sure clue had it led to the discovery of the trophy (one of two) which Thucydides reports the Athenians having erected in 422 BC 'by the harbour (*limen*)' (Thuc. V 3: 4; the other was by the wall, where Cleon's land forces had first broken through); cf. T. W. Hillard–J. L. Beness, 'Postclassical Effects on Classical Shoreline Sites: Straton's Tower/Caesarea Maritima, Israel and Torone, Chalcidice, Greece', in: S. Swiny *et al.* (eds.), *Res Maritimae. Cyprus and the Eastern Mediterranean from Prehistory to Late Antiquity* (1997) 145 n. 37. We should not hold our breath for such a discovery. In Hellenistic and Roman times at least, trophies were erected in sufficiently durable form to last (cf. the trophies erected by Sulla at Chaironeia [Plut. *Sull.* XIX, XXI] both of which have now been retrieved). In the Classical period, whilst trophies—once erected—customarily had the respect of all parties (Xen. *Hell.* IV 5: 10 [Iphicrates' trophy at Lechaion]), and might endure for half a century (e.g. Plut. *Aegil.* XIX 2) or more (Paus. III 12: 7; 24: 6; 3: 26), they were not lasting. They were never refurbished (Plut. *Mor.* CCLXXIIIc–d; Cic. *de inventione* II 23 [69–70]; Diod. Sic. XIII 24: 5–6).

<sup>3</sup> See, for example, A. Cambitoglou–J. K. Papadopoulos, 'Historical and Topographical Introduction', in: A. Cambitoglou *et al.*, *Torone I. The Excavations of 1975, 1976, and 1978* (2001) 47 n. 71 (henceforth referred to as *Torone I*). With regard to the name *Lekythos* we say 'probably' only because Thucydides seems to give the name to a fortress (*phrourion*) on the promontory rather than to the promontory itself (see below, n. 30).

<sup>4</sup> Thuc. V 2: 2.

Late antiquity, and perhaps earlier, referred to Koupho as Torone's *limen*.<sup>5</sup> Yet it is unlikely to have been the city's port in the Classical period and earlier. Two considerations lead to that conclusion. The first is that it was too distant to have been convenient to the city's market(s) or protected by its defences.<sup>6</sup> The second is less speculative: if Thucydides' account of the Athenian attack on Torone in 422 is to be trusted, Porto Koupho was clearly distinguished from Torone's harbour.<sup>7</sup> The Athenian commander Cleon is reported to have put into Koupho with his fleet of 30 ships (κατέπλευσεν ἐς τὸν Κωφὸν λιμένα), and from there (ἐκ ... αὐτοῦ) attacked Torone by land and sea, sending 10 ships round to the city's harbour (ναῦς δὲ περιέπεμψε δέκα [ἐν] τὸν λιμένα περιπλεῖν; V 2: 2–3).

Another possible location, the small bay nestling between Promontories 1 and 2, had the advantage of falling within the city's defensive walls, but could have served only as a fair-weather anchorage, being open to often violent southerlies (pl. 2: 1).<sup>8</sup>

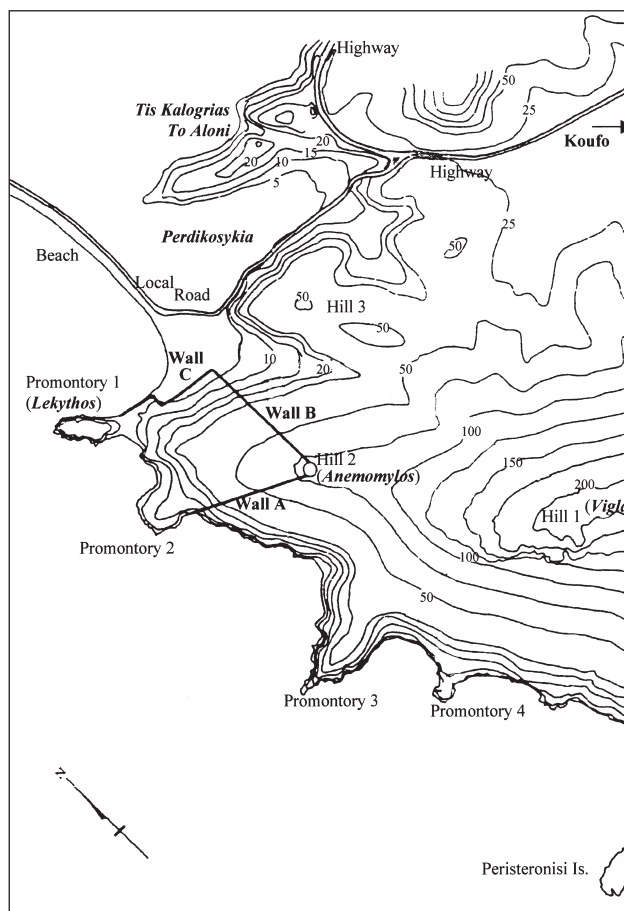


Figure 1. Map of Torone's present topography, showing the probable line of its Classical fortification walls (Beness and Hillard after A. Henry).

<sup>5</sup> The proverb is preserved by Zenobius (2nd cent. AD) and in the *Suda* (10th cent.): *Kophoteros tou Toronaiou limenos* (i.e. 'quieter than the harbour of the Toronians'); Zenob. *Centuria* IV 68; *Suidae lexicon* 2310 (=3, p. 179 Adler) *Kophoteros tou Toroneos limenos*. For further references, see A. S. Henry, *Torone. The Literary, Documentary and Epigraphical Testimonia* (2004) 89–92. Both Zenobius and the *Suda* offer the same explanation, that of the latter being slightly fuller in that it spells out that 'near Torone in Thrace' (the wording of both is the same here: *peri Toronen tes Thrakes*), 'there was a certain harbour called *Kophos*: its long and narrow approach meant that the sounds of the sea were not heard within'. We are grateful to Dr Claude Desceudres (Berne) for pointing out to us the survival of this proverb into Erasmus' *Adages* II ix 8 (LB II 6665E) where it is translated as 'deafar than the harbour of Torone' (*surdior Toronaeo portu*), alluding to those who hear nothing. The harbour was 'mute' (as Erasmus explains it, following the *Suda*); cf., by way of parallel, Xenophon's reference to 'the Still Harbour' (*ho kophos limen*) at Piraeus; *Hell.* II 4: 31.

The allusion to Porto Koupho is unmistakable. See pl. 1: 1 for a view of Koupho's protective entrance, cf. Torone

I pl. 5a, and here pl. 1: 2 for an illustration of how the diagonal entrance-passage shelters the harbour within. It was suggested by Th. Kock that the proverb derives from Attic Comedy (*Comicorum Atticorum Fragmenta* [1880–88] 3, frag. adesp. 803; cf. R. A. B. Mynors, *Collected Works of Erasmus* [1992] 348). If so, it would imply that Koupho was indeed Torone's harbour in the Classical period. For reasons given immediately below (cf. n. 7), we do not believe this attribution to be correct.

<sup>6</sup> See Arist. *Pol.* VII 1327A on the desirability in practical terms, whatever the 'moral' dangers, of a harbour located close to the city; cf. F. E. Winter, *Greek Fortifications* (1971) 8–9.

<sup>7</sup> That is also dependent upon the corrected reading of Thucydides' text. The manuscripts read ἐς τὸν Κολοφωνίων λιμένα. Few would now dispute the emendation; cf. A. W. Gomme, *A Historical Commentary on Thucydides* 3 (1962) 631, and S. Hornblower, *A Commentary on Thucydides* 2 (1996) 425–6.

<sup>8</sup> The photograph illustrates the evidence of cliff-side retreat due to weathering and wave erosion on the southern face of the Lekythos.

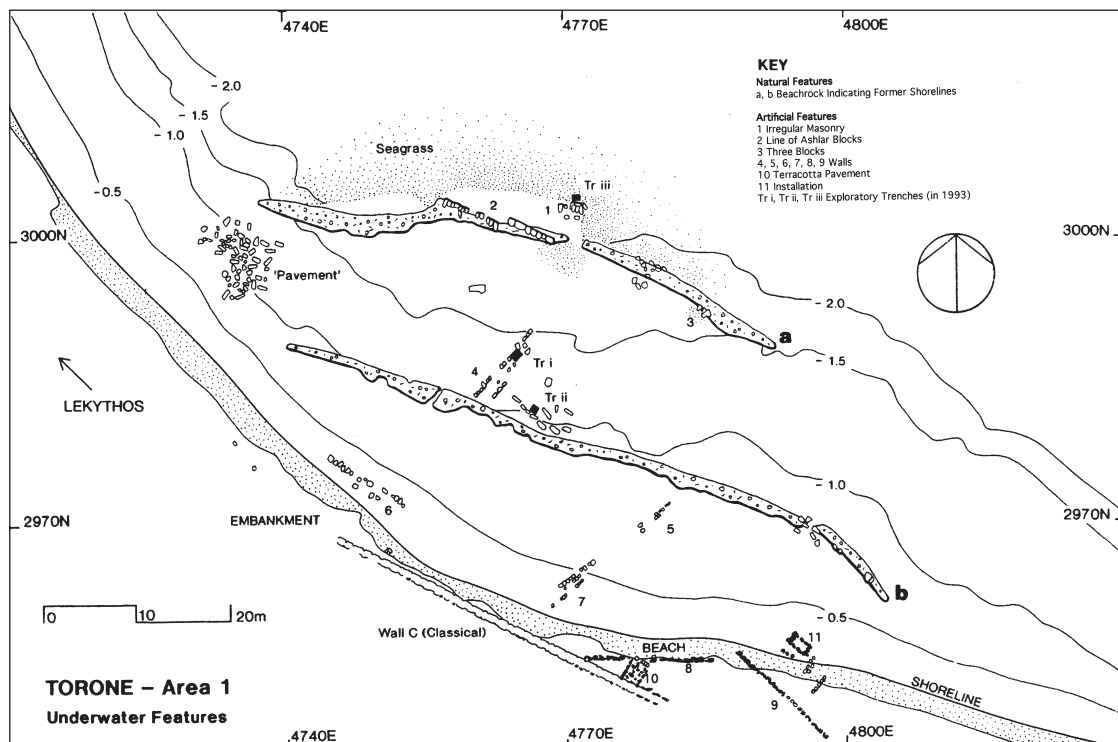


Figure 2. Underwater and shoreline features in Area 1 (Hillard after T. Smith).

That leaves, given the present conditions, only the area directly to the north-east of the narrow isthmus which links Promontory 1 (hereafter, for the sake of convenience, the Lekythos) and the mainland. Today, a short stretch of sandless shoreline in the lee of the Lekythos provides year-round shelter to a few small fishing craft. As the great beach-lined bay sweeps northwards it becomes increasingly exposed.

The range of options can be expanded, however, since the present topography is not the same as it was in antiquity. The underwater investigation of Torone's shoreline has established that a large part of the submerged area hitherto regarded as a likely site for Torone's harbour (labelled U/W Area 1 by the Underwater Expedition) was formerly terrestrial (**fig. 2; pl. 2: 2**).<sup>9</sup> The stone rubble littering the shallow site was not simply spill from the Lekythos. The bases of several stone walls were traced (**fig. 2; pl. 3: 1**) revealing that the present seabed represented the former ground level of a terrestrial site.<sup>10</sup> Moreover, the retrieval in 1994 of (dry) black-glazed pottery from what may have represented a floor level associated with a wall close to the present shoreline (8 in **fig. 2**) suggests that the area was occupied during the Classical period and possibly later, prior to its submersion.<sup>11</sup> The interpretation of the

<sup>9</sup> After a preliminary exploration by Beness and Hillard in 1990, and an independent one by Dr N. Lianos of the Greek Underwater Ephoria, systematic investigation was undertaken by a Greek-Australian *synergasia* in 1993, 1994, and 1997 (with Beness and Hillard undertaking a study season on the site in 1996).

<sup>10</sup> Of interest here is the fact that Walls 4, 5, and 7 (**fig. 2**) lie in the same north-east/south-west orientation as the domestic housing on the land site; Chr. Samiou *et al.*, 'The Underwater Survey of Torone: a Preliminary Report of the 1993 Season',

Meditarch 8, 1995, 94. For this orientation of houses on the terraces above, see A. Cambitoglou-J. K. Papadopoulos, 'Excavations at Torone, 1986: A Preliminary Report', Meditarch 1, 1988, 186. This orientation seems to have been prompted by the direction of prevailing winds.

<sup>11</sup> Reported in a joint communication with our Greek colleagues, Drs Samiou and Lianos, at the VIth International Symposium on Ship Construction in Antiquity in Lamia, 29/8/1996. The discovery of a lamp (probably of Late antique date and probably from the East) on a terracotta-tiled

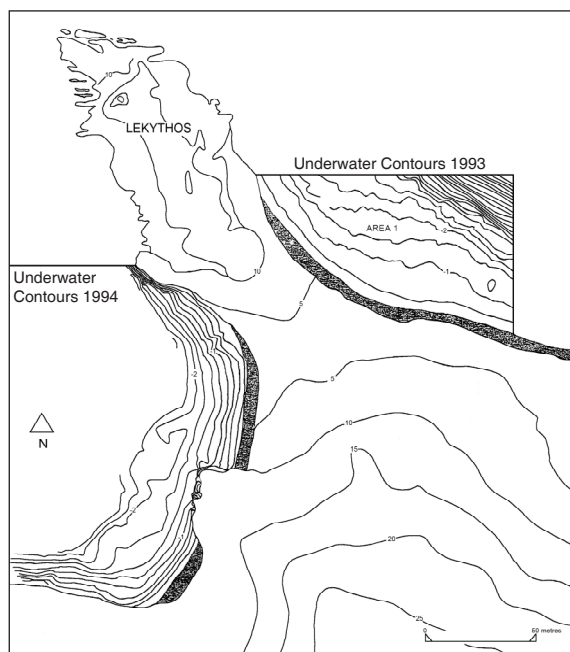


Figure 3. Contour map of the Lekythos (J. McKenzie-Clark after T. Smith).

gradually to a depth of a metre (*c.* 10 m offshore), and a depth of 2 m further out (*c.* 15 m offshore), before the shelf steeped off sharply (figs. 2, 3).

The presence of three distinct shorelines (including the present one) suggests that the transformations of Torone's shoreline topography were episodic rather than gradual,<sup>13</sup> and seismic activity seems to be the most likely cause for this. The area is prone to disturbance, lying as it does just north of the great North Anatolian Fault.<sup>14</sup> Catastrophic though such

site was further advanced by the discovery of two lines of beachrock running across the submerged area representing former shorelines (a and b in fig. 2).<sup>12</sup> One was situated *c.* 20 m offshore at a depth of one metre below the present sea level, the other *c.* 38 m offshore at a depth of 1.75 m. These features can be seen quite clearly from the lower slope of the Lekythos, facing east (pl. 2: 2). Thus, expanding north-eastwards from the current north-eastern shoreline of the isthmus leading to the Lekythos, there has to be envisaged a broad area, *c.* 2,800–3,200 square metres, projecting seaward in a convex manner contrary to the curve of the present shoreline. It may or may not represent an artificial fill designed to facilitate anchorage and dockside activity there. Assuming similar bathymetry and hydrography in antiquity, vessels riding off the outer shoreline would have enjoyed a draught of half a metre, falling away

pavement (fig. 2: 10) which overlies wall 8—also reported at the above mentioned conference—possibly points to the occupation of this site, at that time dry, into the period of the later Roman empire. (We thank Hugh Beames for his advice regarding the lamp.) Relevant also is the find of a large *pithos* discovered *in situ* just seaward of Wall 8 in 1997.

In 1997, Hillard also cleared the remaining base (one course of stones) of a rectangular construction (fig. 2: 11) of undetermined function but with a plaster sealing coating its floor and interior walls. Probably a dockside installation of some sort—a fish tank? A report of the walls surveyed offshore and along the shoreline, together with associated finds, will be presented by our Greek colleagues.

<sup>12</sup> These were 'reefs' of lithified sediments, composed of clasts of diverse provenance in a sandy matrix and set in a fine cement of calcium carbonate. Such lithification is known to form in certain circumstances beneath a beach within the perimeters of its intertidal zone. For the purposes of comparison with other sites a preliminary report on the composition of this rock is produced in Appendix 3.

<sup>13</sup> That is to say, they were not the result of general sea-level variations such as would produce a gradually transgressive shore.

<sup>14</sup> Geological Map of the Peninsula of Sithonia, Institute of Geological and Mining Research (1978).

See B. Papazachos–K. Papazachou, *Οἱ σεισμοί της Ελλάδας* (1989) 101–3, 110 figs. 5.5–6, for a discussion of the earthquake in the area of Thessalonike on 20 June 1978. Three fracture lines were observed in the epicentral area, the longest being 'the surface expression of a normal fault' with an approximately E/W 12 km surface trace. In that case, 'the northern side of the fault was 30 cm downthrown in respect to the southern side'. Such an earthquake in the Chalcidic region, with a subsidence of land to the south, could result in localized sudden rises of relative sea level on the coastline of Sithonia. Subsidence in different directions can occur in the same area. Note, for example, the earthquake sequence in 1981 at the eastern end of the Corinthian Gulf, more particularly the area of the Alcyonides Gulf, in February–March 1981. After Feb. 24–25th, in the Gerania mountains, subsidence could be observed on the northern side of the fracture line (except for a relatively short stretch of subsidence observed to the north of Perachora). On March 4th, in the Cithaeron mountains (in the region of Plataea to the coast), subsidence was to the south; Papazachos–Papazachou op. cit. 103–6 (and 104 fig. 5.7 for a schematic map).



movements would have been at the time, the relative sea-level rises of a metre or less would also account for the limited remains within Area 1. After each trauma, any useful building material might have been easily retrieved from its submerged position, leaving to the site only foundation-level vestiges of the more substantial constructions. The dates of these episodes are unknown, though we are inclined to believe that the two significant seismic events indicated by the two lines of submerged beachrock occurred in the post-Classical period.<sup>15</sup> Logic suggests that the outer submerged shoreline was the earliest and that the shoreline lying between it and the present followed it; but logic should not be allowed to dictate speculation without further confirmation. For what it is worth, a Venetian engraving of the site by the 17th-century cartographer Vincenzo Coronelli, with a clear but not topographically precise illustration of the site, indicates that the shoreline at that time was roughly as it appears today.<sup>16</sup>

The implications of these findings for the shape of the Lekythos and its isthmus in antiquity are significant.<sup>17</sup> The underwater contours to the north of the Lekythos were mapped in 1993, and the results have been published earlier in this journal.<sup>18</sup> In 1994, the submarine contours of the western face of the Lekythos were mapped (**fig. 3**),<sup>19</sup> suggesting that the relative sea level in Classical times was about 1.75 m lower than today's. Thus reconstructed (**fig. 4**), the shoreline makes better sense of the Classical city's substantial defensive wall, running along the current north-western shore of the isthmus connecting the Lekythos to the

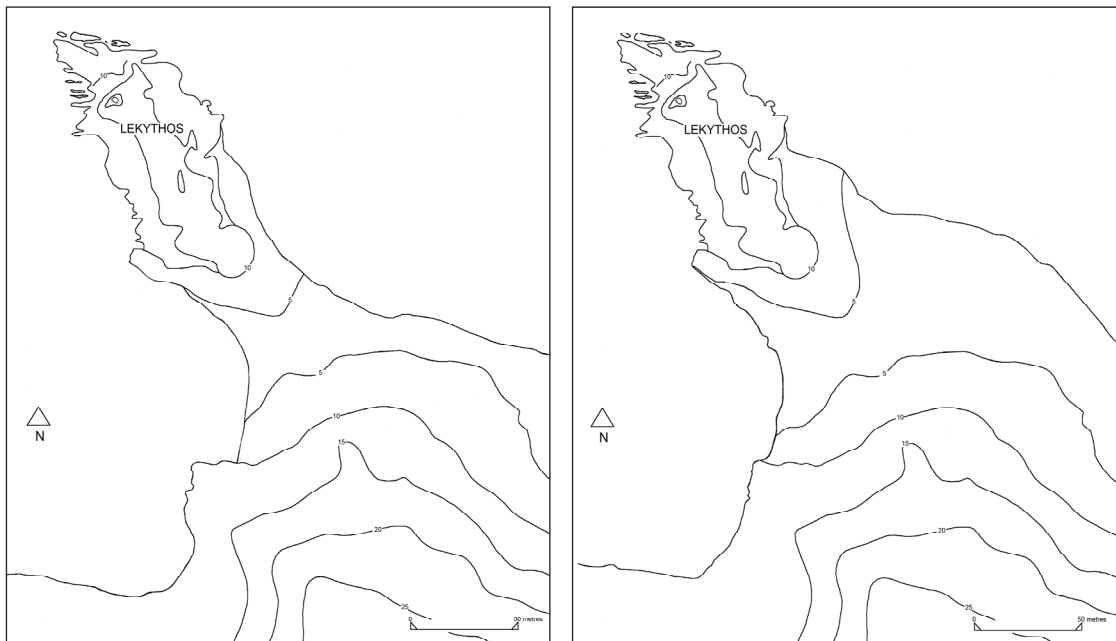


Figure 4. Profiles of the Lekythos (J. McKenzie-Clark after T. Smith). (a) The present profile of the Lekythos; (b) The profile of the Lekythos prior to a 1.75 m change in relative sea level.

<sup>15</sup> See Appendix 2 for a register of seismic events known to have occurred in the broad area. Future sampling of the beachrock may provide tentative answers, though the dangers of post-formative contamination are great. Publication by our Greek colleagues of the finds associated with features of the submerged site will also provide chronological clues.

<sup>16</sup> A reproduction of this engraving can be found in P. Armstrong, 'The Earlier Byzantine Castle at Torone',

Bulletin of the Australian Archaeological Institute at Athens 3, 2005, 10 fig. 2.

<sup>17</sup> For the sake of stylistic convenience (and perhaps not only [see below]), we use here the designation Lekythos to embrace the peninsula and its narrow isthmus.

<sup>18</sup> Samiou *et al.* art. cit. (n. 10) esp. 93 figs. 2 and 3.

<sup>19</sup> This was conducted by Sprent, with the assistance of Fiona Crowe.

mainland.<sup>20</sup> It is currently lapped by the high tide, and is not to be envisaged as having been built so close to the water's edge; exploration in 1997 showed that its foundations certainly lie below the current sea level.<sup>21</sup>

The changes in the relative sea level principally affect the width of the isthmus (see **fig. 4**). At present, it has at its narrowest point a width of *c.*45 m. At -1.75 m relative sea level it would be more than twice as wide (*c.*110 m). This might come as a surprise to those using Thucydides as a guide to what ought to be found on the site.<sup>22</sup> Two considerations might have strengthened the assumption that the current topography reflects that of antiquity. First of all, there is the name which Thucydides seems to provide for the peninsula: the *Lekythos*. Obviously (or so it might seem), this was intended to suggest a particular shape, which some might assume matches well the aerial view of the peninsula today—the aerial perspective being in one sense available to the ancient inhabitants from the classical acropolis (Hill 2, the Anemomylos),<sup>23</sup> and always of course open to their mind's eye. The range of possibilities conjured by that designation, however, ought not to be constrained by the profile of the vase known to us as *lekythos*. The word could be used in Classical antiquity as a generic term for oil-jug,<sup>24</sup> and in particular for the *alabastron*,<sup>25</sup> characterized by an elongated, handleless body and a narrow neck crowned by a wide mouth. The 'little lekythos' in Aristophanes' *Frogs* might well therefore represent a colloquialism for penis, as many have suggested.<sup>26</sup> Surely the ancient designation of Torone's peninsula, if it was indeed called the *Lekythos*

<sup>20</sup> Designated Wall C by the Australian Torone Expedition (see **figs. 1** and **2**). On this wall, see Torone I 70–2; A. Cambitoglou, 'Military, Domestic and Religious Architecture at Torone, in Chalcidice', in: M. Stamatopoulou–M. Yeroulanou (eds.), *Excavating Classical Culture: Recent Archaeological Discoveries in Greece* (2002) 28–32.

<sup>21</sup> A report of trenches sunk along the face of Wall C in 1997 will be presented by our Greek colleagues.

Ancient Greek architects would have been able to predict the undermining wave action apparent today upon the remains of Wall C. The seaward wall of 5th-cent. Punic Carthage, it is true, fronted a flat, sandy shore; but large blocks of stone in front of the wall served as breakwaters: S. Lancel, *Carthage. A History* (1992, Eng. trans. 1995) 137 and cf. fig. 71. There is no evidence that such protection was required at Torone; nor space available for it—given the constructions which stood immediately to seaward.

One curious item might be dealt with in passing here. The attack on Torone's defences during Timostheus' investment of the city in 364/3 BC seems (taking a cue from the usual readings of Polyaeus *Strat.* III 10: 15) to have been located very near a shoreline. The translations of both R. Shepherd (1793; republ. 1974) and P. Krentz–E. L. Wheeler (1994) have Timostheus effectively demolishing Torone's makeshift gabion, a great height of sand-filled baskets, 'by placing points on rather long devices attached to the masts and putting scythes on the ends of the masts' (K–W), with which he broke open and cut apart the baskets, so that the sand flowed out. (Shepherd indeed translates the 'sand-bag levy' as 'moles', further enhancing the shoreline imagery.) It is difficult to credit Greek ships being involved so directly in a siege. The manoeuvrability required by these devices, however, suggests to us that ἱστῶς here should be read simply as 'pole'—or, that if the reading 'mast' is retained, it be understood that the masts had been detached for the exercise. The nearest parallel that we can provide—not at all

perfect—is the *dorudrepanon* (considered in its context to have been extraordinary) wielded, with unintendedly comic gusto, at Plato *Laches* CLXXXIIIc–CLXXXIVa.

<sup>22</sup> On the common dangers of tailoring archaeological evidence in accordance with accepted readings of classical texts (and in the case of Torone the almost inevitable recourse to Thucydides), see J. K. Papadopoulos, 'Archaeology, myth-history and the tyranny of the text: Chalcidice, Torone and Thucydides', *OxfJA* 18, 1999, 385–7.

<sup>23</sup> Obscured from the even higher Vigla (Hill 1) by the Anemomylos itself.

<sup>24</sup> G. M. A. Richter–M. J. Milne, *Shapes and Names of Athenian Vases* (1935) 14–15.

<sup>25</sup> *Suda* s. v. *lekythos*: 'the Athenians call a perfume lekythos an alabastron'; cf. Richter–Milne op. cit. 17.

<sup>26</sup> This is the instrument with the aid of which 'Aeschylus' mutilates a succession of Euripidean verses (*Frogs* lines 1198–1245). On the diminutive *lekythion* (and this particular interpretation), see B. Snell, 'Lekythion', *Hermes* 107, 1979, 129–33; and, with reference to other earlier scholarship, G. Anderson, 'LEKYTHION and AUTOLEKYTHOS', *JHS* 101, 1981, 130 n. 1, and K. Dover's commentary (Aristophanes. *Frogs* [1993] 337–9). The case against such an interpretation is put by J. Henderson, 'The Lekythos and *Frogs* 1200–1248', *HSCPh* 76, 1972, 133–43. The issue was obscured by the suggestion that the allusion was to the rounded aryballos (and hence to testicles): Anderson loc. cit.; cf. W. Beck, 'LEKYTHION APOLESEN', *JHS* 102, 1982, 234. But see the riposte of M. Robertson, 'LEKYTHION and AUTOLEKYTHOS', *JHS* 102, 1982, 234, re-establishing the phallic symbolism, strangely with reference to the white-ground lekythos rather than to the alabastron: 'not in detail, certainly, but ... surely phallic enough. If one dreamt of one Freud would be in no doubt what it meant.' An even wider range of meanings will be found in the standard dictionaries.



from Torone's earliest times, came from those who observed its similarity, at sea level, to an oil-flask (or some other elongated object) lying on its side.<sup>27</sup> The appropriateness of the name is particularly clear today viewing it from the northward beach (pl. III: 1), though the appellation is likely to have derived from those approaching the site by sea for the first time, most probably from the south.<sup>28</sup> It will be appreciated, in this case, that the width of the isthmus joining the Lekythos to the mainland had no part in the inspiration of the name.

We come now to the second apparent prop to the assumption that the present topography reflects that of Classical antiquity. Thucydides' explicit description of the site is usually read as explaining that the Lekythos was separated from the mainland by a narrow isthmus (... τὴν Λήκυθον τὸ φρούριον, ... ἄκρον τῆς πόλεως ἐς τὴν θάλασσαν ἀπειλημμένον ἐν στενωῶ(ι) ἰσθμῶ(ι); IV 113: 2).<sup>29</sup> Two things might be noted here. The first is that Thucydides seems to be using *Lekythos* as the name of the fortifications on the peninsula,<sup>30</sup> though that may merely be from association with the name of the promontory itself and need not negate the proposition that the peninsula, elsewhere unnamed, was so identified. The second is that the Lekythos fortifications are described as a citadel (*akron tes poleos*) projecting into the sea (literally, 'having been cut off') *en steno isthmo*, that is to say, within, or on, a narrow 'isthmus'. One is entitled to ask, however, whether Thucydides has applied the term *stenos isthmos* to the whole peninsula (Promontory 1). Although Thucydides can indeed use 'isthmus' to denote a neck of land—see, for example, his usage at I 62: 1, 3, 5; I 64: 1: several clear references to the isthmus just north of Potidaea, and his reference at IV 45: 2 to Methone as being situated on the isthmus of a peninsula (τὸν τῆς χερσονήσου ἰσθμὸν)<sup>31</sup>—the sense of 'promontory' is more likely to apply to its usage at I 7, where he refers to the occupation and fortification of 'isthmoi', that is to say, peninsulas, for the purposes of commerce and defence.<sup>32</sup> In such a way, his evidence might be reconciled with our observations.<sup>33</sup>

<sup>27</sup> Cf. Torone I 38 n. 10.

<sup>28</sup> It was probably the Vigla which served as the useful navigational aid to Bronze Age pilots. See Chr. Agourides, 'Sea routes and navigation in the third millennium', OxfJA 16, 1987, 1–24 and esp. 15–17 on the attention to 'bold headlands, tall mountain peaks and distinctively shaped islands'. Once a general location was reached, however, 'a practical method to recognize coasts when approaching them from the open sea is to give them names of animals or other figures that might resemble them and easily be remembered'. The weather-beaten aspect of the Lekythos' south-western face (as it appears today) may not, even in antiquity, have so easily suggested the smooth side of an alabastron, but may have fitted in rough nautical minds other objects evoked by the label.

<sup>29</sup> See, for example, C. E. Graves (ed.), *The Fourth Book of Thucydides* (1905) 279; Gomme op. cit. (n. 7) 590. The perceived need to explain Thucydides' text is present in a number of commentaries. Nowhere is the strenuous effort more manifest than in T. R. Mills (ed.), *Thucydides. Histories Book IV* (1909) 133: 'an extreme corner of the city, (projecting) into the sea and cut off (by a wall) at a narrow isthmus'.

<sup>30</sup> That much seems clear from Thucydides' apposition of *Lekythos* and *phourion* (upon its first introduction at IV 113: 2); and perhaps from the reference to the temple of Athena on the peninsula as ἐν τῇ Λεκύθῳ(ι) at IV 116: 2 (i.e. in or within, rather than on, the Lekythos?); and the reference in the same paragraph to the razing of the Lekythos by Brasidas.

<sup>31</sup> Note, however, that editors have preferred to bracket the text or emend the offending phrase to ἐν ἡ(ι) ἢ Μεθώνῃ ἐστὶ to meet what they think Thucydides should be saying, since Methone was not on an isthmus but a peninsula.

On the site of Methone, see M. N. Tod, 'Notes and Inscriptions from South-Western Messenia', JHS 25, 1905, 32–55, esp. 33–6, necessarily inconclusive about the ancient site; cf. C. F. Smith, *The Loeb Thucydides* (1930) 2, 290 n. 1. No comment from Gomme. A better alternative, in the light of the foregoing discussion would be to allow that Thucydides had something else in mind (or a range of meanings) for *isthmos*.

<sup>32</sup> Winter op. cit. (n. 6) 8–11 has no doubt that Thucydides is here thinking of fortified headlands, an example being Nauplia (see his fig. 4).

Herodotus uses *auchen* (throat) to denote a neck of land (I 72; VI 37). Similarly Xenophon (*An.* VI 43). Thucydides does not use the word.

<sup>33</sup> The Thucydidean reference to Epidamnus' location on an *isthmus* (I 26: 5) is problematic. Strabo (VII 5: 8) reports that the city 'in his day was called Dyrrhachium like the peninsula on which it is situated', though Pausanias (VI 10: 8) informs us that in his day Dyrrhachium was a short distance from old Epidamnus.

The description of the Athenian preparation to besiege Miletus (VIII 25: 5) is also reminiscent of the description of Epidamnus' position. Miletus is described as being on something 'like an isthmus' (ἰσθμώδους ὄντος τοῦ χωρίου). For detailed maps of the site which was on a peninsula-headland, see A. von Gerkan (ed.), *Milet II/4: Topographische*

It seems likely that the shoreline along the north-east face of the isthmus was indeed utilized as an anchorage, given the investment of energy along the waterfront. It is understood that in antiquity for a port to be celebrated (as Torone was), it did not require the presence of sophisticated harbour installations. The shallow depth on the lee side of the Lekythos for a distance of c.15 m offshore from the probable ancient shoreline (**fig. 2**: shoreline a) facilitated direct anchoring on the seabed and obviated any need to modify in any substantial way the natural, or enhanced natural, conditions.<sup>34</sup> Yet some substantial effort was expended here. The ashlar masonry mapped during the 1993 archaeological season suggests wharf facilities. In 1994, more attention was paid to masonry to the east of this (also on the line of the same beachrock), revealing two tiers of worked stone which presented a jogged face to the sea in the manner of stunted jetties. It is difficult to imagine that construction like this along the one-time waterline served a purpose other than nautical.<sup>35</sup>

Nevertheless, an understanding of the altered topography in this vicinity—specifically, a broad dry area to the east of the Lekythos which significantly reduced the area for an anchorage effectively sheltered by the promontory—suggests that this locality alone did not serve as Torone's harbour. Interest then attaches to the broad, low-lying, swampy floodplain of Perdikosyikia which lies to the east of the Classical city and in particular the recess between Hill 3 and the knoll called today *tis kalogrias to aloni* (**fig. 1**; **pls. III: 2**; **IV**). The idea that this area might have been a bay in antiquity was initially discouraged by the remains of the small Palaeochristian basilica of Agios Athanasios found there. (On **pl. III: 2**, its remains

Karte von Milet (1968), and *ibid.* the fold-out frontispiece for a photographic panorama of what was once the headland. The plan is conveniently reproduced in Winter *op. cit.* (n. 6) 101 fig. 74.

Note that at IV 120: 3, in language highly reminiscent of the description of Torone, Thucydides speaks of Pallene 'having been cut off' at Potidaea by the Athenians (τῆς Παλλήνης ἐν τῷ(ι) ἰσθμῷ(ι) ἀπειλημμένης ὑπο Ἀθηναίων Ποτειδαίαν ἐχόντων). Again, translation is problematic; but however perverse a literal reading of the text might appear here (given a knowledge of the narrow neck of land to Potidaea's north), *isthmus* does not refer to that narrow neck, but rather to the promontory of Pallene.

The possibility of an unprejudiced reading of IV 113: 2 was open to a 19th-cent. translation that was clearly not attempting to match Thucydides' text with a particular site in mind. There the Lekythos was a fort on 'the extremity of the city towards the sea stretched along a narrow isthmus'; W. Smith trans. (1831). The tip of the peninsula was 'cut off' by defensive walls from the prehistoric period; J. K. Papadopoulos *et al.*, 'The Prehistoric Fortifications of Torone', in: R. Laffineur (ed.), *Polemos: le contexte guerrier en Égée à l'Age du bronze. Actes de la VIIe Rencontre égéenne internationale*, Université de Liège, 14–17 avril 1998 (1999) 163–70.

<sup>34</sup> Attention paid in modern scholarship to the development of harbour technology in antiquity (see, for example, D. J. Blackman, 'Ancient Harbours in the Mediterranean', *IntJNautA* 11, 1982, 79–104, 185–211) may unintentionally divert attention from the relative simplicity of so many successful ports. For general observations in this regard, see H. Frost, 'Ancient Harbours and Anchorages in the Eastern Mediterranean', in: *Underwater Archaeology. A Nascent Discipline* (1972) 95–114; 'Proto-Harbours of the

Eastern Mediterranean', *Thracia Pontica* 4, 1991, 323–38; G. W. Houston, 'Ports in Perspective: some Comparative Material on Roman Merchant Ships and Ports', *AJA* 92, 1988, 553–64, esp. 560. See also the observations of S. A. Kingsley–K. Raveh, *The Ancient Harbour and Anchorage at Dor*. BAR Int. Ser. 626 (1996) 76–7, who point out, in the case of Dor, that the utilization of modest natural opportunities spared a city's authorities from unnecessary labour exercises and the ongoing concerns of harbour installation maintenance. From recent excavations, an interesting parallel is found at Lycian Aperlae. Here was a remote (but sometimes prosperous) city, reliant on coastal trade, serviced by no elaborate docking or harbour installations: R. L. Hohlfelder–R. L. Vann, 'Cabotage at Aperlae in Ancient Lycia', *IntJNautA* 29, 2000, 126–35; cf. *id.*, *Araştırma Sonuçları Toplantısı II*. Cilt 15, 1998, 423–35; 16, 1999, 443–59.

Torone is probably to be characterized as a port rather than a harbour. On the importance of the distinction, G. E. Rickman, 'Towards a Study of Roman Ports', in: A. Raban (ed.), *Harbour Technology. Proceedings of the First International Workshop of Ancient Mediterranean Harbours, Caesarea Maritima 24–28/6/83*. BAR Int. Ser. 257 (1985) 105–14; *id.*, 'The Archaeology and History of Roman Ports', *IntJNautA* 17, 1988, 257–67.

<sup>35</sup> Likewise, an 'offshore' installation, lying 2.4 m seaward of the outer line of beachrock, which was noted in the 1993 season; Samiou *et al.* *art. cit.* (n. 10) 98. See **fig. 2**, trench iii. Its vestiges have been robbed, and its purpose cannot be known. It is too close in for a 'holding-off' mooring facility, and its base seems too permanent and its existence too singular to have served as a defensive construction designed to hinder a ship's approach; compare, for example, the wooden stakes used at Syracuse in 413 BC (Thuc. VII 25: 5).

appear almost at the centre of the photograph, just on the far side of the modern local road before it disappears behind Hill 3.) The basilica is dated to the middle or second half of the 6th century, thus suggesting dry land here in the Early Byzantine period. A thorough investigation of the building's footings by N. Nikonanos, however, demonstrated an artificial base.<sup>36</sup> The low mound on which the basilica rests was raised during the construction of the basilica itself, and—more to the point—is formed of transported earth and rockfill. A deep section in the south nave revealed the following stratification: beneath a thin layer of earth (c.15 cm) there is a stone-fill of about 90 cm depth (which includes fragments of pithoi and ancient roof tiles, as well as a few pieces of marble and granite), under which is another thin layer (c.15 cm), consisting of brown-yellow dirt and a few stones, and then another (again of c.15 cm), made up of black muddy earth containing 'Classical sherds', and finally a layer of sand and miry water. Nikonanos assumed that this artificial mound served to elevate the basilica above floodwaters, 'which even today inundate the plain and produce a marshy expanse'.<sup>37</sup>

Following a preliminary reconnaissance in 1997, a systematic geomorphological and geological survey of Perdikosykia was conducted in January 1999. This floodplain lies at or very near present sea level (**fig. 5**), and in the winter contains many areas of standing water as well as soft muddy areas that are traversed with difficulty (**pl. IV: 1** shows the area in

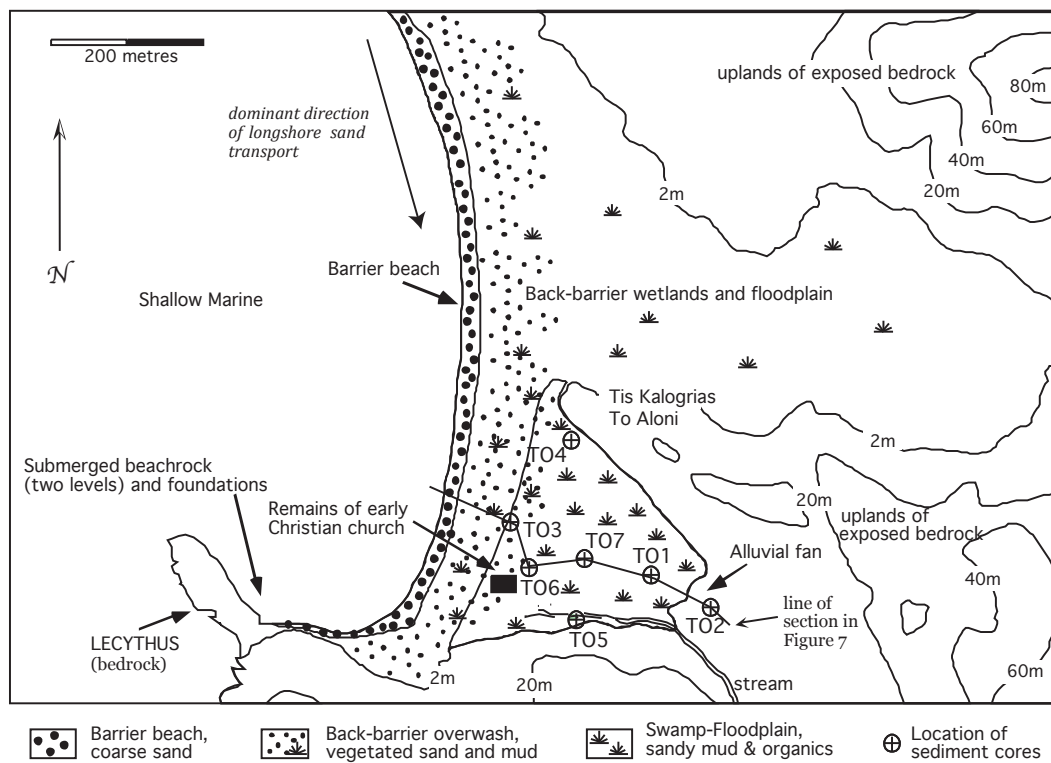


Figure 5. Present coastal setting and geomorphic elements of the Toronian Plain (Dunn).

<sup>36</sup> N. Nikonanos, 'Η Παλιохριστιανική Βασιλική του Αγίου Αθανασίου στην Τωρόνη Χαλκιδικής', in: G. Velenis *et al.* (eds.), ΑΡΜΟΣ. Τιμητικός Τόμος στον Καθηγητή Ν. Κ. Μουτσόπουλο για τα 25 Χρόνια Πνευματικής του Προσφοράς στο Πανεπιστήμιο, Τόμος Β, 1991, 1278–9.

<sup>37</sup> The flooding of Perdikosykia has been considerably reduced since the building in 1975 of a road along the beachfront and up along the lower contours of Hill 3 (**pl. III: 2**); Torone I 40 n. 15. Additionally, a large ditch, whatever its intended use, effects a degree of flood control.

summer). The survey indicated that the area was probably a shallow marine embayment in Classical antiquity, and may have remained so (although in a progressively reduced state) as late as the Roman imperial period. It must, then, be considered as a possible site of Torone's harbour (or as an extension of it).

In the broadest terms, the reasons for the transformation of Torone's landscape seem relatively clear to the authors.

Coastal change over the last several millennia is, of course, complex. A primary agent of coastal change is the rise and fall of the sea level. Late Holocene Epoch sea-level curves from the Aegean (that is, those covering the last 5,000 years) reveal that the sea reached, or came close to, its present level some 6,000 years ago.<sup>38</sup> Regional-scale studies place levels within approximately one to two metres of the present level c.2,500 years ago; all site-specific sea-level curves available from the Aegean, however, are local and relative in nature, including factors such as local tectonics (seismic activity) and sediment supply, and thus cannot be applied directly to the coast of Torone. With respect to local relative sea-level change it seems certain, as argued above, that in Area 1 seismic activity has played a significant role in coastal evolution. Two co-seismic subsidence events are recorded, as discussed above, by submerged beachrock levels, revealing subsidence events of 75 and 100 cm. These events correlate with rapid landward translation of the Area 1 shoreline, of the order of 20 and 38 m respectively. The effect of co-seismic subsidence on the shoreline fronting the Perdikosyikia plain appears to be much less significant with respect to the evolution of the coastal geomorphology. Rather, the prevalent south-flowing longshore transport of sand, parallel to the shoreline, has dominated the sediment supply to the coast, and largely masks any potential coastal change related to submergence events. Nevertheless, submergence is recorded within the strata that lie below the floodplain, and this record is discussed below.

The present setting of Perdikosyikia consists of a well-developed arcuate barrier beach with a swampy floodplain situated landward that is surrounded by relatively steep slopes (**fig. 5**; see **pl. 3: 2** for the hills behind). The two primary sediment sources to Perdikosyikia are coastal longshore transport (as mentioned above), and alluviation from hillside erosion and from the small stream that enters the floodplain from the south. With regard to the first of those two factors, examination of beach sand and coastal geomorphology indicates that the coastal area to the north of the Lekythos is one dominated by deposition of sand that is eroding from bedrock exposed in the shoreface to the north and then transported by southward currents toward the Lekythos. The southward longshore current is responsible for the large, arcuate beaches that extend for several kilometres to the north of Torone. For the second aspect of landscape transformation, two sources may be highlighted. The stream that enters the floodplain from the south-east is small, but evidence for significant sediment transport and deposition by it, and associated hillside run-off, exists in the form of a low alluvial fan comprising sandy silt that merges west into the modern floodplain. Secondly, the alluvium is clearly derived from the surrounding uplands. The stream is apparently not perennial, though a spring or springs may feed the lower reaches throughout the year. The depth and area of standing water on the floodplain during January is evidence of significant run-off from the

<sup>38</sup> Regional studies include analysis of sea-level position based on crustal behaviour and water loading during deglaciation and are thus first-order approximations of regional sea level. See K. Lambeck, 'Late Pleistocene and Holocene sea-level change in Greece and south-western Turkey: a separation of eustatic, isostatic and tectonic contributions', *Geophys. J. Int.* (1995) 1022–44, and K.

Lambeck, 'Sea-level change and shore-line evolution in Aegean Greece since Upper Palaeolithic time', *Antiquity* 70, 1996, 588–611, esp. 597–600.

For an overview of the variables controlling site-specific sea levels at sites in Greece and elsewhere, see P. A. Pirazzoli, *World Atlas of Holocene Sea-Level Changes*. Elsevier Oceanography Series 58 (1991) 93–9.

surrounding hills following periods of rainfall (pl. 3: 2). At present, there is no connection between the area behind the barrier beach (i.e. this floodplain) and open marine water, and the water on the floodplain was fresh during January 1999. This suggests that sediments to this area are at present derived primarily from slope wash and stream alluviation.<sup>39</sup>

Hillside erosion was almost certainly more intense in antiquity, particularly during periods of deforestation and agriculture. The former, as a likely result of Athenian interest in the timber of this area, is dealt with in Appendix 1. Once the slopes around Torone were cleared of trees and low vegetation, the supply of sediment to the lowlands would have been significant. Without careless recourse to what P. Horden and N. Purcell have labelled ‘the catastrophe theory of deforestation’ (or attempting to assign the prevailing conditions to any particular episode in antiquity),<sup>40</sup> it is not rash to speculate that, with timber as one of Torone’s most sought-after commodities, intensive exploitation of that resource might have hastened this element of *Perdikosyia*’s transformation.<sup>41</sup>

Though we cannot determine the actual amount of sediment contributed as a product of land use, we can be sure that upland erosion and lowland deposition was a major geomorphic event in the Classical period. As a single explanation of landscape transformation in the vicinity of Torone, however, such a ready theory of anthropogenic change would be simplistic. Sand supply via southward longshore current, as registered above, would also have been significant in antiquity, and we propose that it fed a series of seaward-shifting beach barriers behind which the prograding alluvial plain developed.

In order to reconstruct the evolution of sedimentary environments of deposition, and thus the evolution of the landscape, seven hand-driven sediment cores were taken in the floodplain area, and the sedimentology of each was subsequently analysed. The cores averaged 1.5 m in length and were taken until refusal—usually in compact sand. In addition to the local bedrock, five sedimentary units were identified within the cores. These sedimentary units represent former environments of deposition and include shallow marine, barrier beach, barrier washover, lagoon and tidal wetland, and swampy floodplain environments. Three C<sup>14</sup> samples provide chronological control within the sedimentary units.

The basal unit recovered in the cores consists of pebbly, coarse sand representing deposition at the beach toe or in the shallow offshore (shallow marine). Overlying the shallow marine deposit is a variable thickness of medium to coarse sand of beach and storm overwash

<sup>39</sup> During large storms, however, sand from the beach face can be carried over the barrier beach and deposited across the floodplain. Brackish water conditions could prevail for short periods as distinct from the present fresh-water deposition lying at the ‘rear’ (i.e. the south-east) of the alluvial plain from the hillside run-off and the small stream mentioned above. Such conditions are currently found in bays to the north of Torone (e.g. at Tristinika), and (as mentioned above) in the winter of 1999 the water lying in the plain was fresh.

<sup>40</sup> P. Horden–N. Purcell, *The Corrupting Sea. A Study of Mediterranean History* (2000) 337–8 speak of ‘the near-complete triumph of the catastrophe theory of deforestation in Mediterranean historiography’. They have in their sights the statements of those like J. V. Thirgood, *Man and the Mediterranean Forest* (1981) 1–2: ‘environmental ruin was the price paid for the glory that was Greece’. For a full and balanced discussion, see R. Meiggs, *Trees and Timber in the Ancient Mediterranean World* (1982) 371–403. Northern Greece did not fare as badly as some other areas of the Mediterranean (*ibid.* 372). Cf. O. Rackham ‘Observations on the historical ecology of Boeotia’, *BSA* 78, 1983,

304; *id.* ‘Land-use and the native vegetation of Greece’, in: M. Bell–S. Limbrey (eds), *Archaeological Aspects of Woodland Ecology*. BAR 146 (1982) 178–9; also *id.* ‘Ancient Landscapes’, in: O. Murray *et al.* (eds), *The Greek City From Homer to Alexander* (1990) 85–111; Horden–Purcell *op. cit.* 182–6 and 332–3 for further bibliographical refs.

<sup>41</sup> Especially since clearance would not have been thought incompatible with the production of what was probably Torone’s other most saleable commodity (i.e. wine), all the while bearing in mind that no evidence, literary or otherwise, informs us of the uses to which Torone’s immediate environment was put. Horden–Purcell *op. cit.* 336 make the point that removal of timbers suitable to ship-building need not affect the forest ecology entirely. Yet the evidence provided by a chance find (A. Henry, ‘A Lead Letter from Torone’, *AEphem* 1991, 65–70; *id.* ‘A Lead Letter’, in: *Torone I* 765–71), incidental but not anecdotal, suggests that the timber trade at Torone was not focused necessarily on the tall timbers alone. (The subject is discussed in Appendix 1.) That is to say, the exploitation of this resource may have been comprehensive and intense.





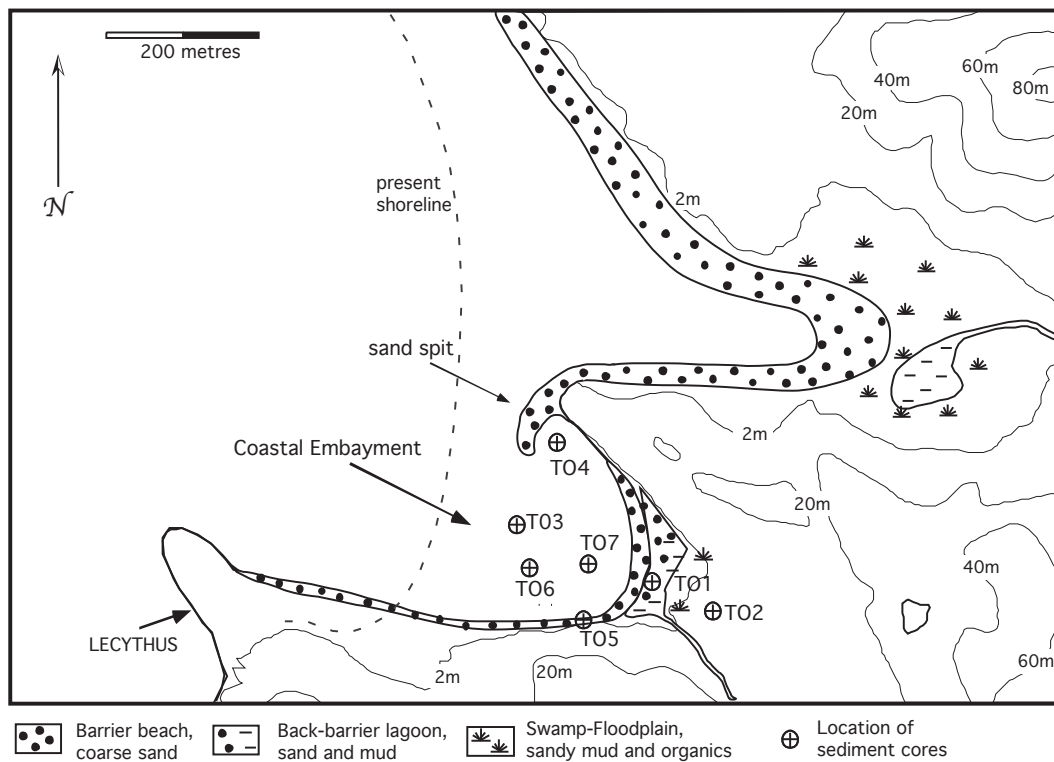


Figure 7a. Palaeogeographic map of Perdikosykia: c.500 BC (Dunn).

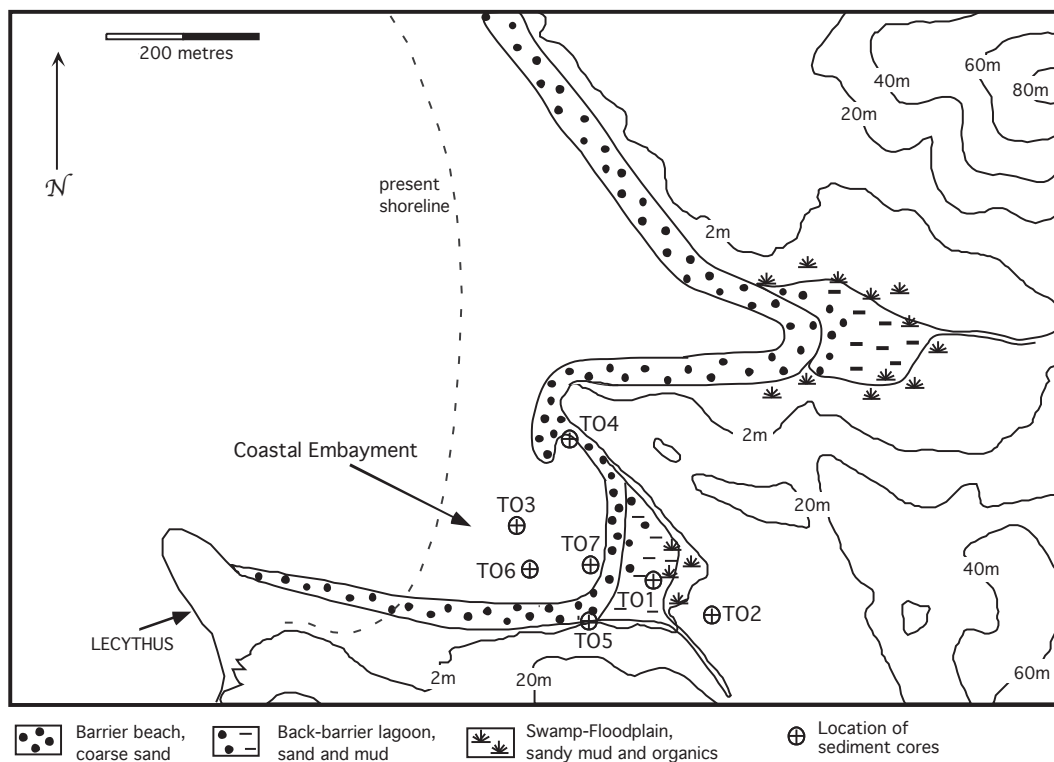


Figure 7b. Palaeogeographic map of Perdikosykia: c.1 BC (Dunn).

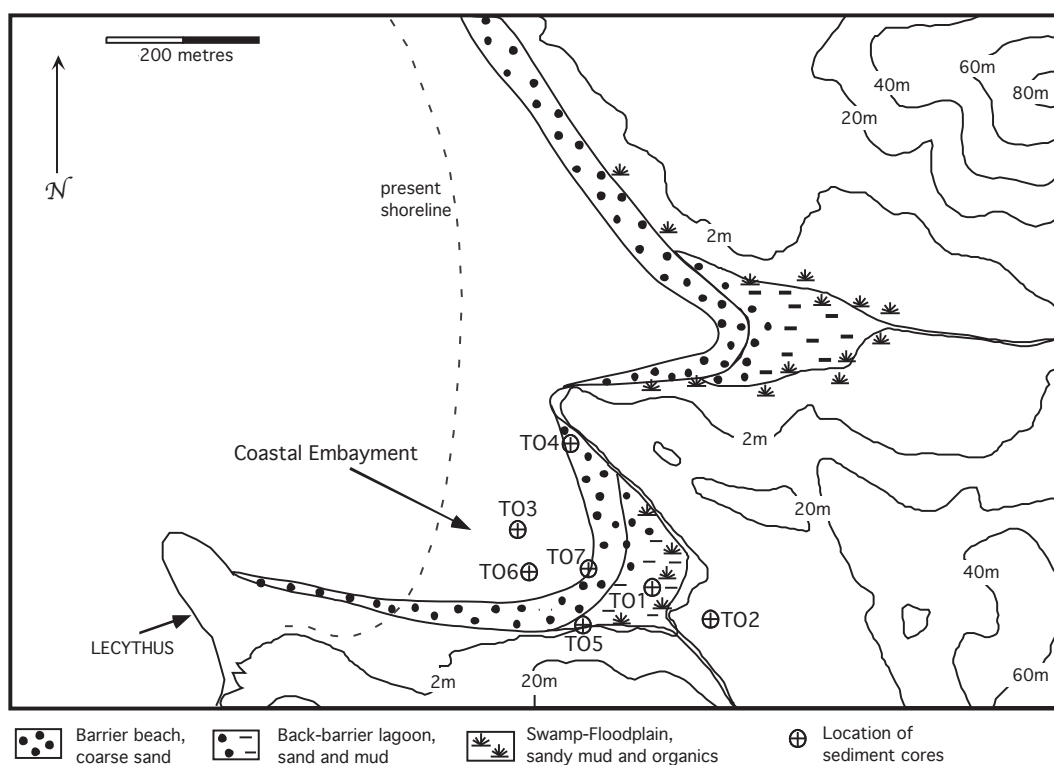


Figure 7c. Palaeogeographic map of Perdikosyikia: c.200 AD (Dunn).

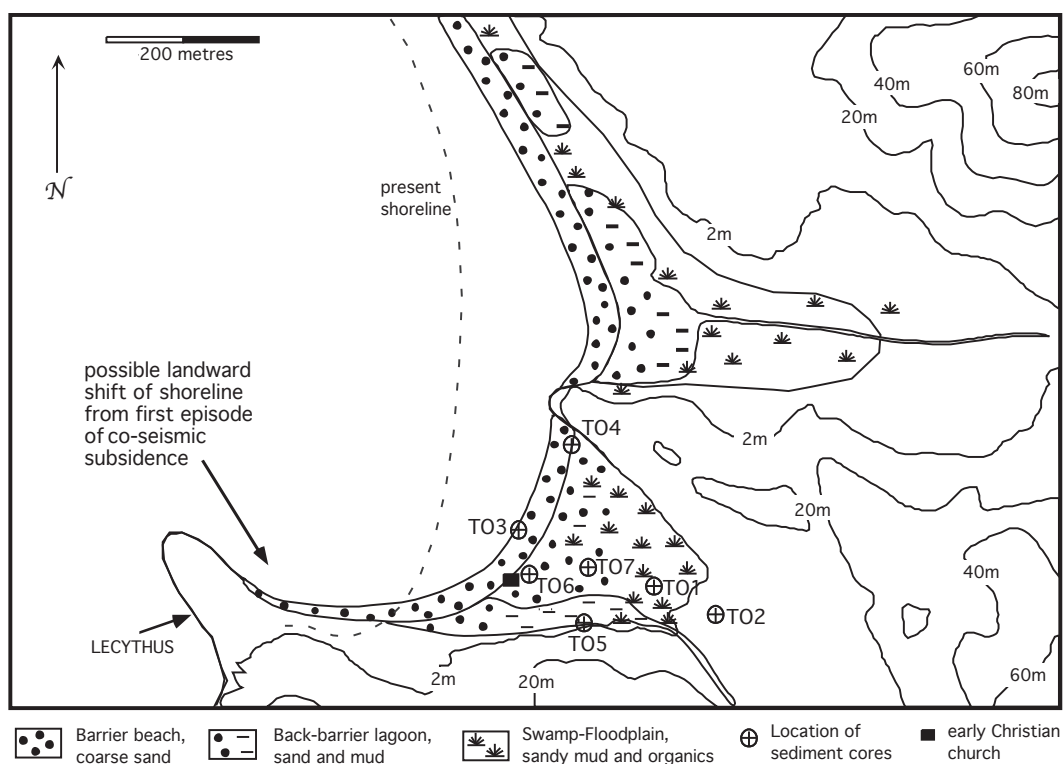


Figure 7d. Palaeogeographic map of Perdikosyikia: c.500 AD (Dunn).

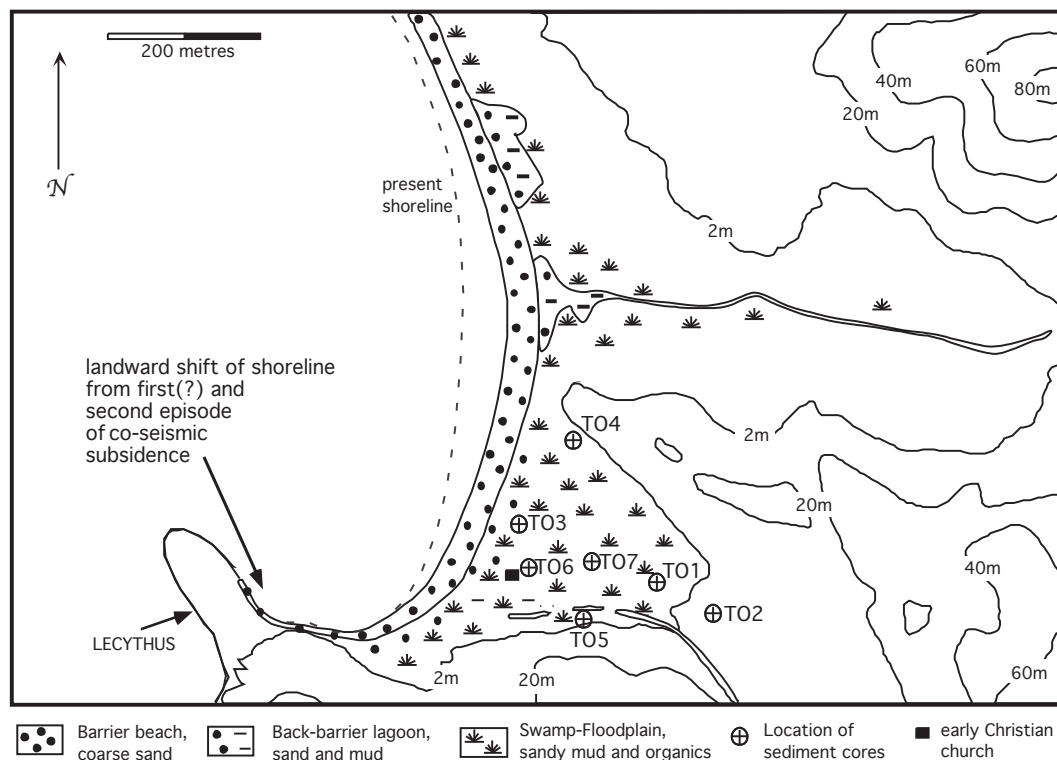


Figure 7e. Palaeogeographic map of Perdikosyia: c.1500 AD (Dunn).

the basilica document a wetland in this area at the time the basilica was constructed.<sup>42</sup> The position of the basilica, built in the protective lee of the barrier beach, provides the pinning point for the beach about AD 500.<sup>43</sup>

To sum up, the marine embayment was in existence during the time that Athens and Sparta fought for control of Torone, and probably in the 2nd century BC when, if Livy's account reflects contemporary assessment, Torone's port (or ports) was judged amongst the assets of the Chalcidice. The position of the sandy shoreline of this embayment in the Classical period can be estimated from core data and must have been at least 200–250 m landward of its current position.<sup>44</sup> Thus we propose that the marine embayment in the Classical period was a well-protected anchorage, exposed, if at all, only to particularly strong north-westerlies. This finding does not eliminate the waterfront explored in Area 1 (**fig. 2**) as part of Torone's harbour. It simply extends, and extends rather dramatically, the dockside of Archaic and Classical Torone, and augments the anchorage capacity of the roadstead. This extension can be appreciated most easily with recourse to **pl. 2: 2**, where the plain lying behind the current barrier beach can be seen in the background.<sup>45</sup> The implications of our reconstruction

<sup>42</sup> The area behind the sandy barrier beach was (and still is) exceptionally swampy and wet, and prone to flooding from both hillside run-off into the low area behind the barrier, and from storm-generated overwash of the barrier.

<sup>43</sup> The actual seaward extent of the barrier beach is not known, and in fact it is possible that the shoreline sometime in the last 500 years was more seaward than it is presently. If this was the case, we suspect that the shoreline was no more than a few metres to tens of metres seaward, and that

recent coastal erosion has driven the shoreline landward to its present position.

<sup>44</sup> The palaeogeographic reconstruction shown in **fig. 7** includes a projection of the shoreline north of the Lekythos (Area 1) based on the submerged beachrock and structural remains.

<sup>45</sup> Wall C which is best preserved along the current shoreline facing Area 1 (and lies just out of sight to the right of **pl. 2: 2**) is regarded as a handsome wall. It has been plausibly

for any understanding of the town plan of Classical Torone are considerable. Further investigation of Perdikosyia (particularly its southern perimeter) may well uncover traces of the city's earliest harbourside facilities and associated areas. At the same time, it seems an inescapable conclusion that—by, or some time in, the Roman period (and perhaps as early as the Hellenistic)—the more distant Porto Koupho became the anchorage most associated in geographers' minds with Torone, while the old anchorage in the vicinity of Perdikosyia became steadily less attractive (see Appendix 1).

For what it is worth, when a Christian basilica came to be built within the area where a harbour had probably once flourished, it was built not in honour of St Nicholas of Myra, the successor to the Dioscuri as the patron saint of seafarers (or of any other saint who watched over mariners or those whose work was linked to the sea), but to St Athanasius, the defender of the faith—a further indication perhaps (though we make the point lightly) that harbour life no longer dominated.<sup>46</sup>

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suggested that, given its situation, it was designed to impress visitors to the city: Torone I 71. It faces the waterfront, across what was doubtless an area of commercial dockside bustle. But what of the extended harbourside district posited by the present study? It must be emphasized that a small section of Wall C uncovered in the 'Lower City' 'matched exactly that of the elevation of [the wall] as exposed at the Isthmus':

Torone I 239. The desire to impress apparently extended to visitors disembarking at this point as well.

<sup>46</sup> For St Nikolaus 'of the harbours', his association with sailing, and associated iconography (both formal and popular), see G. Rouskas, *Ο Άγιος Νικόλαος "των λιμνών"* (1995).





1. The Lekythos seen from NE. Photo T. Hillard.



2. The floodplain of Perdikosyia, seen from Hill 2, across the seaward slope of Hill 3 (to the near right). Perdikosyia is defined on the far side by the low knoll. On the ridge of the latter, towards the right of the photograph, may be discerned a recently built (white) two-storied house. To the seaward of the knoll, and stretching northward along the current beach line, can be seen the modern town of Torone. Photo T. Hillard.





1. Perdikosykia seen from Hill 3, with the modern town in the background. Photo T. Hillard.



2. Perdikosykia seen from the knoll known as *tis kalogrias to aloni*, with the Lekythos in the background.



1. Porto Koupho, looking south from the Vigla. Photo T. Hillard.



2. Porto Koupho, entrance seen from within the harbour. Photo T. Hillard.





1. The bay between Promontories 1 and 2, facing north-west. Photo T. Hillard.



2. Torone: Area 1, looking east from the Lekythos, with the two lines of beachrock clearly visible. Photo T. Hillard.



1. Area 1: Wall 7. Photo T. Hillard.



2. The hillside behind Perdikosyia, scoured by torrents. Photo T. Hillard.