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THE EARLIEST “LIMENES KLEISTOI”  
A COMPARISON BETWEEN ARCHAEOLOGICAL-GEOLOGICAL  
DATA AND THE *PERIPLUS OF PSEUDO-SKYLAX*\*

Chiara Maria MAURO\*\*, Gil GAMBASH\*\*\*

*Résumé.* – Dans les études modernes sur les anciens ports gréco-romains, l’expression λιμὴν κλειστός a fait l’objet de nombreuses discussions, étant rendue différemment en anglais par «closed/closable/enclosed harbour». Cependant, il n’y a pas encore d’accord sur sa signification. Le présent document vise donc à comprendre la signification possible de l’expression lorsqu’elle est apparue pour la première fois dans des sources textuelles, c’est-à-dire au cours de la période archaïque ou classique. Nous examinerons en particulier les mentions de «ports fermés» dans la Période du Pseudo-Skylax (IV<sup>e</sup> siècle avant J.-C.), la source la plus ancienne où l’on trouve le terme, et nous les comparerons avec les données archéologiques-géologiques et historiques disponibles, afin d’établir si les interprétations précédentes peuvent encore être considérées comme valables ou si une redéfinition est nécessaire.

*Abstract.* – In modern scholarship on ancient Graeco-Roman harbours, the phrase λιμὴν κλειστός has come under much discussion, being rendered differently in English as «closed/closable/enclosed harbour». However, there is no agreement on its meaning so far. Therefore, this paper is aimed at understanding the possible meaning of the expression when it first appeared in textual sources, that is during the Archaic or Classical period. In particular, we will look at the mentions of “closed harbours” within the Periplus of Pseudo-Skylax (IVth century BC), the most ancient source where the term is found, and compare them with the available archaeological-geological and historical data, to establish whether previous interpretations can still be considered valid or if a re-definition is needed.

*Mots-clés.* – ports fermés, Periplus du Pseudo-Skylax, terminologie nautique, marine ancienne, *periploi*.

*Keywords.* – closed harbours, *Periplus of Pseudo-Skylax*, nautical terminology, ancient seafaring, *periploi*.

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\*\* The Haifa Center for Mediterranean History (HCMH), University of Haifa ; [cmauro@ucm.es](mailto:cmauro@ucm.es)

\*\*\* The Haifa Center for Mediterranean History (HCMH), University of Haifa ; [ggambash@univ.haifa.ac.il](mailto:ggambash@univ.haifa.ac.il)

## INTRODUCTION

Greek textual sources have transmitted a rich body of phrases and words that refer to the maritime context. However, this promising scenario does not correspond to a proper understanding of Greek nautical jargon, due to numerous problems connected with its analysis.<sup>1</sup> Overviews of the ancient Greek nautical terminology have been attempted; nonetheless, these have often been relegated to relatively small surveys inserted within broadly focused contributions,<sup>2</sup> with the analysis and comprehension of nautical phrases themselves rarely being the aim of a study.<sup>3</sup>

Despite the blurriness of the situation, modern scholarship on ancient Graeco-Roman harbours often employs a certain phrase, either in its original form (λιμὴν κλειστός), or in its modern translations, rendered differently as “closed/closable/enclosed harbour” according to the author’s interpretation. A thorough reading of the secondary sources where it appears, however, reveals that there is not agreement on its significance and that it is used inconsistently, sometimes acquiring different meanings within the same publication. As far as the primary sources are concerned, a diachronic analysis of the mentions of the phrase and their comparison with historical and archaeological data has not yet been carried out; therefore, it is difficult to determine whether or not its usage was consistent within those sources.

Though attempts to interpret this phrase date back as far as the 19th century, the majority of them adopted a historical or philological approach, frequently assuming the static nature of the phrase over time.<sup>4</sup> In contrast, this paper will have a narrower chronological focus, being aimed at understanding the possible meaning of the expression at the time when the first sources at our disposal are dated: that is, between the Archaic and Classical periods. Particularly, the

1. Such problems include the loss of technical nautical texts, and the transmission of nautical information through various literary genres. An example of text containing detailed descriptions of the coasts which could have derived from *periploi* or maritime itineraries already in circulation at that time could be the account of the Cretan seafarers heading towards Kirra in Phocis (*HH*. III.408-439).

2. E.g., J. ROUGÉ, *Recherches sur l'organisation du commerce maritime en Méditerranée sous l'Empire romain*, Paris 1966, p. 107-109.

3. Some exceptions can be noticed, especially referred to the terminology adopted in Roman times (e.g., J.R. LEONARD, «Harbor Terminology in the Roman Periploi» in S. SWINY, R.L. HOHLFELER, H. SWINY eds., *Res Maritimae. Cyprus and the Eastern Mediterranean from Prehistory to late Antiquity*, Atlanta 1997, p. 163-191; N. GARCIA CASACUBERTA, *Limenes. The terminology of the Mediterranean Ports of the Roman Empire as documented in the literary sources*, Diss. Southampton 2019), or to specific phrases (e.g., P. COUNILLON, «Λιμὴν ἔρημος» in P. ARNAUD, P. COUNILLON eds., *Geographica Historica*, Bordeaux 1998, p. 55-67; N. CARAYON, P. ARNAUD, N. GARCIA CASACUBERTA, S.J. KEAY, «Kothon, cothon et ports creusés», *MEFRA* 129, 2017, p. 255-266). This circumstance has created a significant inconsistency in the employment of nautical terms in scholarly publications, as noted by A. YASUR-LANDAU, E. ARKIN SHALEV, P. RUT ZAJAC, G. GAMBASH, «Rethinking anchorages and harbours on the Southern Levant 2000 BC – 600 AD» in F. DAIM *et al.* eds, *Harbours as Object of Interdisciplinary Research – Archaeology + History + Geosciences*, Regensburg 2018, p. 73.

4. This approach can be partially explained in light of the recent development of harbour archaeology, which can be dated back only to the 1960s/1970s (C.M. MAURO, *Archaic and Classical Harbours of the Greek World. The Aegean and Eastern Ionian contexts*, Oxford 2019, p. 1-5).

emphasis will be on its significance in the *Periplus of Pseudo-Skylax* (thereinafter Ps.Skylax), a document whose final redaction may be dated from the mid-4<sup>th</sup> or 3<sup>rd</sup> century BC and where the phrase λιμὴν κλειστός occurs 14 times.

Focusing on this document presents two advantages. On the one hand, it limits, at least partially, possible biases derived from the adoption of a larger *corpus*, such as changes in its meaning at later stages, or its different employment by other authors or genres.<sup>5</sup> On the other hand, despite the *Periplus*' debated nature, scholars agree in maintaining that this text derived most of its information from a heterogeneous range of sources, amongst which there were nautical technical sources, non-literary documents, administrative reports, and seafarers' data.

Therefore, after having contextualised the *Periplus* and identified the afore mentioned λιμένες κλειστοί, this paper will seek to integrate the available archaeological and geological data into the historical and philological information in order to see what characterised those harbours identified at the time as κλειστοί. Since the *Periplus* is probably the result of the stratification of various earlier partial maritime itineraries, with different levels of detail and chronologies, we will also take into account the hypothesis that the situations it depicts could be earlier than the 4th century BC.<sup>6</sup>

#### THE *PERIPLUS OF PS.SKYLAX* AND ITS RELATION WITH NAUTICAL SOURCES

The so-called *Periplus of Ps.Skylax* is conserved in the *Codex Parisinus suppl. gr. 443 (D)*, dated from the 13th century AD,<sup>7</sup> where it is attributed to Skylax of Karyanda, who – according to Herodotus – was an explorer sent on the behalf of Darius I to follow the course of the Indus River.<sup>8</sup> However, the text does not contain any mention of the Indian area, being rather a description of the Mediterranean and the Black Sea regions. This situation stimulated an interesting and lively scholarly discussion with two main schools of thought: the first considers

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5. Indeed, language is a complex system, which varies according to the sender (*i.e.*, the author), the receiver (*i.e.*, the audience to which the text is aimed) and the circumstances (*i.e.*, the context in which it appears). The possibility that the meaning could change over time has been also treated for another controversial term of the Greek maritime terminology, that is *emporion*, *e.g.*, P. COUNILLON, «L'*emporion* des géographes grecs» in A. BRESSON, P. ROUILLARD eds, *L'Emporion. Textes réunis par Alain Bresson et Pierre Rouillard*, Paris 1993, p. 35-46.

6. Thus, for those harbours where significant modifications occurred between these centuries, we will consider different possible scenarios.

7. A. DILLER, *The Tradition of the Minor Greek Geographers*, Lancaster 1952, p. 19-20.

8. Her. IV.44. See also Aris. *Pol.* VII.1332b; Ath. II.82; Phil. *VA* III.47.

the *Periplus* as a text produced in the mid-4th century BC, and with a close connection to the city of Athens;<sup>9</sup> the second sustains the existence of a 6th-century BC original matrix,<sup>10</sup> modified until it reached its final edition under Philip II of Macedon.<sup>11</sup>

Despite these different views on its authorship and chronology, what various scholars seem to agree on is that nautical information, probably in form of earlier non-surviving *periploi* (technical handbooks or oral reports), appears to have been merged into it.<sup>12</sup> This nautical substratum clearly emerges throughout the text, even though its level of detail greatly varies, probably according to the accuracy of the source that the author was using.<sup>13</sup> As a whole, the *Periplus* appears as an assemblage of data coming from different nautical sources, possibly referring to specific and circumscribed regions; in this sense, its process of development and stratification calls to mind what it is documented – and happens still today – in the writing of

9. P. FABRE, «La date de rédaction du périple de Scylax», *LEC* 33, 1965, p. 353-366; D. MARCOTTE, «Le périple dit de Scylax: esquisse d'un commentaire épigraphique et archéologique», *BollClass* 7, 1986, p. 166-182; P. COUNILLON, «Datos en Thrace et le périple du Pseudo-Skylax», *REA* 100, 1998, p. 124; *Id.*, *Pseudo-Skylax: le Périple du Pont-Euxin. Texte, traduction, commentaire philologique et historique*, Bordeaux 2004, p. 11; P. FLENSTED-JENSEN, M.H. HANSEN, «Pseudo-Skylax' use of the term *polis*» in M.H. HANSEN, R. RAAFLAUB eds., *More Studies in the Ancient Greek Polis*, Stuttgart 2007, p. 204; G. SHIPLEY, *Pseudo-Skylax's Periplus. The Circumnavigation of the Inhabited World: text, translation and commentary*, Exeter 2011, p. 6. Even if it is not possible to identify exactly the sources that the author employed and if it is traditionally accepted that he could have had access to different sources depending on the area he described, studies focused on specific parts of the *Periplus* stress that nautical contents stood certainly at the base of its compilation, e.g. P. COUNILLON, *op. cit.*, *REA* 100; *Id.*, «La description de la Crète dans le Périple du Ps.Skylax», *REA* 103, 2001, p. 381-394; *Id.*, *op. cit.*, 1998; *Id.*, «Le Périple du Pseudo-Skylax et l'Adriatique, § 17-24» in A.M. KURILIC, F. TASSAUX eds., *Les routes de l'Adriatique antique. Géographie et Économie*, Bordeaux-Zadar 2006, p. 19-29; *Id.*, «Pseudo-Skylax et la Carie» in P. BRUN, ed., *Scripta Anatolica. Homages à Pierre Debord*, Bordeaux 2007, p. 33-42; P. MAFFRE, «Phrygie maritime, Phrygie hellespontique, satrapie de Phrygie hellespontique face au Pseudo-Skylax § 93-96» in *Colloquium Anatolicum V*, Istanbul 2006, p. 127-199; G. SHIPLEY, «Pseudo-Skylax on the Peloponnese» in C. GALLOU, M. GEORGIADIS, G.M. MUSKETT eds., *Dioskouroi: Studies presented to W.G. Cavanagh and C.B. Mee on the Anniversary of Their 30-year joint contribution to Aegean Archaeology*, Oxford 2008, p. 281-291; *Id.*, «Pseudo-Skylax on Attica» in N. SEKUNDA, ed., *Ergasteria: Works presented to John Ellis Jones on his 80th Birthday*, Gdańsk 2010, p. 100-114.

10. In scholarship, this original (and most ancient) part of the text is referred to as “nucleo antico”, an expression coined by A. PERETTI, *Il Periplo di Scilace. Studio sul Primo Portolano del Mediterraneo*, Pisa 1979.

11. M. SUIĆ, «Istočna jadranska obala u Pseudo Skilakovu Periplu», *Rad JAZU* 306, 1955, p. 121-185; A. PERETTI, *op. cit.*; F. J. GONZÁLEZ PONCE, «Revisión de la opinión de A. Peretti sobre el origen cartográfico del Periplo del Ps.-Escilax», *Habis* 22, 1991, p. 151-155. Alexandria, the new capital of Egypt founded in 332-331 BC, is not mentioned within the *Periplus*, neither does the author seem aware of Alexander's campaigns.

12. D. GERNEZ, «Les “Périples” des anciens Grecs et leurs rapports avec les livres d'instructions nautiques», *Académie de Marine de Belgique IV*, 1949, p. 15-33; A. PERETTI, «Dati storici e distanze marine nel “Periplo” di Scilace», *SCO* 38, p. 18, and p. 42; F.J. GONZÁLEZ PONCE, «Ps.-Escilax § 20, La descripción del Danubio y el problema de las fuentes del “Periplo”», *Emerita* 62.1, 1994, p. 153-164. P. COUNILLON, *op. cit.*, 2004, p. 42-43; *Id.*, *op. cit.*, 2007, p. 39; F. MAFFRE, *op. cit.*, 2006, p. 168; G. SHIPLEY, *op. cit.*, 2008, p. 283; *Id.*, *op. cit.*, 2010, p. 106; *Id.*, *op. cit.*, 2011, p. 11-15; S. BRILLANTE, *Pseudo-Skylax: Edition, Traduction et Commentaire*, Diss. Bari-Reims Champagne-Ardenne 2017, p. 100-102.

13. For example, P. Counillon (*op. cit.*, 2006) proposed the use of a different source for the Adriatic Sea.

nautical instruction books.<sup>14</sup> However, what is interesting is that in the case of the *Periplus*, differently from what it has been underlined in other documents, the use of terminology appears to be consistent throughout.<sup>15</sup>

In light of these considerations and accepting that Ps.Skylax made consistent use of the terms, many of which may have derived from original nautical sources, there follows a re-assessment of the cases of λιμὴν κλειστός he mentions, to establish what he identified by this phrase.

### PREVIOUS INTERPRETATIONS

As previously underlined, endeavours to decode the phrase λιμὴν κλειστός have not focused on a particular source or period so far; rather they have sought to assign the expression with a general and always applicable meaning.<sup>16</sup>

The first attempt to interpret the phrase λιμὴν κλειστός is dated from the end of the 19th century, when the French scholar Ardaillon argued that Greeks had two types of harbour: natural (αὐτοφνεῖς), which exploited the configuration of the coast, and artificial (χειροποίητοι), which were improved by men. In cases where these latter were “closed” by means of moles, they were labelled as λιμένες κλειστοί.<sup>17</sup> In 1923 Lehmann-Hartleben, in his cornerstone monograph on ancient Mediterranean harbours, stated that the phrase λιμὴν κλειστός may have identified a harbour within the city walls and whose traffic was under the *polis*’ surveillance.<sup>18</sup> In line with this definition, he considered κλειστοί 42 harbours amongst the 303 that he included in his Catalogue.<sup>19</sup> A year later, von Gerkan associated the phrase to harbours surrounded by means of extensions of the city walls into the sea, eventually closed

14. See B.R. MOTZO, *Il Compasso da Navigare. Opera italiana della metà del XIII*, Cagliari 1947, p. XXXIV-XXXVIII on the *Compasso da Navigare* (an Italian *portolano*, considered as the first medieval document of this genre, and dated from 1296 AD).

15. On the composite nature of the *Stadiasmus Maris Magni* with its differences in the use of terminology, see P. ARNAUD, «Playing dominoes with the *Stadiasmus Mari Magni*» in A. KÜLZER, M. POPOVIC eds., *Space, Landscapes and Settlements in Byzantium, Studies in Historical Geography of the Eastern Mediterranean presented to Johannes Koder*, Vienna-Novisad 2007, p. 15-49; S. MEDAS, *Lo Stadiasmo o Periplo del Mare Grande e la navigazione antica. Commento nautico al più antico testo portolanico attualmente noto*, Madrid 2008, p. 59; p. 442. On the consistency of Ps.Skylax, see also G. SHIPLEY, *op. cit.*, 2011, p. 16.

16. Except for M.L. ALLAIN, *The Periplus of Skylax of Karyanda*, Diss. Ohio, 1977; and D. MORESCHINI, «I porti greci “chiusi” del Mar Mediterraneo», *Acme* 50, 1997, p. 235-244.

17. E. ARDAILLON, *Quomodo Graeci collocaverint portus atque aedificaverint*, Paris 1898, p. 33.

18. K. LEHMANN-HARTLEBEN, *Die antiken Hafenanlagen des Mittelmeeres*, Leipzig 1923, p. 65-74. The 42 “closed harbours” that he included within his list comprise the 14 cases mentioned by Ps.Skylax, plus other harbours labelled as such by geographers (e.g., Strabo and Dionysus son of Kalliphon) and historians (e.g., Thucydides, Diodorus). According to his own definition of “closed harbour”, Lehmann-Hartleben also added to his list harbours that are not recorded as “closed” by any source. Furthermore, for each harbour that he considered “closed”, he proposed a chronology for its incorporation within the city walls.

19. K. LEHMANN-HARTLEBEN, *op. cit.*, tab. 70-2.

by chains.<sup>20</sup> During the 1960s, Rougé – referring to the Roman context – summarized the previous interpretations, maintaining that a λιμὴν κλειστός could have been a harbour with a narrow entrance closable by chains,<sup>21</sup> a fortified harbour, or a harbour inside the city walls.<sup>22</sup> He was also the first who explicitly associated the phrase with military harbours, stating that “whatever the expression means, one thing is certain, that is the λιμὴν κλειστός’s military nature”;<sup>23</sup> in this way, he ushered in a theory which had a successful reception amongst both contemporary and later scholars. According to Casson in 1971, the principal characteristic of a λιμὴν κλειστός was once again the harbour’s fortifications, being one embraced by the projections of the city walls into the sea to create moles ending in massive towers.<sup>24</sup> Finally, in 1977 Allain, in a PhD thesis defended at the Ohio State University, offered a completely different perspective, postulating that the adjective κλειστός could have been an emendation of κάλλιστος. Although he did not discuss his theory, his reading of the term implicitly suggested that a λιμὴν κλειστός was simply a “good harbour”.<sup>25</sup> Allain’s proposal did not generate much interest, and was not adopted by other scholars.<sup>26</sup>

In current scientific publications, the phrase λιμὴν κλειστός is frequently defined according to previous interpretations, with scholars espousing one or more theories at the same time. Therefore, Raban interprets it as a basin located inside the city walls which continued over the harbour moles,<sup>27</sup> as do Blackman and Baika.<sup>28</sup> On the other hand, in a paper published in 1997

20. A. VON GERKAN, *Griechische Städtenanlagen: Untersuchungen zur Entwicklung des Städtebaues in Altertum*, Berlin 1924, p. 113-114.

21. Recalling Ardaillon’s interpretation (E. ARDAILLON, *op. cit.*, p.33). Cf. Vit. V.12.1.

22. In line with K. LEHMANN-HARTLEBEN, *op. cit.*, tab. 70-2.

23. J. ROUGÉ, *op. cit.*, p. 116-117.

24. L. CASSON, *Ships and Seamanship in the Ancient World*, Princeton 1971, p. 362-363.

25. M.L. ALLAIN, *op. cit.*, p. 150.

26. Except for the case of Samos, where Berranger states that some annotators (whom he does not mention) suspected that it was an emendation deriving from the same adjective. D. BERRANGER, *Recherches sur l’histoire et la prosopographie de Paros à l’époque archaïque*, Aubière 1992, p. 57-58.

27. A. RABAN, «The Heritage of Ancient Harbour Engineering in Cyprus and the Levant» in V. KARAGEORGHIS, D. MICHAELIDES eds., *Proceedings of the International Symposium, Cyprus and the Sea, Nicosia 23-25 September 1993*, Nicosia 1995, p. 163. However, Raban expressly referred to the Hellenistic age, when – according to him - a new harbour type was favoured, formed by multiple basins and enclosed within the city walls. On the artificial Hellenistic harbours, see also: A. RABAN, P.J. OLESON eds., *The Harbours of Caesarea Maritima: Results of the Caesarea Ancient Harbour Excavation Project 1980-1985*, Oxford 1989; J.Y. EMPEREUR, «Le Port Hellénistique d’Amathonte» in V. KARAGEORGHIS, D. MICHAELIDES, *op. cit.*, p. 131-138; P. AUPERT, *Guide d’Amathonte*, Paris 1996, p.168-169.

28. D.J. BLACKMAN, «Sea Transport – Part 2: Harbors» in P.J. OLESON, ed., *The Oxford Handbook of Engineering and Technology in the Classical World*, Oxford 2008, p. 654: “the city walls were extended along the harbour moles, to end in towers as at any normal city gate”. Blackman argues that the λιμένες κλειστοί could have been naval harbours, but he does not exclude that controlled entrances may have been useful also to supervise commercial shipping. Baika shares the same view, adding that during the Hellenistic epoch the expression could have been used to define military harbours in general. Then, she attributes a possible change in the phrase’s interpretation to the Hellenistic period. See K. BAIKA, «Greek harbours of the Aegean» in X. NIETO PRIETO, M.A. CAU eds., *Arqueología náutica mediterránea. Monografías del CASC*, Girona 2009, p. 435

and focused exclusively on the “closed harbours” of the Greek world, Moreschini combines Lehmann-Hartleben’s, von Gerkan’s, and Rougé’s interpretations, arguing that they were “harbours provided with moles that clearly represented an artificial closure, but to which, if necessary, another defensive structure could have been added in order to completely close the entrance”;<sup>29</sup> she continues her definition by stating that these harbours were probably located inside the city walls.<sup>30</sup> In 2008, Bonnier also combines various past theories, arguing that the term κλειστός referred mainly to the presence of harbour fortifications and therefore usually identified a military harbour, which could have been closed during wartime.<sup>31</sup>

#### THE LIMEN KLEISTOS ACCORDING TO PS.SKYLAX

The term λιμὴν κλειστός does not appear uniquely in the *Periplus of Ps.Skylax*,<sup>32</sup> however, it is precisely here that it could have preserved traces of a possible original technical meaning. Indeed, as previously mentioned, despite the debate on this *Periplus*’ compilation, it is commonly accepted that its author had access to first-hand nautical information, which he re-elaborated and presented according to a consistent scheme and a unified linguistic character.<sup>33</sup> On the other hand, the other sources mentioning the phrase are different in nature or dated from later periods, so that it is difficult to establish whether they employed the expression with the same significance or not. Beyond the *Periplus*, a similar phrase also appears in Thucydides,<sup>34</sup> who applies it first to the Piraeus and second within the context of the Sicilian expedition;<sup>35</sup> twice in a periegetical poem by Dionysus son of Kalliphon, entitled *Description of Greece*; and nine

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29. D. MORESCHINI, *op. cit.*, p. 344.

30. *Ibid.*

31. A. BONNIER, «*Epineia kai limenes: the relationship between harbours and cities in ancient Greek texts*», *OAth* 1, 2008, p. 49-50. Later on, he specifies that a λιμὴν κλειστός was basically a military harbour, either “incorporated into the defence of a city, or in connection to other military features, such as forts”. In general, scholars’ attempts to explain this phrase are not focused on Ps.Skylax (apart from M.L. ALLAIN, *op. cit.*, and D. MORESCHINI, *op. cit.*), nor even on a particular literary source, e.g., L. CASSON, *op. cit.* They are not centred on the textual origin of the term, rather they seek to explain this expression exclusively in light of the available archaeological evidence. However, they mostly consider archaeological evidence which belongs to the Hellenistic (e.g. A. RABAN, *op. cit.*) and Roman (e.g. J. ROUGÉ, *op. cit.*) periods. The definition they supply, therefore, does not necessarily correspond to the appearance of the term in earlier literary sources.

32. Nonetheless, it is in the *Periplus* that it is most frequently mentioned, with 14 occurrences in 112 paragraphs. The number of the paragraphs refers to G. SHIPLEY (*op. cit.*, 2011)’ sections and it does not take into account the last two paragraphs (113-14), which contain a list of the largest islands and are not strictly related to the rest of the text. G. SHIPLEY (*op. cit.*, 2011, p. 210) dates them to the late Classical or Hellenistic period.

33. G. SHIPLEY, *op. cit.*, 2011, p. 16.

34. Thuc. II.94; and VII.38.

35. In this second case, Thucydides states that Nicias, expecting that Syracusans would attack his fleet again, asked merchant vessels to anchor one close to each other, acting as they were protecting a “closed harbour”. In this way, Athenian ships could have found easily shelter when they were attacked, and eventually come back to the battle.



times in Strabo's *Geography*.<sup>36</sup> In particular, Dionysus defines as κλειστοί two harbours also mentioned as such by Ps.Skylax: Ambrakia, in Epeirus,<sup>37</sup> and Phalasarna, on the island of Crete.<sup>38</sup> However, these similarities between the two texts could be explained in light of the possible use of a common source, perhaps to be identified as Phileas' work.<sup>39</sup> On the contrary, the harbours defined as κλειστοί by Strabo do not correspond to Ps.Skylax's mentions, except for the case of Kaunos in Karia.<sup>40</sup>



Figure 1: geographic location of the “closed harbours” mentioned in the *Periplus of Pseudo-Skylax*.

36. Strabo referred this expression to the following eight cities: Cyzicus, with two closed harbours (XII.8.11); Mytilene (XIII.2.2); Smyrna (XIV.1.37); Kaunos (XIV.2.3); Knidos (XIV.2.15); Kition (XIV.6.3); Tyre (XVI.2.23); and Alexandria (XVII.1.6, and 9).

37. Dion. Kalliphon 28-30.

38. Dion. Kalliphon 118-22.

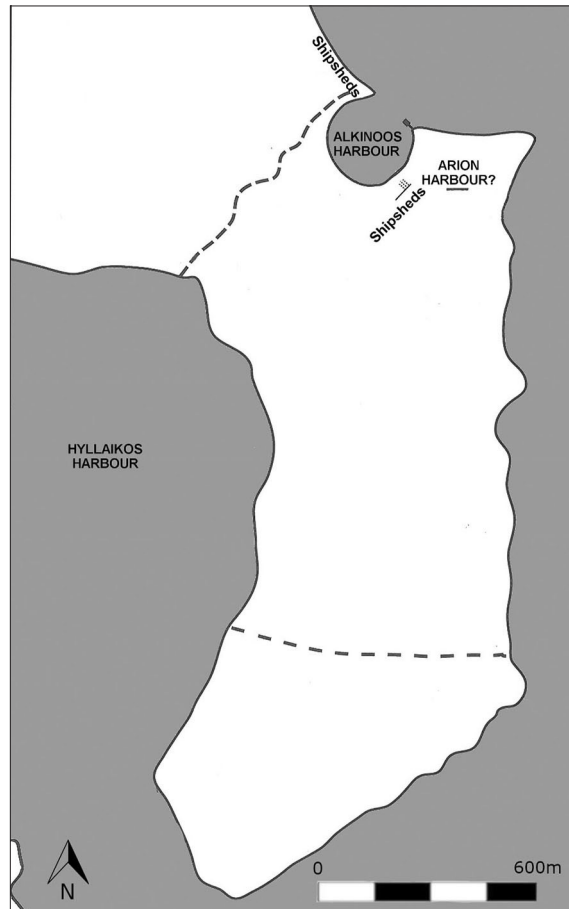
39. A. PERETTI, *op. cit.*, 1989, p. 19; D. MARCOTTE, *Le Poème géographique de Dionysios, fils de Calliphon: édition, traduction et commentaire*, Leuven 1990, p. 29-31; G. SHIPLEY, *op. cit.*, 2011, p. 15. On the possibility that Dionysius may have used the *Periplus of Ps.Skylax*, see D. MARCOTTE, *op. cit.*, 1990, p. 29-33, and p. 172-85; F.J. GÓNZALEZ PONCE, «Suda s.v. Σκύλαξ. Sobre el título, el contenido y la unidad de FGrHist III C 709», *GeogrAnt* 6, 1997, p. 37-51; P. COUNILLON, *op. cit.*, 2001, p. 384, and p. 391.

40. Strabo XIV.2.3. Single occurrences of this expression can be found also in: Philocoros, F3b,328,F, frgt 203 Jacoby or Meneclis FHG 4 = Schol. V Aristoph. *Pax* 145 (referred to the three harbours of the Piraeus); Hesychius, s.v. Zea (*id.*); and Cass. Dio LXXIV.10 (referred to Byzantium). Plutarch employs twice related expressions: in *Vit. Demetr.* VIII.4 he writes that Demetrius found the *entrances* of the Piraeus open, so he refers the adjective ἄκλειστος to στόμα, not to the noun λιμήν; and in *Mor. Prae. ger. reip.* 823a-b, where he speaks of “open harbours” in a metaphoric sense.

In the *Periplus*, the expression occurs 14 times, probably referring to a specific trait that certain harbours would have had at the time of its composition (or emendation).<sup>41</sup> In particular, the harbours identified as λιμένες κλειστοί by Ps.Skylax are all located in the Eastern part of the Mediterranean and on the Black Sea [Fig. 1 and Table 1, cf. *infra* p. 82].

The following brief review of each case of λιμὴν κλειστός mentioned by Ps.Skylax should establish the presence or absence of those characteristics which – according to Lehmann-Hartleben and von Gerkan – defined a “closed harbour”. However, the military nature of some of these harbours is more difficult to ascertain, since many settlements at this stage were equipped with only one harbour which was used for various purposes (e.g., commercial, military). For this reason, the description refers to their military nature uniquely when characteristics generally attributed to military harbours are found in a basin (e.g., presence of shipsheds, location within a fort). Data are referred to the chronological period of a certain harbour at the time when Ps.Skylax’ sources, and the *Periplus* itself, were formed.

Figure 2: plan of Korkyra with the two identified harbours, the suggested third basin, the remains of the two complexes of shipsheds and the conjectural circuit of the urban fortifications. After D.J. BLACKMAN, B. RANKOV, *op. cit.*, fig. B6.1; and A. KANTA-KITSOU, «Ένας νεώσοικος, τμήμα των νεορίων του Υλλαϊλαϊκού λιμανιού της Αρχαίας Κέρκυρας» in: H. TZALAS ed., *Tropis VI. 6th International Symposium on Ship Construction in Antiquity*, Athens 1996, p. 273-304.



41. Even if it is possible that the *Periplus*' author used different sources according to the geographical areas he described, scholarship agrees in maintaining that the text was eventually adjusted to acquire a unified linguistic character. Therefore, despite it being possible that the final version of the document exhibits inconsistency in the use of some terms, this should be considered as a one-time inaccuracy, rather than be referred to the whole text. E.g., Flensted-Jensen and Hansen (*op. cit.*, p. 137-167) show that, despite very few exceptions (which may be due to the poor transmission of the text), the Ps.Skylax's use of the term *polis* is reliable, being applied in its urban sense rather than in its political one.

The very first mention of a λιμὴν κλειστός in the *Periplus* concerns Korkyra [Fig. 2].<sup>42</sup> According to Ps.Skylax, the city is equipped with three harbours, one of them “closed”.<sup>43</sup> Scholars are still uncertain about which of the three Korkyrean harbours would have corresponded to this definition. The basin of Alkinoos, located on the north-east of the Kanoni peninsula, has frequently been identified as the “closed harbour” mentioned by Ps.Skylax.<sup>44</sup> This harbour has been interpreted as a military harbour, since it hosted two complexes of shipsheds;<sup>45</sup> additionally, it had an entrance embraced on the east by a massive tower, and was incorporated in the city walls.<sup>46</sup> Other scholars assign this definition to the basin of Hyllaikos,<sup>47</sup> on the Chalikiopoulou Lagoon, also located inside the city walls, which ended on the shore at both sides; apparently, it was not used for military purposes.<sup>48</sup> Lastly, with the scarce amount of information available today, it is hard to identify the “closed harbour” with the third harbour basin of Korkyra, since the only data that we have is its conjectural location in the site called Arion, on the north-east of the Kanoni peninsula.<sup>49</sup>

The second harbour to be identified as κλειστός is that of Ambrakia.<sup>50</sup> Here, Ps.Skylax, after having specified that the city was 80 *stadia* from the sea,<sup>51</sup> adds that upon the sea there are a fort and a “closed harbour” [Fig. 3]. This fort has been traditionally identified with Ambrakos,<sup>52</sup> and its remains located on the island of Phidokastro, in the Logarou Lagoon, at the mouth of the ancient course of the river Arachthus.<sup>53</sup> It was not located inside Ambrakia’s

42. Ps.Skyl. 29. The *polis* of Korkyra is the no. 123 in the inventory edited by M.H. HANSEN, T.H. NIELSEN eds., *An Inventory of Archaic and Classical Poleis*, Oxford 2004 (thereinafter *Inv.*).

43. Thuc. III.72 mentions two harbours, but his words do not exclude the existence of a third. G. SHIPLEY, *op. cit.*, 2011, p. 113. Furthermore, he also talks about an anchorage located “before the Heraion bay” (Thuc. III.75.5). See also K. BAIKA, «Corcyra» in D.J. BLACKMAN, B. RANKOV eds., *Shipsheds of the Ancient Mediterranean*, Cambridge 2013, p. 321.

44. Eust., *Comm ad Dionys. Per.* 492 (GGM II.310); Schol. Dion. Per. 493 (GGM II.450). See also C.M. MAURO, *op. cit.*, no. 34.

45. The so-called “Dontas” and “Kokotou” shipsheds, both dated from the 5th century BC. K. BAIKA, «Corcyra» in D.J. BLACKMAN, B. RANKOV, *op. cit.*, 2013, p. 319-334.

46. The city walls date back to the 5th or 4th century BC; however, their circuit is conjectural so far. See K. BAIKA, «Corcyra» in D.J. BLACKMAN, B. RANKOV, *op. cit.*, 2013, p. 323.

47. Thuc. III.72.3 and Ap. Rhod. IV.1125. See also C.M. MAURO, *op. cit.*, no. 35.

48. M.L. ALLAIN, *op. cit.*, p. 150; D. MORESCHINI, *op. cit.* On its inclusion within the city walls, see K. BAIKA, «Corcyra» in D.J. BLACKMAN, B. RANKOV, *op. cit.*, 2013, p. 321-322. Differently from the case of Alkinoos, where the city walls encompassed the harbour and extended into the sea, at Hyllaikos the city walls seem to have ended at the waterline.

49. K. BAIKA, «Corcyra» in D.J. BLACKMAN, B. RANKOV, *op. cit.*, 2013, p. 321-329; C.M. MAURO, *op. cit.*, no. 36.

50. Ps.Skyl. 33.1 (see Table 1). *Inv.* 113.

51. Cf. Dion. Kalliphon 27-28. According to Strabo (VII.7.6), the *polis* of Ambrakia was located only at a short distance above the mouth of the gulf.

52. Mentioned in Pol. IV.61.7, and 63.1-2; and Steph. Byz. 85.10, who defines Ambrakos as a πολίχινον.

53. N.G.L. HAMMOND, *Epirus*, Oxford 1967, p. 137-138; CH. TZOUVARA-SOULI, Αμβρακία. *Studies on Arta*, Arta 1992, p. 208-209; V. KARATZENI, «Ambrakos and Bouchetion. Two polichnia on the north coast of the Ambracian Gulf» in J.-L. LAMBOLEY, M.-P. CASTIGLIONI eds., *L’Illyrie Méridionale et l’Épire dans l’Antiquité – V. Actes du I<sup>er</sup> colloque international de Grenoble*, Paris 2011, p. 145-159; C.M. MAURO, *op. cit.*, no. 13.

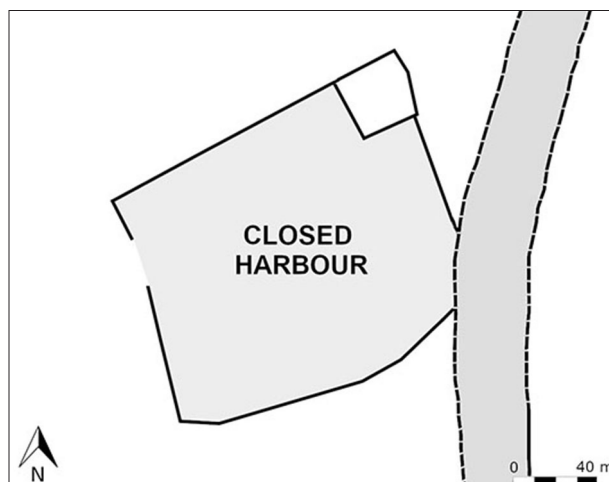


Figure 3: plan of the maritime fort identified at Phidokastro, according to the satellite image and the topographic plan of the fortification by the Hellenic Army Geographical Service.

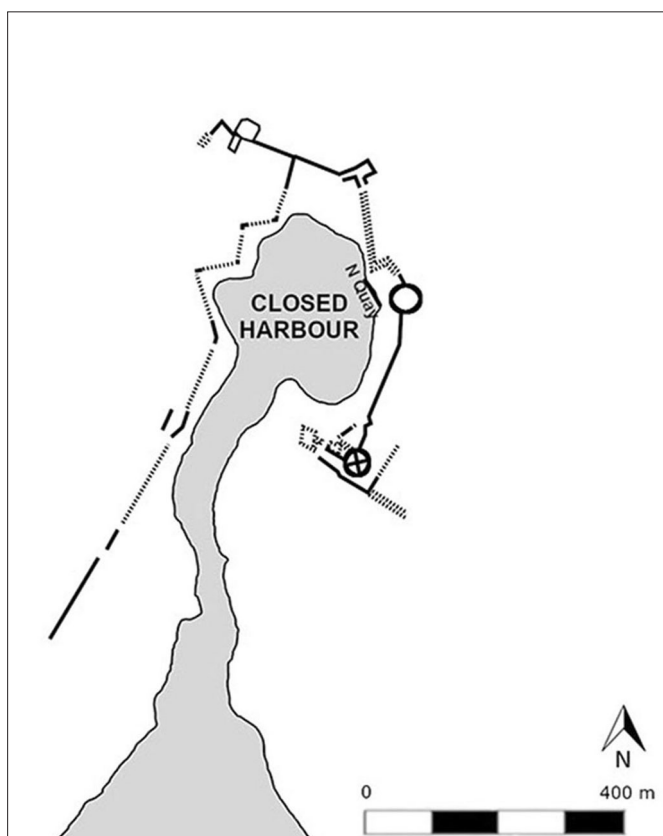


Figure 4: plan of the kothon-basin excavated at Phalasarna, with fortifications walls, towers and the quay. After E. HADJIDAKI, «The Hellenistic Harbor of Phalasarna in Western Crete: a Comparison with the Hellenistic Inner Harbor of Straton's Tower» in: A. RABAN, K. G. HOLUM eds, *Caesarea Maritima. A Retrospective after Two Millennia*, Leiden 1996, p. 53-64.

city walls, but was incorporated into the walls of a maritime fortress, and had chiefly military purposes.<sup>54</sup> Before the construction of the fort, this harbour was located in the lagoon area at the mouth of the river Arachthus.

As the *Periplus* reaches the island of Crete, it mentions two closed harbours: one at Phalasarna and one at Kydonia. The “closed harbour” of Phalasarna probably corresponds to the 4th-century BC *kothon*-basin excavated and published by Hadjidaki [Fig. 4].<sup>55</sup> This was an artificially dug basin, used for military purposes and protected by a fortification system which constituted an extension of the city’s own defences.<sup>56</sup> However, the *Periplus*’ chronological ambiguity does not clarify whether Ps.Skylax was identifying the 4th century BC layout as λιμὴν κλειστός, or if he rather referred to an earlier period, when the harbour of Phalasarna was probably a simple natural lagoon.<sup>57</sup>

The other λιμὴν κλειστός of Crete was located at Kydonia [Fig. 5].<sup>58</sup> According to Ps.Skylax, in Kydonia there was only one harbour; it was probably used for both military and commercial aims. During the Archaic and Classical periods, this basin was accessible through a natural narrow entrance, formed by the presence of a reef barrier – located on its northern side – which acted as a natural breakwater.<sup>59</sup> Due to the limited archaeological evidence for this *polis*, it is not possible to determine whether the harbour was incorporated within the urban fortifications.<sup>60</sup>

Reaching the island of Paros, on the Aegean Sea, Ps.Skylax refers to the presence of two harbours, one of which is “closed”.<sup>61</sup> The identification of the Parians harbours is complex and, in this sense, the *Periplus* does not help to further clarify it, since it simply mentions them

54. V. KARATZENI, *op. cit.*, 146.

55. Ps.Skyl. 47.3 (see Table 1). *Polis* of Phalasarna: Inv. 981; C.M. MAURO, *op. cit.*, no. 141. On its harbour, see E. HADJIDAKI, *The Classical and Hellenistic Harbour at Phalasarna: a Pirate’s Port?*, Diss. California, 1988; *Id.*, «Preliminary Report of Excavations at the Harbor of Phalasarna in West Crete», *AJA* 92.4, 1988, p. 463-479; F. J. FROST, E. HADJIDAKI, «Excavations at the Harbor of Phalasarna in Crete: the 1988 Season», *Hesperia* 59.3, 1990, p. 513-527. For a re-evaluation of the term *kothon*, see N. CARAYON, P. ARNAUD, N. GARCIA CASACUBERTA, S.J.. KEAY, *op. cit.*

56. E. HADJIDAKI, *op. cit.*, Diss. California, 1988, p. 48-57; F. J. FROST, E. HADJIDAKI, *op. cit.*, p. 527.

57. K. LEHMANN-HARTLEBEN, *op. cit.*, p. 81.

58. Ps.Skyl. 47.3 (see Table 1). Inv. 968; C.M. MAURO, *op. cit.*, no. 87. According to Herodotus (III.44), Kydonia was founded by the Samians around 520 BC; while other sources attribute it to the Aeginetans (Strabo VIII.6.16), or Kydon (Paus. VIII.53.4 and Steph. Byz. s.v. Kydonia). Even if the evidence for the early phases of the settlement is rather limited (late geometric materials found at Kastelli Hill), the identification proposed by R. PASHLEY (*Travels in Crete, vol. 1*, London 1837, p. 11-17) and T.A.B. SPRATT (*Travels and Researches in Crete, vol.2*, London 1865, p. 137-142) with the current Chania is traditionally accepted.

59. K. LEHMANN-HARTLEBEN, *op. cit.*, p. 57-58. D.J. BLACKMAN («Kydonia» in *Princeton Encyclopedia of Classical Sites*, p. 472) states that the Venetian mole built along the reef could have covered an ancient structure with the same aim. The *Stadiasmus Maris Magni* § 343 contains a warning on the presence of these reefs at the entrance of the harbour; at the time when it was compiled (probably the 1st century AD, see S. MEDAS, *op. cit.*, p. 19), the reefs could have been submerged; therefore, it would have constituted a danger – rather than a protective factor – for the ships approaching the harbour.

60. As a matter of fact, the existence of these latter is attested only by literary sources, *i.e.* Diod. XVI.63.3; Pol. IV.55.4.

61. Ps.Skyl. 58.1. Inv. 509.

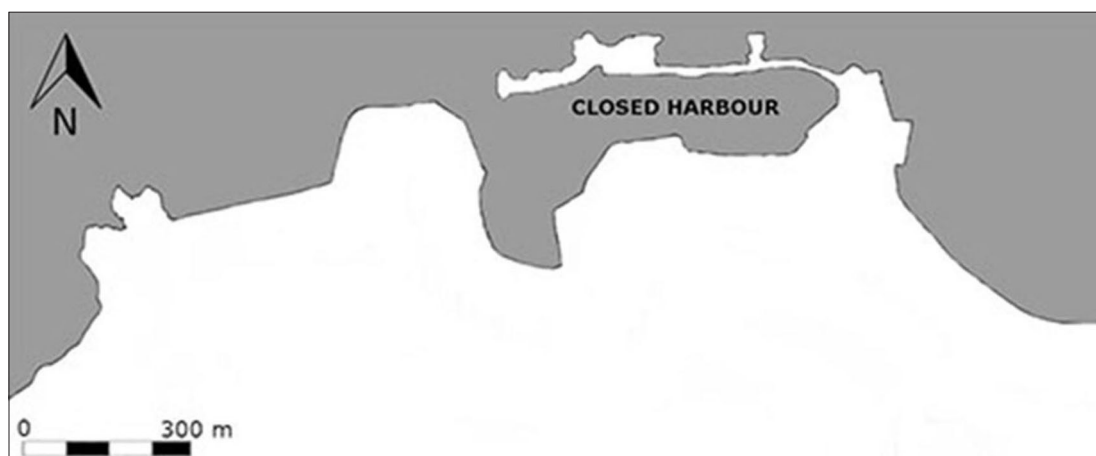


Figure 5: plan of the harbour of Kydonia. The northern prolongation is a natural reef, on which the current breakwater is built. The circuit of the city walls is not known.

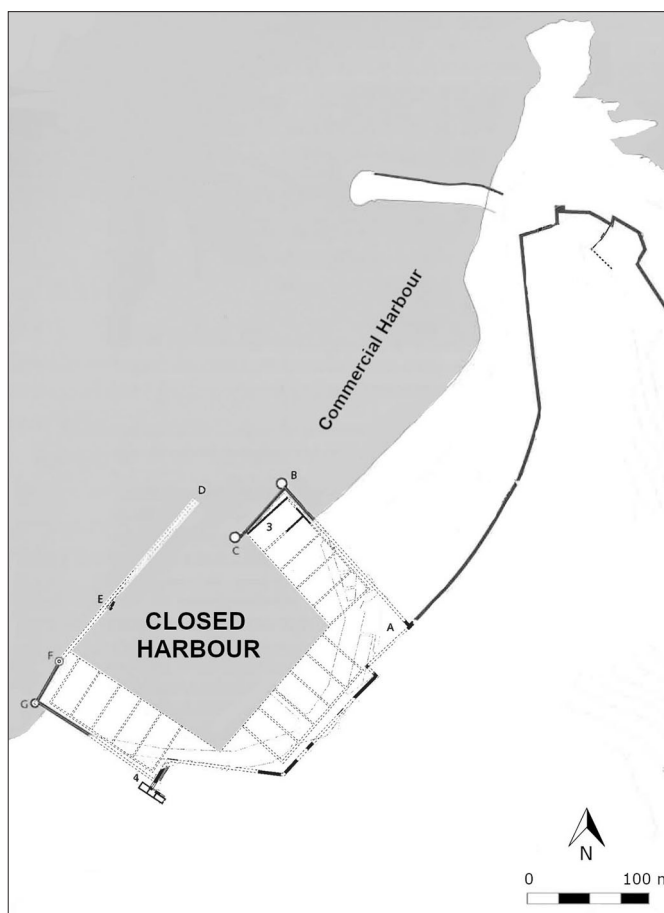


Figure 6: plan of the two harbours of Thasos, with city walls and shipsheds. After Y. GRANDJEAN, F. SALVIAT, *op. cit.*, p. 53-54.

without specifying their location.<sup>62</sup> However, the most probable hypothesis for the “closed harbour” is that it was located on the north-east of the promontory where the ancient city of Paros stood (current Paroikia). Here, two moles have been identified, which seem not to have been part of the city walls.<sup>63</sup> Furthermore, no shipsheds or other elements have been identified which would suggest its military use.

The next harbour to deserve this mention is located on the island of Thasos, in the northern Aegean. Ps.Skylax writes that the island has a city and two harbours, one of which is “closed” [Fig. 6].<sup>64</sup> The expression presumably applies to the so-called “military harbour”, located on the southern side of the commercial harbour, and corresponding to the current Palaio Limani (Limenas Thasou). This harbour was already incorporated into the city walls in the Archaic period (probably prior to the Persians’ intervention),<sup>65</sup> and it was surrounded by extensions of the fortifications.<sup>66</sup>

After Thrace, Ps.Skylax inserts a description of the Black Sea coasts, where he mentions the presence of another “closed harbour”, called Genesintis (or Genetes), and associated with the Chalybes’ *ethnos*.<sup>67</sup> From an archaeological and geological point of view, this site is not known, apart from its possible location on Cape Jason (the **Byzantine Cape Boon**).<sup>68</sup> Data on its integration into fortifications or on its military function are not currently available.

62. Therefore, scholars disagree on the interpretation of this passage, claiming that it could refer to two harbours at Paros, at Naoussa or to one harbour at Paros and another one at Naoussa. However, Naoussa, on the north of the island of Paros, was located within an open bay. For this reason, according to the current status of the knowledge, it is not possible to sustain its identification as the Ps.Skylax’s “closed harbour” (*Contra* C. BURSIA, *Geographie von Griechenland. Peloponnesos und Inseln*, Leipzig 1872, p. 488). See also C.M. MAURO, *op. cit.*, no. 119, and no. 136.

63. G. PAPATHANASSOPOULOS, D. SCHILARDI, «An underwater survey of Paros, 1979», *IJNA* 10, 1981, p. 133-144. On the south-western mole, see also O. RUBENSOHN, «Paros, 2: Topographie», *MDAI(A)* 26, 1901, p.192.

64. Ps.Skyl. 67.1 (see Table 1). See also C.M. MAURO, *op. cit.*, no. 182, and no. 183.

65. Her. VI.46-48.

66. The city walls are dated around the late 6th-early 5th century BC. See A. SIMOSSI, «Σάμος, Πυθαγόρειο. Αρχαιολογικόν δελτίον», *Μελέτες/Χρονικά* 49, 1999, p.133-160; N.A. LIANOS, «The area of the ancient closed port of Thasos. A preliminary report» in H. TZALAS, ed., *Tropis V. 5th International Symposium on Ship Construction in Antiquity*, Athens 1999, p. 261-272; Y. GRANDJEAN, F. SALVIAT, *Guide de Thasos*, Paris 2000, p. 53-54, and p. 94-95. A dividing wall separated the harbours areas from the urban space, see D. LAZARIDIS, *Thasos and its Peraia*, Athens 1971, fig. 48; F. BLONDÉ *et al.*, «Thasos d’Archiloque aux guerres médiques: questions de topographie et d’urbanisme», *Topoi* 10, 2000, p. 9-56. Conflicting views exist on the chronology and way of accessing the “military harbour”. For a summary of the different views, see K. BAIKA, «Thasos» in D.J. BLACKMAN, B. RANKOV, *op. cit.*, Cambridge 2013, p. 542-547. With regard to the entrance, it is not certain whether it corresponds to the current one (T. KOŽELJ, M. WURCH-KOŽELJ, «L’évolution des ports de Thasos» in F. BLONDÉ *et al.*, *op. cit.*, p. 33-36; G. SINTÈS, «Thasos, un port depuis l’antiquité... malgré tout», *BCH* 127, 2003, p. 123-138), or if it was placed in the space between one of the arms extending from the city wall (ABC) and the north-eastern end of a breakwater (point D). However, scholars with different opinions are seeking to raise the chronology of the supposed closure of the harbour: T. Koželj, M. Wurch-Koželj (*op. cit.*, p. 34) backdate the existence of a “closed harbour” to the 6th century BC; similarly, Y. Grandjean and F. Salviat (*op. cit.*, p. 53-56) challenge the validity of a late 4th-century BC chronology for the ABC and FGH arms and the corresponding towers.

67. Ps.Skyl. 88. On the Chalybes’ *ethnos* see P. COUNILLON, *op. cit.*, 2004, p. 104-113.

68. On the current Perşembe/Vona (Turkey). The “closed harbour” was probably located on the east of the cape, and it was protected from the prevailing NW winds. This area presented good natural protection even

The exact situation of the harbour of Samos during the Archaic and Classical periods remains uncertain.<sup>69</sup> It seems that the mole that had been built under Polykrates in the 6th century BC had no connections with the city walls.<sup>70</sup> However, according to Simossi, “the northern harbour wall and the small southern jetty which encircle the basin of the harbour [...] appear to have their foundations set on the ancient harbour works” [Fig. 7].<sup>71</sup> Literary sources do not mention an exclusively military use of the harbour of Samos.<sup>72</sup>

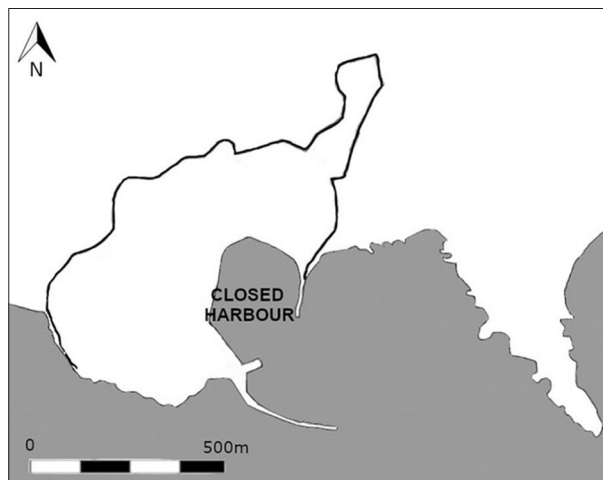


Figure 7: Samos, plan of the city walls. The southern prolongation chiefly corresponds to the Polykrateian mole (which lies slightly to the south and, in its ending part, runs towards the north). The other two structures closing the entrance of the harbours correspond to the current breakwaters, but they were thought to have been connected to the city walls and to hide earlier (possibly Classical) structures.

After H.J. KIENAST, *Samos XV, Die Stadmauer von Samos*, Bonn 1978.

during winter. On this area, see A. BRYER, D. WINFIELD (*The Byzantine monuments and topography of the Pontos*, Washington 1985, p. 121): “To the north of the isthmus the cape is about 170 paces NS by 80 paces at its widest point EW. The ground is more or less a level plateau from 4 to 5 m above sea level and it is enclosed by a boundary wall, the foundation of which can be seen in the turf. On the east and sheltered side is a small bay where skiffs may have moored”; and W.J. HAMILTON (*Researches in Asia Minor, Pontus and Armenia: with some account of their Antiquities and Geology*, vol. 1, London 1842, p. 269): “Farther to the NW was the port of Vona, by the Turks called Vona Liman; it is considered the best winter harbour on this side of Constantinople, preferable even to that of Sinope, on account of the greater depth of water”.

69. Even if Samos is referred to by Ps.Skylax as a *polis* (*Inv.* 864), between 366 and 322 BC it was an Athenian cleruchy. *Inv.* 865; C.M. MAURO, *op. cit.*, no. 165.

70. Mentioned in Her. III.60. The Polykrateian mole has been identified by Simossi with the breakwater located outside the modern port basin and the city walls. A. SIMOSSO, «Σάμος, Αρχαίο λιμάνι Σάμου (δεύτερη περίοδος ανασκαφικής έρευνας). Αρχαιολογικόν δελτίον», *Μελέτες/Χρονικά* 48, 1998, p. 592-595.

71. A. SIMOSSO, “Underwater Excavation research in the ancient harbour of Samos: September-October 1988”, *IJNA* 20, 1991, p. 284. Furthermore, it has been proposed that another harbour, located west of the city walls, could lay today buried. For a recent discussion, see J.W. SHAW, “The Earliest Harbour Installations on Aegean Foreshores”, *IJNA* 48.1, 2019, p. 97-100, with related bibliography.

72. It is possible that it was equipped with a complex of shipsheds; however, it has not been archaeologically identified so far. Herodotus states that, having unsuccessfully sent his least loyal citizens as troops in aid of Kambyzes’ expedition to Egypt in 525 BC, expecting that they would not return, Polykrates reacted to this failure by dispatching another contingent to intercept the returning Samians. As a precaution, he imprisoned the exiles’ wives and children within the shipsheds (νεώσοικοι), threatening to burn them. This episode suggests the existence of shipsheds in the harbour at Samos in the last quarter of the 6th century BC, leading to the hypothesis that they belonged to the same building programme that also provided for the construction of the mole. P. DE SOUZA, «Toward thalassocracy? Archaic Greek naval developments» in N. FISHER, H. VAN WEES eds., *Archaic Greece. New approaches and new Evidence*, London 1998, p. 282; C.M. MAURO, *op. cit.*, p. 56-57.



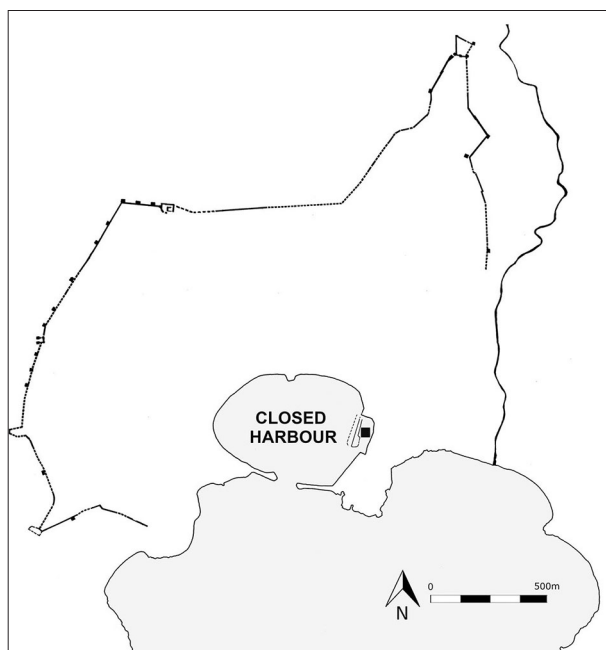


Figure 8: plan of Halikarnassos with its city walls and the “submerged mole” in the eastern part of the western basin. The inner harbour is identified by the black square. The two moles narrowing the entrance were probably extensions of the city walls. After P. PEDERSEN, *op. cit.*

In the case of Priene, Ps.Skylax reports the presence of two harbours, one being defined as “closed”.<sup>73</sup> Probably in the middle of the 4th century BC, Priene was re-established on a steep foothill of the Mykale mountains, west of the modern village of Güllübahçe-Turunçlar,<sup>74</sup> and its urban centre surrounded by walls. The two harbours referred to by Ps.Skylax were probably located west of the archaeological site, outside the perimeter defined by the city walls. The function of both of them is not known, but usually – when two harbour basins pertained to a single settlement – one of them had chiefly military purposes.

According to Ps.Skylax, Halicarnassus is equipped with a closed harbour and another basin, located near the island.<sup>75</sup> Traditionally, the “closed harbour” has been understood to have been located on the western part of the headland.<sup>76</sup> Here, two harbour basins have been identified during excavations

[Fig. 8]: one, located on the inner part, was accessible through an entrance that was made narrow thanks to the construction of a mole;<sup>77</sup> the second, bigger, harbour occupied the whole bay west of the headland and was protected by two moles, probably extensions of the urban fortifications.<sup>78</sup> Therefore, both these two basins were located inside the city walls.

73. Ps. Skyl. 98.4 (see Table 1); C.M. MAURO, *op. cit.*, no. 154.

74. F. RUMSCHEID, *Priene. A guide to the “Pompeii of Asia Minor”*, Istanbul 1998, p. 15; H. BRÜCKNER, «Delta Evolution and Culture – Aspects of Geoarchaeological Research in Miletos and Priene» in G.A. WAGNER, E. PERNICKA, H.P. UERPMANN eds., *Troia and the Troad: Scientific Approaches*, Berlin 2003, p. 121-142; D. CROUCH, *Geology and Settlement: Greco-Roman Patterns*, Oxford 2003, p. 199-214.

75. Ps.Skyl. 99.1; *Inv.* 886; C.M. MAURO, *op. cit.*, no. 58.

76. Where today it is possible to see the Crusader castle.

77. This mole can be seen today below the sea-level.

78. P. PEDERSEN, «The city wall of Halikarnassos» in R. VAN BREMEN, J.M. CARBON eds., *Hellenistic Karia. Proceedings of the First International Conference on Hellenistic Karia*, Bordeaux 2010, p. 269-316.

Following the coast of Asia Minor, the *Periplus* reaches the closed harbour of Kaunos.<sup>79</sup> As at Priene, the geomorphology of Kaunos' territory suffered substantial changes due to the siltation produced by the river Calbis. The “closed harbour” has been identified with the small lake currently named Sülüklü Gölü, which in antiquity was situated on the western part of the acropolis.<sup>80</sup>

The city of Kos, founded on the island of that name after the synoecism of 366 BC, also had only one harbour, which in the *Periplus* is defined as “closed” [Fig. 9].<sup>81</sup> The harbour of the *polis* was located in a natural embayment that was probably enclosed by a prolongation of the city walls, and it was equipped with shipsheds.<sup>82</sup>

Lastly, Ps.Skylax mentions two other “closed harbours”: one in Salamis, on the island of Cyprus, and one in Sidon, on the Levantine shore. The harbour of Salamis was located on the eastern part of the island of Cyprus.<sup>83</sup> Parallel to the shore, at a distance of 100 m, a natural reef – extending north and south of the

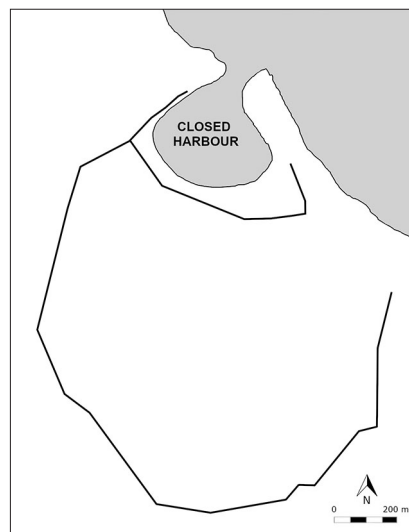


Figure 9: plan of Kos with its city walls.  
After M. LIVADIOTTI, *op. cit.*, 2018.

79. Ps.Skyl. 99.2 (see Table 1). *Inv.* 898; C.M. MAURO, *op. cit.*, no. 29. The harbour of Kaunos is the only one to be labelled as “closed” by both Ps.Skylax and Strabo (XIV.2.3).

80. H. GATES, «Archaeology in Turkey», *AJA* 98, 1994, p. 265; H. BRÜCKNER, «Coastal changes in western Turkey: rapid delta progradation in historical time», *Bulletin de l'Institut océanographique*, special number 18, 1997, p. 67; D. MORESCHINI, *op. cit.*, 240. The city walls seem to have been built during the Hellenistic period, even if some part may be dated from the 4th century BC.

81. Ps. Skyl. 99.1 (see Table 1). *Inv.* 497; C.M. MAURO, *op. cit.*, no. 37.

82. K. BAIKA, «Kos» in D.J. BLACKMAN, B. RANKOV, *op. cit.*, Cambridge 2013, 364. The city walls were built in 366 BC, as testified by Diodorus Siculus (XV.76.2). On the harbour of Kos and its connection with the city walls, see also A. MAIURI, «I castelli dei Cavalieri di Rodi a Kos, a Bodrum (ad Alicarnasso)», *ASAA* IV-V, 1921-122, p. 275-343; E. BROUSKARI, «Ανασκαφή οικ. Λιμενικού Ταμείου στην Κω. Τα νεώρια, οι μεταγενέστερες φάσεις τους και ένα άγαλμα Αφροδίτης» in Χάρης Χαίρε. Μελέτες στη Μνήμη της Χάρης Κάντζια: vol. I, Athens 2004, p. 63-75; M. LIVADIOTTI, «La pianta IGM di Kos del 1926: dati per la topografia antica», *Thiasos. Rivista di Architettura e Archeologia Antica* 5.2, 2016, p. 63-89; M. LIVADIOTTI, «The infrastructure of a Hellenistic town and its persistence in Imperial period: the case of Kos», *Thiasos. Rivista di Architettura e Archeologia Antica* 7, 2018, p. 39-75. With regards to the shipsheds, they have been dated by C. ΚΑΝΤΖΙΑ («Ακτή Κουντουριώτου, μεταξύ των οδών Μ.Αλεξάνδρου και Π.Τσαλδάρη (οικόπεδο Λιμενικού Ταμείου)», *Αρχαιολογικόν δελτίον*, Μελέτες/Χρονικά 42, 1987, p. 632-635) to the 3rd century BC, but Blackman does not exclude that they were built nearly after the foundation of the *polis*.

83. Ps.Skyl. 103 (see Table 1). *Inv.* 1020.

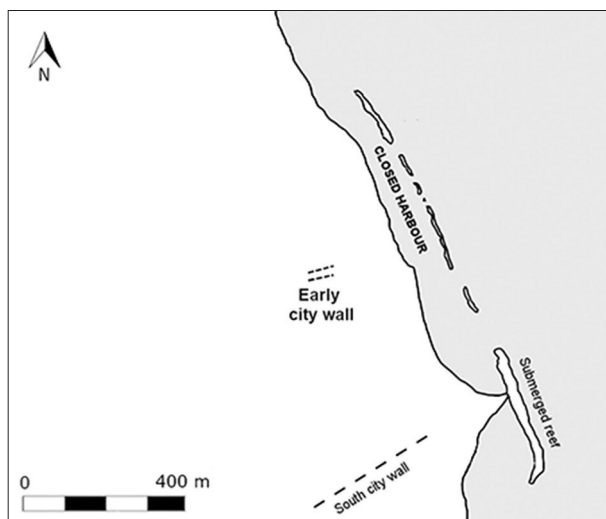


Figure 10: plan of Salamis with the identified remains of the early city walls and the southern walls. These latter could have join the submerged reef. After N.C. FLEMMING, *op. cit.*

headland - created one or two harbour basins [Fig. 10].<sup>84</sup> The most reliable hypothesis is that Ps.Skylax is referring to the northern harbour, probably outside the city walls, but protected by a prolongation of the same extending southwards.<sup>85</sup>

The last case is on the Levantine shore; specifically, Sidon [Fig. 11].<sup>86</sup> Here, the dune barrier extant to the north (the *languette rocheuse*) was used as a basement for an artificial breakwater.<sup>87</sup> This construction, whose chronology fluctuates between the 8th and 6th century BC, formed an inner harbour (delimited by small islands to the north and by the breakwater to the east), accessible only through the outer harbour. The sea-wall extending

over the *Languette Rocheuse* seems to have been part of the city fortifications; however, this intervention can be ascribed only to the Hellenistic period.<sup>88</sup>

84. According to J.A.R. MUNRO, H.A. TUBBS («Excavation in Cyprus in 1890. Third season's work. Salamis», *JHS* 12, 1891, p. 59-198), A. RABAN (*op. cit.*, p. 158-161) and E.M. DAVIES («The Missing harbour of Evagoras at Salamis, Cyprus», *IJNA* 41, 2012) there were two or three harbour areas, two north of the headland, and the other to the south. Differently, N.C. FLEMMING («Report of preliminary underwater investigations at Salamis, Cyprus», *Report of the Department of Antiquities, Cyprus*, Nicosia 1974, p. 163-173) maintained that there was only one harbour to the south, whereas he interpreted the buildings extant on the north as land facilities; nonetheless, in his recommendations for the future, he hoped for a detailed survey in the lagoon area to the north of the headland to look for a possible second harbour.

85. E.M. DAVIES, *op. cit.*, 2012, p. 370; *id.*, «New Evidence of the Shiphsheds built by Evagoras at Salamis, Cyprus», *IJNA* 45, 2016, p. 1-4. Unfortunately, excavations in this area are not possible since 1974, when a UN embargo was put in place on archaeological activities in North Cyprus.

86. Ps.Skyl. 104.2.

87. A. POIDEBARD, J. LAUFFRAY, *Sidon, aménagements antiques du port de Saïda. Etude aérienne, au sol et sous-marine (1946 – 1950)*, Beirut 1951, p. 57-58; H. FROST, «The offshore island harbour at Sidon and other Phoenician sites in the light of new dating evidence», *IJNA* 2, 1973, p. 75–85.

88. N. CARAYON, *Les ports phéniciens et puniques. Géomorphologie et infrastructures*, 3 vols, Diss. Strasbourg, 2008, p. 289.

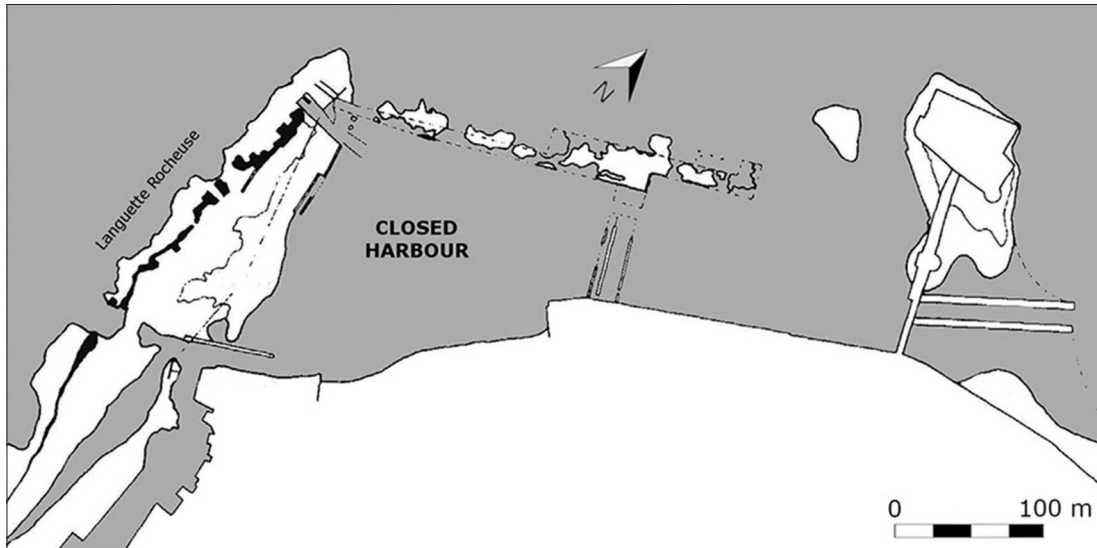


Figure 11: plan of Sidon with the islets used as foundations for the breakwater. After A. POIDEBARD, J. LAUFFRAY, *op. cit.*

## DISCUSSION

Considering the 14 harbours identified as λιμένες κλειστοί in the *Periplus*, it is possible to note that archaeological data do not exactly correspond with the extant theories [Table 2 cf. *infra* p. 84], even if Lehmann-Hartleben's hypothesis (as to say that a "closed harbour" was a harbour located within the city walls) is certainly numerically relevant. The other theories can scarcely be taken into account, or should not be considered, as far as the *Periplus* is concerned (see again Table 2).

Table 2, together with the short description of the 14 cases carried out earlier, is itself sufficient to show that both von Gerkan's and Rougé's interpretations cannot be universally applied to those harbours defined as "closed" by Ps.Skylax. However, additional considerations can be put forward to further question their theories.

For example, von Gerkan's definition, suggesting that a "closed harbour" was formed by extension(s) of the city walls into the sea, can be considered valid only in certain cases; however, in other cases, their prolongation into the sea is yet to be proven, as seen at Halikarnassos. Moreover, this interpretation may be also contradicted with one of the counter-arguments that will be detailed later to call into question Lehmann-Hartleben's point of view.

Doubts might also be raised with regard to the interpretation of the "closed harbours" as "military basins", in line with Rougé's idea. The proposal can hardly be applied to Ps.Skylax's λιμένες κλειστοί. Indeed, the *Periplus* often mentions settlements with only one harbour, referring to this same as κλειστός. If κλειστός really identified a military harbour, how should the presence of only one harbour in a place be interpreted? Two hypotheses could be

suggested. The first is that some settlements were equipped with only one harbour and it was used exclusively for military purposes; however, this is a highly unlikely scenario and there is insufficient evidence to support the idea that, at this stage, there was a clear separation in the use of commercial and military harbours.<sup>89</sup> On the other hand, if there was a single harbour serving both military and commercial purposes, then why should the author have labelled it as “military”, if this is the meaning we assign to “κλειστός”? Even assuming that the term “κλειστός” referred to any harbour which was used for military purposes, whether solely military or jointly military and commercial, would not lead us to a satisfactory definition of this expression, since harbours of other *poleis* – which are not referred to as “closed” in the *Periplus* – are known to have hosted active fleets between the Archaic and the Classical periods.<sup>90</sup>

The second way to justify the presence of only one, military, basin in a place would be to assume that the author of the *Periplus* forgot to mention the presence of other harbour basins pertaining to the same settlement. However, this explanation is unconvincing; it does not seem to be an inaccuracy, since it concerns 9 of the 14 cases, *i.e.* Ambrakia, Phalasarna, Kydonia, Genesintis, Samos, Kos, Kaunos, Salamis, and Sidon.<sup>91</sup>

Though von Gerkan and Rouge’s hypotheses can be reasonably contradicted by comparing them with archaeological and historical data, Table 2 seems to endorse Lehmann-Hartleben’s definition. However, even this interpretation is not completely immune to criticism, at least

89. It is possible to consider that some harbours were preferentially employed to fulfil a specific aim, but it is difficult to detect at this stage exclusively military harbours where merchant ships were not allowed to enter or vice-versa. *E.g.*, the presence of shipsheds is often used to claim the military nature of a harbour; however, they were present also in basins traditionally interpreted as commercial harbours, *i.e.* at Kantharos, Piraeus, 96 shipsheds are documented: W. JUDEICH, *Topographie von Athen*, Munich 1931, 2nd edition, p. 448; C.T. PANAGOS, *Ο Πειραιεύς, Οικονομική και ιστορική έρευνα από των αρχαιοτάτων χρόνων μέχρι του τέλους της ρωμαϊκής αυτοκρατορίας*, Athens 1968<sup>2</sup>, p. 224; G.A. STEINHAEUER, «Αρχαίος Πειραιάς: Η πόλη του Θεμιστοκλή και του Ιπποδάμου» in G.A. STEINHAEUER, M. MALIKOUTE, B. TSOKOPOULOS, B. GKANIATSAS eds., *Πειραιάς, Κέντρο ναυτιλίας και πολιτισμού*, Athens 2000, p. 83-84.

90. *E.g.*, Lechaion (Ps.Skyl. 40) and Kenchreai (Ps.Skyl. 55), both belonging to Corinth (on the Corinthian fleet employed in the Battle of Sybota in 433 BC, see Thuc. I.46); at least two of the three basins of the Piraeus (Ps Skyl. 57.1), in Athens, hosted complexes of shipsheds before the final edition of the *Periplus* (Zea and Mounychia); the harbour of Eretria (*JG* XII 9 1273-1274 refer to the possible introduction of pay for the crew of the city’s warship already in the 6th century BC); the harbour of Aigina (Ps.Skyl. 53; the fleet of Aigina took part in the battles of Artemisium and Salamis, in 480 BC). More information on harbours used for military purposes and on public navies already active in the Archaic period can be found in: L. SCOTT, «Were there polis navies in Archaic Greece?» in G.J. OLIVER *et al.* eds., *The Sea in Antiquity*, Oxford 2000, p. 93-116; H. VAN WEES, «Those who sail are to receive a wage: naval warfare and finance in archaic Eretria» in G. FAGAN, M. TRUNDLE eds., *New Perspectives on Ancient Warfare*, Boston-Leiden 2010, p. 205-226; K. BAIKA, «Early naval arsenals and military harbour infrastructure in the Mediterranean» in A. HAFNER, U. NIFFELER, U. RUOFF eds., *The New View. Underwater Archaeology and the Historical Picture*, Basel 2006, p. 176-192.

91. Additionally, for some of these places (*i.e.*, Ambrakia, Kydonia and Kos), we do not have information, neither from the written sources, neither from the archaeological research, on the existence of a second harbour basin.

when it is applied to Ps.Skylax's text. In particular, there are three considerations which seem to contradict the idea that by λιμὴν κλειστός the author of the *Periplus* identified a harbour inside the city walls.

The first concerns Lehmann-Hartleben's definition itself, since the German archaeologist maintained that a λιμὴν κλειστός was a harbour incorporated into the city walls (*Stadtmauer*). Such a statement implies an inaccuracy in the form it was expressed, because some of the harbours labelled as "closed" were not physically connected to a city; consequently, they could not have been incorporated into actual city walls.<sup>92</sup> This was the case of the λιμὴν κλειστός mentioned after Ambrakia, which was associated with a maritime fortress rather than to the *polis*. As stressed by the *Periplus*, even if Ambrakia controlled the harbour, the *polis* itself was 80 stadia from the sea; then, the harbour was located near the shore and incorporated within the circuit wall of a maritime fortress. Another case that might undermine Lehmann-Hartleben's definition is the "closed harbour" of Genesintis (or Genetes), which in the *Periplus* is linked to the Chalybes' *ethnos*. Once again, there is a λιμὴν κλειστός, but no *polis* and – consequently – no city walls.

The second refers to the case of Korkyra. As noted earlier, according to Ps.Skylax, Korkyra was equipped with three harbours, one of which was "closed". Despite the difficulty of identifying its "closed harbour", Korkyra is a crucial example, since one of the three harbour basins is differentiated from the other two. However, assuming that a "closed harbour" was actually a harbour inside the city walls, Ps.Skylax should have mentioned the presence of at least *two* closed harbours in Korkyra – or even *three* (if the Arion site truly corresponds to the location of the third harbour).

The last argument against Lehmann-Hartleben's definition consists in the mention – within the *Periplus* – of harbours incorporated within the walls, to which Ps.Skylax refers to as λιμένες ἐντός τείχους. This expression occurs twice in the *Periplus*, being attributed to one of the harbours of Syracuse,<sup>93</sup> and to the harbour of Tyre.<sup>94</sup> Even if admitting that a λιμὴν κλειστός is a harbour inside the fortifications and that Ps.Skylax uses a different expression to refer to the same situation in case of Syracuse,<sup>95</sup> the case of Tyre still appears anomalous. Indeed, when describing the Syrian-Phoenician coast, the *Periplus* first mentions the harbour of Sidon, stating that it is κλειστός; then, at a brief distance, it describes the harbour of Tyre as

92. As stated earlier, this consideration can be also applied to raise doubts on von Gerkan's theory, who defined a λιμὴν κλειστός as a harbour "closed" by extension(s) of the *city walls* into the sea.

93. Ps.Skyl. 13.

94. Ps.Skyl. 104. The northern harbour of Tyre, which is probably the one referred to as "within the city walls", was actually not incorporated into the fortifications; however, on the western and southern side the shoreline was so curved as to give the impression, to whom was coming from the sea, that the harbour was inside the city walls. E. LIPIŃSKI, *Itineraria Phoenicia*, Leuven 2004, p. 298.

95. A difference that may be attributable to the use of another source in the compilation of the Sicilian passage.

a “harbour within the walls”. Since the *Periplus* largely consists of a repetitive list of sentences employing the same words,<sup>96</sup> the use of different expressions should be explained only in light of their different meaning.

#### AN ALTERNATIVE PERSPECTIVE

At this point, admitting that the phrase λιμὴν κλειστός in the *Periplus* does not identify a harbour inside the city walls, nor even a military harbour, and accepting that Ps.Skylax is using the term consistently and quite likely in agreement with its original nautical sense, it is logical to seek for another suitable meaning. In particular, it should be asked what characteristic feature distinguished, at that period (or earlier, if Ps.Skylax has taken the term from an earlier source), a simple λιμὴν from a λιμὴν κλειστός.

As previously underlined, it is traditionally accepted that the *Periplus* derived most of its information from nautical sources of various kinds.<sup>97</sup> Furthermore, some excerpts are so repetitive and free of literary ambitions, that they could easily have appeared with the same form within a nautical text. Interestingly, it seems that most essential passages of the *Periplus* are precisely those containing more nautically relevant information. Thus, it would be reasonable to consider the possibility that the author of the *Periplus* borrowed and replicated an expression – *i.e.*, λιμὴν κλειστός – which was already present in earlier nautical sources and made sense to seafarers, identifying a feature of which they would have been aware. Unfortunately, ancient *periploi* surviving to the present are rather scarce, and the majority of the available information on their content comes from geographic texts.<sup>98</sup> Nevertheless, the *corpus* at our disposal provides a basic knowledge of the kind of data these *periploi* included. Such knowledge might also be complemented by consulting later nautical instruction books, which often offer additional causes for reflection.<sup>99</sup> Indeed, the constancy and continuity which affect the *ars nautica* allow the consideration of some phenomena in the *longue durée*, transforming these later *comparanda* into highly indicative clues.

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96. The same paragraph 103 constitutes a clear example of the redundancy of the structure. New terms appear in certain sections of the *Periplus* (e.g., Ps.Skyl. 47), but for the most part the document contains a recurring terminology.

97. G. SHIPLEY, *op. cit.*, 2011, p. 17.

98. The only nautical documents the original nucleus of which can be reconducted to the 6th cent. BC are the *Periplus of Hanno* and the *Ora Maritima*, but both of them have a different character and their final redaction is later in time.

99. The documents that have been consulted include the selection in K. MÜLLER (*Geographi Graeci Minores*, 2 vols., Paris 1855-1861), but also medieval and modern *portolani* (B.R. MOTZO, *op. cit.*; K. KRETSCHMER, *Die italienischen Portolane des Mittelalters: ein Beitrag zur Geschichte der Kartographie und Nautik*, Berlin 1909).

In particular, a careful reading of *periploi* and other nautical documents reveals that they rarely contain references to the presence of artificial structures in a harbour;<sup>100</sup> nor do they tend to specify the function of a harbour basin.<sup>101</sup> Additionally, they do not include details of the location of the harbour in relation to the city; they do not state whether the harbour was situated inside or outside the city walls.<sup>102</sup> From a nautical point of view, the exclusion of information regarding the location of the harbour in relation to the city walls can actually be justified by its irrelevance to seafarers, since it did not provide them with essential knowledge in planning a route.<sup>103</sup>

On the contrary, rather than on artificial interventions or function, the focus of later *periploi* seems to be centred mostly on the protection that a harbour was capable of offering to ships.<sup>104</sup> Frequently this protection was simply mentioned as a natural characteristic of the place.<sup>105</sup> Moreover, whenever they contain further details of a harbour, nautical documents refer to its protection against particular winds,<sup>106</sup> to the seasonality of its use,<sup>107</sup> to the kinds of boats to which it could offer shelter;<sup>108</sup> commonly, they also provide information on how to enter or approach the harbour.<sup>109</sup>

100. This situation did not change neither in later periods, when – far from becoming the norm – artificial structures were surely more widespread than they were in the Classical period. P. GAUTIER DALCHÉ, «Qu'est-ce qu'un port? Les données des portulans» in G. FABRE, D. LE BLÉVEC, D. MENJOT eds., *Les ports et la navigation en Méditerranée au Moyen Âge: actes du colloque de Lattes*, Lattes 2009, p. 233-239.

101. See P. GAUTIER DALCHÉ'S (*op. cit.*) considerations on medieval *periploi*. In this sense, both A. VON GERKAN (*op. cit.*, p. 113-114) and J. ROUGÉ (*op. cit.*, p. 116-117) would imply the inclusion, within a *periplus*, of atypical information (for they refer respectively to the presence of artificial extensions of the fortifications and to their military function).

102. On the contrary, harbours and cities appear as if they were two separate entities. Ps.Skylax often mentions the presence of a city and a harbour (“πόλις καὶ λιμὴν”), e.g. Ps.Skyl. 51.1, 52.1 and 2, and 98.3. See also *Stadiasmus* § 326 “λιμὴν ἔστι· καὶ πόλιν ἔχει καὶ ὕδωρ” (“there is a harbour, and a city and water”).

103. Essential information for planning a route consists of details on the appearance of the shoreline, on winds affecting the area, or on the presence of specific facilities (markets, drinkable water, temples, cities, forts). For an overview, see S. MEDAS, *op. cit.*, p. 23.

104. On nautical handbooks and *periploi* in Antiquity, see D. GERNEZ, *op. cit.*; F. PRONTERA, «Periploi: sulla tradizione della Geografia nautica presso i greci» in *L'uomo e il mare nella civiltà occidentale: da Ulisse a Cristoforo Colombo*, Genova 1992, p. 166-183; P. ARNAUD, *Les routes de la navigation antique: itinéraires en Méditerranée*, Paris 1995; S. MEDAS, *op. cit.*, p. 39-56; J.M. KOWALSKI, *Navigation et géographie dans l'antiquité gréco-romaine. La terre vue de la mer*, Paris 2012. In particular, it seems that – even if they were not used directly on board – these documents could have been used by seafarers to plan their route. S. MEDAS, *op. cit.*, p. 31.

105. E.g., *Epitome Periplus Menippeus* 4.8 (GGMI.569): “δὲ καὶ νησιὸν δ' σκεπάζει τὸν λιμένα” (“there is an islet which protects the harbour”). On this same consideration applied to medieval *periploi*, see P. GAUTIER DALCHÉ, *op. cit.*, p. 235-236. The fundamental role played by the natural configuration in improving the protection of a harbour can be seen in literary sources, e.g. Thuc. IV.8.5; Diod. Sic. XII.61.4.

106. E.g., *Stadiasmus* § 16; and 29: “λιμὴν ἔστι παντὶ ἀνέμῳ” (“there is a harbour for every wind”).

107. E.g., *Stadiasmus* § 325: “λιμὴν θερινός” (“summer harbour”).

108. E.g., *Stadiasmus* § 314: “ἔχει λιμένα μικροῦς πλοίοις” (“a city, with a harbour for small ships”).

109. E.g., *Periplus Maris Erythraei* §5 (GGMI.167); *Stadiasmus* § 314.



Many of these specifications are already present within the *Periplus*, e.g. some harbours and places are located according to the direction of the winds,<sup>110</sup> and others labelled as “winter harbours”.<sup>111</sup> In some cases, additionally, there are mentions of the kind of ships which could have reached a specific basin.<sup>112</sup> This suggests the working hypothesis that the expression may be related to the entrance of a harbour, identifying a feature of which seafarers would have been aware.

The idea that the entrance might be the key to decoding the expression λιμὴν κλειστός has been partially explored by a few scholars.<sup>113</sup> Furthermore, both von Gerkan and Raban’s theories implicitly suggest the image of harbours with a narrow entrance; nevertheless, for both of them the focus of the definition was elsewhere, von Gerkan claiming that a λιμὴν κλειστός could have been closed by means of chains, while Raban stating that this restriction was achieved by extending the city walls into the sea.<sup>114</sup> In this way, they focused their interests on other characteristics, while disregarding the importance of the narrow entrance itself.<sup>115</sup>

Support for calling these views into question has been provided above, at least as far as the *Periplus of Ps.Skylax* is concerned.<sup>116</sup> However, focusing attention uniquely on the entrances of these harbours can open new interesting working scenarios, such as the possibility that this was the criterion distinguishing “closed harbours” from simple “λιμένες”. Highlighting which harbours had a (natural or artificial) narrow entrance would have made sense for nautical documents, and the inclusion of this information within the *Periplus* may be explained, as mentioned earlier, in light of the composite nature of its compilation. Since approaching a harbour was one of the most delicate – and at the same time fundamental – operations for a ship, it follows that Ps.Skylax’s nautical sources would have noted special features of a

110. The majority of orientations according to the winds are provided in the paragraph referred to Crete (Ps Skyl. 47): *i.e.*, “πρὸς νότον δὲ Λίσσα πόλις καὶ λιμὴν παρὰ Κριουῦ μέτωπον” (“towards Notus, Lissa with a city and a harbour beside Kriou Metopon”); and “Κυδωνία καὶ λιμὴν κλειστός πρὸς βορέαν” (“Kydonia and a closed harbour towards Boreas”).

111. *I.e.*, Ps.Skyl.103: “Σαλαμῖς Ἑλληνίς, λιμένα ἔχουσα κλειστὸν χειμερινόν”, and “Σόλοι, καὶ αὕτη λιμένα ἔχει χειμερινόν” (“Soli, having a winter harbour”).

112. *E.g.*, Ps.Skyl. 24: “ὁ δὲ εἰσπλους ὁ εἰς Νάρωνά ἐστιν οὐ στενός· εἰσπλεῖ δὲ εἰς αὐτὸν καὶ τριήρης καὶ πλοῖα εἰς τὸ ἄνω ἐμπόριον, ἀπέχον ἀπὸ θαλάσσης στάδια π.” (“and the voyage into the *Naron* is not narrow, and even a trireme and boats do so into the upper market, distant 80 stades from the sea”).

113. N. CARAYON (*op. cit.*, p. 397) refers to the idea that harbour of Kition (on the island of Cyprus), at the time it was labelled as κλειστός by Strabo (XIV.6.3) was a bay that was suffering a sedimentation process and which was accessible only through a tight channel. In the *Periplus* there is a frequent concern with describing the entry (referred in this case as στόμα, *i.e.* mouth) to a river, gulf or lake. Sometimes the entry is described as narrow (Ps.Skyl. 110.8), wide (*e.g.*, Ps.Skyl. 51.3), or having physical obstacles (*e.g.*, the deserted island reported at the entrance of the Kanopic mouth, Ps.Skyl 106.5).

114. A. VON GERKAN, *op. cit.*, 113-114; A. RABAN, *op. cit.*, 163.

115. Therefore, in their interpretations narrowing the entrance was always an entirely artificial intervention.

116. Indeed, the closure by means of chains could not be applied to these harbours, since no sign of the installation of such mechanisms has been found for any of these 14 cases. However, it cannot be denied that at the time of Ps.Skylax the presence of a narrow entrance eased the installation of closure arrangements, that at this time could have been something lighter than chains.

harbour's entrance: seafarers would thus know in which harbours they could expect to find greater protection, a λιμὴν κλειστός being far more secure than a simple λιμὴν.<sup>117</sup> From a nautical point of view, harbours with a narrow entrance are less exposed to the system of winds and currents, since they are physically separated from the open sea. Their basins develop particular internal conditions, being highly sheltered from waves, which – passing through narrow entrances – are modified due to diffraction, reaching the harbour basin already expanded.<sup>118</sup> Additionally, the distinction provides a warning regarding any dangers that could be encountered in entering the basin.<sup>119</sup>

Awareness of the greater protection guaranteed by harbours having a narrow entrance is well reflected in literary sources. Thus, Homer – when describing the harbour of the Phaiakians – stresses that it had a narrow entrance, so that all ships could safely anchor, moor, or be hauled ashore.<sup>120</sup> Moreover, having a narrow entrance was so valuable a feature for a harbour that instances have been recorded where the order was given to restrict the entrance to the basin in order to secure it.<sup>121</sup>

The analysis of the 14 cases mentioned by Ps.Skylax as λιμένες κλειστοί seems to reveal a narrow entrance as a common feature. Specifically, these can be described as harbours having a naturally (*i.e.*, Kydonia, Kos, Salamis, Sidon)<sup>122</sup> or an artificially narrowed entrance (*e.g.*, Alkinoos in Korkyra, Ambrakia, Phalasarna, Thasos, Samos, Halikarnassos).<sup>123</sup>

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117. As a matter of fact, a simple harbour – if it was not well protected by a favourable natural situation or infrastructures – was not itself sufficient to guarantee safety to the ships; there are frequent cases of ships wrecked inside a harbour basin. See for example: Tac. *Ann.* XV.18 on two hundred ships wrecked inside the harbour of Portus [“There was no addition to the price, although about two hundred ships were destroyed in the very harbour by a violent storm, and one hundred more, which had sailed up the Tiber, by an accidental fire.”], and Procopius Gazaeus, *Panegyricus in imperatorem Anastasium* 19, on ships wrecked inside the harbour of Caesarea Maritima (“The port of the city named after Caesar had fallen into bad condition in the course of time and became exposed to the waves, no longer deserving in fact to be titled a port but preserving merely its name from its former fortune. But you (Anastasius) did not ignore the city’s prayers and laments over the ships which, escaping the sea, were wrecked in the harbour itself. [...] Thanks to your decision the city was rejuvenated and receives ships without fear and is provided for its basic requirements.” Translation by G. GAMBASH, «Caesarea Maritima and the Grand Strategy of the Roman Empire», *Skyllis* 13, 2013, p. 53-58).

118. E. BIRD, *Coastal Geomorphology. An introduction*, Chichester 2001, p. 11.

119. On the difficulty of entering a harbour with a narrow entrance, see Pol. I.47.1-2.

120. Hom., *Od.* VI.262-5. See also Hom., *Od.* X.87-93; and Thuc. IV.8.5. A narrow harbour entrance is mentioned also in Plut. *Demetr.* XVI.1.

121. We know from Strabo (XIV.1.24) that at Ephesus (Ionia), King Attalos II Philadelphos (159-138 BC) ordered the narrowing of the harbour entrance in order to secure the basin. However, his attempt was not successful, since it resulted in the filling of the entire basin.

122. In the case of Sidon, the natural line of reef was artificially reinforced.

123. The situations at Paros, Genesintis, Priene and Kaunos are more uncertain. Additionally, it is interesting to notice how several of the harbours identified as λιμένες κλειστοί are found in lagoon areas. The same definition of “lagoon” implies the existence of an area physically separated from the open sea, but with one or more narrow entrances putting it in contact with the sea. E. BIRD, *op. cit.*, p. 233-240.

The attribution of this meaning to Ps.Skylax's λιμένες κλειστοί may also further clarify some of the cases discussed earlier. For example at Korkyra, although two or three of its harbours were located inside the city walls, only one is distinguished from the other two: indeed, the entrance of Alkinoos was naturally narrow; moreover, it was made even narrower on one side by a fortified wall that ended in a tower on the east side.<sup>124</sup> The case of the “λιμὴν κλειστός” mentioned by Ps.Skylax at Ambrakia in Akarnania can also benefit from this definition: here the phrase may have identified the harbour located in a lagoon area (therefore, with a natural narrow channel linking it to the Ambrakian Gulf) at the mouth of the river Arachthos. Probably in the 5th-4th centuries BC, this harbour was made secure by the construction of a fort, the walls of which had a small entrance on the east to allow ships sailing up the river to enter its basin.<sup>125</sup> At Phalasarna, this phrase probably identified the 4th century *kothon*-basin, but it may also have been associated with the lagoon previously extant in this area (thus, a natural formation making the harbour accessible through a small channel). The case of Kydonia can also be used to sustain this interpretation. Here, the harbour is defined as κλειστός, but with the addendum “towards the north”. Considering the proposed definition, this passage could be interpreted in the following way: the harbour of Kydonia, having a narrow entrance on its northern edge, created by the presence of a natural reef, was considered “closed” (thus, “protected”) toward the north (“πρὸς βορέαν”). This specification would be less clear if we assigned to the expression λιμὴν κλειστός any of the meanings previously suggested by scholars.<sup>126</sup> At Thasos a similar situation was artificially recreated by projecting two extensions of the city walls into the sea. Artificial narrow entrances were built at Samos and Halikarnassos; while at Kos, Salamis, and Sidon the presence of headlands projecting into the sea (at Kos), natural reefs (at Salamis), and offshore islands (at Sidon) supplied an ideal situation, which was benefited and possibly strengthened by depositing additional rubble and stones. The layouts are uncertain at Genesintis, Paros, Priene, and Kaunos; however, considering the current inland locations of Priene and Kaunos, and their ancient setting in estuarine zones, it would be reasonable to suppose that their harbours may have been located in lagoon areas.

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124. K. ΒΑΙΚΑ, «Corcyra» in D.J. BLACKMAN, B. RANKOV, *op. cit.*, 2013, p. 323. This intervention is probably dated from the 5th or 4th century BC.

125. The entrance on the East put it in connection with the Ambrakian Gulf, whilst the gap on the NW might have allowed ships to sail up along the Arachthos River (whose ancient course flowed on the west of the fort) and reach Ambrakia. V. KARATZENI, *op. cit.*, 145-159.

126. It is necessary to stress that this specification could be also referred to the location of Kydonia on the north of the island of Crete, thus to be translated as “Toward the North, there is there is Kydonia with a closed harbour”. However, when the *Periplus* specified the location of a place within an island or a territory, it commonly inserts it at the beginning of the clause (e.g., Ps.Skyl. 47: “πρὸς νότον δὲ Ὑρτακίνα”, “πρὸς νότον δὲ Λίσσα πόλις καὶ λιμὴν”, “ἐν μεσογείᾳ δὲ Λύκτος”), while here “πρὸς βορέαν” follows the phrase λιμὴν κλειστός. Thus, its location seems to suggest it to be referred to the “closed harbour”, instead of to Kydonia itself.

## CONCLUSIONS

Despite being a common expression in scholarship on the Graeco-Roman world, significant doubts still exist regarding the correct interpretation of the phrase λιμὴν κλειστός. Although various theories have been put forward in the past, the current state of knowledge calls them into question, since the availability of archaeological, historical, and geological data is wider than it was a century ago. At present, the most accredited theories are that this phrase could have identified harbours *intra muros*,<sup>127</sup> harbours closable by means of chains,<sup>128</sup> or military harbours.<sup>129</sup> However, none of these hypotheses may be applied to the majority of the 14 harbours referred to as closed by Ps.Skylax, at least in their Archaic and Classical phases. On the contrary, what emerges from available data is that these harbours presented a narrow entrance that linked their harbour basins to the open sea; this situation has been archaeologically and geologically documented in at least 10 harbours out of the 14 mentioned as “closed” within the *Periplus*.<sup>130</sup> As a survey of the 14 sites shows, these entrances were in some cases natural, whereas in others they were artificially built. The inclusion of a specification referring to the width of the entrance would also make sense in a text like the *Periplus* that – as has been highlighted – despite its controversial origins, probably made use of nautical sources that were already in circulation at that time.

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127. K. LEHMANN-HARTLEBEN, *op. cit.*, 65-74.

128. A. VON GERKAN, *op. cit.*, 113-114.

129. J. ROUGÉ, *op. cit.*, 116-117.

130. Further research will clarify what was the situation of the other four harbours at this stage, as well as if the presence of narrow harbour entrances eased the installation of closure arrangements that – in this period – were lighter than chains.

Table 1: names of the sites with a “closed harbour” according to the Periplus (in order of appearance) with an indication of the geographical area where they were located.

Λιμὴν κλειστός	REFERENCE	TEXT	TRANSLATION (Authors' Translation)	LOCATION
Korkyra	Ps. Skyl. 29	κατὰ δὲ Χαονίαν νῆσός ἐστι Κόρκυρα, καὶ πόλις Ἑλληνίς ἐν αὐτῇ, λιμένας ἔχουσα τρεῖς κατὰ τὴν πόλιν· τούτων ὁ εἷς κλειστός.	And by Chaonia is the island of Korkyra, and a Hellenic city in it, having three harbours by the city, of which one is closed.	Ionian Sea
Ambrakia	Ps. Skyl. 33.1	ἔστι δὲ καὶ ἐπὶ θαλάττης τείχος καὶ λιμὴν κλειστός.	And there is also a fort by the sea and a closed harbour.	Ionian Sea
Phalasarna	Ps. Skyl. 47.3	<ἐπὶ Κορύκ>φ ἀκρωτηρίῳ ἐστὶ πρώτη πόλις πρὸς ἥλιον δυόμενον ἢ προειρημένη Φαλασάρνα καὶ λιμὴν κλειστός.	After Korykos headland, the first city towards the sunset is the previously mentioned Phalasarna with a closed harbour.	Crete
Kydonia	Ps. Skyl. 47.3	Κυδωνία καὶ λιμὴν κλειστός πρὸς βορέαν·	Kydonia with a closed harbour towards the North.	Crete
Paros	Ps. Skyl. 58.1	Πάρος λιμένας ἔχουσα β', ὧν τὸν ἕνα κλειστόν·	Paros with two harbours, of which one is closed.	Aegean Sea
Thasos	Ps. Skyl. 67.1	κατὰ ταῦτά ἐστι Θάσος νῆσος καὶ πόλις καὶ λιμένες δύο· τούτων ὁ εἷς κλειστός.	By these places, there is the island of Thasos with a city and two harbours of which one is closed.	Aegean Sea
Genetes	Ps. Skyl. 88	μετὰ δὲ Τιβαρηνοῦς Χάλυβες εἰσιν ἔθνος καὶ Γενέσιντις λιμὴν κλειστός.	And after the Tibarenoi is the <i>ethnos</i> of the Chalybes; and Gensintis, a closed harbour.	Black Sea
Samos	Ps. Skyl. 98.3	πρὸ δὲ τῆς Μυκάλης Σάμος ἐστὶ νῆσος πόλιν ἔχουσα καὶ λιμένα κλειστόν.	And in front of Mykale is the island of Samos with a city and a closed harbour.	Aegean Sea

Priene	Ps. Skyl. 98.4	ἐπί δὲ Μυκάλης ἐστὶ πόλις Πριήνη λιμένας ἔχουσα δύο, ὧν τὸν ἓνα κλειστόν·	Upon Mykale is the city of Priene with two harbours, one of which is closed.	Aegean Sea
Halikarnassos	Ps. Skyl. 99.1	Ἁλικαρνασσὸς καὶ λιμὴν κλειστός καὶ ἄλλος λιμὴν περὶ τὴν νῆσον καὶ ποταμός.	Halikarnassos with a closed harbour and another harbour around the island and a river.	Aegean Sea
Kos	Ps. Skyl. 99.1	νῆσος Κῶς καὶ πόλις καὶ λιμὴν κλειστός.	The island of Kos with a city and a closed harbour.	Aegean Sea
Kaunos	Ps. Skyl. 99.2	Καῦνος Καρικὴ πόλις καὶ λιμὴν κλειστός.	Kaunos, a Karian city with a closed harbour.	Aegean Sea
Salamis	Ps. Skyl. 103	Σαλαμίς Ἑλληνίς, λιμένα ἔχουσα κλειστόν χειμερινόν·	The Hellenic Salamis with a closed winter harbour.	Cyprus
Sidon	Ps. Skyl. 104.2	Σιδῶν πόλις καὶ λιμὴν κλειστός.	Sidon, a city with a closed harbour.	Levant

Table 2: comparison between the previous theories and the archaeological evidence of harbours identified as λιμὴν κλειστός by Ps.Skylax.  
The question marks (?) indicate cases that are not certain.

CLOSED HARBOUR	Within the city walls (Lehmann-Hartleben's theory)	Within extensions of the city walls into the sea (von Gerkan's theory)	Military harbour (Rougé's theory)
Korkyra, Alkinoos	X	?	X
Korkyra, Hyllaikos	X		
Korkyra, Arion	?	?	?
Ambrakia			
Phalasarna	X	X	X
Kydonia	?	?	
Paros	?	?	?
Thasos	X	X	X
Genesintis			
Samos	?	?	
Priene			?
Halikarnassos (outer western harbour)	X	?	
Halikarnassos (inner western harbour)	X		?
Kos	X	?	
Kaunos	?	?	?
Salamis	?	?	?
Sidon	?	?	?

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