

Sailing Directions. Echoes of Ancient Nautical Knowledge in the *Periplous of Ps.-Skylax*¹

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Abstract

This contribution explores how seafaring was practiced in Antiquity through the analysis of the data contained within the *Periplous of Ps.-Skylax*. Since the *Periplous of Ps.-Skylax* relies on maritime information dated between the 6th and the end of the 4th century BC, all the observations presented here should be mainly referred to pre-Hellenistic seafaring. In particular, the focus will be on the way in which three different kinds of information were possibly disseminated amongst seafarers: what course to steer, how far to sail to reach the desired destination and how to sail (i.e. decisions on hugging the coast or crossing directly from one island to another, or on where and when to stop to refurbish the ships).

Keywords

Periploi, ancient seafaring, Ps.-Skylax, maritime information, nautical practice.

Introduction

Sea travel was fairly convenient in Antiquity: although it was as (in)secure as travelling by land,² it was—at least—cheaper and faster. How nautical knowledge was transmitted is, however, still an unresolved issue, for whereas maritime culture deeply permeates all literary genres, no specialised nautical handbook has survived from Antiquity.³ This state of affairs has led scholars to wonder whether nautical handbooks (at least in the way in which they would be conceived nowadays) ever existed in the first place or, conversely, information of this sort was only orally transmitted.⁴ In our opinion, coastal pilot books must have existed and been used at least at some moments in Antiquity;⁵ in this regard, telling evidence of this

¹ This work was co-funded by the Comunidad de Madrid and the Complutense University under the Grant No. 2018-T2/HUM-10960; it also benefitted from a short research stay kindly offered by the Hardt Foundation. Additionally, I am thankful to the Research Group Eschatia (UCM 930100) and its members for supporting the development of this research project.

² In addition to physical hazards (Morton 2001: 67–142), other seafarers also posed a threat (on Graeco-Roman piracy, De Souza 2002).

³ The sole exception is currently considered to be the *Stadiasmus Maris Magni*, a stratified document that, for the kind of information that it records, as well as in the way in which it is presented, stands out from the rest of the extant texts. The *Stadiasmus* is dated between the 1st and the 3rd century AD (Medas 2008).

⁴ On the two different approaches to this topic, see Janni (2002) and Medas (2004), a brief English summary of which can be found in Dunsch (2012: 272).

⁵ As a matter of fact, Timosthenes of Rhodes, the admiral and chief helmsman of the fleet of Ptolemy II (285–246 BC), wrote a treatise entitled *Περὶ λιμένωνων* (*On harbours*). As the treatise comprised 10 books, it is highly unlikely that it accompanied seafarers on their journeys. Yet, Marcianus (Müller 1855, GGM 1.565–566) claims to have written a one-

is provided by a passage written by the Greek poet Crinagoras of Mytilene.⁶ However, this aspect of the debate will not be addressed here, because the intention is not to determine how knowledge of the sea was transmitted in the ancient Greek world, but to identify the echoes of the information that ancient *periploi* probably included (regardless of whether it had been transmitted orally or in writing) and to pinpoint its origin. Since the quantity and quality of this information increase from the Hellenistic Age onward, the focus will be placed here on the previous period, running approximately from the 6th to the end of the 4th century BC. Despite having been scarcely examined, this time frame appears to be crucial for understanding the development and transmission of nautical issues, as it was the time when a particular category of geographical-literary documents appeared, viz. the so-called *periploi* (literally, ‘circumnavigations’).⁷

As already noted, clues to the kind of information recorded and transmitted by seafarers can be inferred from a variety of texts: to a greater or lesser extent, all kinds of documents were, in fact, influenced by previous sea journeys and adventures.⁸ Even so, *periploi* appear to be especially enlightening as to how seafaring was conceived and practiced in Antiquity. For this reason, recourse will be made to these *periploi*, and particularly to the *Periplous of Ps.-Skylax*,⁹ for the purpose of determining the kind of information that was shared by seafarers before the Hellenistic period.

The ancient *periploi*

The term *periplous* is currently employed to designate a particular category of ancient texts. Even though it has been traditionally assumed that some of them originally had practical purposes¹⁰ and were therefore used to plan sea journeys, the surviving *periploi* should rather be described as geographical works, by and large without any literary pretensions. Unlike other geographical works, however, *periploi* have at least two things in common. Firstly, they focus on the coast and, even though they occasionally contain land descriptions, usually use the sea as a σύμβουλος, viz. as their common thread or guiding principle.¹¹ Secondly, they frequently repeat the same formulas, employing a limited vocabulary and short main clauses following one another in hypotaxis. These characteristics suggest that—even though in the form in which they have come down to us, they were actually of little use at sea—they might have been based on prior nautical knowledge, thus reflecting real sea journeys.

The advent and dissemination of *periploi* can be plausibly traced back to the 6th century BC. While sea journeys (and travels in general) had been previously depersonalised and ascribed

volume summary of Timosthenes’ work; this abridged version might have reached a wider audience and, therefore, could have been used for practical purposes (Dunsch 2012).

⁶ In the same passage, Crinagoras asks Menippus to write a *periplous* to guide him around the Cyclades: ‘I am looking for a guiding *periplous* that will lead me/ around Cycladic Islands as far as old Scheria./ Menippus, my friend, expert in all geography,/ help me a bit by writing a scholarly tour’ (Gow and Page 1968: 218).

⁷ In Greek, περίπλοι. The origin of the so-called *Periplous of Hanno* and of Rufius Festus Avienius’s *Ora Maritima*, for example, can be traced back to the 6th century BC (Medas 2008: 41).

⁸ See, for example, Telemachos’ journeys from Ithaka to Pylos and back (Hom. *Od.* 15.284-300 and 494-500) and the account of Eumaios’ arrival on the island of Ithaka (Hom. *Od.* 15. 474-482).

⁹ Shipley’s (2011) edition is employed here, adopting the same subdivision of paragraphs, conventions and translations.

¹⁰ See note no. 6.

¹¹ The expression is borrowed from Strabo 8.1.3.

to heroes or gods,¹² as of the 7th-6th century BC specific sea (and land) expeditions began to feature mere mortals.¹³ Such a change was probably brought about by the increase in contacts during this period, which would have accentuated the need for reliable first-hand information based on real journeys.¹⁴ Accordingly, the first strata of the *Periplus of Ps.-Skylax*, the *Periplus of Hanno* and Rufius Festus Avienius' *Ora Maritima* could be attributed to the 6th century BC. Of these three *periploi*, however, it is the *Periplus of Ps.-Skylax* that contains the earliest information, since the extant versions of the *Periplus of Hanno* and the *Ora Maritima* are generally thought to date back to the Hellenistic¹⁵ and Roman periods,¹⁶ respectively. In contrast, a date in the late-4th century BC has been traditionally suggested for the *Periplus of Ps.-Skylax*.¹⁷ Furthermore, many scholars have acknowledged its reliance on nautical knowledge in circulation at the time when it was written, for which reason parts of it could be attributed to an even earlier date.¹⁸ In this connection, the *Periplus of Ps.-Skylax* appears to be the only source capable of allowing us to gain a better understanding of how seafaring was practiced before the Hellenistic period. Additionally, as it presumably draws from previous sources, it can also provide us with clues about the information that earlier *periploi* might have included and transmitted.

A careful reading of the *Periplus of Ps.-Skylax* confirms that it is indebted to practical nautical knowledge, as the majority of its passages contain the three essential information categories that a seafarer would have desired to know before embarking on a sea journey: what course to steer, how far to sail to reach the final destination and what to do along the way (e.g. where to stop over or find shelter). In the following sections, how these indications are offered in the *Periplus of Ps.-Skylax* is examined, since the way in which they are expressed casts some light on how pre-Hellenistic seafaring was practiced, as well as on their origin.

What course to steer?

In Antiquity, there were two different navigation systems: one resorted to objective reference values (such as specific constellations,¹⁹ the position of the sun and the direction of the wind); while the other relied on subjective—and experienced-based—information, like, for example, 'beyond these islands'.²⁰

¹² Gómez Espelosín 2000: 38.

¹³ For instance, Herodotus provides information about the journeys made by Kolaïos of Samos to the SW Iberian Peninsula (4.152), by Aristéas to the land of the Issedones (4.13-16) and by Skylax of Karyanda to discover the course of the river Indus (4.44).

¹⁴ Dueck 2012: 52.

¹⁵ The *Periplus of Hanno*, which was originally a Punic report on a Carthaginian expedition, is preserved in a Greek version dated to between the 2nd-1st century BC (Desanges 1978: 83).

¹⁶ The *Ora Maritima* is believed to be a poetic adaptation of an original Massaliote *periplous*, dated to around 525 BC. The Latin poem was composed by Rufius Festus Avienius, a late Roman author (Cary and Warmington 1929: 30).

¹⁷ The *Periplus* is attributed to Ps.-Skylax because it does not match the itinerary allegedly followed by the Skylax of Karyanda mentioned by Herodotus (4.44). On the chronology of this text, see Fabre 1965: 353-366; Marcotte 1986: 166-182; Müller 1855: 44. The seven surviving fragments actually attributed to Skylax of Karyanda can be found in FGrH III C 709.

¹⁸ Dilke 1985: 134; Kowalski 2012: 31; Peretti 1979, 1989; Shipley 2008: 283.

¹⁹ Even though there are no examples of the use of astronavigation in the *Periplus of Ps.-Skylax*, there is evidence indicating that night sailing was already common. For references to night sailing in the literary sources, see Hom. *Od.* 2.434, 14.252-258; 15.292-300. On night sailing, Morton 2001: 261-265.

²⁰ Ps.-Skyl. 58.2: ὑπὸ δὲ ταύταις ἔτεραι νῆσοι.

The first system is certainly closer to the modern conception of navigation, but it is barely employed in the *Periplous of Ps.-Skylax*, being limited to the four cardinal points. The north is identified with the corresponding wind, namely, Boreas,²¹ and the south with Notos.²² On the contrary, the east and the west are always referred to in relation to the position of the sun, viz. ‘the dawn’²³ and ‘the sun’s setting’.²⁴

The scant use of information of this kind is not unique to the *Periplous of Ps.-Skylax*, but also has close parallels in later *periploi*.²⁵ This seems to suggest that—despite their use—resorting to absolute sailing directions was not the most common way of steering an adequate course at sea.

It was apparently more customary to resort to information deriving from actual sea voyages. Although directions such as ‘on the left as one sails in’²⁶ would seem to be more ambiguous to modern readers, they were highly appreciated in Antiquity, as evidenced by the frequency with which they appear.²⁷ It is important to stress that sailing directions of this type were mainly devised by and for seafarers: in this sense, whoever took a specific sea route based on knowledge transmitted by other seafarers was likely to interpret these directions correctly, however vague they may seem to us. Those sailing on the same route were, in fact, roughly in the same position as the person who had initially provided that information. On the other hand, it is undeniable that these same relative sailing directions, once taken out of their original context, are very hard to understand.

To the two aforementioned navigation systems based on sailing directions should be added another generally known as ‘pilotage’ or ‘environmental navigation’.²⁸ It consisted in determining the ship’s position and course in relation to its destination by following a chain of landmarks identified on previous sea journeys.²⁹ In this navigation system, both natural (e.g. promontories, mountains, islands, etc.) and artificial (e.g. towers, settlements, temples, etc.) markers could be employed, as long as they were easily recognisable from afar. Besides allowing seafarers to familiarise themselves with the entire sea route in terms of a specific succession of landmarks, this environmental navigation system also allowed them to calculate, to a certain extent, the distance travelled.³⁰

²¹ Ps.-Skyl. 47 *passim*: πρὸς βορέαν.

²² Ps.-Skyl. 47: πρὸς νότον.

²³ Ps.-Skyl. 47.4: ‘Itanos, the promontory of Crete towards the up-coming sun’; § 55: ‘And after Epidauros is the territory of the Korinthioi, [the part] towards the dawn’; § 111.3: ‘Past Hermaia Cape towards the upcoming sun, a long way from Hermaia, are three small islands by this place’.

²⁴ Ps.-Skyl. 47.2: ‘Krete extends from the settings of the sun towards the risings of the sun’; 110.9: ‘The Gyzantes, a community, and a city beyond (the lake) towards the sun’s setting’.

²⁵ See Medas’ considerations on this same topic in relation to the *Stadiasmus Maris Magni* (Medas 2008: 88-93).

²⁶ Ps.-Skyl. 63.

²⁷ Janni (1984) refers to sailing directions of this kind in order to demonstrate that, in Antiquity, the perception of space was mainly ‘hodological’, namely, unidimensional and highly subjective.

²⁸ McGrail 1991: 86. ‘Environmental navigation’ depended on the ability not only to determine a ship’s position by observing the landscape, but also to identify sounds and smells so as to anticipate approaching dangers.

²⁹ Morton 2001: 186.

³⁰ Parker 2001: 36.

The use of navigational instruments being limited to say the least,³¹ steering the right course mainly depended on the visibility and recognisability of specific landmarks, for which reason they played a decisive role. This is borne out by the special attention that *periploi*, in general, and the *Periplous of Ps.-Skylax*, in particular, pay to shoreline descriptions,³² an aspect that has been more or less confirmed by archaeological and documentary evidence. Indeed, the literary sources reveal that the *πρωρεύς* (or *πρωράτης*) played a relevant role among the crew members of a ship. The *πρωρεύς* was a sort of lookout, specifically entrusted with identifying landmarks so as to keep the ship on the right course.³³ As visibility normally increases with height, the lookout was usually stationed on a raised platform in the prow of the ship (Figures 1 and 2).³⁴ Be that as it may, archaeological finds have revealed that it might also have been placed elsewhere: a sixth-century-BC clay model of a Cypriot merchant ship, for example, was equipped with a sort of crow's nest from which the lookout could scan the horizon.³⁵

How far to sail to reach the final destination?

After ascertaining the course that the ship should steer, the next piece of essential information had to do with the distance that should be covered to reach the final destination; in other words, it was desirable to know how far away it was and for how long it was necessary to sail to reach it.

For those who were familiar with the entire sea route as a succession of landmarks heaving into view or passing out of sight, it was already possible to estimate their relative position, at the very least, meaning that they could establish whether they were at the beginning, in the middle or near the end of their journey. However, it was certainly easier to determine, with a certain degree of accuracy, how far away a place was located when distances were provided.

Measuring distances at sea in order to transmit them was surely one of the greatest challenges when recording a sea route.³⁶ Whereas measuring distances on land without specific instruments was relatively simple by counting steps,³⁷ this was more complicated at sea, where the simplest way of gauging the distance travelled was by recording the time required to cover it. Time measurements doubtless provided a valuable estimate. As could not be otherwise, they were not always accurate, as the time employed could vary greatly depending on different factors. For example, sailing times could be shorter or longer depending on the type of vessel involved (warships were swifter than merchant ships) and on its seaworthiness,

³¹ The only attested navigational instruments before the Hellenistic period were the sounding pole (originating from Egypt during the 2nd millennium BC) and the sounding lead and line, described by Herodotus (2.5.2) (McGrail 1991).

³² For a description of natural landmarks, see Ps.-Skyl. 23.3, 26.3, 109.1, 110.8, 112.1. For artificial landmarks, see Ps.-Skyl. 13.5, 46.1.

³³ See Philostr. *Im.* 2.15; Soph. *Achaion Syllogos*, fr. 142.

³⁴ Marinatos (1974: 35) suggested adopting the Homeric term ἵκρια to designate the raised platform usually located in the stern of vessels during the LMI/LMII period. However, he was referring to a structure whose purpose was quite different from that of its archaic and classical counterparts: the Minoan ἵκρια was, in fact, a cabin with a seat, which was placed in the stern and which presumably had a ceremonial function (Wedde 2000: 132).

³⁵ Basch 1987: fig. 546.

³⁶ Marcianus (c. 4th-5th century AD) claimed that in Antiquity there were no instruments capable of measuring distances at sea (Müller 1855, GGM 1.567-568), thus making it necessary to rely on experience and intuition. On distances at sea, see also Medas 2008: 77-81.

³⁷ This is the case of the *bematistae*, the 'steppers' or 'road-surveyors'.

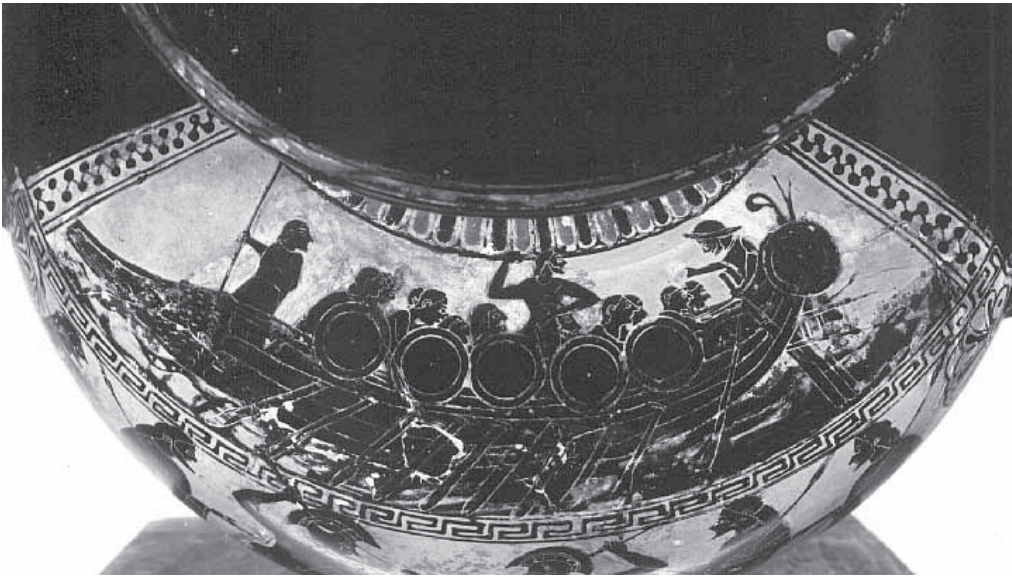


Fig. 1: Attic black-figure hydria by the Cleimachos painter, depicting an oared ship, with a helmsman in the stern and a lookout in the prow looking sternwards, mid-sixth century BC. Paris, Louvre Museum, inv. n. E735.

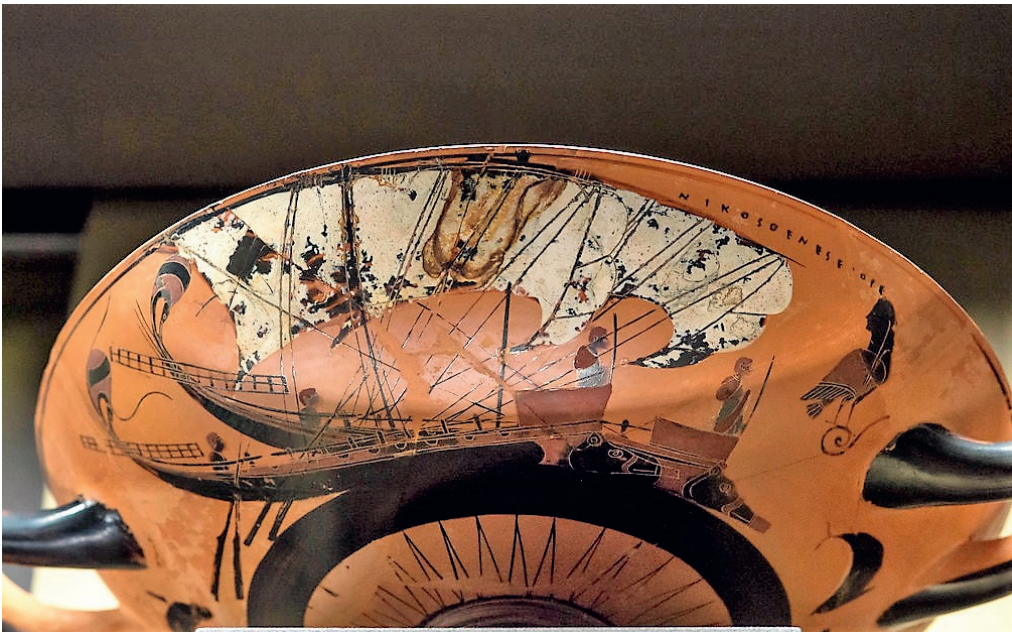


Fig. 2: Attic black-figure cup signed by Nicosthenes. In each ship it is possible to identify a helmsman and a lookout, positioned on a raised platform in the prow ('ἵκρια'), late-sixth century BC. Paris, Louvre Museum, inv. n. F123.

the weather and sea conditions encountered along the way and the kind of route chosen.³⁸ In this regard, it is interesting to note that the *Periplus of Ps.-Skylax* contains an elaborate scale of time units, far more sophisticated than those appearing in other works.³⁹ Such complex information points to its seafarer origin. From the longest to the shortest unit, this scale includes *νυχθήμερον*, sailing for a period of 24 consecutive hours,⁴⁰ *ἡμέρα μάκρα* or a long day's sailing, perhaps referring to the length of a day at the summer solstice,⁴¹ *ἡμέρα*, a normal day of sailing,⁴² *ἡμέρας ἥμισυ*, a half day of sailing,⁴³ *πλοῦς προαριστίδιος*, sailing with an arrival before noon,⁴⁴ and *ἡμέρας τρίτον μέρος*, sailing for the third part of a day.⁴⁵

Together with sailing times, the *Periplus of Ps.-Skylax* also offers some distances using a different unit of measurement, to wit, the *stadion*.⁴⁶ Notwithstanding the fact that the value of the *stadion* underwent changes over time,⁴⁷ this linear measurement was certainly **more reliable** than sailing times, as well as being less subject to personal interpretations, at least in theory.

In whatever unit they were provided, distances always corresponded to the individual legs of a route, thus making it necessary to add them all together in order to arrive at the overall distance. The appearance of both *stadia* and sailing times in the *Periplus of Ps.-Skylax* suggests that, when it was compiled, both systems were in use.⁴⁸ The prevalence of sailing times, furthermore, also points to the fact that, in the pre-Hellenistic period, the nautical information in circulation was closely linked to an empirical perception of space.

What to do along the way?

After having determined the correct course and how long to sail, seafarers still had to make a number of decisions on how to sail (e.g. hugging the coast or crossing directly from one island to another) and where (and when) to stop to refurbish their ships. Obviously, these decisions did not depend solely on the crew, but were also strongly influenced by technical and human considerations. From a technical point of view, the main issues that had to be taken into account were surely the kind of ship employed and its seaworthiness,⁴⁹ as well as the quantity, nature and weight of its cargo.⁵⁰ As to human considerations, the experience of seafarers and the purpose of their journey might have similarly determined the route, together with the number and location of possible stopovers.

³⁸ Arnaud 1993, 2005: 61-96; Medas 2008: 77; Rougé 1966: 99-101.

³⁹ Arnaud 1993: 236.

⁴⁰ Ps.-Skyl. 20.

⁴¹ Ps.-Skyl. 22.

⁴² Ps.-Skyl. 1.

⁴³ Ps.-Skyl. 11.

⁴⁴ Ps.-Skyl. 64.2.

⁴⁵ Ps.-Skyl. 7.

⁴⁶ Ps.-Skyl. 64.1.

⁴⁷ Arnaud (2005: 84-86) has estimated that it varied between 150 and 210m.

⁴⁸ A definitive conversion from time to distance took place in the 3rd century BC (Arnaud 2004: 47), so slightly later in date than the *Periplus of Ps.-Skylax*.

⁴⁹ While merchant vessels were better suited to open seas and could sail for several days without having to approach the coast, triremes and small boats had to do so with frequency, wherever possible.

⁵⁰ Heavy cargoes made ships less buoyant and manoeuvrable, while also reducing their speed.

With regard to the first of the abovementioned decisions—namely, how to sail—the *Periplus of Ps.-Skylax* records at least two different ways of proceeding: the first consisted of sailing from cape to cape (ἐπ’εὐθείας), while the second involved coastal navigation (παρὰ γήιν).⁵¹ As a matter of fact, when describing a gulf, the *Periplus* often caters to both those merely sailing past it (providing its overall length)⁵² and those who might have planned one or more stopovers there (by listing the landmarks along its shore).⁵³ This suggests that several possibilities for almost every stretch of coast were known and shared by seafarers: a direct route that allowed for reducing distances and, therefore, the duration of the voyage;⁵⁴ and a second route, hugging the coast, which made it possible to find refuge swiftly in the event of adverse weather conditions or other hazards.

The other essential decision was how often and where to break the journey. Although it is reasonable to assume that several stopovers were planned in advance, in the case of sudden and unexpected events, last minute decisions would have had to be made, for which reason it was useful to know where it was possible to seek shelter on a specific stretch of coast.⁵⁵

Based on later *periploi* (e.g. the *Stadiasmus Maris Magni* and what is known of Timosthenes’ *Περὶ λιμένων*) and medieval rutters, information on safe places to shelter was presumably transmitted in the form of lists. On these lists, such locations were recorded in the order in which a ship would have encountered them while sailing along a given route. In the *Periplus of Ps.-Skylax*, their existence is reflected in the long lists of cities, harbours and shelters along the coast. In most cases, the *Periplus* merely records the presence of harbours in certain places,⁵⁶ while in others, it provides valuable details, such as specifying the number of harbour basins available⁵⁷ and their characteristics.⁵⁸ Whereas the most common term for identifying a harbour was λιμήν, other words, including ἕφορμος (anchorage), were occasionally employed.⁵⁹

Conclusions

Despite the fact that no *periplus* produced earlier than the 1st century AD has survived the passage of time, in several written sources it is still possible to discern echoes of nautical knowledge that was shared by seafarers. Indeed, it is *periploi* that drew most directly from previous knowledge and, consequently, provide us with the most valuable insights into how seafaring was practiced in Antiquity.

⁵¹ Peretti 1989: 49.

⁵² Ps.-Skyl. 68.

⁵³ Ps.-Skyl. 70.

⁵⁴ It also avoided most of the dangers relating to coastal navigation, such as shallow water, sand banks, submerged reefs, etc.

⁵⁵ On the specific kind of shelter offered by different topographical features, see Blue 1997; Mauro 2019a, 2019b; Morton 2001.

⁵⁶ Ps.-Skyl. 4, 13, 22, 74.

⁵⁷ Ps.-Skyl. 53, 57, 86.

⁵⁸ Ps.-Skyl. 47.4, 103. On the 14 cases of ‘closed harbours’ and the possible meaning of this expression, see Mauro and Gambash 2020.

⁵⁹ Ps.-Skyl. 108.

In this paper we have chosen to focus on the *Periplous of Ps.-Skylax* due to its chronology: as observed above, of all the extant *periploi* it is the one that might preserve the earliest traces of sailing directions. As such, we have performed an analysis on its content with the aim of gaining a better understanding of the kind of information on sea routes that was possibly transmitted and why. The results show that the *Periplous of Ps.-Skylax* contains, in an embryonic form, all the information that would become commonplace in subsequent documents of this type (i.e. sailing directions, recommendations, distances, etc.) and which nowadays are still essential for seafaring. The way in which it is conveyed, moreover, highlights a knowledge of the sea strongly influenced by an empirical conception of space. In fact, instead of other orientation methods, the coastline marked the route that should be taken. This seems to imply that the environment, with its succession of prominent artificial and natural landmarks, was considered to be a more reliable guide than astronomical indications during this pre-instrumental phase. A similar phenomenon can be observed as regards distances, with sailing times (yet again an experience-based measure) prevailing over distances in *stadia* (the scientific unit).

This state affairs gives rise to two different, but compatible, observations. On the one hand, it might indicate that a scientific awareness of maritime space was *in fieri* at the end of the 4th century BC, thus justifying the coexistence of different methods of orientation and measurement. On the other, it might also point to the origins of the nautical information contained in the *Periplous of Ps.-Skylax*, since its marked pragmatism, combined with detailed knowledge of specific coastal features that it implies, suggest that local seafarers—who regularly embarked on short trading ventures or brief trips along the same stretch of coast⁶⁰—were probably, at this stage, the driving force behind the generation and transmission of a common corpus of nautical knowledge.

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⁶⁰Beresford 2012: 185-190.

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