



Mare clausum? Sailing Seasons in the Mediterranean in Early Antiquity

Oded Tammuz

The modern notion of navigation in antiquity is that it came to an almost complete standstill in the winter. A survey of pre-Roman sources reveals that this notion is only partially correct. While coastal navigation was brought to a standstill in the winter, open-water routes were open for navigation in summer and winter alike.

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In *Ships and Fleets of the Ancient Mediterranean*, J. Rougé summarized the problem of winter navigation as follows:

Owing to the general climatic conditions in the Mediterranean, there are two long seasons: what the Greeks called *cheimon* on the one hand, and *theros* on the other, the 'bad season' and the 'good season', each implying more than 'winter' and 'summer' respectively. Furthermore, the ends of these seasons did not coincide precisely with the ends of the four seasons as determined by astronomy. *Cheimon* was characterized by unstable weather, making the prediction of storms or their degree of violence impossible. During this period, sailing on the open seas was not possible; only coastal sailing could be undertaken, and even so, large-scale, commercial shipping was avoided. It was the time the Romans quite typically called the *mare clausum*, the sea is closed — and some texts add, 'to regular sailing'.¹

In an earlier summary L. Casson had reached a rather similar conclusion. He differed from Rougé, however, on one important point; he claimed that the run between Rhodes and Alexandria was an exception and that sailing was conducted there continuously.² These observations are based on two earlier works by de Saint-Denis and Rougé, who accumulated and evaluated Greek and Latin evidence on winter navigation.³ Following the method employed by de Saint-Denis, I shall examine the question of sailing seasons

Correspondence to: Department of Bible, Archaeology, and Ancient Near Eastern Studies, Ben-Gurion University of the Negev, P.O. Box 653, Be'er Sheva 84105, Israel. Email: tammuz@bgu.ac.il

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in the Mediterranean in early antiquity in terms of both theory (rules and customs concerning the sailing season) and practice (direct evidence).

The Theory

Vegetius (fourth century CE) provides the basic theoretical discussion on this issue:

The violence and roughness of the sea do not permit navigation all year round, but some months are very suitable, some are doubtful, and the rest are impossible for fleets by law of nature. When Pachon has run its course, that is, after the rising of the Pleiades, from six days before the Kalends of June (i.e. 27th May) until the rising of Arcuturus, that is, eighteen days before the Kalends of October (i.e. 14th September), navigation is deemed safe, because thanks to the summer the roughness of the sea is lessened. After this date until three days before the Ides of November (i.e. 11th November) navigation is doubtful and more exposed to danger, as after the Ides of September (i.e. 13th September) rises Arcturus, a most violent star, and eight days before the Kalends of October (i.e. 24th September) occur fierce equinoctial storms, and around the Nones of October (i.e. 7th October) the rainy Haedi, and five days before the Ides of the same (i.e. 11th October) Taurus. But from the month of November the winter setting of the Vergiliae (Pleiades) interrupts shipping with frequent storms. So from three days before the Ides of November (i.e. 11th November) until six days before the Ides of March (i.e. 10th March) the seas are closed. The minimal daylight and long nights, dense cloud cover, foggy air, and violence of the winds doubled by rain and snow not only keep fleets from the sea but also traffic from making journeys by land. But after the birthday, so to speak, of navigation which is celebrated with annual games and public spectacles in many cities,⁴ it is still perilous to venture upon the sea right up to the Ides of May (i.e. 15th May) by reason of very many stars and the season of the year itself — not that the activities of merchants cease, but greater caution should be shown when an army takes to the sea in warships than when the enterprising are in a hurry for their private profit.⁵

This four-season division appears also in Hesiod's *Works and Days* (eighth century BCE). According to him sailing is safe for only 50 days after the summer solstice (22 June). This season ends in 'the time of the new wine', and in the season that follows the sea is still open, but sailing becomes dangerous.⁶ As does Vegetius, Hesiod begins the winter season with the setting of the Pleiades and says that in this season the sea is closed to navigation. The ships are dragged ashore, and their fittings are taken away to be stored in a dry place.⁷ The last season is the spring. When the top leaves of the fig tree are as big as the footprint of a crow, the sea is opened for sailing, but it is still dangerous.⁸ Other ancient sources mention spring as the general time of year when the sea is open for sailing.⁹ The closing of the sea is marked by the setting of the constellation Hydai.¹⁰

The Evidence: A Survey of Written Sources

Letter from Hattushili III to Niqmepa (Thirteenth Century BCE)

Merchants from the city of Ura (Figure 1) had bought real estate in Ugarit and moved there permanently. The local merchants were not happy with these new competitors

and asked their king for help. Niqmepa, the king, wrote to his overlord, the king of Hatti, asking him to moderate the activity of his subjects, the merchants from Ura. The king of Hatti granted Niqmepa's request and issued an edict, the content of which was communicated to him in the following letter:¹¹

(1–4) Seal of Tabarna, Hattushili, Great King, King of Hatti. Say to Niqmepa:
 (5–37) Since you spoke as follows in my presence: 'The men of the city of Ura,¹² the merchants, are a heavy burden upon the land of your subject'.¹³ His majesty,¹⁴ Great King, has thus made a regulation concerning the men of Ura in their relations with the men of Ugarit.¹⁵ The men of Ura shall carry on their mercantile activities in the land of Ugarit during the summer, but they will be forced to leave the land of Ugarit for their own land in the winter. The men of Ura¹⁶ shall not live in the land of Ugarit during the winter. They shall not acquire houses or fields (in Ugarit) with their silver. Even if a merchant, a man of Ura, should lose his capital in the land of Ugarit,¹⁷ the king of the land of Ugarit shall not permit him to live in his land.¹⁸ If men of Ugarit owe silver to men of Ura¹⁹ and are not able to pay it off, the king of the land of Ugarit²⁰ must turn over that man, together with his wife and his sons, to the men of Ura,²¹ the merchants.²² But the men of Ura, the merchants, shall not claim houses or fields of the king of the land of Ugarit. Now His Majesty, Great King, has thus made a regulation between the men of Ura, the merchants,²³ and the men of the land of Ugarit.

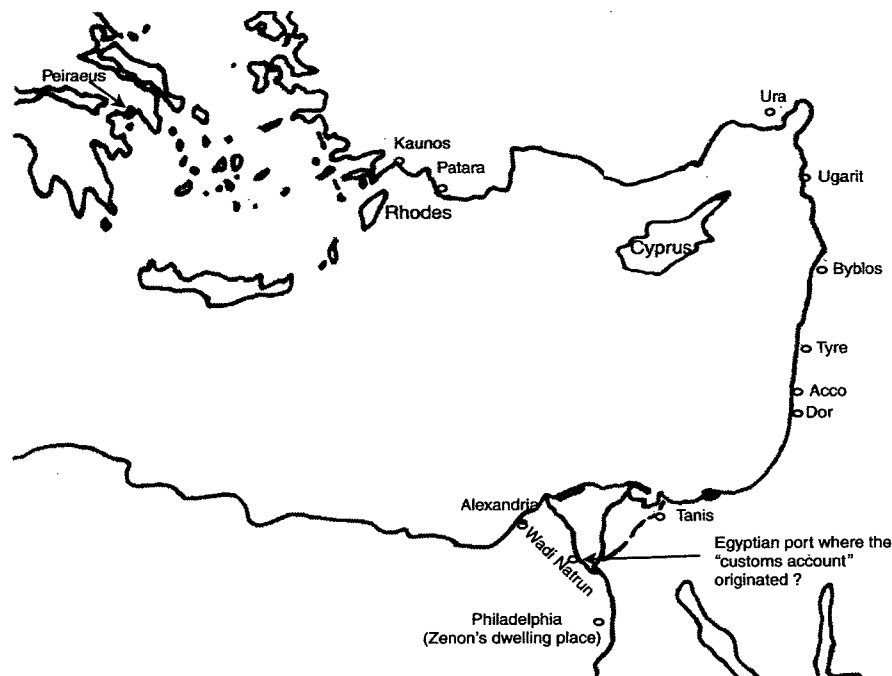


Figure 1 The Mediterranean Basin in Antiquity: Places Mentioned in the Sources Surveyed.

The intention of the king of Hatti in this decree is clear: He wanted to prevent merchants from Ura settling in Ugarit. For this reason he permitted them to acquire movable property (even if it was Ugaritic people who were in their debt and could not pay it back), on the one hand, and forbade them to buy immovable property in Ugarit, on the other. The question that remains unanswered is why he permitted them to dwell in Ugarit only in the summer. This question has two possible answers: (a) that their business in Ugarit was carried out mainly in the summer and (b) that the maritime route that connected Ugarit and Ura was closed to shipping in the winter and a Hittite merchant who did not leave Ugarit at the beginning of the winter was stranded there until its end and thus became a permanent resident of Ugarit.

Letter from the King of Tyre to the King of Ugarit (Thirteenth Century BCE)

KTU 2.38, written in Ugaritic,²⁴ is a translation of a letter in Akkadian from the king of Tyre to the king of Ugarit reporting that a Ugaritic ship bound for Egypt was halted in Tyre because of heavy rain:

- (10) *anykn*²⁵.*dt*
 likt.mšrm
 hndt.b.šr
 mtt.by
 gšm.adr
- (15) *nškḫ.w.*
 rb.tmtt
 lqh.kl.dr^c
 bdntm.w.ank
 kl.dr'hm
- (20) *kl.npš*
 klklhm.bd
 rb.tmtt.lqht
 w.ṭb.ank.lhm
 w.anyk.ṭ
- (25) *by.'ky.'ryt*
 w.aḫy.mhk
 *b.lbh.ak.yšt*²⁶

Your ship²⁷ which you sent to Egypt, the one in Tyre, . . .²⁸ found in heavy rain and the *rb tmtt*²⁹ took all the sailors³⁰ that were with them,³¹ and I took all their sailors, all the people, and all that belongs to them from the *rb tmtt*, and I caused [the sailors, the people and their belongings] to be returned to them,³² and your ship is [now] stationed³³ in Acco, unloaded, and let my brother not place care in his heart.

How many ships are mentioned in this letter? The text allows for two interpretations: (a) two, one in Tyre and the other in Acco, or (b) one boat that was caught in a rainstorm in Tyre and continued to Acco. The theory that two ships are mentioned has been suggested by Rainey,³⁴ and defence of this theory has been offered by Renfroe:

Hoftijzer has argued that, as this tablet was among those discovered in the oven, it likely stems from the period immediately prior to the fall of Ugarit, and probably concerns a ship sent to Egypt to secure provisions, the normal procurement of which was being made difficult by the encroachment of the sea peoples. If the ship was returning from Egypt to Ugarit with a load of grain when it was stranded in Tyre, it is difficult to understand why it should subsequently have been taken to Acco. If it was seaworthy, moving it south to Acco from Tyre would have been pointless.³⁵

This theory is based on the assumptions that the letter dates to the last days of Ugarit, the ship was carrying grain, and the last sentence of the letter is to be translated 'and your ship that is idle is in Acco'. The first of these assumptions is based on the widespread notion that this letter was found in an oven where the Ugaritic administrators baked tablets for archiving and the oven was destroyed with the rest of the city in an assault, making the 'oven texts' an accurate picture of the city's last days. Since it is known that Egypt exported grain to Hatti, it would stand to reason that the ship that was stranded in Tyre was part of the effort to supply Ugarit (and Hatti) with food. In recent years it has become clear, however, that the 'oven theory' is invalid,³⁶ and therefore the texts cannot be dated to the last days of Ugarit. The second assumption is also far from certain; *dr*' can be translated not only as 'grain' but also as 'hand(s)' or even 'deckhand(s)'. The third assumption is wrong simply because 'your ship that is idle is in Acco' may be grammatically correct but is logically deficient.³⁷ It seems to me that the subject of this letter is the misfortune of one ship.³⁸

Was the ship on its way to Egypt or back to Ugarit? The arguments listed above are enough to conclude that the ship was on its way to Egypt.³⁹

When did the misfortune occur? In the area of Tyre, heavy rain can occur only between September/October to May.⁴⁰

The Report of Wenamun (Eleventh Century BCE)

The report of Wenamun is the story of an Egyptian temple clerk who was sent to buy timber in the Phoenician city of Byblos.⁴¹ The date of this text is a point of disagreement among Egyptologists. Some claim, on the basis of paleographic considerations that it was written 150 years after the time period it describes (late in the reign of Ramses XI, 1108–1089 high chronology), while others maintain that it was written 'directly after the report it relates'.⁴² I believe that paleographic considerations are inherently inaccurate and insufficient to support an opinion on this issue. Furthermore, we may be dealing here with a late copy of an earlier version (the corruptions in the text point to this possibility), and there is not a single anachronism in the text. The discussion here is based on the premise that the text was written close to the period it describes.

The dates and datable events in the story are as follows:

- a. Renaissance-era Year 5, fourth month of the summer,⁴³ day 16: Wenamun departs from the temple of Amun.⁴⁴
- b. Fourth month of summer: Wenamun stays in Tanis until that date.
- c. First month of the summer, day 1: Wenamun departs from Tanis.
- d. Five months after his departure and one month after his arrival in Byblos: Wenamun is interviewed by the king of Byblos.
- e. First month of winter: The messenger of the king of Byblos returns to Byblos after a voyage to Egypt.
- f. Third month of summer: The logs are dragged ashore.
- g. The seasonal migration of the migrating birds:⁴⁵ Ships come to ask for Wenamun's arrest, and the latter has to flee to Cyprus.⁴⁶

These dates are in obvious contradiction. G. Lefebvre has suggested that A and C are corrupt and B is accurate.⁴⁷ According to him, A should be emended to 'the second month of summer' and C to 'the first day of inundation'. H. Goedicke has presented alternative translations for B and C, which according to him are not dates at all.⁴⁸ Egberts is critical of the lightness with which Lefebvre and Goedicke have emended the text and suggests an interpretation of the chronology with no emendations at all: 'As a matter of principle, emendations should be avoided as much as possible. For this reason, any interpretation of the beginning of Wenamun that entails no emendations of the dates and yet remains within the bounds of credibility is preferable to those of Lefebvre and Goedicke'.⁴⁹ He explains away the difficulties in the text with elaborate and unconvincing explanations. In my opinion neither Goedicke nor Egberts has improved over Lefebvre, and here I follow Lefebvre's chronology.

Wenamun's voyage can be reconstructed as follows:

27 February — Wenamun departs from the temple of Amun.

17 May — Wenamun sets sail from Egypt.

(?) June — Wenamun arrives at Byblos.

25 July — Wenamun is interviewed by the king of Byblos.

13 September to 14 October — A messenger sent to Egypt by the king of Byblos no earlier than the beginning of August returns.

13 March to 11 April — The logs are dragged ashore.

Mid-September to early November — During the autumn migration of birds, the ships from Dor come to ask for the arrest and extradition of Wenamun.

The sea voyages mentioned in this story are Wenamun's voyage from Egypt to Byblos, which begins on 12 May and ends in July, the voyage of the messenger from Byblos to Egypt and back, which begins sometime after 25 July and ends sometime between mid-September and mid-October, and Wenamun's voyage from Byblos to Cyprus, which begins between mid-September and early November.

A Customs Account from Egypt (Fifth Century BCE)

A palimpsest written in Aramaic on a scroll from Elephantine, Egypt, contains an account of the taxes and levies imposed on incoming ships.⁵⁰ For each ship the account gives the date of arrival, the name of the owner/captain, the classification of the ship, and the taxes and levies paid. For each month there is a summary of arrivals and the taxes and levies received. Ships are classified into four types: (1) large, (2) *aswt kḥmwš* (large and empty),⁵¹ (3) *dwgy qnd/rtʿ*, and (4) *dwgy qnd/rtšyry*.⁵² The owners/captains of all Greek ships are listed as 'X, son of Y' (Ionian *psld/ršy*).⁵³ Before leaving the harbour, all the ships were loaded with natron⁵⁴ and then approached again by Egyptian customs officials. The export tax levied on a ship depended entirely on the value of the natron it carried. A *dwgy qnd/rtšyry* paid an additional tax, 'silver of the taking out to sea [i.e., exporting]', and a *dwgy qnd/rtʿ* paid, in addition to this, a tax the nature of which is unclear.⁵⁵ What has survived of the annual summary includes the *mndh*-tax collected in year 11 and the *mndh*-tax collected in year 10, which was a surplus over the *mndh*-tax collected in year 11. The original list probably also included summaries of other taxes.

The date of the text is either 475 or 454 BCE.⁵⁶ Since all the ships mentioned left Egypt loaded with natron, the port must have been somewhere on the Nile near the Wadi Natrun, where natron was quarried.

The date on which the first Ionian ship arrived in the Egyptian harbour is unknown,⁵⁷ but that ship is known to have left Egypt on Atyr 17 (6 March) and must have arrived one or two weeks before that day.⁵⁸ It is evident that it left its home port on an island in the Aegean Sea or in Asia Minor in February. The first Phoenician ship to arrive in the Egyptian harbour did so between Payni 20 (5 October) and the end of that month (15 October). This ship left its home port either in September or in October. Two ships, one Greek and one Phoenician, left Egypt between Mesore 25 (9 December) and the end of that month.⁵⁹ The numbers of ships that visited Egypt by month and place of origin are shown in Table 1. The individual voyages, according to the customs account, excluding those in the summer months, are as shown in Table 2.⁶⁰ The Egyptian customs house did not operate between the middle of December and the middle of February. The reason for

Table 1 Numbers of Ships Arriving in Egypt by Month and Place of Origin According to Elephantine Customs Account

Month	Modern Dates	Greek Ships	Phoenician Ships
Athyr	18 February to 19 March	3	—
Choiak	20 March to 18 April	3	—
Tybi	19 April to 18 May	3	—
Mehir	19 May to 17 June	3	—
Phamenouth	18 June to 17 July	4	—
Pharamuthi	18 July to 16 August	4	—
Paḥons	17 August to 15 September	5	—
Payni	15 September to 15 October	4	1
Epiph	16 October to 14 November	3	3
Mesore	15 November to 14 December	4	2

Table 2 Arrivals and Departures (excluding Summer Months) According to Elephantine Customs Account

'Nationality'	Date of Arrival	Date of Departure
Greek	Athyr 7 (24 February)*	Athyr 17 (6 March)
Greek	Athyr 16 (5 March)	Athyr 26 (15 March)
Greek	Athyr 30 (19 March)	Choiak 9 (29 March)**
Greek	Choiak 2 (21 March)	Choiak 12 (31 March)*
Greek	Between Choiak 2 (21 March) and Choiak 20 (8 April)	Between Choiak 20 (8 April) and Choiak 30 (18 April)
Greek	Between Choiak 2 (21 March) and Choiak 20 (8 April)	Between Choiak 20 (8 April) and Choiak 30 (18 April)
Greek	Between Tybi 1 (19 April) and Tybi 16 (4 May)	Between Tybi 11 (21 April) and Tybi 30 (10 May)
Greek	Paḥons 7 (23 August)	Paḥons 18 (3 September)
Greek	Paḥons 10 (26 August)	Paḥons 22 (7 September)
Greek	Paḥons 17 (2 September)	Paḥons 27 (12 September)
Greek	Paḥons 20 (5 September)	Paḥons 30 (15 September)
Greek	Payni 9 (24 September)	Payni 17 (2 October)
Greek	Payni 11 (26 September)*	Payni 21 (6 October)
Greek	Payni 17 (2 October)	Payni 26 (11 October)
Greek	Payni 20 (5 October)	Payni 27 (12 October)
Phoenician	Payni 20 (5 October)*	Payni 30 (15 October)
Greek	Epiph 5 (20 October)	Epiph 15 (30 October)*
Phoenician	Epiph 7 (22 October)	Epiph 17 (2 November)*
Phoenician	Epiph 9 (24 October)	Epiph 19 (4 November)*
Greek	Between Epiph 9 (24 October) and Epiph 20 (5 November)	Between Epiph 20 (5 November) and Epiph 30 (15 November)
Greek	Between Epiph 9 (24 October) and Epiph 20 (5 November)	Between Epiph 20 (5 November) and Epiph 30 (15 November)
Phoenician	Between Epiph 9 (24 October) and Epiph 20 (5 November)	Between Epiph 20 (5 November) and Epiph 30 (15 November)
Greek	Mesore 1 (16 November)*	Mesore 9 (24 November)
Greek	Mesore 1 (16 November)*	Mesore 10 (25 November)
Greek	Mesore 11 (26 November)*	Mesore 22 (6 December)
Phoenician	Mesore 11 (26 November)	Mesore 25 (9 December)
Greek	Between Mesore 15 (30 November) and Mesore 20 (4 December)	Between Mesore 25 (9 December) and Mesore 30 (14 December)
Phoenician	Between Mesore 15 (30 November) and Mesore 20 (4 December)	Between Mesore 25 (9 December) and Mesore 30 (14 December)

Note: * reconstructed on the premise that the sojourn in Egypt lasted 10 days; ** reconstruction differs from the one suggested Porten and Yardeni.

this may be either that ships did not enter or leave the harbour during this period or that the low level of traffic did not justify the operation of the customs house in these months.

Demosthenes: Against Dionysodorus (Probably 322 BCE)

In a speech attributed to Demosthenes that was made on behalf of a plaintiff in a lawsuit,⁶¹ the chain of events that led to the lawsuit is described as follows: Darius

and Pamphilus (the plaintiffs) lent 3,000 drachmas to Parmeniscus and Dionysodorus. It was agreed that the recipients of the loan would sail to Egypt to buy grain there and then return to Peiraeus and pay back the loan with interest. Parmeniscus sailed to Egypt and bought a cargo of grain there. Anchoring in Rhodes on his return voyage, he was met by messengers from Dionysodorus, who had remained in Athens, advising him that the price of grain had fallen in Athens because of the arrival of ships from Sicily. In response to this news Parmeniscus decided to break the contract. He sold the grain in Rhodes and did not sail to Peiraeus at all. Dionysodorus offered to pay the plaintiffs the principal and the part of the interest that covered the voyage from Egypt to Rhodes. Darius rejected this and offered to refer the matter to arbitration. Dionysodorus refused this offer, and Darius sued him for the loan, its interest, and an additional 3,000 drachmas for failing to comply with the terms of the contract.

One of the points raised by the representative of the plaintiffs was that Dionysodorus and Parmeniscus profited by not sailing back to Athens:

When they reached Rhodes and this man [Parmeniscus] put into that port, they suffered no loss, I take it, by remitting the interest and receiving the amount of their loan at Rhodes, and then putting the money to work again for a voyage to Egypt. No; this was more to their advantage than to continue the voyage to this port [Peiraeus]. For voyaging from Rhodes to Egypt is uninterrupted, and they could put the same money to work two or three times, whereas here they would have had to pass the winter and to await the season for sailing. These creditors therefore have reaped an additional profit, and have not remitted anything to these men.⁶²

Papyri from the Archive of Zenon (Third Century BCE)

The Zenon papyri are documents of a Greek businessman who lived in Egypt. Three of them deal with winter voyages in the Mediterranean. Two of these (P. Cairo Zenon 59029 and P. Mich Zenon 10) attest to voyages in the winter of 258–257 BCE, and the third (Lond. 1979) relates to a maritime voyage in the winter of 252 BCE. The first is a letter dated to 5 December 258 BCE that was sent by Antimenes in Alexandria to Zenon in Philadelphia reporting that two persons named Doris and Ariston had boarded a ship bound for an unspecified port:

Antimenes to Zenon greeting. If you are well it would be excellent. I too am in good health.

In the beginning, because of Zenon, son of Heracleides, having misled us many times and because of Doris having been weak and not able to sail, we hesitated to write to you; now know that we have sent her with Ariston in Zenon's ship, and to Zenon we commanded to perform all the care of her, and to him we added together with her the things that we thought right to put on board the ship.

Be well.⁶³

The second is a letter that reveals the end of Doris and Ariston's journey home. When they reached the port of Patara, the captain of the ship decided to wait there

until the sailing season to continue his voyage to Arsinoë.⁶⁴ Therefore Doris and Ariston had to hire a small boat for 35 drachmas to sail onto Arsinoë, their destination. Upon their arrival they were met by one Sosipatros, who paid the 35 drachmas rent for the boat. On 31 January 257 BCE, Sosipatros wrote to Antimenes reporting that Doris and Ariston had reached Arsinoë and that it was he who had paid the 35 drachmas rent for the boat that brought them there. Although it is not stated in the letter, it seems that Sosipatros wanted to be reimbursed by Antimenes. The letter travelled with a ship bound for Egypt and reached Antimenes on or before 1 April. Antimenes copied that letter (the original was probably kept in his archives in Alexandria) and sent it on 1 April to Zenon in Philadelphia. That letter, which reached Zenon on 20 April, reads:

Antimenes to Zenon greeting. If you are well it would be excellent. I too am in good health.

I have written to you below a copy of the letter which came from Sosipatros, in order that you take note and enter to the account of Apollonios. . . no travelling allowance was delivered to them. . . were driven in by stormy weather. . . to Arsinoë.

Farewell.

Sosipatros to Antimenes greeting. If you are well in body and everything else is to your mind it would be excellent. We too are well.

Ariston and the sister arrived here, reporting that they have been handsomely treated by you in every way. You do well then to show yourself friendly for us; we too will try to pay you all the attention in any matter that you are keen about and write to us about. Know that they were driven in to Patara by the storms; from there they hired a boat and sailed along to Arsinoë to join us. The fare has been paid. . . amounting to 35 drachmas. I have therefore written to let you know.

Farewell.⁶⁵

The sea voyages attested to in these documents are the voyage from Alexandria to Patara which begins on 5 December and ends in December or the beginning of January, the voyage of Doris and Ariston from Patara to Arsinoë, which begins at the end of December or early in January and ends on or before 31 January, and the voyage that carries Sosipatros' letter, which begins in Arsinoë on 31 January or later and ends in Alexandria on 1 April or earlier.

The third letter, received in Zenon's archive on 2 January 252 BCE, and was probably sent from Rhodes⁶⁶ in December, begins:

Demetrios to Zenon, greeting. It would be well if you are in good bodily health and if in other respects you are prospering. I myself am in good health.

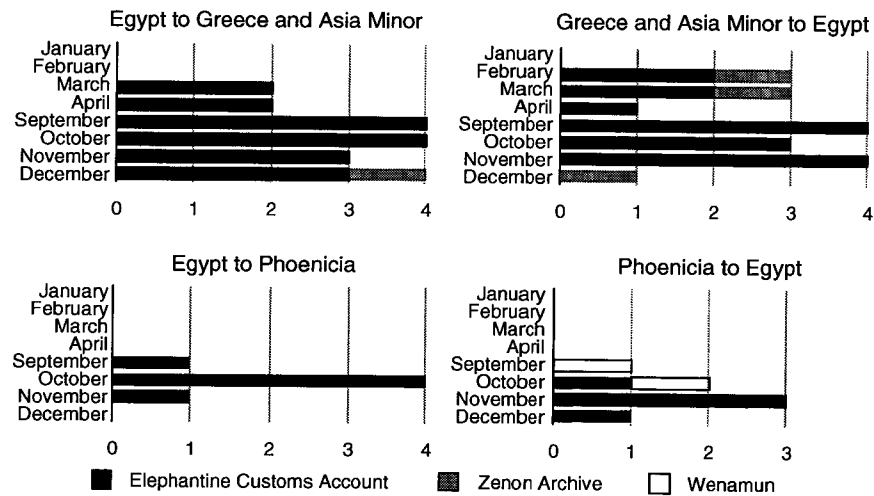
Know that your father and Arkasios have arrived safely home. For some people arriving in Rhodes bring the news that the ship of Timokrates was in Rhodes, having just arrived from Kaunos. When they sailed away, they left behind cushions and leather pillows, which they asked Kimeon to send on to Kaunos. For the moment it is impossible for him to send them, but as soon as possible, when the fair weather comes, he will send them off immediately.

Since the journey from Alexandria to Philadelphia took around 20 days (see preceding letter), it seems that the letter arrived at Alexandria around 10 December with a ship that came from Rhodes.

Conclusions

Four open-sea routes are attested in written pre-Roman sources: Greece and Asia Minor to Egypt, Egypt to Greece and Asia Minor, Phoenicia to Egypt and Egypt to Phoenicia⁶⁷ (Figure 2). The first ships that left Greece and Asia Minor for Egypt did so in February and the last of them in December; we have no evidence that this route was also used in January. The route from Egypt to Greece was open from March to December; we have no evidence that this route was used in January and February. Most of the ships that sailed from Phoenicia to Egypt did so in the month of October and the rest in September and November. The route from Egypt to Phoenicia was open from May to December. We have evidence of one other route: Wenamun sailed from Phoenicia to Cyprus between September and November. What evidence there is of coastal voyages suggests that the route from Ugarit to Ura was closed in the winter, but it may be inferred from the Zenon papyri that for the right price (35 drachmas) sailors could be persuaded to sail even in January.

At first glance it seems that theory does not coincide with practice. According to the theory, the sea was closed to navigation in the winter. In practice, with the possible



Notes: 1. The voyage of the letter sent by Sosipatros to Antimenes, which could have taken place in either February or March, is listed in both months.
 2. The voyage of the messenger of the king of Byblos, which could have taken place in either September or October, is listed in both months.

Figure 2 Number of Sea Voyages by Month (Excluding Summer Months) According to the Sources Surveyed.

exception of January, the sea was open to navigation throughout the year. The solution to this apparent contradiction is simple. There are two different kinds of navigation: open-water and coastal.⁶⁸ The difference between the two is not the size of the ship or the proficiency of the crew but the route.⁶⁹ According to Vegetius, the dangers that rendered winter navigation impossible were minimal daylight and long nights, dense cloud cover, fog, and the fact that the violence of the winds was doubled by rain and snow. Catastrophe could take two forms: breaking up on shore or foundering after taking on too much water. The first of these can happen only near the shore while the second in open water as well. Whereas an open-water journey is vulnerable to shipwreck only while entering or leaving a port, coastal navigation is vulnerable to shipwreck throughout the voyage. Three of the four dangers of winter as listed by Vegetius relate to coastal navigation alone. All of them have to do with poor visibility, the consequence of which can be breaking up on the shore. In open water, poor visibility is not likely to put the safety of the ship at risk. Even the fourth danger — wind, rain, and snow — is much greater near the shore than in open water. Indeed, ancient mariners faced with heavy weather headed for open water, sometimes despite the pleas of their passengers.⁷⁰

To sum up: While a journey in open water was relatively safe in summer and winter alike, coastal navigation was impossible in winter.⁷¹ Among the sources surveyed above, one (the edict of the king of Hatti) relates to coastal navigation and suggests that the sea was closed to navigation in the winter. Another (Demosthenes, *Against Dionysodorus*) shows beyond any doubt that the route between Rhodes to Egypt was open to navigation in summer and winter alike while the route from Rhodes to Athens was closed to navigation in winter. Other sources (the customs account from Egypt and the Zenon papyri) show that the route between Egypt and the Greek islands was open year-round.

Three sources (the letter of the king of Tyre, the report of Wenamun, and the customs account) supply evidence about the route between Egypt and Phoenicia. All are consistent with the assumption that sailing from Phoenicia to Egypt was possible only between late September and December. This is because this was the only time of the year in which there was sometimes a north wind, which was essential for ships sailing from Phoenicia to Egypt. Therefore, ships that were based in Egypt sailed to Phoenicia in the summer (as was the case in the Wenamun story) so that they could sail back in late autumn or early winter. In contrast, ships that were based in Phoenicia sailed to Egypt in late autumn and early winter and returned (as is evident from the Wenamun story and the customs account from Egypt) in winter.⁷²

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Notes

- [1] Rougé, *Ships and Fleets*, 15–16. For a similar observation see Braudel, *The Mediterranean and the Mediterranean World*, 246.
- [2] Casson, *Ships and Seamanship*, 270–72. Casson's opinion is accepted by other scholars. The exception is sometimes attributed to the willingness of the Rhodian sailors to make the passage outside the normal sailing season: Skeat, *The Zenon Archive*, 76 n. 4.
- [3] De Saint-Denis, 'Mare clausum'; Rougé, 'La navigation hivernale'. Other scholars have reached more or less the same conclusion. McCaslin concluded that 'no one in his right mind would sail in the winter when the stormy winds might blow any which way and when the heavy clouds would obscure the sky and thus hinder navigation'. McCaslin, *Stone Anchors in Antiquity*, 89–90.
- [4] According to Milner, *Vegetius*, 146 n. 2, the date of this event is 5 March.
- [5] *Vegetius* 4.39.7; Milner, *Vegetius*, 146–47. Modern dates were added by the translator.
- [6] *Hesiod Works and Days* 663–78. This season is not mentioned explicitly, but since winter begins in mid-November and summer ends in early September it stands to reason that autumn is treated by Hesiod as a different season.
- [7] *Hesiod Works and Days* 620–30.
- [8] *Hesiod Works and Days* 680–85.
- [9] Ovid *Fasti* 4.131–32; *Catullus* 46.1–5; *Pliny Natural History* 2.47. According to Pliny spring begins on 8 February, when the sun occupies the twenty-fifth degree of Aquarius (see Rackham, *Pliny*, 263).
- [10] Euripides *Ion* 1155–56; Manilius *Astronomica* 1.364–65.
- [11] This text has three variants, listed here as A, B, and C. Another text, listed here as D, is a later (?) variant that adds to the decree merchants from the town of Kutapa. The first three texts were published by Nougayrol, *Textes accadiens des Archives Sud* (hereafter *PRU* 4): A, RS 17.130 (Pl. 15); B, RS 17.461 (Pl. 76); C, RS 18.03 (Pl. 78). These texts are transliterated and translated in Nougayrol, *PRU* 4, 103–4. For a recent bibliography on these texts see Beckman, *Hittite Diplomatic Texts*, 178. D (RS 34.179) was edited and published by Malbran-Labat, 'Traité', 15–16. Here I generally follow the translation of Beckman, *Hittite Diplomatic Texts*, 162–63.
- [12] A large Hittite town near or on the Mediterranean coast of Cilicia (perhaps modern Silifke). See Lemaire, 'Ugarit, Oura et la Cilicie'.
- [13] C: 'are a heavy burden in the midst of the land of Ugarit'.
- [14] C: 'My Majesty'.
- [15] C: 'with the men of the land of Ugarit'.
- [16] D adds: 'and the men of Ku[tap]a'.
- [17] C: 'and even if a merchant should lose his capital and (wish to) stay in the land of Ugarit'.
- [18] B and D: 'in the midst of the land of Ugarit'. D repeats this phrase a second time, which is probably a dittography.
- [19] C adds 'merchants'. D adds 'and men of Kutapa'.
- [20] C omits 'of the land of Ugarit'.
- [21] D adds 'and [the men of Kutapa]'.
- [22] C omits 'the merchants'.
- [23] C omits 'the merchants'.
- [24] KTU 2.38 (RS 18.31) was published by Virolleaud, *Textes en cunéiformes alphabétiques* (hereafter *PRU* 5), no. 59. KTU is an abbreviation for Dietrich, Loretz, and Sanmartín, *Die keilalphabetischen Texte aus Ugarit*, which contains editions of all the Ugaritic texts that were known in 1976.
- [25] Perhaps enclitic *n*. See Tropper, 'Zur Grammatik der ugaritischen Omina', 467. Virolleaud, *PRU* 5, 81–82, emended the text to 'any *kn*' and translated it as 'fort navire'; Lipinski,

- 'Recherches ugarit', 283, translated it as 'Vaisseau solide', and Sasson, 'Canaanite Maritime Involvement', 137, translated it as 'merchant vessel'.
- [26] This letter contains many unsolved textual problems. Many of the words in it appear only in this text. Because of this, translations of some lines are based on little more than guesswork. I have included some of the more plausible suggestions, but the discussion here is by no means exhaustive. A full treatment was given by J.-L. Cunchillos, 'Correspondance'.
- [27] Following the majority of scholars, among them Virolleaud, *PRU* 5, 82, and Sasson, 'Canaanite Maritime Involvement', 137. Dissenting views include Cunchillos, 'Correspondance', 351 and n. 9, and Tropper, 'Zur Grammatik der ugaritischen Omina', 457: 'Flotte'.
- [28] 'mtt' is a hapax legomenon. Most scholars (among others Sasson, 'Canaanite Maritime Involvement', and Linder, 'The Maritime Texts of Ugarit', 45) followed Gordon, *Ugaritic Textbook*, 19.443, who translated: 'she (the ship) died'. Dietrich and Loretz, 'Zur Ugaritischen Lexikographie [I]', 132, and Dietrich, Loretz, and Sanmartín, 'Zur Ugaritischen Lexikographie [VII]', 93, have emended the text '<t>mtt' and translated it as 'Mannschaft'. Cunchillos, 'Correspondance', 351–52 and n. 8, used the Akkadian cognate *muttatu* ('half') and translated: 'La moite de la flotte que tu avais commandée en Égypte, se trouva à Tyr par (à cause d') une pluie torrentielle'.
- [29] 'rb tmtt' is a hapax legomenon. Most scholars believe that this *rb tmtt* was a Tyrian bureaucrat (Virolleaud, *PRU* 5, 82; Sasson, 'Canaanite Maritime Involvement'; Dietrich and Loretz, 'Zur ugaritischen Lexikographie (I)', 132: 'Mannschaftsführers'; Hoftijzer, 'Une lettre du roi de Tyr', 386; Lipinski, 'Recherches ugarit', 283; Cunchillos, 'Correspondance', 354–55; and Miller, 'Patterns of Verbal Ellipsis', 335). Among the dissenting views is Sivan, *Grammar*, 73: 'the lord of mortality'.
- [30] Literally 'hand', following Virolleaud, *PRU* 5, 82; Hoftijzer, 'Une lettre du roi du Tyr', 388. For other suggestions see Sasson, 'Canaanite Maritime Involvement': 'cargo'; Lipinski, 'Recherches ugarit', 283: 'fret'; Cunchillos, 'Correspondance', 354–55 and n. 19: 'blé'. Cunchillos is followed by Miller, 'Patterns of Verbal Ellipsis', 335: 'seed'.
- [31] Following Hoftijzer, 'Une lettre du roi du Tyr', 387, who emended the text and read 'bdnhm'.
- [32] Following Cunchillos, 'Correspondance', 356 n. 26, and Sivan, *Grammar*, 161.
- [33] There are two possible translations for *tt*: 'idle', 'still', and the like and 'second' or 'other'. See Renfroe, *Arabic-Ugaritic Lexical Studies*, 68–69.
- [34] Rainey, *A Social Structure of Ugarit*, 158 n.118.
- [35] Renfroe, *Arabic-Ugaritic Lexical Studies*, 69.
- [36] The oven was apparently built by new settlers after the city was conquered. Yon, 'The End of the Kingdom of Ugarit', 119.
- [37] A document sent from Carchemish to Ugarit (RS 34.147) lists 'ships that belong to the [subjects of?] king of Carchemish [and] are very old and cannot go anywhere'. These ships are described in detail as to their owner and their fittings (or rather lack thereof), but nothing is said of their whereabouts (see Malbran-Labat, 'Lists', no. 5.).
- [38] Following Hoftijzer, 'Une lettre du roi de Tyr', 385 and n.19 and the majority of the scholars who have worked on this text.
- [39] Once the assumption that the ship was carrying grain is called into question, Renfroe's argument can be used in an inverse way: The fact that the ship proceeded to Acco from Tyre shows that it was on its way to Egypt.
- [40] Ashbel, *Rainfall Observations*.
- [41] For a translation see Lichtheim, 'The Report of Wenamun'; see also Wente 'The Report of Wenamun'. The text is probably a copy of a real report (following Grieg, '*sDm = f* and *sDm.n = f* in Sinuhe'; Lichtheim 'The Report of Wenamun', 89; and Wente, 'The Report of Wenamun', 142). For an opposing view see Sass, 'Wenamun and His Levant'.

- [42] Lichtheim, 'The Report of Wenamun', 89. For an opposing view see Sass, 'Wenamun and his Levant'.
- [43] 'Summer' and 'winter' should not be taken literally. The Egyptian year is uniformly 365 days long. Being about a quarter of a day shorter than the solar year, it wanders in relation to the latter (see Depuyedt, 'On the Consistency of the Wandering Year').
- [44] On the Renaissance era, see Kitchen, *The Third Intermediate Period*, Tables 1 and 2 and *passim*.
- [45] The autumn migration falls between mid-September and early November. Leshem and Bahat, *Flying with the Birds*.
- [46] The passage in question reads: 'I went off to the shore of the sea, to where the logs were lying. And I saw eleven ships that had come from the sea and belonged to the Tjeker (who were) saying: "Arrest him! Let no ship of his leave for the land of Egypt!"
 '... Then I sat down and wept. And the secretary of the prince came out to me and said to me: "What is it?" I said to him: "Do you not see the migrant birds going down to Egypt a second time? Look at them travelling to the cool water! Until when shall I be left here? For do you not see those who have come to arrest me?"' (Lichtheim, 'The Report of Wenamun', 92).
 A fundamentally different translation is suggested and defended by Egberts, 'The Chronology of Wenamun'.
- [47] Lefebvre, 'Sur trois dates dans les mésaventures d'Ounamun'. This theory is generally accepted (see, e.g., Lichtheim, 'The Report of Wenamun', 90).
- [48] According to Lichtheim, 'The Report of Wenamun', B reads: 'I stayed until the fourth month of summer in Tanis'. Goedicke, 'The Report of Wenamun', 24, emends the text and translates: 'I began the fourth month (of the journey) while I was still in Tanis'. According to Lichtheim, C reads: 'I went down upon the great sea of Syria in the first month of summer, day 1'. Goedicke (24, 27) emends the text and translates: 'and I embarked for the great Syrian sea. Within the month I reached Dor'.
- [49] Egberts, 'The Chronology of Wenamun', 58.
- [50] Porten and Yardeni, *Textbook of Aramaic Documents*, and Yardeni, 'Maritime Trade and Royal Accountancy'. For an exhaustive analysis see Briant and Descat, 'Un registre douanier'.
- [51] The meaning of *aswt khmwš* is unknown. My suggestion that it means a large ship that arrived empty is based on the following considerations: (1) Ships distinguished as large ships or *aswt khmwš* were listed together on their way out as 'ships'. (2) No taxes in merchandise or finished goods were levied on *aswt khmwš*; they paid only gold and silver. (3) *Aswt khmwš* were not required to pay the levy called the 'silver of the men', a fixed amount of silver and/or wine, oil, and finished wood products paid upon arrival. The fact that this levy was added to the import tax suggests that it was not a tax, and I suggest that it was a payment for porters provided by the Persian authorities. An empty ship did not need the service of porters, and therefore did not have to pay this levy.
- [52] In the summary large ships and *aswt khmwš* are classified as 'Ionian ships', while *dwgy qnd/rt*^o and *dwgy qnd/rtšyry* are classified as *kzd/ry* (the meaning of which is unknown).
- [53] The meaning of this term is unknown.
- [54] The text that lists the merchandise exported by *dwgy qnd/rt*^o and *dwgy qnd/rtšyry* is not preserved, but one can safely assume that they carried natron as well.
- [55] Text is not preserved. Porten and Yardeni, *Textbook of Aramaic Documents*, 179, suggest 'silver of the men', but this is unlikely.
- [56] Porten and Yardeni, *Textbook of Aramaic Documents*, and Yardeni, 'Maritime Trade and Royal Accountancy', have suggested the former and Briant and Descat, 'Un registre douanier', 60–62, the latter.
- [57] The first datable arrival was on Atyr 30 (19 March), but the record on two earlier arrivals is damaged. Porten and Yardeni, *Textbook of Aramaic Documents*, 82.

- [58] The sojourn in Egypt took between 7 and 26 days. Briant and Descat, 'Un registre douanier', 79–80. However, in most datable cases the sojourn took between 8 and 11 days. Porten and Yardeni, *Textbook of Aramaic Documents*, 288–89.
- [59] Porten and Yardeni, *Textbook of Aramaic Documents*. The record is damaged.
- [60] The months that are excluded here are from May to August.
- [61] For a commentary see Isager and Hansen, *Aspects of Athenian Society*, 200–213.
- [62] Demosthenes *Against Dionysodorus* 29–30; Murray, *Demosthenes: Private Orations*, 213–15.
- [63] Edgar, *Zenon Papyri Nos. 59001–59139*, 50–51. Translated by Yulia Ustinova. On dates in Hellenistic Egypt see Samuel, *Ptolemaic Chronology*.
- [64] The exact location of Arsinoë is unknown, but it was probably somewhere in the vicinity of Patara.
- [65] Edgar, *Zenon Papyri in the University of Michigan Collection*, 71.
- [66] Skeat, *The Zenon Archive*, 74–76.
- [67] The hypothesis that the routes that connected Phoenicia to Egypt were only coastal routes was already unlikely and is now, given the new evidence on eighth-century ships sunk 33 nautical miles off the coast, even more so (see Ballard *et al.*, 'Iron Age Shipwrecks').
- [68] By 'coastal navigation' I mean voyaging in which the crew maintains eye contact with the shore most of the time. Sailing in the Aegean, for example, is essentially coastal navigation.
- [69] This is demonstrated in Demosthenes *Against Dionysodorus*, in which the same ship was used both for open-water and coastal navigation.
- [70] Synesius ep. 5[4]; FitzGerald, *The Letters of Synesius of Cyrene*, 80–91.
- [71] Evidence for this interpretation from the Roman period relates to three sea routes: from Rome to Alexandria, from Alexandria to Greece, and from Rome to Syria and Palestine and back. The route from Rome to Alexandria was an open-water route and therefore open for navigation in the winter (Tacitus *Histories* 4.51). The way back was much more difficult. A journey from Egypt to Rome always began with a crossing of the Mediterranean Sea from south to north towards the Greek islands or Asia Minor. This was an open-water route and therefore was open for navigation in winter (Philonis *In Flaccus*; idem, *Legatio ad gaium*; Josephus *Jewish Antiquities* 14.3; idem, *Jewish War* 1.2–3). From there a ship headed for Rome would have turned west and proceeded under the restrictions of coastal navigation, which meant wintering in an anchorage along the way (*Acts* 27.5–6, 7–12). Thus the route from Alexandria to Greece and Asia Minor was actually part of the route from Alexandria to Rome and therefore the evidence concerning it is connected to the evidence concerning the latter. We lack, however, evidence on the opposite route, from Greece and Asia Minor to Alexandria. The route from Syria and Palestine to Rome and back was mainly a coastal navigation route (with the possible exception of the passage from Brindisium to Greece, which was also attempted in winter [Plutarch *Crassus* 17]). As such, it was not used in winter (Josephus *Jewish War* 2.11, 7.1; idem, *Jewish Antiquities* 18.8).
- [72] Wenamun's despair at the sight of the migrating birds flying to Egypt is quite understandable. He knew that staying in Byblos in the autumn meant being stranded there until the next autumn.

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