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Part II. The Southern Hinterlands: Eritrea and Yemen

Patterns of Trade in the Red Sea during the Age of the *Periplus Maris Erythraei*

Federico de Romanis

Introduction

Despite authoritative critical editions and studies, the text of the *Periplus Maris Erythraei* (hereafter *Periplus*) still offers matter for debate. In this paper, I would like to focus on a small philological problem in the list of the goods available at the port of Muza and a peculiarity in the wording of the timetables for the voyages to Adulis and Muza. Minor details, to be sure, but capable of revealing some peculiarities of Red Sea trade in the middle of the 1st century AD. Before I begin, I want to make clear that my approach to the text is somewhat oriented by the fact that while the author of the *Periplus* was apparently unable to reject (or even prone to create, through wrong assumptions) spurious literary traditions,¹ he was tremendously good in providing plain commercial information: what commodity was available at each port of trade; whence it came; what time of the year ships sailed from Egypt to different destinations.

Sailing Timetables and Goods of Trade

First, let us look at the sailing timetables to Adulis, Muza and Cane (Table 4:1).

For all these trips best time to leave is around the month of September (εὐκαίρως περὶ τὸν Σεπτέμβριον μῆνα), for Cane earlier than for Muza (and even earlier than for Adulis, we may presume). As Casson realized, these formulas relates to round trips and are to be explained

with the shifting of the monsoon winds. To quote his words:

“The author remarks that most vessels heading for Adulis, the port on the west coast of the Red Sea, left Egypt between January and September, preferably in September [...]. This makes sense only for the round trip, Egypt-Adulis-Egypt: ships sailed south with the last of the Red Sea northerlies [...] and thus were able to return with the first of the southerlies in October [...]. Similarly, on the India route, skippers headed for Muza left in September [...], and those headed for the more distant Kanê a little earlier than September [...]. These dates make sense only for the round trip, Egypt-Muza-Egypt and Egypt-Kanê-Egypt.”²

Casson is surely right. Nonetheless, his explanation does not cover the entire truth. Analogies and differences between the Adulis and Muza formulas show that winds were indeed an important factor, yet not the only factor. In fact, trade opportunities are not just a matter of winds and winds do not explain why ships did actually sail to Adulis from January to September, while there was just “nothing to prevent them” leaving for Muza earlier than September.

We shall return to this later on. Let us first pose the question: is it possible for a ship, leaving Myos Hormos in September or a little earlier, to trade, during the same voyage, in more than one of the three ports of trade mentioned above. In this respect, it is worthwhile to compare goods

Adulis	Muza	Cane
PME 6, p. 3, ll. 4-7: τὰ δὲ πλεῖστα ἐκ τῆς Αἰγύπτου φέρεται εἰς τὸ ἐμπόριον τοῦτο ἀπὸ μηνὸς Ἰανουαρίου μέχρι τοῦ Σεπτεμβρίου, ὃ ἐστὶν ἀπὸ Τυβί [Frisk : Τυβί cod.] ἕως Θώθ· εὐκαίρως δὲ ἀπὸ Αἰγύπτου ἀνάγονται περὶ τὸν Σεπτέμβριον μῆνα.	PME 24, p. 8, ll. 11-12: πλέεται δὲ εἰς τὴν αὐτὴν εὐκαίρως περὶ τὸν Σεπτέμβριον μῆνα, ὅς ἐστι Θώθ· οὐδὲν δὲ κωλύει κἄν τάχιον.	PME 28, p. 9, ll. 20-21: πλεῖ[σ]ται [m. alt.] δὲ εἰς αὐτὴν περὶ τὸν αὐτὸν καιρὸν ὃν ἂν καὶ εἰς Μούζα, προῖμώτερον δέ.
“Most exporting from Egypt to this port of trade is from January to September, that is, from Tybi to Thoth; the best time for departure from Egypt is around the month of September” (trans. L. Casson)	“The best time for sailing to this place is around the month of September, that is Thoth, though there is nothing to prevent leaving even earlier” (trans. L. Casson)	“The time to set sail for this place is about the same as for Muza, but earlier” (trans. L. Casson)

Table 4:1. Sailing timetables from Egypt to Adulis, Muza and Cane.

1. Quotations from the *Periplus Maris Erythraei* refer to chapters, pages and lines of Frisk 1927; other translations refer to Casson 1989. In re-

gards to author, we cannot trust his accounts on Caesar’s destruction of Aden (*Periplus* 26, p. 8, ll. 31-32: cf. recently, Seland 2005), Alexander’s penetration as far as the Ganges (*Periplus* 47, p. 16, ll. 6-8) and Hippalus’ discovery of the open-sea route to India (*Periplus* 57, p. 19, ll. 2-7: cf. Mazzarino 1982/7 = Mazzarino 1997; De Romanis 1997).
2. Casson 1989: 288, n. 15.

PME 24, p. 8, ll. 2-9 (exports to Muza)	PME 28, p. 9, ll. 13-18 (exports to Cane)
Arab sleeved clothing, either with no adornment or with the common adornment or with checks or interwoven with gold thread	also as to Muza Arab clothing, either with common adornment or no adornment or of printed fabric, in rather large quantities
purple cloth, fine and ordinary quality	and the rest of the items that go to Muza
saffron	
cyperus	
cloth	
abollai	
blankets, in limited number, with no adornment as well as with traditional local adornment	
girdles with shaded stripes	
unguent, moderate amount	
money, considerable amount	
wine and grain, limited quantity because the region produces wheat in moderate quantity and wine in greater	
	copper, tin, coral, storax**
to the king and the governor	to the king
horses and pack mules	horses
goldware embossed silverware copperware	embossed silverware and money (?) statuary
expensive clothing	fine quality clothing with no adornment

Table 4:2. Exports (from Egypt) to Muza and Cane. (** These items do not appear in Muza’s list. They are however all exported to Barygaza (PME 49, p. 16, ll. 21-23; partially in other Indian ports of trade: PME 39, p. 13, l. 8; 56, p. 18, l. 19). For Cane’s commercial links with Barygaza: PME 27, p. 9, ll. 10-11. Egyptian ships bound for South India avoided Muza, but could moor at Cane: Plin., n.h. VI 104.)

exchanged at Muza and Cane. In Table 4:2, in Casson’s translation, exports to Muza and Cane³ are presented side by side, together with the local products available in the same ports of trade (Table 4:3).⁴ It should be noticed that while exports to Muza and Cane are largely homogeneous, their local products differ. It is therefore reasonable, I think, to assume that a certain number of ships left Egypt around September or a little earlier and moored at both Muza and Cane importing the respective local products and exporting more or less the same items. Did the same ships also moor at Adulis? That this should have been a rare case, is suggested not so much by the diversity of the Egyptian exports to Adulis⁵ (in theory, a ship could carry both sets of items), as by the explicit inclusion of the products from Adulis in the list of the goods available at Muza. The relevant passage deserves a closer consideration (Table 4:4). I will give it first as it stands in the editions of Frisk and Casson, adding Casson’s translation.⁶ Such emphasis on *all* the merchandise from *only* Adulis becomes all the more striking, when one considers that nowhere else in the text, is trade between Adulis and Muza referred to. Meanwhile the importance of Muza’s trade with Barygaza and

3. *Periplus* 24, p. 8, ll. 2-9: φορτία δὲ εἰς αὐτὴν προχωρεῖ πορφύρα, διάφορος καὶ χυδαία καὶ ἱματισμὸς Ἀραβικὸς χειριδωτός, ὃ τε ἀπλοῦς καὶ ὁ κοινὸς καὶ σκοτουλάτος καὶ διάχρυσος, καὶ κρόκος καὶ κύπερος καὶ ὀθόνιον καὶ ἀβόλλαι καὶ λωδικες οὐ πολλαί, ἀπλοῖ τε καὶ ἐντόπιοι, ζῶναι σκιωταὶ καὶ μύρον μέτριον καὶ χρῆμα ἱκανὸν οἶνός τε καὶ σίτος οὐ πολὺς. φέρει γὰρ καὶ ἡ χώρα πυρὸν μετρίως καὶ οἶνον πλείονα. τῶ τε βασιλεῖ καὶ τῶ τυράννῳ δίδονται ἵπποι τε καὶ ἡμίονοι νωτηγοὶ καὶ χρυσώματα καὶ τορ[ν]ευτὰ ἀργυρώματα καὶ ἱματισμὸς πολυτελής καὶ χαλκουργήματα; *Periplus* 28, p. 9, ll. 13-18: εἰσάγεται δὲ εἰς αὐτὴν ἀπ’ Αἰγύπτου μὲν ὁμοίως πυρὸς ὀλίγος καὶ οἶνος ὥσπερ καὶ εἰς Μούζα, ἱπιατισμὸς Ἀραβικὸς, [καὶ] [L, Stuck] ὁμοίως καὶ κοινὸς καὶ ἀπλοῦς καὶ ὁ νόθος περισσώτερος, καὶ χαλκὸς καὶ κασιτέρος καὶ κοράλλιον καὶ στύραξ καὶ τὰ λοιπὰ ὅσα εἰς Μούζα· τὰ πλείονα δὲ ἀργυρώματα τετορευμένα καὶ χρῆματα τῶ βασιλεῖ, ἵπποι τε καὶ [Müller in comm.: δὲ καὶ] ἀνδριάντες καὶ ἱματισμὸς διάφορος ἀπλοῦς.

4. *Periplus* 24, p. 8, ll. 9-10: ἐξάγεται δὲ ἐξ αὐτῆς ἐντόπια μὲν, σμύρνα ἐκλεκτὴ καὶ στακτὴ Ἀβειρ<αία καί> Μιναία, λύγδος κτλ.; *Periplus* 28, p. 9, ll. 18-19: ἐξάγεται δὲ ἐξ αὐτῆς ἐντόπια μὲν φορτία, λίβανος καὶ ἀλόη.

5. *Periplus* 6, p. 2, ll. 23-35: προχωρεῖ δὲ εἰς τοὺς τόπους τούτους ἱμάτια Βαρβρικά ἀγναφα τὰ ἐν Αἰγύπτῳ γινόμενα, Ἀρσινόϊτικαί [Stuck: ἀρσε- cod] στολαὶ καὶ ἀβόλλαι νόθοι χρωμάτινοι καὶ λέντια καὶ δικρόσσια καὶ λιθίας ὑ<α>λῆς [Stuck] πλείονα γένη καὶ ἄλλης μορρίνης, τῆς γινομένης ἐν Διοσπόλει, καὶ ὠροχάλκος, ᾧ χρώνται πρὸς κόσμον καὶ εἰς συγκοπὴν ἀντὶ νομίματος, καὶ μελίεφθα χαλκᾶ εἰς τε ἔψησιν καὶ εἰς συγκοπὴν ψελίων καὶ περισκελίδων τισὶ τῶν γυναικῶν, καὶ σίδηρος ὁ δαπανώμενος εἰς τε λόγχας πρὸς τοὺς ἐλέφαντας καὶ τὰ ἄλλα θηρία καὶ τοὺς πολέμους. ὁμοίως δὲ καὶ πελῦκια προχωρεῖ καὶ σκέπαρνα καὶ μάχαιρα καὶ ποτήρια χαλκᾶ στρογγύλα μεγάλα καὶ δηνάριον ὀλίγον πρὸς τοὺς ἐπιδημοῦντας καὶ οἶνος Λαδικηνός καὶ Ἴταλικός οὐ πολὺς καὶ ἔλαιον οὐ πολὺ· τῶ δὲ βασιλεῖ ἀργυρώματα καὶ χρυσώματα τοπικῶ ὀυθμῶ κατεσκευασμένα καὶ ἱματίων ἀβόλλαι καὶ καυνάκαι ἀπλοῖ, οὐ πολλοῦ δὲ ταῦτα.

6. Frisk 1927; Casson 1989.

PME 24, p. 8, ll. 9-10 (imports from Muza)	PME 28, p. 9, ll. 18-19 (imports from Cane)
“its exports consist of local products – myrrh, the select grade and stacte, the Abeirian (?) and Minaean; white marble” (trans. L. Casson)	“it exports local wares, namely frankincense and aloe” (trans. L. Casson)

the so-called Far-side (τὸ πέραν),⁷ the Somali coast from Aualites to Oponē,⁸ is particularly highlighted.⁹

A glance to the *apparatus criticus* shows that the text adopted by all the most recent editors derives from an emendation by B. Fabricius.¹⁰ As a matter of fact, the Heidelberg manuscript (Codex Palatinus Gr. 398) has τὰ ἀπὸ τοῦ περᾶν Ἀδουλεῖ προειρημένα φορτία πάντα. Fabricius (and all the editors after him) assumed that the article τοῦ referred to Adouli and the adverb πέραν was here in attributive position. As Adouli is never masculine in the *Periplus* or elsewhere in ancient Greek documents, he consequently emended τοῦ, masculine or neuter form of the article (genitive case), in τῆς, feminine form of the same. Once this emendation is accepted, it becomes unavoidable to translate as Casson did: “all the aforementioned merchandise from Adulis across the water”. It must be said that Fabricius’ emendation is also supported by other occurrences, in the *Periplus*, of πέραν in attributive position, underlining the transmarine location, against the south coast of Arabia, of East African lands.¹¹ Nonetheless, attractive as it is, I think that this emendation cannot be accepted. In my view, three reasons recommend retaining the manuscript’s reading τοῦ περᾶν:

1) τοῦ is a *lectio difficilior*: a corruption in τοῦ of an original τῆς is not easy to account for.

7. *Periplus* 21, p. 7, ll. 21-23: τὸ μὲν ὄλον Ἀράβων ναυκληρικῶν ἀνθρώπων καὶ ναυτικῶν πλεονάζον [δέ] [Fabricius] καὶ τοῖς ἀπ’ ἐμπορίας πράγμασι κινεῖται· συγχρῶνται γὰρ τῇ τοῦ πέραν ἐργασία καὶ Βαρυγάζων ἰδίως ἐξαρισμοῖς (Casson 1989).

8. The geographic notion of τὸ πέραν, the Far-side, may derive from the technical jargon of south Arabian merchants and sailors and apparently refers to the northern Somali coast. Aualites is the first of the ἄλλα ἐμπόρια Βαρβαρικὰ, τὰ πέραν λεγόμενα (*Periplus* 7, p. 3, ll. 10-11) [*contra* Casson 1989: 117, who claims that Aualites should not be included in the ‘Far-side ports’. However, referring πρῶτος to ἄλλα ἐμπόρια Βαρβαρικὰ seems to me necessary: the ‘Far-side’ (τὰ πέραν) is the Far-side of the Arabian Peninsula, not of the straits]. At Aualites, the crossing from Arabia to the Far-side is shortest (*Periplus* 7, p. 3, ll. 13-14). Ships from Egypt leave for all the τοῦ πέραν ports of trade (Aualites, Malao, Mundu, Mosyllon, Akannai, Aromaton emporion and Oponē) in July (*Periplus* 14, p. 5, ll. 7-8). Items from Ariake and Baygaza are exported to the τοῦ πέραν ports of trade: *Periplus* 14, p. 5, ll. 8-10. Cane also carries on trade with Far-side ports of trade: *Periplus* 27, p. 9, ll. 10-11.

9. Special relations with Rhapta and trade with Socotra are also mentioned: *Periplus* 16, p. 6, ll. 10-13; 17, p. 1, ll. 14; 31, p. 10, ll. 20-21.

10. Fabricius 1883.

11. *Periplus* 25, p. 8, ll. 13-15: [...] ἤδη συνεχρομένης τε τῆς Ἀραβικῆς ἠπείρου καὶ τῆς πέραν κατὰ τὸν Αὐαλίτην Βαρβαρικῆς χώρας in *Periplus* 30, p. 10, l. 1-3: καὶ κατὰ τοῦτον ἐν τῷ πελάγει νῆσος, ἀνά μέσον τούτου καὶ τοῦ πέραν ἀκρωτηρίου τῶν Ἀρωμάτων, τῷ Συάργῳ συνορίζουσα μᾶλλον, ἢ Διοσκορίδου καλουμένη κτλ.

Table 4:3. (above) Imports (to Egypt) from Muza and Cane.

Table 4:4. (below) List of goods available at Muza.

PME 24, p. 8, ll. 9-11: ἐξάγεται δὲ ἐξ αὐτῆς ἐντόπια μὲν σμύρνα ἐκλεκτὴ καὶ στακτὴ Ἀβειροαία καὶ Μιναία, λύγδος καὶ τὰ ἀπὸ τῆς πέραν Ἀδουλεῖ προειρημένα φορτία πάντα.

“its exports consist of local products – myrrh, the select grade and stacte, the Abeirian (?) and Minaean; white marble – as well as all the aforementioned merchandise from Adulis across the water” (trans. L. Casson)

2) inclusion of products from the Somali coast among the exports from Muza (this is the implication of retaining the reading τοῦ περᾶν) is consistent with “the trade with the Far-side”¹² carried out by the merchants of Muza.

3) inclusion of products from the Somali coast among the exports from Muza is consistent with the picture of the Muza’s trade as given by Pliny the Elder: “There is also a third port [in addition namely to Ocelis and Cane], Muza by name, where ships bound for India don’t moor at: just frankincense and dealers of Arab perfumes sail to it.”¹³ Though essential for the trade of Muza, frankincense was neither a Muza nor an Adulis home product. On the contrary, one of its varieties – λίβανος περατικός – was peculiar to the Far-side ports of trade of the Somali coast Malao, Mundu, Mosyllon, Aromaton emporion.¹⁴

If, at least in these matters, the author of the *Periplus* is an accurate and indeed consistent writer, the reading τοῦ πέραν must be retained. But how to solve, then, the grammatical problem? As it is in the Heidelberg manuscript, the text cannot stand. However, it would be unreasonable to solve the difficulties by just deleting Ἀδουλεῖ: an easy emendation can account for both τοῦ πέραν and Ἀδουλεῖ, providing, moreover, a more adequate justification for the emphatic πάντα.¹⁵

12. *Periplus* 21, p. 7, l. 23: συγχρῶνται γὰρ τῇ τοῦ πέραν ἐργασία.

13. Pliny, *Natural History* VI 104: *est et tertius portus qui vocatur Muza, quem Indica navigatio non petit nec nisi turis odorumque Arabicorum mercatores.*

14. *Periplus* 8, p. 8, l. 30; (implicitly) 9, p. 4, l. 3; 11, p. 4, l. 18; 12, p. 4, l. 28.

15. It is to be noticed that according to *Periplus* 6, p. 3, l. 4 only three items are exported from Adulis.

In my opinion, the text should be restored as τὰ ἀπὸ τοῦ πέραν <καὶ> Ἰαδουλι προειορημένα φορτία πάντα – of course to be translated “all the aforementioned merchandise from the Far-side **and** Adulis”. If such was the original text, the distance of the descriptions of Muza’s trade given by Pliny and, respectively, the *Periplus* is not so great. According to the *Periplus*, products from the Somali coast and Adulis were both available at Muza. As the Far-side emporia essentially exported frankincense and aromatics, availability of frankincense at Muza, explicitly attested by Pliny, is therefore implied. Remaining differences between the two authors may be easily explained: as for the absence of ivory, tortoise shell and rhinoceros horn in Pliny, it may be suggested that Adulitan merchandise was indeed available at Muza, but not in great quantity, in comparison to frankincense and aromatics.

We can now return to the sailing timetables. If the author of the *Periplus* is also in this respect an accurate and consistent writer, the difference between the Adulis and Muza sailing timetables is to be appreciated and accounted for. In my opinion, its explanation lies with the products available at each port of trade. While myrrh and frankincense – home products, respectively, at Muza and Cane – are harvested just in fall and spring,¹⁶ elephants, rhinoceros and tortoises could also have been hunted during the winter. So, while it could have made sense to sail to Adulis on January, even if the wind was not favourable on the southern leg of the Red sea, it would have been pointless to reach Muza or Cane, when myrrh and frankincense were hardly available.

Sailing Timetables and the Aromatic Harvest

It is worthwhile to elaborate on the connections between harvesting time of frankincense and myrrh and sailing time of their merchants. According to Pliny, there were two kinds of frankincense: the *carfiathum*, the summer/fall product, and the *dathiathum*, the winter/spring product. Harvests of myrrh coincide with those of frankincense.¹⁷

As far as *carfiathum*’s collection is concerned, fundamental evidence are Pliny’s words: *prior atque naturalis vindemia circa canis ortum flagrantissimo aestu, incidentibus qua maxime videatur esse praegnas tenuissimusque tendi cortex [...] autumnno legitur e<x> aestivo partu*.¹⁸ N. Groom’s interpretation of this passage is that incisions were made between April and June and collection ceased by July or August,¹⁹ the rising of the Dogstar (approximately

20th July), around which is the *carfiathum*’s *vindemia* (‘grape harvest’, here, of course, in metaphoric sense), would mark, therefore, the end of the collection. However, if this were right, Pliny’s words *autumno legitur e<x> aestivo partu* would be inexplicable, as well as the name *carfiathum*.²⁰ Groom pretends that Pliny refers to a division of the year popular among farmers in southern Arabia, yet it is hard to believe that he is not referring to seasons, he and his readers are familiar with.²¹ It must be noticed, moreover, that according to Theophrastus’ sources, the rising of the Dogstar unambiguously coincide with the moment when the incisions are made: “The frankincense and myrrh trees they say should be cut at the rising of the Dogstar and on the hottest days”.²² As the summer/fall harvest is the natural and traditional one (*meti semel anno solebat [...] prior atque naturalis vindemia*)²³ and as Theophrastus is among the Pliny’s sources for Book XII of the *Natural History*, it is to assume that Pliny considered the incisions being the beginning of the *vindemia*, that they were made around 20th July and that frankincense was collected for several weeks up to fall.²⁴ In October, at the beginning of the northeast monsoon, *carfiathum* was then exported to Egypt by ships which had just arrived from there.

As far as *dathiathum*, Pliny claims that it was collected in spring, incisions being made in winter: *secunda vindemia est vere, ad eam hieme corticibus incisus*.²⁵ Groom interprets that incisions were made in November/December and collection took place in about February,²⁶ which is in no contradiction with Pliny’s division of the year.²⁷ However, it should be noticed that, according to the *Periplus*, ships from Egypt did not sail to Muza or Cane from January to September, but just around September (or a little earlier), though nothing prevented them leaving earlier. This means that *dathiathum*’s harvest came too late to be matched by a special voyage from Egypt. Therefore, as *dathiathum* became available at a time when sailing back from south Arabia to Egypt was too difficult and risky, Egyptian vessels back from India did not wait until that time.

16. Pliny, *Natural History* XII 58-60.

17. Pliny, *Natural History* XII 68: *inciduntur bis et ipsae <i>sdemque temporibus*.

18. Pliny, *Natural History* XII 58.

19. Groom 1981 : 146: “Incisions were made in the frankincense trees between April and June, once the hot weather had commenced. After a week or ten days the trees were re-visited and the frankincense tears collected, further incisions being made or new crops being gathered at intervals of ten days to a fortnight over the next few weeks. In July and August, with the arrival of the monsoon rains, collection off the trees ceased”.

20. Contini & Banti 1997: 182-183: “Probably a feminine *nisbah* from ancient south Arabic *ḥrf*”. Therefore ‘frankincense produced in autumn’ or better ‘during the southwest monsoon, July to September’.

21. Pliny, *Natural History* II 122-126.

22. Theophr., h.p. IX 1, 6: τὸν δὲ λιβανωτὸν καὶ τὴν σμύρναν ὑπὸ Κύνα φασὶ καὶ ταῖς θερμοτάταις ἡμέραις ἐντέμνειν.

23. Pliny, *Natural History* XII 58.

24. As rain spoils frankincense, Theophrastus’ and Pliny’s informers apparently refer to places, which remained relatively unaffected by the rains brought by the southwest monsoon. There are some rainfall data from al-Mukallah (Mouton *et al.* 2006: 779).

25. Pliny, *Natural History* XII 60.

26. Groom 1981: 147-148: “For the spring crop incisions seem likely to have been made in the winter period November/December, with the collection of tears, which at this season take very much longer to ooze out and coagulate, taking place in about February; that crop would then be shipped to Qana as soon as the north-east monsoon had died down sufficiently to allow a safe passage”.

27. Spring begins with 8th February: Pliny, *Natural History* II 122; winter begins with 11th November.

Conclusion

In conclusion, different wordings between *Periplus* 6, p. 3, ll. 4-7 and *Periplus* 24, p. 8, ll. 11-12²⁸ make clear that commercial enterprises to Adulis and Muza had different recurrences: to Muza they sailed once a year, in coincidence with the *carfathum* harvest; to Adulis, they sailed at least twice a year, in January and September, before the close and, respectively, the beginning of the NE monsoon. We may presume that greater profits from an expanded business could have suggested to many Red Sea traders to leave again for Adulis in January, after a voyage (either to Adulis or to Muza) in September to November. Was it therefore the usual practice to alternate a voyage to Muza between September to November with a voyage to Adulis in January to March? Does this explain the occurrence at Muza – certainly in October – of merchandise from Adulis?

References

- Casson, L. 1989. *The Periplus Maris Erythraei. Text with Introduction, Translation, and Commentary*. Princeton: Princeton University Press.
- Contini, R. & Banti, G. 1997. Names of Aromata in Semitic and Cushitic Languages. In *Profumi d'Arabia. Atti del Convegno*, A. Avanzini (ed.), pp. 169-192. Rome: "L'Erma" di Bretschneider.
- De Romanis, F. 1997. Hypalos: distanze e venti tra Arabia e India nella scienza ellenistica. *Topoi* 7: 671-692.
- Fabricius, B. 1883. *Der Periplus des Erythräischen Meeres von einem Unbekannten. Griechisch und Deutsch mit kritischen und erklärenden Anmerkungen nebst vollständigen Wörterverzeichnisse von B. Fabricius*, Leipzig: Veit & Comp.
- Frisk, H. 1927. *Lé Périple de la mer Érythrée*. Göteborg: Elanders boktryeri aktie bolag.
- Groom, N. 1981. *Frankincense and Myrrh. A Study of the Arabian Incense Trade*. London: Longman.
- Mazzarino, S. 1982/1987. Sul nome del vento *hipalus* ('ip-palo') in Plinio. *Helikon* 22-27: VII-XIV.
- Mazzarino, S. 1997. On the name of the *Hipalus* (*Hippalus*) wind in Pliny. In *Crossings. Early Mediterranean Contacts with India*, De Romanis, F. & Tchernia, A. (eds.), pp 72-79. New Delhi: Manohar.
- Mouton, M., Sanlaville, P., & Suire, J. 2006. Le port sudarabique de Qâni': paléogéographie et organisation urbaine. *Comptes Rendus de l'Académie des Inscriptions & Belles-Lettres* 2006: 777-808.
- Pliny, *Natural History*. H. Rackham (tr.) 1960-61. Cambridge: Loeb Classical Library.
- Seland, E. 2005. The Periplus' Report of a Roman Attack on Aden: An Unintended Result of Successful Propaganda? *Symbolae Osloenses* 80(1): 60-67.
- Theophrastus, *Enquiry into Plants. Books 6-9; Treatise on Odours; Concerning Weather*. A. Hort (tr.) 1916. Cambridge: Loeb Classical Library.

28. Cf. *supra* Table 4:1.

