

How much historical credence should be placed in the “discovery traditions” connected to Eudoxus of Cyzicus and Hippalus?

Introduction

The discovery traditions connected to these two figures are often connected to the discovery of the monsoon winds by the Greeks. This is not quite true; the discovery itself was the direct trade route across the Indian Ocean, which allowed merchants to use the monsoon winds to reach India in a much quicker journey than the longer route hugging the edges of the land. Many scholars have tried to read the tradition of Hippalus as a monsoon discovery, but Tchernia points out the fallacy there.¹ Eudoxus' tradition makes barely a mention of the winds. They are, however, inextricably linked together.

The monsoon winds were not unknown to the Greeks. Tchernia² describes earlier Greek understanding of the monsoon in the context of the climate of India, including Alexander's experience with it; an incident recorded by Arrian, where Nearchus and Alexander's fleet were delayed by the 'Etesian winds'.³ The monsoon winds are also studied as 'Etesian winds' in the works of Aristobulus, who travelled with Alexander the Great in India.⁴ What was unknown was the way in which they could speed a ship across the open ocean to India, and when the seasons changed speed it home again with the reverse monsoon.

It is important to note that the ocean route was not wholly new. The direct route across the ocean was known and used before this by both Indian and Arab navigators⁵ and may have been kept deliberately from the Greco-Egyptians, according to one theory. ** This direct route was first used by the Greeks in the latter half of the second century BC.⁶ The major importance of the discovery itself is the corresponding increase in trade, especially in luxuries, as it became easier and quicker to make the journey with a merchant ship and cargo. Trade didn't really explode until Augustan period, with the 30bc annexation of Egypt contributing to this.⁷

This essay intends to examine both traditions for historical credence. Is there any truth to these discovery traditions? According to Habicht, the “prevailing view of the majority of scholars is that the Indian captain revealed the use of the monsoon winds, and that Eudoxus was the first Greek to make use of them”.⁸ He also mentions scholars who try to reconcile them. While Habicht⁹ argues that they cannot both be true, this does not mean that they are not both false. There is no material evidence for either tradition, although there is plenty for the Indian ocean trade and for its increase in the latter half of the second century BC.

¹ Tchernia 1997: 253

² Tchernia 1997: 256

³ Arrian, *Anab.*, VI, 21

⁴ Tchernia 1997: 265, Aristobulus cited in *Strabo*, XV, 1, 17

⁵ Tchernia 1997: 260

⁶ Tchernia 1997: 260

⁷ Habicht 2013: 202-3

⁸ Habicht 2013: 201

⁹ Habicht 2013: 205

Both traditions sound like sailor's tales and legends: sensationalist, loosely based on real events but primarily intended to impress and amaze. They are adventure stories, complete with a Greek as the main character, catered to their audience. They do, however, likely contain historical facts which the entertainment was built around.

Hippalus

The discovery tradition of Hippalus is recorded in the *Periplus Maris Erythraei*, written in the first century AD.¹⁰ Tchernia dates the *Periplus* to mid first century AD, "certainly before 70AD".¹¹ There is no exact time frame for Hippalus' journey. Habicht finds that a time close to Eudoxus' own journey (c. 116BC, below) is probable, which means that there would be over a century and a half between the writer and the subject. No author is known for the *Periplus*, and its sources are unclear, and therefore unverifiable.

The summary of this discovery tradition is that Hippalus, a ship's captain, by his own diligent study worked out a way to sail across the open ocean to India, and in doing so opened the route to the Greeks.

Hippalus may have been behind the discovery of the direct route to India, but he discovered this direct route independently of the monsoon winds, by geographical means.¹² Tchernia¹³ does not believe that understanding of the monsoon winds are essential to the opening of the direct sea route to India. Although the route makes use of the monsoon winds, it does not require great knowledge of them, just knowledge of navigation.

To clarify: Hippalus had nothing to do with the discovery of the monsoon, as per Tchernia's argument on the wording used in the *Periplus*.¹⁴ Tchernia¹⁵ observes that the *Periplus* does not state that Hippalus discovered "the existence of this wind nor the way in which it was used". Tchernia states that Hippalus instead was the first to open the crossing of the open sea "after observing neither the SW nor the NE monsoon seasons, but the 'location of the ports and the shape of the sea'". While 'the shape of the sea' is a phrase which has also been translated as 'the condition of the sea', in its context it does seem to point to Hippalus having the information to work out where to aim for- the location of his destination in comparison with his starting point. ** says that the primary problem of the journey across the open ocean was the very real fear that misaiming and overshooting the destination would leave a ship lost in the endless River Ocean.¹⁶

The method which he is supposed to have used to plot the direct route is plausible, as Tchernia explains.¹⁷ Tchernia also clarifies that Hippalus' method would rely on having acquired better

¹⁰ PME 57.

¹¹ Tchernia 1997: 266

¹² Tchernia 1997: 257

¹³ Tchernia 1997: 256

¹⁴ Tchernia 1997: 253; PME 57

¹⁵ Tchernia 1997: 253

¹⁶ Tchernia 1997: 258

¹⁷ Tchernia 1997: 258

geographical understanding of the respective positions of the coastlines¹⁸ than was currently available.

Hippalus' tale, reads like a story or a legend more than a historical anecdote, and it lacks details to anchor it in place or time. Hippalus has a Greek name but no place of origin or allegiance, and no further details about him are mentioned in the tale.

Hippalus shares his name with the southwest monsoon wind,¹⁹ as well as geographical features. This feels like a folk etymology, like a story of explanation as to how the wind got its name. Tchernia²⁰ uses spelling variants in Pliny to trace the contemporary name of the wind, Hippalus, back to earlier Hypalus. Tchernia gives this as the origin of the myth of the pilot Hippalus.²¹ *Hypalus* means a wind 'from under the sea', which fits with contemporary Greek concepts of how winds worked.

Mazzarino brings attention to the two variants, *Hypalus* and *Hippalus*, arguing that they are deliberately different from each other, rather than misspellings or miscopied.²² His argument centres on knowledge of the author, with Pliny's faithfulness to sources a key part. Pliny's four centuries earlier sources, probably Nearchus or Onesicritus, used the term *hypalus*, and Pliny's own contemporary source *hippalus*.²³ Mazzarino argues that this shows that the name has changed over time.²⁴ This is the reasoning that Tchernia uses in his reasoning for the etymological interpretation of the tradition.²⁵

Mazzarino disbelieves Hippalus purely because neither Pliny nor, importantly Poseidonius mention the tradition.²⁶ Although Mazzarino has an argument about Poseidonius' Stoic fondness for the etymology of the winds, the fact that it isn't mentioned in the surviving fragments is not sufficient evidence that it did not occur in the original text. If Poseidonius did disbelieve the tradition of Hippalus, as Mazzarino argues he did,²⁷ it would have been mentioned by him or Strabo, who comments on other 'reports unsupported by testimony' before he begins to discuss Eudoxus.²⁸

Eudoxus of Cyzicus

The summary of the discovery tradition of Eudoxus of Cyzicus is as follows. A shipwrecked Indian sailor was delivered to Ptolemy Euergetes II by the Red Sea Garrison, and once he was taught sufficient Greek he told his story to the court: that he was the last survivor from a ship sailing from India and that his fellows had died of starvation, and that he could guide a crew of the king's choice to sail to India. Eudoxus at that time was serving as the herald and ambassador for Cyzicus' Festival

¹⁸ Tchernia 1997: 258; PME 57

¹⁹ Karttunen 2006

²⁰ Tchernia 1997: 251-2

²¹ Tchernia 1997: 251-2

²² Mazzarino 74

²³ Mazzarino 75

²⁴ Mazzarino 76

²⁵ Tchernia 1997: 251

²⁶ Mazzarino 76-77

²⁷ Mazzarino 77

²⁸ Strabo Geog. 2.3.4-5

of Kore to Ptolemy II, and was picked as part of the expedition to India, following this shipwrecked sailor's guidance.

The discovery tradition then goes on to recount Eudoxus' rich return from India, only to have the profits taken by the King, and the two subsequent times he makes this voyage, only to lose his prizes each time, in a tale which has much in common with earlier Fantasy India anecdotes. **

The discovery tradition of Eudoxus of Cyzicus is recorded in Strabo's *Geography*, who credits the tale to Poseidonius.²⁹ Strabo himself wrote in the late first century BC and early first century AD.³⁰ Poseidonius of Apamea was a famous Stoic philosopher and a slightly younger contemporary of Eudoxus. He recorded the tale in his work *On the Ocean*, which is preserved in the second book of Strabo's *Geography*. Strabo records that Poseidonius treated the tradition as true, but Strabo himself devotes equally as much space to finding faults in it as he does to recounting the tale. Strabo lists 22 questions which leave him sceptical of the tale.³¹

Poseidonius by way of Strabo is a more reputable source than the anonymous *Periplus Maris Erythraei*, as it has a source contemporary to the tale in Poseidonius, who was a historical personage whom we have information about by more than one source.³² Habicht says that upon Poseidonius' c.100BC departure from Gades, "People still thought Eudoxus might return one day".³³ It was presumably then believed in its own time, which does lend credence to its version of events. Gades is also a place mentioned repeatedly in the tale of Eudoxus, and therefore more likely to know if the whole of the tale was fictitious, lending credence to the truths within the tale.

Habicht claims that many modern scholars agree that the bones of Poseidonius' tale are true.³⁴ It certainly may be; the tale has the sort of historical detail which generally indicates this, but if so then it is a truth that has been patched up with entertainment, the bones of the royally funded expedition and the ambassador holding the substance and glamour of a tale told well.

On the other hand, elements of the story have distinct similarities to other tales of exploratory journeys, such as the discoveries of fantastical islands and philosopher's journeys which were associated with India in the past. The shipwrecked sailor is a literary device which shows up in fantastical Greek traditions. It is quite likely that the facts of the journey were embellished with these additions to fit better with tales the Greek audience would be more familiar with.

The tradition around Eudoxus certainly has more verifiable facts compared to Hippalus' tale, which contains no datable references. Eudoxus' tradition, however, has many. Three Egyptian royals are identifiable, one contemporary Mauritian king is identifiable, and Cyzicus' festival of Kore, which is well attested.³⁵

The three Egyptian royals in question are Ptolemy Euergetes II, who commissioned the first expedition, his widow Cleopatra III who sent Eudoxus on the second expedition, in which he was

²⁹ Poseidonius in Strabo Geog. 2.3.4-5; Broderson 2006.

³⁰ Lasserre 2014

³¹ Strabo Geog. 2.3.4-5

³² Encyclopaedia Britannica, 2017; Inwood, 2006.

³³ Habicht 2013: 201

³⁴ Habicht 2013: 198

³⁵ Habicht 2013: 199; Strabo 2.3.4, Sourvinou Inwood, 2006.

shipwrecked for the first time, and her son Ptolemy Soter II, who also confiscated Eudoxus' prizes upon his return.³⁶ This leads Habicht to give the date of Eudoxus' first crossing as shortly before the death of Ptolemy Euergetes II in 116BC, to allow for Euergetes to confiscate Eudoxus' cargo upon his return.³⁷

The Mauritian king is most likely Bocchus I, who Habicht identifies and who ruled until 81 BC,³⁸ or his son and heir Bogudes as per Meißner.³⁹ Strabo names him as Bogus.⁴⁰ The ambiguities as to when Bocchus began his rule – given as c.110BC by Meißner – allows enough time from 116BC for Eudoxus to complete the earlier voyages, as Bogus was said to be met on the third voyage.

Other Options

Neither tradition may be true: Tchernia suggests that the interaction between Egyptian and Indian traders in the mutually frequented port of Patala in Eudaemon Arabia, a place mentioned in the *Periplus Maris Erythraei*, lead to the Greco-Egyptian use of the ocean route to India.⁴¹ This is a pragmatic and plausible sequence of events, but would be somewhat at the mercy of language barriers and inaccuracy, which could kill a sailor, unless somehow corroborated.

Certainly, the two traditions are in no way irreconcilable. There are at least two ways, disregarding both men travelling on the same ship. Habicht brings up the possibility of both being first if they travelled on different routes- an earlier, longer direct route, and a later, shorter one. Accompanied by the facts that there were several different routes in use as the trade grew, this is a plausible solution.⁴² However, this is not corroborated in either written account, and the celebration of a slightly shorter route found is considerably less likely to be celebrated and remembered than the discovery of a route which was drastically quicker.

Tchernia⁴³ draws a connection between Poseidonius' unusual but correct orientation of the Indian coastline, as cited by Pliny,⁴⁴ and the geographical information which the *Periplus* credits to Hippalus. Tchernia⁴⁵ cites Dihle as regarding the geographical information associated with Hippalus as most likely to be the impetus as information received by Eudoxus' patron royal. It is possible that the shipwrecked sailor may be a literary device deemed more interesting or believable than geographical study of Hippalus. The third path of information acquired at ports is also highly credible, and probably, the sort of information needed to calculate the shape of the sea.

³⁶ Habicht 2013: 199

³⁷ Habicht 2013: 202

³⁸ Habicht 2013: 201

³⁹ Meißner 2006

⁴⁰ Strabo Geog. 2.3.4-5

⁴¹ Tchernia 1997: 259

⁴² Habicht 2013: 202

⁴³ Tchernia 1997: 258

⁴⁴ Posidonius in Pliny, NH, VI, 57

⁴⁵ Tchernia 1997: 258

All three could reconcile, if the information from the port was used to inform the method of Hippalus to work out where the expedition of Eudoxus would go. Or, to put it more simply, if Egyptian royalty commissioned a geographer-sailor to calculate the best path from the information known of the Indian ocean route, and once a possibility was produced paid for an expedition to test it, which would be a beneficial move for Egyptian trade and diplomacy.

Summary

Hippalus' method of discovery is far more credible than a shipwrecked guide, but Hippalus is near completely a myth, bar the methodology, which is the only credible part of the tale. Eudoxus of Cyzicus is far more historically credible, as it contains multiple verifiable historical figures, contemporary geography, and contemporary belief. The shipwrecked sailor, however, is an embellishment for entertainment purposes and is in no way credible.

Bibliography

Arrian, *Anabasis*, Robson (trans.) 1968. Cambridge: Harvard University Press.

Strabo, *Geography*. Jones (trans.) 1917. London: Heinemann.

Periplus Maris Erythraei. Casson (trans.) 2012. Princeton: Princeton University Press.

Pliny, *Natural History*. Bostock and Riley (trans.) 1855. London: Bohn

Broderson, K. 'Eudoxus of Cyzicus' 2006. Brill's New Pauly.

<http://referenceworks.brillonline.com/entries/brill-s-new-pauly/eudoxus-e404350#e404380> [Accessed: December 15, 2017.]

Casson, L. (2012) *The Periplus Maris Erythraei: Text with Introduction, Translation, and Commentary*. Princeton University Press.

Encyclopaedia Britannica. 'Poseidonius' 2017. <https://www.britannica.com/biography/Poseidonius> [Accessed: December 17, 2017.]

Habicht, C. (2013) 'Eudoxus of Cyzicus and Ptolemaic Exploration', in *The Ptolemies, the Sea and the Nile* (eds., Buraseis, K., Stefanou, M. and Thompson, D. J.). Cambridge: Cambridge University Press: 197-206.

Inwood, B. 'Poseidonius: Stoic philosopher, scientist and geographer, 2nd cent. BC' 2006. Brill's New Pauly. <http://referenceworks.brillonline.com/entries/brill-s-new-pauly/poseidonius-e1006160#e1006190> [Accessed: December 15, 2017.]

Karttunen, K. 'Monsoon' 2006. Brill's New Pauly. <http://referenceworks.brillonline.com/entries/brill-s-new-pauly/monsoon-e809500> [Accessed: December 15, 2017.]

Lasserre, F. 'Strabo' 2014. Encyclopaedia Britannica. <https://www.britannica.com/biography/Strabo> [Accessed: December 17, 2017.]

Mazzarino, S. (1997) 'On the Name of the Hipalus (Hippalus) Wind in Pliny', in *Crossings. Early Mediterranean Contact with India* (eds., De Romanis, F. and Tchernia, A.) New Delhi: Manohar. 72-79.

Meißner, B. 2006. Brill's New Pauly. <http://referenceworks.brillonline.com/entries/brill-s-new-pauly/bogudes-e218770> [Accessed: December 15, 2017.]

Sourvinou Inwood, C. 'Persephone, Kore' 2006. Brill's New Pauly <http://referenceworks.brillonline.com/entries/brill-s-new-pauly/persephone-kore-e914950> [Accessed: December 16, 2017.]

Tchernia, A. (1997) 'Winds and Coins: From the Supposed Discovery of the Monsoon to the Denarii of Tiberius', in *Crossings Early Mediterranean Contacts with India* (eds., De Romanis, F. and Tchernia, A.) New Delhi: Manohar. 250-276.