

Rome and the Indian Ocean Trade from Augustus to the Early Third Century CE

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Rome and the Indian Ocean Trade from Augustus to the Early Third Century CE

By

Matthew Adam Cobb



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Introduction

The Indian Ocean is a vast body of water covering over 70,000,000 square kilometres in its entirety. Its western side laps the coasts of East Africa, the Arabian Peninsula, southern Iran, Pakistan, and western India, while its eastern side stretches from eastern India in an arch to Southeast Asia. The western Indian Ocean also has important extensions in the form of the Red Sea and the Persian Gulf. In spite of its vastness, many diverse civilisations controlling its littorals have used this ocean as a conduit for the movement of peoples, goods and ideas. In its western half these movements can be detected as early as the third-second millennium BCE between the Sumerian (Mesopotamian) and Harappan (Indus Valley) civilisations.¹ This is attested in documents that record the transport of precious stones and ivory via intermediary lands such as Mekkan (Oman) and Telmun (Bahrain).² Later the Akkadian king Sargon boasted that ships containing ivory from Oman sailed directly to the riverbanks of his capital.³ A second major phase of activity occurred in the early to mid-first millennium BCE, with the re-emergence of harbours and coastal settlements on the Indian seaboard and along the Persian Gulf.⁴

The pharaohs of Egypt also sent expeditions across the Eastern Desert and down the Red Sea to a land they knew as Punt, an unknown location that probably conceptually shifted and expanded over time.⁵ The earliest recorded expedition was one sent out by Sahura (2458–2446 BCE), and such ventures continued sporadically under later rulers like Mentuhotep III (2004–1992 BCE) and Hatshepsut (1508–1458 BCE).⁶ Evidence for this activity includes material

1 H. Ray (1994): 12–17; Vogt (1996): 126–127; Moore and Lewis (1999): 52–58; Warburton (2007): 9–21; Smith (2009): 32–36; Beaujard (2015): 15; Salles (2016): 137; Gaur and Sundaresh (2016): 199. The beginning of trade contact across the Bay of Bengal seems to date around 1000 BCE—H. Ray (2015): 10. By the first century CE, if not earlier, Southeast Asia was linked into a wider Eurasian world economy—Chew (2015): 28, 31.

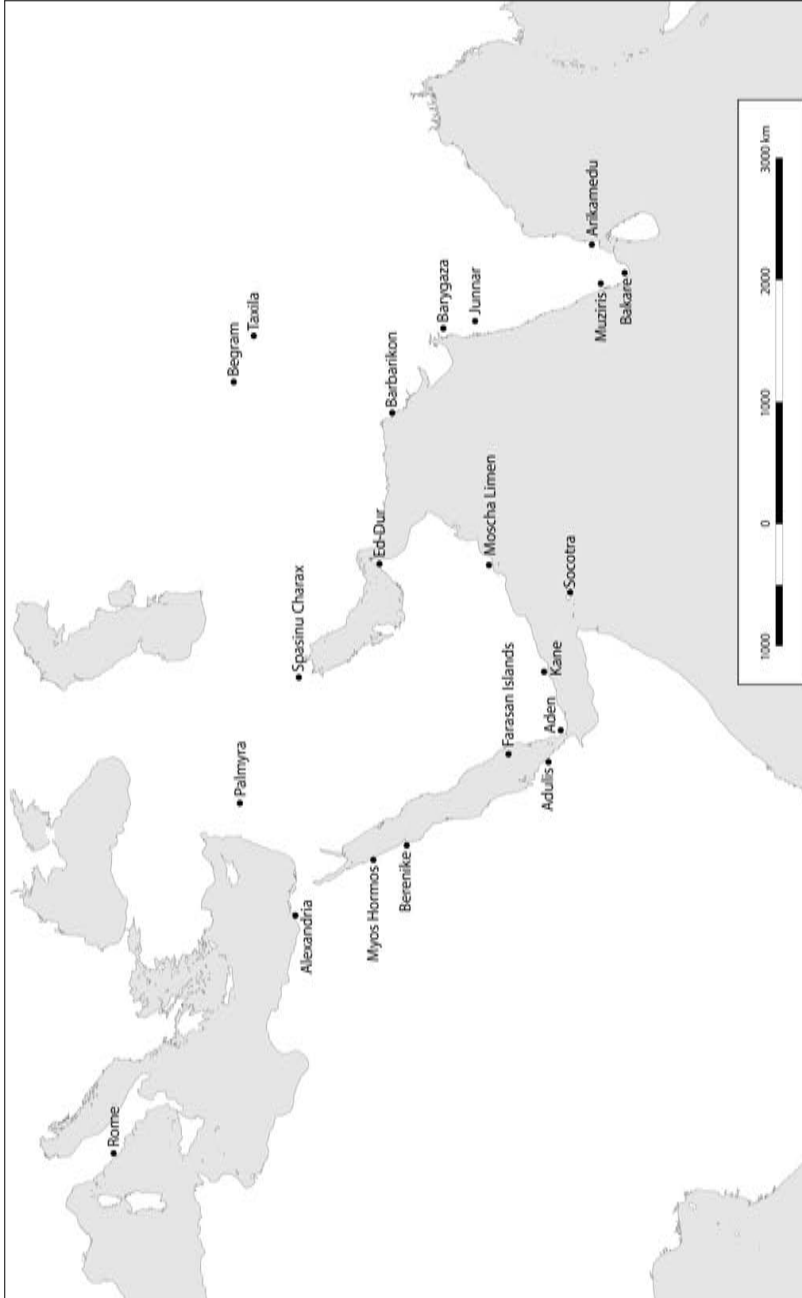
2 Oppenheim (1954): 13, 15—UET III 751.

3 Curtin (1984): 66; Oppenheim (1954): 7–16. See also Chew (2015): 34–36.

4 S. Gupta (2005): 212.

5 Sidebotham (2011a): 24. Pottery at the Pharaonic period site of Mersa Gawasis suggests trade contacts with cultures in Eritrea and possibly Yemen—Bard and Fattovich (2010): 1–13.

6 For Pharaonic expeditions see Curtin (1984): 71–73; Shaw (2000a): 316–317; Smith (2009): 41–45. Wainwright (1947): 143–144, suggests more regular contact.



MAP 1 *Western Indian Ocean*

remains from the site of Mersa Gawasis on the Red Sea coast, and two recently discovered fragments of a stela of Amenemhet IV found in the Great (or Main) Temple in Berenike.⁷ Besides the Egyptians, the Old Testament (early first millennium BCE) also speaks of a joint expedition by Solomon and Hiram of Phoenicia to Esian-Geber (East Africa and Arabia) and Ophir (India or possibly Southeast Asia).⁸ By the fifth and fourth centuries BCE, ideas about these lands and their products had even filtered into Greek thought. Aeschylus made reference to the “Erythra Thalassa” (see below), Herodotus commented on various Indian tribes, Aristophanes alluded to Eudaimon Arabia (southern Arabia or the port of Aden); and by the early Hellenistic period Theophrastus could even distinguish between the plants producing black pepper (*piper nigrum*) and long pepper (*piper longum*).⁹

During the Hellenistic period (323–30 BCE), two of the major dynasties, the Ptolemaic and Seleucid, established themselves after Alexander the Great's death and gained access to the Red Sea and the Persian Gulf, respectively. Under these dynasties, Greek-speaking peoples gained the opportunity to explore these regions and increasingly engage in trade. The Seleucids established a colony on the island of Failaka in the northern Persian Gulf, which, to judge from the coin and amphora finds, probably acted as a meeting point for merchants from their empire and others, such as the Gerrahaeans.¹⁰ The extent to which merchants from the Seleucid Empire directly sailed to India or were dependent upon the Gerrahaeans as intermediaries is unclear.¹¹ In any case, by the end of the second century BCE the Parthians had taken over the northern shores of the Persian Gulf, which were subsequently controlled by the vassal kingdom of Characene.¹² In contrast, the Ptolemies maintained control

7 Bard and Fattovich (2010): 1–13; Hense, Kaper and Geerts (2015): 586, 596, 598.

8 Newby (1988): 33; Moore and Lewis (1999): 91–94; Smith (2009): 49. Josephus (*AJ* 8.6.4) associates Ophir with the Golden Chersonesos (Southeast Asia).

9 Aeschylus Fragment 67; Hdt. 3.98–106; Ar. *Birds* 144–145; Theophr. *On Plants* and *On Odours*. See also Eur. *Bacch.* 16–18. Data from shipwrecks shows that pepper was imported into the Mediterranean from the second millennium BCE—H. Ray (2015): 212. It has even been suggested that the image of a flute-playing snake charmer on an Apulian vase (fourth century BCE) indicates Italian contact with India—Cimino (1994): 125.

10 Salles (1987), 85, 87–88; Salles (1996a), 302–304; Salles (2016): 149–150; Sherwin-White and Khurt (1993), 65–66; H. Ray (1994): 55; Parker (2002): 70–71. For Rhodian amphorae and a Seleucid coin at Mleiha (Qatar) see Salles (1995): 125, 134; Tomber (2008): 112.

11 Salles (1996a): 295, suggests knowledge of the Persian Gulf resulted from Seleucid trade with India.

12 Salles (1995): 117; Potts (1996): 282.

of a portion of the north-western Red Sea coast (despite issues with Nabataean pirates), allowing merchants to trade as far afield as India by the late-second and first centuries BCE.¹³

Scope of the Book

These historical developments form the backdrop to the subject of this book: Roman involvement in the Indian Ocean trade from the reign of Augustus to the early third century CE, a period often referred to as the Principate. The logic behind this chronological demarcation is that the annexation of Egypt (30 BCE) by Octavian (“Augustus” from 27 BCE) ushered in a politically unified Mediterranean world. In this context, the following centuries saw significant levels of trade activity with a high point in the first century CE, followed by a downturn during the course of the second century. It was not, however, until the third century CE that levels of Roman activity reached a significantly low ebb. Certainly, not all merchants from the Roman Empire had ceased trading in the Indian Ocean by this point, and there was a substantial revival from the mid-fourth century CE. Nevertheless, the patterns of trade in this later period were somewhat different from those that preceded them: northerly ports in the Red Sea, like Clysma, became more significant; middlemen, like the Axumites, increased in prominence; the island of Sri Lanka had become a major hub; and Christianity was beginning to leave its mark.¹⁴ It is wholeheartedly acknowledged that delineating the Principate phase from what preceded and followed it is problematic. As will be seen in Chapter 2, many features of the trade already established under the Ptolemies were continued and developed after the Roman annexation of Egypt, and, as noted, trade activity continued into the third century CE (albeit at a lower ebb). The latter is attested by inscriptions from Berenike, among other evidence. But ultimately all studies need defined parameters and the one adopted here seems as logical and coherent as any.

Since most Roman activity took place in the western Indian Ocean, the main geographic focus of this study lies on the regions of the Red Sea, the Gulf of Aden, and the Arabian Sea. These bodies of water were used to facilitate

13 For Ptolemaic activity in the Red Sea region and issues of Nabataean piracy see Desanges (1978): 243–305.

14 Nappo (2007); Seland (2012a) and (2012b); Power (2012): 19–59; Sidebotham (2014): 617–619.

exchanges between Egypt and the wider Mediterranean with East Africa, the southern Arabian Peninsula, and the Indian subcontinent.¹⁵ Areas like the Bay of Bengal will, however, receive some treatment. When Greek authors used the term *Erythra Thalassa*, or Latin authors *Mare Rubrum*, they were usually referring not just to the Red Sea proper, but to the area encompassing the Gulf of Aden, the Arabian Sea, and in some instances the Persian Gulf and the Bay of Bengal.¹⁶ These authors did not always use the term consistently. For example, Arrian referred to an Indian Sea, a Great Sea, and the *Erythra Thalassa* interchangeably.¹⁷ He also described the myth of how the Persian king *Erythra* gave his name to the sea, seemingly placing the Persian Gulf among this group.¹⁸ For this reason the modern term Indian Ocean is employed.

While this work focuses primarily on Roman participation in the Indian Ocean trade, it is necessary to stress that merchants from the Mediterranean world were not exclusively operating in the Indian Ocean. A whole range of peoples from East Africa, the southern Arabian Peninsula, Parthian territory (covering modern Iraq, Kuwait and Iran), and the Indian subcontinent were involved (among others). It should also be stressed that the term Roman merchant (or its variants) is often employed in this work as convenient shorthand for citizens and subjects of the Empire who had a commercial interest in the Indian Ocean region. They formed a wide variety of peoples with different ethnic and cultural identities but were, nevertheless, subject to the same central political authority. The term Mediterranean merchant is also used as a designation, especially when not referring exclusively to the Roman period.

Key Themes

The following chapters deal with various facets of Roman participation in the Indian Ocean trade, including the means by which it was organised, financed

15 In this book the term is used to refer primarily to India, Pakistan and sometimes Afghanistan; although the latter is technically part of central Asia. See Map 1.

16 For example, Agatharchides *On the Erythraean Sea*; Strabo 16.3.1; Pliny *NH* 6.26.103; *Periplus*; Sidebotham (1986): 182–186; Marcotte (2016): 163.

17 Arr. *Ind.* 38.3 (Indian Sea), 43.2 (Great Sea), 43.7 (*Erythra Thalassa*). Marcotte (2016): 181–183, claims the term Indian Sea became more common in the first and second centuries CE.

18 Arr. *Ind.* 37.3—in which the Persian Gulf is also referred to as the *Erythra Thalassa*; see also Agatharchides 1.5a = Photius, *Cod.* 250.5, 442a–422b.

and conducted (Chapters 3 and 5); the types of goods exchanged and their social and economic impact (Chapters 6, 7 and 8); the Roman state's taxation and oversight (Chapter 4); and the development and peak of the trade (Chapters 2 and 9). While these chapters are distinct units in their own right, many of them overlap in major thematic ways. The purpose is both to provide a series of overarching arguments and new perspectives and to challenge a number of long-standing theories.

Development of Trade

There has been a tendency in some scholarship to present the Augustan period as ushering in a new and distinct phase of Mediterranean involvement in the wider Indian Ocean trade. This is not only in terms of the volume of goods exchanged, but also in how the trade was conducted. It is argued here that this theory is in need of modification. Many of the Red Sea ports, routes, and trade networks utilised by Mediterranean merchants had their origins in the Ptolemaic period and would be subsequently expanded in the Roman period (Chapter 2). It is also argued that the Alexandrian financiers and the Graeco-Egyptians merchants who conducted the trade were not displaced by Italian merchants. They continued to be heavily involved in the trade, and while other groups did increasingly participate, this was not an entirely novel development (Chapter 5).

Barter and Bullion

Despite the lack of statistical data on the cost and volume of Rome's Indian Ocean trade, it has repeatedly been claimed that the demand for Mediterranean goods in various eastern societies, especially in southern India, was limited. As a result, many have asserted that Roman merchants acquired most Eastern goods through the exchange of precious coinage. However, written and archaeological evidence reveals that a wide variety of goods were both imported and exported, from raw materials and foodstuffs to lightweight costly items. In fact, an examination of the archaeological evidence suggests that various Mediterranean crafted wares (especially bronzes and glassware) were appreciated in India (Chapter 7).

A re-examination of Pliny's claims regarding the export of millions of *sestertii* from the Roman Empire (50 million to India alone, and 100 million to India, Arabia, and the Seres combined) indicates that these figures cannot be used to substantiate the idea of a mass outflow of gold and silver. Even if they did, the amount of space taken up on most Roman merchant ships operating in the Indian Ocean would have been negligible. Of necessity, most of the space in a cargo hold was taken up by goods in kind (or at least non-saleable ballast), and

the need for correct stowage meant that many of these products should not be seen as mere space-fillers, but high-quality items demanded in their own right (Chapter 8).

The Peak Period of Roman Trade

The period under study in this book runs from 30 BCE to the early third century CE, but this does not mean that the levels of trade within this period remained consistent. There were broad upsurges and downturns (and no doubt annual fluctuations), although there is no consensus on when these took place. Some argue, on the basis of numismatic evidence and references to Roman consumptive habits in Graeco-Roman literature, that the Julio-Claudian period saw a peak in trade (Chapter 7), while others argue that it remained strong and steady until the latter second century CE, when events like the Antonine Plague caused a significant downturn (Chapter 9). Based on examination of the archaeological and numismatic evidence, it is argued here that the first century CE, especially the latter first century, actually represents the peak of Roman participation in the Indian Ocean trade, and that the early second century CE saw the start of a downturn (Chapter 9). A view that has been advanced more recently.¹⁹

Schedules, Practicalities and Roman Diasporas

Many features of Mediterranean trade, such as the use of agents, maritime loans, business partnerships, and methods of vessel construction, were also employed by Roman merchants in the Indian Ocean (Chapter 5). At the same time, it was necessary to adapt to the conditions of this ocean, most notably to the seasonal monsoons that impacted on timing and directions of travel. These patterns usually meant that it was possible to conduct a season's trading between Egypt and ports in East Africa, southern Arabia, and India within a year. However, the western Indian Ocean and the Mediterranean were two separate trading spheres, and it is likely that the volume of goods exchanged between these spheres fluctuated annually, potentially due to factors such as piracy, banditry, bureaucracy, corruption, and losses at sea (Chapter 3).

The restricted sailing schedule imposed by the monsoon winds likely encouraged some powerful financiers and merchants to leave behind agents or partners in major foreign emporia. They could engage with local contacts, gather useful information, and assemble goods in advance. However, some

19 Cobb (2015b): 362–418. See also Sidebotham (2011a): 63, 124, 218–224 (especially in relation to Berenike).

of the evidence cited as examples of such “diasporas” must be treated with more caution, especially the references to Yavanas in Indian texts and inscriptions, where the identification is open to question. The interpretation of Roman material finds in India relating to this debate also warrants more caution. In fact, it could be argued that there is currently firmer evidence for the presence of Arabian and Indian merchant communities in Egypt than vice versa, although evidence for the latter is not absent (Chapter 5).

Indian Ocean Goods and Roman Society

Many Indian Ocean goods played an important role in competitive displays of status in Roman society, and, conversely, were also discussed in relation to longstanding moralising discourses on traditional Roman values and concerns about the financial stability of some elite households. However, the simple categorisation of these Indian Ocean imports as “luxuries” is problematic. Examination of the literary sources will show that these goods were used in many complex and multifaceted ways that defy singular and definitive categorisation. It is also apparent, as a number of scholars such as Young, Sidebotham and McLaughlin have noted, that some of these imports, particularly spices and aromatics, were probably quite widely consumed, raising a whole series of questions about the scale and significance of the trade (Chapter 6).

Scholarly Developments

The last five centuries have seen an exponential increase in the available body of material with which to study the Indian Ocean world of the late first millennium BCE to the early first millennium CE. The earliest editions of the *Periplus Maris Erythraei*, a mid-first century CE guide on trade in the Indian Ocean, became publically available in the sixteenth century, which, coincidentally, was a period of increasing European activity in the region.²⁰ The fifteenth and sixteenth centuries were also periods when surviving manuscripts containing classical geographical works began to be printed, like Claudius Ptolemy’s *Geographia* (the first print edition dates from 1475). The *Tabula Peutingeriana*, or Peutinger Table, a copy of a late antique map of the *oikoumenē* (the inhabited or known world), was also published in full in 1598.²¹ By the late eighteenth

20 Schoff (1912): 17–19; Casson (1989): 5–6; Cimino (1994): 9.

21 Wheatley (1961): 160; S. Gupta (2005): 212–213. For a detailed discussion on the transmission, discovery and publication of the Peutinger Table see Talbert (2010): 10–73.

and nineteenth centuries, surveys began to appear which attempted to identify the ancient ports named in classical and Indian literature.²² Around the same time, European historians became increasingly engaged in drawing parallels between Roman interests in the Indian Ocean and the activities of contemporary trading companies.²³

During the eighteenth and nineteenth centuries the East India Company, and subsequently the British Crown, progressively took control of substantial portions of the Indian subcontinent. It was in this context that discoveries of Roman coins in India began to be recorded by Western scholars and political authorities, although much evidence has been lost to plundering and recycling over the centuries.²⁴ Nevertheless, the corpus of numismatic evidence increased and, in the best cases, records of provenance and condition were made. Furthermore, the Eastern Desert of Egypt became subject to antiquarian and archaeological surveys from the time of the Egyptian campaign of Napoleon onwards. This brought inscriptions and graffiti relating to the Indian Ocean trade to the attention of scholars.²⁵

Consequently, by the early twentieth century, a range of literary, numismatic, and epigraphic material was available to work with, although archaeological finds were yet to make a significant impact. This period saw a number of scholarly works appear that dealt with Roman involvement in the Indian Ocean trade, including Mookerji's *A History of Indian Shipping and Maritime Activity* (1912), Rawlinson's *Intercourse between India and the Western World* (1916), Charlesworth's *Trade-Routes and Commerce of the Roman Empire* (1924), and, perhaps most importantly, Warmington's *The Commerce between the Roman Empire and India* (1928). The latter work would become seminal in the field, and although much new evidence has come to light since its publication, many scholars continue to repeat a number of the conclusions made by Warmington.

Warmington is praised by Suresh for being the first modern scholar to correlate numismatic data in India with the account of the *Periplus Maris Erythraei*.²⁶ It could, however, be contended that his treatment left much to be desired. Most notable is his use of insufficient literary testimony to claim that Roman coin finds in southern India represented an attempt to create a currency by Roman merchants—a theory adopted by later scholars like Miller and

22 S. Gupta (2005): 213–214; Seland (2014): 368–369; Gurukkal (2016): 91.

23 De Romanis (2015a): 1–4.

24 Turner (1989): 1–4.

25 Weigall (1909); Murray (1925): 138–150; on earlier travellers see A. Bernand (1972): 21–37, 59–74; Cuvigny (2006a): 14–18.

26 Suresh (2004): 16.

P. Gupta.²⁷ Often, in order to construct elaborate theories, separate literary texts were melded together and their limits overlooked. Notable among these theories is Warmington's attempt to reconstruct stages in the "discovery" of the Indian Ocean monsoon winds—a pitfall not entirely escaped in more recent times.²⁸

Many early twentieth century scholars adopted what could be termed a "modernising" approach to the study of Graeco-Roman economics and trade, as encapsulated in the work of Rostovtzeff. This approach to studying the ancient Roman economy emphasised the quantitative rather than qualitative differences with later European industrial economies.²⁹ Coupled with this was a tendency to portray Indian Ocean commerce as an extension of government policy, in which diplomatic efforts and military campaigns were used to benefit Roman merchants. In this context, Charlesworth portrayed Rome's trade with India as a product of national hostilities and competition between different ancient states. He asserted that the emperors fostered the sea-route in order to bypass the Parthians and Arabs, while also claiming that Vespasian's frugality discouraged the excessive import of goods.³⁰ Warmington followed similar lines drawing parallels with later European involvement in the Indian Ocean and also arguing that Vespasian attempted to limit the export of silver. Furthermore, he—anachronistically—criticised Roman "failures" to develop industries from this long-distance trade and apply capitalist methods.³¹

Modern scholarship has tended not to express these theories so overtly, but the notion of circumnavigating Rome's enemies and fostering trade via the Indian Ocean is an idea that still has some force.³² With regard to the Roman state directing its military and diplomatic policy to advancing commercial interests, a more nuanced and balanced approach has been recently adopted by Speidel. He argues that the Roman state's attempts at dominating the Red Sea and developing diplomatic relations were undertaken to ensure legal protection for its merchants in foreign ports.³³ The latter proposition has some merit, but as demonstrated in Chapter 4, rests on a weak evidential basis.

27 Warmington (1928): 274–285; Miller (1969): 217; P. Gupta (1991): 125.

28 Warmington (1928): 43–47. See also Wheeler (1954): 127; Fraser (1972): 183–184; P. Gupta (1991): 123; Parry (1999): 217.

29 Morley (2004): 35–37.

30 Charlesworth (1924): 33–34, 61–63, 73, 225; this idea is also briefly restated by S. Gupta (2015): 212.

31 Warmington (1928): 293, 315.

32 See notably Sidebotham (2011a): 13; and also S. Ray (1991): 138.

33 Speidel (2015): 83–128.

There was also a tendency in nineteenth and early twentieth-century scholarship to make broad nationalistic and ethnic generalisations. Merchants from a particular ethnic group were often spoken of as acting as part of a collective. For example, Warmington spoke of the Arabs jealously guarding “secret knowledge” of the monsoon winds. He also attributed what he saw as the passive involvement of Indians in this trade as a reflection of their conservative character, contrasting this with the supposed dominance of Western merchants in the transit of goods.³⁴ These types of sentiments were both a product of the period in which they were written and were perhaps the result of a greater reliance on Graeco-Roman literary testimony.

In the post-colonial context of the latter twentieth century, there was a reaction against these types of attitudes. Most notable is the work of Edward Said, which highlights what he saw as the generalised, pseudo-scientific, and often negative notions of an Eastern Other present in much Orientalist scholarship of the nineteenth and early twentieth centuries—a portrayal that partially has its roots in classical and medieval thought.³⁵ In the last half-century, such blatant generalisations about ethnic characteristics have tended to be avoided, but the view of the Romans as the more proactive partners has continued both implicitly and explicitly. For instance, Miller (1969) has argued that it was necessary for Roman coins to be exported to some regions of India to create a precious metal currency with which Romans could trade. However, it is now clear that many regions of India, including the far south, did in fact have well-developed coinage systems.³⁶ A few decades back, Meyer argued that the Indian kingdoms lacked the resources to engage in long-distance commerce, while recently McLaughlin has speculated that Indians and Arabians who did not own their own vessels probably travelled aboard Roman ships with their own merchandise.³⁷

The strongest reassertion of the idea that Roman merchants were the proactive partners, particularly in relation to southern India, has been made by Gurukkal. Utilising anthropological theories of exchange and focusing on the

34 Warmington (1928): 10–11. The latter idea is expressed by Lindsay (1874): 130, who asserted that Egyptians and Indians were not seafaring peoples. See also Wheeler (1954): 1; Adhya (1966): 136–137.

35 Said (1978): 21, 31–32.

36 Miller (1969): 217; also Warmington (1928): 274–285. On Indian currency systems see H. Ray (1994): 44–47.

37 C. Meyer (1992): 71; McLaughlin (2010): 39. Likewise Nappo (2007): 233, describes the Romans as the dominant force in East-West trade after 30 BCE; while Raschke (1978): 645, suggested that Roman vessels were more seaworthy.

concept of political economy, he argues that southern Indian societies (those in the Tamilakam) lacked the complex state structures necessary to facilitate its inhabitants taking a proactive role in long-distance market exchanges. He further asserts that these local societies would not have conceived of trade, but lived in cultures emphasising gift exchange.³⁸ Gurukkal seems to have followed Rostovtzeff, Jones, and Finley in marginalising the significance of the role of trade in ancient world economies.³⁹

The problem with these ideas is that they downplay the existence of Indian trade networks prior to the Roman period. They also underrate the well-developed seafaring technology and local currency systems that existed in different regions of India.⁴⁰ Furthermore, it is questionable whether the operation of this trade should be seen as so dependent upon levels of “political sophistication”. For example, fishing communities seem to have been quite important to the development of maritime activity in the Indian Ocean.⁴¹ Certainly members of the elite in Indian societies possessed resources that would help them organise and fund trade ventures. However, the onomastic evidence from the Hoq Cave on Socotra indicates that individuals of varying status were involved, including those belonging to *kshatriya* (noble), *vaishya* (merchant), and *sudra* (servant) castes.⁴² Indeed, Buddhist literature reveals that various individuals were engaged in trade in the early centuries of the first millennium CE, many of whom made substantial donations to monastic establishments. Likewise, a number of the inscriptions in the Hoq Cave show implicit and explicit connections to Buddhism.⁴³ Thus, Gurukkal’s theories should perhaps be reassessed.

In the 1930s to the early 1940s, Arikamedu (likely ancient Poduke) was discovered and explored by Jouveau-Dubreuil. Subsequent excavations at this port

38 Gurukkal (2013); Gurukkal (2016). Not directly responding to Gurukkal, but offering an alternative perspective, see Evers (2016): 201–238. See also Sidebotham (2017a): 426–428, for a strong critique of Gurukkal’s work. Additionally Chakravarti (2015): 333–338.

39 Gurukkal (2016): 14, 237. Jones (1974): 30; Finley (1999).

40 Hall (1999): 433–434 (indigenous coinage); H. Ray (1995b): 100–101 (Indian seafaring). See Chapter 5.

41 H. Ray (1994): 36–40, 49; H. Ray forthcoming.

42 Strauch (2012): 358–360.

43 H. Ray (2015): 106—*Jatakas* Book XXI no. 539. On the role Buddhist *sangha* played in Sri Lanka in acquiring and administering resources, including from trade, see Coningham et al. (2013). For political endowments to religious communities in the Tamilakam and Western Deccan regions see, Evers (2016): 230–233. On the Hoq Cave see Strauch et al. (2012); Strauch (2012): 259–260; Strauch (2016): 84–87.

site south of Pondicherry (Tamil Nadu), first by Wheeler and then by Casal, revealed significant amounts of Roman material. It provided the most important concentration of Roman ceramics in India until the recent discoveries at Pattanam, Kerala (probably ancient Muziris, or at least a satellite settlement).⁴⁴ The uncovered material encouraged Wheeler to assert that Graeco-Roman merchants resided at Arikamedu.⁴⁵ However, re-evaluation of this material by Begley, as well as subsequent excavations in the 1990s, have overturned many of Wheeler's interpretations. Some of the ceramics previously thought to be Mediterranean, including Red Polished Ware and Rouletted Ware, have, in fact, been shown to be Indian wares.⁴⁶

Even with the discoveries made at Arikamedu, it could be argued that it was not until the late twentieth and twenty-first centuries that the evidence provided by archaeological excavations would substantively impact on the study of the Indian Ocean trade in antiquity. A case in point is Miller's *The Spice Trade of the Roman Empire 29 B.C. to A.D. 641* (1969). His work provides a comprehensive presentation of botanical references in ancient literary sources relating to the spice trade, using etymology as his main method for assigning origins to certain spices. Miller's textual approach derived, in part, from the fact that he had insufficient archaeobotanical evidence which he could compare to the literary testimony. This has begun to change with more recent excavations at the Red Sea ports of Egypt, as seen from Capper's *Roman Foodprints at Berenike* (2006) and Van der Veen's *Consumption, Trade and Innovation* (2011).

Many criticisms can be made of Miller's unsupportable and exaggerated interpretations of the literary sources, including his assertion that the *Periplus Maris Erythraei* was a semi-official or restricted document, concerned with foreign affairs and public revenues. No reading of the text could substantiate such claims. Miller also claimed that Pliny 'recognised the wisdom of Nero's devaluation of the currency as a means of checking the export of treasure needed to finance the eastern trade', yet he cited no passages which directly supported or even vaguely implied that Pliny held these views.⁴⁷ Some very recent scholars have even repeated this baseless assertion by stating that Vespasian tried

44 For the port of Muziris see Shajan et al. (2004): 312–320; Cherian et al. (2009): 236–240. On recent arguments about the identification of Pattanam see, Malekandathil (2015): 347–348; Mathew (2015): 18–19; Selvakumar (2015): 285–289; Gurukkal (2016): 166–167.

45 Wheeler, Ghosh, and Deva (1946); Wheeler (1951); Wheeler (1954).

46 Begley (1983): 461–481; Begley (1988): 427–440; Begley (1996c); Begley (2004c).

47 Miller (1969): 18, 20. Similarly Cimino (1994): 28; and McLaughlin (2010): 169; McLaughlin (2014): 192.

to ban the export of precious metals.⁴⁸ Another of Miller's claims was that an imbalance of trade was created because of the lower purchasing power of the Indians.⁴⁹ These assertions obscure the complex variety of independent societies and kingdoms that existed in India, and ignore the trade of goods in kind. Furthermore, he presupposed that Roman merchants demanded cash payments (in Roman currency) for their goods. If not engaging in barter, some Roman merchants may well have sold their goods, but probably for local and not Roman currency, which could then have been used to purchase desired items.

A more critical approach to the literary sources was taken by Raschke, who, in an article entitled 'New Studies in Roman Commerce with the East' (1978), argued against the synthesis of 'fantasy and statistics, romance, and economic theory.'⁵⁰ He was referring in particular to the credence given to Pliny's statements about the 50 and 100 million *sestertii* annually being spent on goods from Arabia, India, and China.⁵¹ Raschke's more sceptical view on quantifying the trade can be seen in the wider context of "primitivist" theories about ancient economics, as popularised by Finley in the 1970s. He questioned whether the numismatic evidence really reflects an imbalance between the Roman Empire and India, since proponents of this view often fail to take barter and non-coined bullion into account. However, he did not reject the notion of an imbalance of trade per se, but simply doubted the statistical value of Pliny's figures, proclaiming Miller's use of them as 'inept'.⁵²

Raschke's scepticism also extended to the notion that the Roman government undertook policies to benefit its merchants in the Indian Ocean.⁵³ He was followed by Young who saw the Roman state as essentially reactive and mainly interested in taxing the trade. Casson went even further, arguing that the facilities maintained by the Roman army in the Eastern Desert were primarily to serve the major quarries and of merely incidental benefit to merchants travelling to the Red Sea. This belief was partially based on the assumption that Abu Sha'ar was Myos Hormos, now known to be untrue.⁵⁴ However, not every-

48 Smith (2009): 97–98; Chew (2015): 42.

49 Miller (1969): 222.

50 Raschke (1978): 605.

51 Pliny *NH* 6.26.101, 12.41.84.

52 Raschke (1978): 632–665, 677, 767 n. 530. Finley also questioned the veracity of Pliny's figures—Finley (1999): 132.

53 Raschke (1978): 622, 641.

54 Casson (1989): 38. See also H. Ray (1994): 65; Schörle (2008): 50. That Abu Sha'ar is not the site of ancient Myos Hormos became clear from fieldwork conducted by the University



FIGURE 1 *Myos Hormos panorama*

one rejected the idea that the Roman government took an interest in the Indian Ocean trade. Sidebotham, in his *Roman Economic Policy in the Erythra Thalassa 30 B.C.–A.D. 217* (1986), argued that members of the imperial family may have had commercial interests in the Red Sea through freedmen agents: a controversial idea, but one that is not entirely impossible (Chapter 4).⁵⁵

Less controversially Sidebotham put forth two other ideas that have received wider acceptance. The first held that many imports, specifically spices and aromatics, were regarded as necessities by many Romans for the role they played in culinary, medicinal, religious and funerary practices—in contrast to the commonly held view that Roman trade in the Indian Ocean was one of luxuries. However, as will be argued in Chapter 6, the simple label of luxury or necessity often fails to capture the multiplicity of uses and interpretations of these goods. The second argument challenged the assumption that the Roman government suffered an imbalance of trade with the East. Sidebotham noted that

of Delaware in 1987 and 1990—see Sidebotham et al. (1989); Sidebotham, Zitterkopf and Riley (1991).

55 Sidebotham (1986): 45, 48–68, 176.



FIGURE 2 *An excavated trench at Myos Hormos*

much wealth would have remained in the hands of financiers, merchants, and the government (through taxes).⁵⁶ Emphasis is rightly placed on reinterpreting Pliny's figures of 50 and 100 million *sestertii* in the context of Stoic moralising about luxury (Chapter 8), although some still argue for their veracity when attempting to calculate the (hypothetical) cost of the Indian Ocean trade to the Roman Empire.⁵⁷

Alongside a more critical treatment of the literary sources, the study of the Indian Ocean trade has been significantly advanced by archaeological work undertaken in the last three to four decades in Egypt, East Africa, the Arabian Peninsula, and India (among other regions). One of the most important developments from the perspective of Roman interests in the Indian Ocean is the work undertaken at the two main ports on the Red Sea coast, Myos Hormos and Berenike. The former site is now firmly identified with modern Quseir al-Qadim and was initially excavated in 1978, 1980, 1982, and again between 1999 and 2003. The latter site, located on Foul Bay (several kilometres south of Ras Banas), has

56 Sidebotham (1986): 176, 180.

57 Young (2001): 205, 210; Parker (2008): 183–184.

also been subject to excavations between 1994 and 2001, and more recently since 2008, by American-Dutch and American-Polish teams. The routes that cross the Eastern Desert and link these two ports to the Nile emporium known as Koptos (modern Qift) have also received attention, especially as a result of work done by the Institut français d'archéologie orientale (IFAO). The fortlets (small forts) lining these routes have produced a useful range of material and written evidence that shed light on the conditions in the Eastern Desert in the Roman period.

Outside the territories once formally controlled by the Roman Empire, a whole host of international sites have revealed Mediterranean material that demonstrates trade links. Who moved this material, how many times it changed hands, and who it belonged to by the time of its final disposition are questions that cannot always be answered. However, this material does highlight the extent of its distribution, and in some cases its chronology. A number of important sites with connections to the ancient Indian Ocean trade have been subject to recent fieldwork. This includes Eritro-British and Eritro-Italian work at the site of ancient Adulis; excavations in the 1990s at Qana' or Qāni (probably the Kane of the *Periplus Maris Eythraei*, a few kilometres away from modern Bir 'Alī); recent work at Khor Rori (probably the Moscha Limen of the *Periplus Maris Eythraei*); and ongoing excavations at Pattanam (ancient Muziris). These locations have revealed much Roman and non-Roman material relating to the Indian Ocean trade. In the case of Pattanam fragments of Roman ceramics have been discovered on a scale not matched in previous excavations in India.⁵⁸

With such increased volumes of archaeological material available for analysis, a number of surveys have appeared. These have sought to provide an overview of new material as well as a reappraisal of previously studied material. For example, Tomber has shown that some amphorae previously thought to be late Roman are in fact Mesopotamian Torpedo Jars.⁵⁹ Suresh, in his *Symbols of Trade* (2004), likewise sought to collate lists of Roman ceramics, coinage, and crafted products (bronzes, glassware, jewellery) found in India. He also discusses objects once thought to be Roman that are actually imitations. More recently, de Saxcé (2015) has discussed the imitation of Roman objects by people living in Early Historic South Asia. The range of material, the various locations in which it has been discovered, and the challenge of correctly interpret-

58 See Shajan et al. (2004); Abraham (2009); Cherian et al. (2009); Selvakumar, Shajan, and Tomber (2009).

59 Tomber (2007): 972–988.

ing it have encouraged collaboration between scholars from a variety of disciplines (ancient history, archaeology, epigraphy, papyrology) and subject areas (Classics, Indology, Near-Eastern studies). These collaborative efforts have been published in several works, such as *Athens, Aden and Arikamedu* (1995), and most recently in *Imperial Rome, Indian Ocean Regions and Muziris* (2015). This collaboration has also extended to areas such as the diffusion of technology, cultural traditions and the transmission of flora and fauna.⁶⁰

In the context of this long scholarly tradition, this book aims to reassess earlier conclusions and to offer new arguments (outlined above) about the nature of Roman participation in the Indian Ocean trade. This is particularly important in light of recent and ongoing archaeological work at a number of sites with new material frequently being unearthed. However, of equal importance is the need to challenge a number of long-running theories and assumptions about the trade that have reappeared in modified or unmodified form over the decades. As just outlined, these often have their origins in the nineteenth and early twentieth centuries. Many of these assumptions are unjustifiable on the basis of the available evidence.

Approaching the Evidence

The study of the Indian Ocean trade requires dealing with a wide array of evidence including material remains, inscriptions, graffiti, ostraka, papyri, and various genres of literary texts. This evidence encompasses a broad geographical and chronological range. This can be beneficial as it allows for different aspects of the trade to be highlighted and understood in their own particular contexts. The various categories of evidence are also a point of strength, as there is less reliance on one main source that is merely complemented by other evidence.⁶¹ However, there is the danger of potentially problematic evidence being used to support conclusions drawn from other evidence when this may not be warranted. This is notably the case when examining the archaeological evidence relating to the presence of Roman “merchant colonies” in India (see Chapter 5). It is important that each piece of evidence is assessed on its own merits, and that, when different types of evidence conflict, proper justification is given for the conclusions drawn. Some consideration of these issues is set out below.

60 For example, Ray and Salles (1996).

61 Young (2001): 13–14.

Archaeological Evidence

Archaeological excavations have been conducted at various international sites at different times in the twentieth and twenty-first centuries. Invariably, this means there are deviations in the approaches taken and levels of detail recorded. Suresh has noted that many earlier excavators working in southern India frequently focused on the recovery of antiquities and not so much on settlement patterns and trade. Moreover, proper care has not always been taken to record stratigraphy. Evidence from many sites remains unpublished, and of the dozens of sites where Roman amphorae fragments have been identified, not all reports mention quantities.⁶²

The extent of work undertaken in different regions is also uneven. East Africa, excluding the Egyptian Red Sea, is perhaps least represented. Consequently, attempts to draw quantitative conclusions about the volume of trade to or within a particular region are highly problematic.⁶³ For example, the sites of Taxila (Pakistan) and Begram (Afghanistan) have revealed great quantities of glassware, whereas other sites across central and southern India have revealed interesting, but less numerous, finds.⁶⁴ The circumstances of the Begram finds—a mass of objects sealed together in two rooms—were highly fortuitous. Nevertheless, at the very least, the presence of archaeological material is likely to suggest some level of demand at a particular site (excepting accidental loss).

Comparing material at individual sites is less problematic, since excavations conducted by the same team should, in theory, offer a degree of consistency. This opens up the potential for quantitative comparisons of the material within the sites themselves. For example, at the site of Qana' (Yemen), the quantity of Roman pottery in the different strata shows the intensity of contact at different periods.⁶⁵ Of course, conditions are not always perfect: disturbed material can make it difficult to determine stratigraphy, and it may not always have been possible to access the earlier phases of a site. Furthermore, it is important not to draw sweeping conclusions based on sites which have revealed only small

62 Suresh (2004): 21, 89, 99, 101, 181–182; H. Ray (2010): 10, states that about 55 sites in India have revealed amphorae. See also Sidebotham (2011a): 233 n. 119 for estimations by different scholars.

63 Similar issues beset quantification of the archaeological material in the Roman Empire—see Wilson (2009): 214; for general issues around quantification see Bowman and Wilson (2009b): 7–15.

64 Suresh (2004): 134–136; See Chapter 7.

65 Sedov (1996): 11–35.

amounts of material. For instance, Huntingford believed that Ras Hafun could be identified with the ancient port of Opone mentioned in the *Periplus Maris Erythraei*, but Smith and Wright are sceptical, given the very limited quantity of Roman material discovered.⁶⁶ Additionally, problems can arise from misattribution. For example, pottery sherds found at some sites in India have been erroneously identified as deriving from Roman amphorae.⁶⁷

Different types of material finds also pose their own difficulties. Unsurprisingly, pottery is found frequently, whereas metals tend to get recycled.⁶⁸ Organic materials are also underrepresented due to natural decay, except where special conditions help with preservation. Hyperarid conditions at Myos Hormos and Berenike have allowed some types of organic materials to survive, including charred or desiccated plant remains and textiles.⁶⁹ Archaeobotanical remains can also survive in waterlogged (anaerobic) conditions, as is the case with some organic material at Pattanam and with peppercorns found in north-western Europe (Germany, Britain, and France).⁷⁰ Furthermore, sites like Pompeii, Herculaneum, and Londinium have revealed black pepper finds in a mineralised form.⁷¹ These processes tend to favour compact dry parts of plants, and this is why nutshells, seeds, stem fragments of woody plants, and fruit stones are usually found. The more fragile parts of plants tend to be underrepresented, particularly petals, leaves (e.g. nard leaf, malabathrum, cinnamon), and liquid secretions (resins, gums, and oil). For these materials, it is usually necessary to rely on written evidence, and so it is possible that their importance to the trade may have become underestimated.⁷²

Faunal remains from various archaeological sites can also help advance our understanding of the Indian Ocean trade. The remains of worked materials at ports like Myos Hormos and Berenike provide direct attestation of the import

66 Huntingford (1980): 26, 94; Smith and Wright (1988): 115, 138–140.

67 For reassessments of pottery previously erroneously identified see Tomber (2007a); Tomber (2008).

68 *Periplus* 28, 49, 56.

69 Wendrich (2000): 250; Van der Veen (2011): 16, 18.

70 Schwinden (1983): 22; Kučan (1984): 52–55; Kreuz (1995): 70; Küster (1995): 137; Jacomet and Schibler (2001): 65–66; Cowan et al. (2009): 115; 119; Livarda (2011): 149–150; Sidebotham (2011a): 224–227.

71 Robinson and Rowan (2015): 105–106. Ciaraldi (2007): 49–51; Livarda (2011); Sidebotham (2011a): 224–227. Mineralisation is particularly enabled in calcium and phosphate rich environments.

72 Cappers (2006); Van der Veen (2011). For Frankincense gum found at Berenike see Zieliński (2011): 61–62.

of products like ivory and turtleshell into the Roman Empire.⁷³ Materials like animal bones can be utilised in relation to practical aspects of the operation of trade, such as the crafting of cattle horns to make brail rings.⁷⁴ Furthermore, animal remains can tell us about the diets of those of living and working at ports like Berenike.⁷⁵

Epigraphic and Papyrological Evidence

Surveys, excavations, and chance discoveries have made available a whole host of written evidence for the study of the Indian Ocean trade and aspects relating to it. This includes writings on papyri and ostraka, inscriptions, and graffiti. Sometimes these written records include information directly or indirectly revealing the date on which they were created. In other cases, it is necessary to judge from the archaeological context or to use palaeographic methods to come up with approximate dates. In the case of the ostraka from the rubbish dumps at Maximianon and Krokodilo explicit dating, palaeographic analysis and the context of the finds all help to date these documents to the reigns of Trajan and Hadrian.⁷⁶ Broadly speaking it is often possible to classify these records into two groups; on the one hand, functional and utilitarian documents, on the other, records set up to convey messages to a wider audience.

The first group largely concerns the transmission of factual information about people, objects or events, and unless specific reasons exist to suspect deliberate misrepresentation or gross error, the information can generally be taken at face value. An example within this category is the Nikanor archive, a collection of ostraka found at Koptos which relate to the transport business of Nikanor and his family.⁷⁷ These ostraka provide receipts confirming the delivery of goods to individuals based at either Myos Hormos or Berenike. Similarly, a collection of about 250 ostraka from Berenike was discovered in the 1994–2001 excavation seasons, of which large numbers (dating largely to the mid-first century CE) served as receipts letting individuals bring certain goods through customs (henceforth referred to as the Berenike customs passes).⁷⁸ These rep-

73 On this evidence see, among other scholarship, Hamilton-Dyer (2011) and Van Neer and Erynck (1998).

74 See Whitewright (2007b); Whitewright (2008).

75 Among other scholarship see Osypińska (2011).

76 Cuvigny (2005): 1; Brun (2006a): 61–71.

77 For the Nikanor archive see Tait (1930)—*O. Petr.* 220–303. See also *O. Ber.* 212.

78 For these ostraka see Bagnall, Helms and Verhoogt (2000b); Bagnall, Helms and Verhoogt (2005); Bagnall (2005). These passes are quite formulaic (see *O. Ber.* 185–188)—Nappo and Zerbini (2011): 63–65. Additional ostraka (and papyri) have been discovered in the 2009–

resent ephemeral, practical documents, of which there is no reason to doubt the information they contain about the goods transported and the individuals involved.⁷⁹ On the other hand, such documents can lack contextual detail, notably the precise nature of the recipients' interests; in the case of the Nikanor archive, it can be difficult to distinguish between commercial goods and supplies. These details would have already been known to the parties involved, making it therefore unnecessary to state them.

The second group, where the purpose is to convey a message to a wider audience, can be illuminating, not only in terms of the actual text itself but also of what it says about the author(s) or commissioner(s). For example, one inscription advertising the involvement of two wealthy Alexandrian matrons in the Indian Ocean trade shows their freedom as powerful women to invest in this trade and their willingness to advertise their association with it—that is to say, they appear to be unconcerned about the potential social stigma which could be attached to commercial activities.⁸⁰

Literary Evidence

The most important literary source for our understanding of Mediterranean participation in the Indian Ocean trade is the *Periplus Maris Erythraei* (henceforth *Periplus*). This *koinē* Greek text was written by an unknown author, who describes the routes and sailing times in the Indian Ocean, its major ports, and the goods traded. The author also provides incidental ethnographic and political comments. Casson notes that he must have been a Greek-speaking resident of Egypt, as is clear from personal references such as 'the trees we have in Egypt'.⁸¹ That he writes from personal experience is also made clear from the level of detail provided and the occasional use of the first person in his descriptions.⁸² Several studies relating to Nabataean, Indian, and Arabian chronology have demonstrated that the author of the *Periplus* wrote during the mid-first century CE.⁸³ The *Periplus* itself provides confirmation of its date by referring to King Malichus (of Nabataea) at Petra. This can only be Malichus II (40–70 CE),

2013 seasons—likewise primarily Augustan to late first century CE in date, but largely pertaining to water delivery (c. 70% of the corpus)—see Ast and Bagnall (2016).

79 Cuvigny (2014): 166.

80 *SEG VIII* 703.

81 *Periplus* 29.9.27—trans. by Casson (1989): 7–8.

82 Casson (1989): 8; *Periplus* 20.7.14–15.

83 Cribb (1992): 131–145; Fussman (1997): 66–71; McLaughlin (2010): 8; Seland (2010): 13; Lytle (2016): 118–119, 122.

as Malichus I was too early to be appropriate.⁸⁴ In addition, a reference in the text to Manabos, who may be the Western Kshatrapa ruler Nahapana, also suggests a date around 46–65 CE.⁸⁵ The dating of the *Periplus* has even contributed to arguments which place Satavahana chronology up to 60 years earlier.⁸⁶ The style of the text, personal references, and contextual comments do strongly point to a single author writing around the mid-first century CE (although the author likely drew upon information derived from other merchants), which is the view adopted here.⁸⁷

Why this anonymous author wrote his account is unclear, but given its content, it is generally assumed to have been a merchant's (or shipmaster's) guide to the Indian Ocean.⁸⁸ Some have gone further and argued that the *Periplus* formed a maritime manual for navigation and the charting of safe routes.⁸⁹ In particular, Marcotte argues that the use of technical terms and the willingness to incorporate many foreign words suggests a readership largely limited to those directly involved in the trade.⁹⁰ McLaughlin goes a step further, claiming that it formed part of a collection of trade reports assembled by the governor of Egypt, although there is no real evidence to support this conjecture.⁹¹

There are some difficulties in seeing this work as purely the accumulated experience of one author. As De Romanis notes, the author tried to be fairly comprehensive in his descriptions of coasts, sea routes, and commodities of the Erythra Thalassa, making it easier to understand this text as an accumulation of information from various sources (not excluding personal observation).⁹² It provides valuable details about the period in which it was produced (the mid-first century CE). However, ports rose and declined in prosperity, and the demand for different types of goods changed over time. This was certainly the

84 Casson (1989): 6–7; *Periplus* 19.6.28–29.

85 Turner and Cribb (1996): 318.

86 Cribb (1992): 131–145.

87 A few scholars have recently put forth the theory that the text is a later accumulation of information derived from a number of sources—see Arnaud (2012): 27–61; and Marcotte (2012): 7–25. For a critique of this view see Lytle (2016): 121–122. Seland (2016b): 192, notes the text was probably written by a single author, but relied on information derived from others for certain regions.

88 Casson (1989): 8; Stoneman (1992): 37; Thapar (1997): 14–15; McLaughlin (2010): 7; *contra* Seland (2010): 15.

89 Robin (1997): 42; McLaughlin (2010): 8–9, speculates that several of such documents were circulating and were “vital” to merchants.

90 Marcotte (2016): 176–177; *contra* De Romanis (2016): 106–107.

91 McLaughlin (2014): 111–112.

92 De Romanis (2016): 98–109.

case in the better-documented medieval period, and may be reflected in the fortunes of the southern Indian emporium Muziris, an important site at the time the author of the *Periplus* was writing. Pliny claims, probably a decade or two later, that it was beset by piracy and less suitable than the more southerly Nelkynda (a site connected by Bakare); a Tamil poetic text of the period also alludes to the emporium being sacked by the Pandyan kingdom.⁹³ Consequently, Marcotte's claim that this text survived for so long because it provided credible information needs to be tempered by the recognition that its main value lay within the period it was written.⁹⁴

There is another *periplus*, entitled *On the Eyrthraean Sea*, written by Agatharchides of Cnidus in the mid to late second century BCE. He was a grammarian and tutor to a son of Ptolemy VII. This allowed him access to the earlier records of travellers sent out by the Ptolemies, and in addition made him a witness of more contemporary developments.⁹⁵ Agatharchides had a particular interest in the geographic features of the lands round the Red Sea, as well as an interest in the peoples that inhabited them, but he also makes reference to mercantile activities.⁹⁶ The text does not provide the kind of detail found in the *Periplus*, but it is valuable in shedding some light on commercial developments during the Ptolemaic period.

Other texts with geographic, ethnographic, botanical, and zoological interests can also cast light on the trade. This is notably the case with Strabo (63 BCE–24 CE), Pliny the Elder (23–79 CE), and Claudius Ptolemy (second century CE). The information was not always current, as can be seen with Strabo's apology for his reliance on the earlier Hellenistic Indographies of Nearchus, Onesicritus, Cleitarchus, and Aristobulus.⁹⁷ Nevertheless, these writers could incorporate contemporary and even first-hand information (or first-hand reports), as Strabo does when discussing his experiences in Egypt and what he has heard about the Eastern Desert, Red Sea, and south-western Arabia.⁹⁸ The net can be cast even wider by examining many poetic (e.g. Propertius, c. 50–15 BCE), satirical (e.g. Persius, 34–62 CE), and philosophical (e.g. Seneca the Younger, c. 4 BCE–65 CE) texts. The authors of these works sometimes make incidental

93 For a medieval example see Surat—Chaudhuri (1985): 32–33. For Muziris see De Romanis (1997a): 105–108; *Periplus* 54–56—Pliny *NH* 6.26.105—*Akananuru* 57.14–17, 149.7–13; see also McLaughlin (2010): 49–50.

94 Marcotte (2016): 117.

95 Burstein (1989): 9–10, 17–18, 29–31; Huntingford (1980): 2.

96 Agatharchides 5.105a + b = (a) Photius, *Cod.* 250.103, 459b; (b) *Diod. Sic.* 3.47.8–9.

97 Strabo 15.1.3; Dueck (2000): 42, 185.

98 Strabo 2.5.12, 17.1.53, 17.1.45; Dueck (2000): 42, 186.

comments about consumption habits and social values, which are of particular use for understanding the impact of Indian Ocean imports on Roman society.

In addition to Graeco-Roman literature, poetic texts from southern India (part of the Sangam or Cankam anthologies) also provide valuable information. Written in Tamil-Brahmi script, these poems are mostly concerned with themes such as love, heroics, and conflict, but do make occasional allusions to foreign traders and their wares. Works from this corpus are generally placed between the third century BCE and the sixth century CE, and cannot always be dated with much precision. The use of the term *Yavana* in these works also poses problems, since it is an imprecise ethnic indicator (see Chapter 5).

The wide and diverse nature of the literature under examination necessitates careful analysis of the intentions of these authors (where discernible) and their possible sources of information. A case in point is Philostratus' *Life of Apollonius of Tyana* (*Vita Apollonii*), a text about a Pythagorean philosopher-wizard living in the first century CE who, among his various adventures, travels to India. The debate over whether the text was meant to be understood at the time of its composition (c. 220–230 CE) as biography/hagiography or novelistic fantasy has yet to find any consensus. Of greater interest, given our purpose, are the sources of information Philostratus used when composing this text. Many features of his construction of India derive from earlier accounts: those pre-dating the life of Alexander (e.g. authors like Ctesias), of the period of Alexander (e.g. Nearchus), and possibly the early Hellenistic ambassadorial accounts of India (e.g. Megasthenes). A number of fantastical tales in the *Life of Apollonius of Tyana* draw directly or indirectly from these earlier Indographic texts, for descriptions of the unicorn, for example.⁹⁹ Nevertheless, more contemporary information relating to trade may be detectable in the mythological explanation that is given for the building of substantial vessels by the Egyptians who trade with India.¹⁰⁰ This is likely an allusion to the large vessels that were, in fact, operating from the Red Sea ports of Egypt and sailing to various destinations on the littorals of the Indian Ocean.¹⁰¹ The value of Philostratus' work may therefore rest in what it reveals about the combination of eclectic influences from pre-Hellenistic and Hellenistic literature and contemporary ideas resulting from trade, and the impact this had on Roman perceptions of India in the early third century CE.

99 Phil. VA 3.4.

100 Phil. VA 3.35.1–2.

101 Sidebotham (2011a): 195–196; De Romanis (2015b): 133–139. See Chapter 3.

Methodological Approaches

A major difficulty faced in the study of the Indian Ocean trade in antiquity is the lack of statistical data. The types of material that survive in later periods (c. 1500–1900), such as cargo manifests, largely do not survive from the ancient world. Data can be gathered in relation to the types and numbers of finds resulting from particular excavations, but this, as has been noted, presents its own sets of challenges (inconsistencies in approaches, details recorded, and the extent to which particular regions are represented). However, quantitative analysis of evidence within individual sites, especially in relation to chronology, can be regarded as more reliable.

In certain contexts, when data exists and logical deductions can be made from notable constants, such as climatic conditions, a quantitative or statistical approach can also be used to provide a minimum and maximum range of plausible figures. It is argued that this method can be usefully applied to the study of sailing schedules in the Indian Ocean, as well as to logistical issues, such as cargo capacity and the safe stowage of goods (entailing physical principles applicable to all eras). The benefit of this approach is that it does not assert a single rigid figure, but is useful for determining the plausibility and feasibility of particular arguments.

Another area where quantitative and statistical analysis is employed is the assessment of Roman coin finds in India. Some have argued that Roman coins cannot be used as an indicator of the volume of trade, because the process of selecting certain coins means that they came as large shipments rather than as continuous exports.¹⁰² It is, however, argued in Chapter 7 that while certain issues were selected for their recognisable quality, the hoards found in India also reflect the wider availability of particular coins and, to some extent, the minting patterns of particular emperors. The evidence does not, in fact, suggest that coins were exported separately or in a distinct pattern different from the rest of the goods. Consequently, where patterns can be discerned, it is argued that they do reflect fluctuations in the intensity of Roman participation in the trade.

Where appropriate, examination of historical parallels can also shed light on less well-understood periods. However, this must be done with extreme care, and with the acknowledgement that these are only hypotheses and not statements of fact. Rathbone rightly cautions against the dangers of rejecting the ancient evidence when it does not fit into the parallels provided by later

102 Burnett (1998): 185–187; J. Meyer (2007): 60–61.

evidence.¹⁰³ A safer approach is to examine historical parallels in the light of certain constants such as basic physical laws that apply to shipping and some climatic factors, like wind patterns.

Summary

To summarise, this study not only aims to incorporate more recent evidence relating to Roman trade in the Indian Ocean, but also seeks to challenge a number of long-running theories, often originating in early twentieth-century scholarship, which continue to reappear (modified or unmodified) in more recent works. An important emphasis is placed on the limits of what the evidence can tell us. Furthermore, some use is made of historical parallels to illuminate various aspects relating to the chronology, logistics, consumption habits, and patterns of Roman trade.

¹⁰³ Rathbone (2002): 156–157.