NAUTICAL ARCHAEOLOGY

THE DEVELOPMENT OF MARITIME TRADE BETWEEN INDIA

AND THE WEST FROM C. 1000 TO C. 120 B.C.

A Thesis

by

MARK ANDREW SMITH

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

May 1995

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George Bass
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May 1995

Major Subject: Anthropology
ABSTRACT

The Development of Maritime Trade between India and the West
from c. 1000 to c. 120 B.C. (May 1995)

Mark Andrew Smith, B.A., University of Arizona
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NAUTICAL ARCHAEOLOGY

Maritime trade between the Roman world and India has gathered a
considerable amount of attention from scholars. It is seldom appreciated, however,
that this commerce evolved directly from that of previous periods.

As early as the first quarter of the first millennium B.C. there is indirect
evidence for sea-borne trade in the Arabian Sea. Most early references from
Mesopotamia, however, regard regional trade in the Persian Gulf. During the
Persian period the trade network was extended to India. Contacts between India and
the West were stimulated by the activities of Persian leadership. The Persian empire
ranged from Egypt to India and Persian kings made concerted efforts to integrate,
commercially, its various provinces. These endeavors were later paralleled by those
of Alexander of Macedon. Because of their frequent conflicts, the subsequent
Hellenistic kings were too preoccupied to expend their resources on such endeavors.
Trade between India and the West, however, continued to expand.

The Mediterranean market was the driving, but not only, force in the
development of the commerce between India and the West. By the Roman era, it
was propelling a very substantial trade to the East. By contrast, Indian markets
wanted little from the West except gold. This "demand imbalance" led to a western species drain.

Geographical and meteorological characteristics of the region were largely responsible for the nature of the trade system that developed in the Arabian Sea. Arabia was located between the market and the product. The peninsula also produced goods greatly demanded by the West. It had the advantage, therefore, of a preexisting commercial infrastructure. Arabians naturally assumed the role of middlemen in the trade between India and the West. The monsoon winds that blow alternately west and east were ideally suited for carrying ships between the two regions.
ACKNOWLEDGEMENTS

My first acknowledgments must go to my thesis committee: Drs. George Bass, Shelley Wachsmann, and John Lenz. Without their suggestions and guidance this thesis would be so much less than it is. I would especially like to thank Dr. Bass who generously provided the funds that enabled me to attend the Third Indian Conference on Marine Archaeology in Indian Ocean Countries at Karnataka State University. It was there, in India, that the inspiration for this work was born.

In a less specific sense, this thesis would have been impossible without the friends that I have made in the Nautical Archaeology Program at Texas A&M University. In particular, I was blessed with series of remarkable roommates: Jerome Hall, Kyra Bowling, Edward Rogers, and Roxani Margariti. All of them gamely put up with my idiosyncracies and provided me with unfaltering moral support. Sometimes one gets lucky, how I got lucky four times in a row I will never know. I would especially like to thank Edward Rogers who is the paragon of a true friend.

There are many other confidants I would like to recognize but I fear the list would be too long. I cannot miss the opportunity, however, to express my gratitude to Kara Kellogg, Greg Cook, David Grant, Valerie Rivas, and Cemal Pulak. My friends continue to confirm, for me, the truth of Epicurus:

Friendship, affection, dances round the earth, announcing to us all that we should bestir ourselves for the enjoyment of happiness.
I owe a great debt of gratitude to my mother who never ceased to give support to her occasionally wayward son. Without her this thesis would never have been started, much less completed. It's done mum.

Finally, I would like to mention my father, Robert J. Smith. While he will never get to read this work, I like to think that he would have approved.
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INTRODUCTION

Maritime trade between India and the societies to her west date back to at least the last half of the third millennium B.C. Early evidence for this commerce has come largely from the discipline of archaeology. Excavation of sites in the Indus Valley, Persian Gulf and Mesopotamia have uncovered indications of a maritime network between those regions which dates back to at least 2400 B.C.\(^1\) Additionally, numerous Akkadian texts include trade references to the lands of Dilmun, Makan and Meluhha. Dilmun is now generally recognized as the region centered on Bahrain in the Persian Gulf. It was probably the Early Bronze Age Barbar culture of that region which enjoyed trade contacts with Mesopotamia. Makan's identification is more problematic. Its location, however, was likely the area of modern Oman and/or the region across the Strait of Hormuz in Southern Iran. There is considerable evidence that the last land mentioned in the Akkadian texts, Meluhha, may be that of the Indus Valley (or Harappan) culture.\(^2\) By 1800

This thesis follows the format of the *American Journal of Archaeology*.


\(^2\) These identifications are still controversial. Thapar contends that all three lands were located in India. See Romila Thapar, "A Possible Identification of Meluha, Dilmun and Makan," *JESHO* 18 (1975) 1-42, and "The Dravidian Hypotheses for the Identification of Meluha, Dilmun and Makan," *JESHO* 26 (1983) 178-90. For the view presented above see Ratnagar (supra n. 1), W. F. Leemans, "Old Babylonian Letters and Economic History," *JESHO* 11 (1968) 171-226. For a rebuttal of Thapar's position see E. C. L. During Caspers and A. Govindamkutty, "R. Thapar's Dravidian Hypothesis for the Location of Meluha,
B.C., however, this first blossoming of commerce between India and Mesopotamia had come to an end.

For subsequent periods, the Arabian Sea is frequently depicted as a blank page in mankind's maritime history, only reentering the story once again in the Roman era. Indeed, maritime trade between the Roman world and India has attracted considerable attention among scholars.³ Literary evidence, both western and Indian,⁴ along with archaeological studies⁵ have given us a good grasp of its extent, nature and dynamics. Preceding periods, however, have been largely overlooked. Exceptions, when made, are usually limited to interest in the occasional western adventurer, such as Nearchus of Crete or Scylax of Caria.

Our ignorance of the foundations upon which the Roman trade in the Arabian Sea was constructed is due to the bias gained from our traditional historical sources:

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⁴ Notable sections on Indian textual sources are included in P. T. Srinivas Iyengar, History of the Tamils (New Delhi 1982) and Moti Chandra, Trade and Trade Routes in Ancient India (New Delhi 1977).

ancient Greek and Roman writers. These authors were simply unaware of the
vibrant commerce being pursued in the Arabian Sea before their own cultures' entry
into its waters. Indeed, before the late Hellenistic period western authors were
relatively uninformed about the geography of the region. This unfamiliarity is a
reflection of the lack of western participation in the sea trade with India. It is not a
reflection of any lack of commerce. By closely examining these same western
sources one can pick out evidence of a vital and long-standing maritime network in
the Arabian Sea. Archaeological evidence and non-western textural sources broaden
the scope and supply details of this trade and its development.

Commerce is driven by demand. Unfortunately the demand of any ancient
market is impossible to measure in definitive terms. One is left examining the
effects, as seen in literary references and archaeological remains, of that demand.
From this information, however, it is possible to trace the development of the trade
systems of the Arabian Sea.

It is unlikely that any single person can significantly influence the
development of a commercial demand. Deliberate efforts, however, were made by
individuals to affect the path of the trade routes that fed the ever increasing western
demand for Indian goods. Various maritime routes in the Arabian Sea were
encouraged over a successive series of periods. In each case, individuals attempted
to promote a route that they felt would best benefit their society. The effectiveness
of these schemes was varied.

The sea has never been the sole means of reaching India from the West. It
might seem that as a peninsula cut off from the rest of Asia by several of the world's
most imposing mountain ranges, the Hindu Kush to the west, Himalayas to the north and Burmese to the east, India would be effectively isolated. This has never been the case. Throughout its history the passages through the Hindu Kush have been conduits through which countless invaders and merchants have arrived. Aryans, Persians, Macedonians, Bactrian Greeks, Scythians, Kushans, Arabs and Turks, to give but a partial list, all have followed this path into the subcontinent. People in search of commercial profit had no less incentive or ability than those looking for territory or military glory. The land route between India and the West, however, was not an easy one. Travelers heading west, for example, followed a path that wound its way through the mountainous territories of modern Afghanistan before transversing the extensive Iranian plateau. From there it diverged, with one route going to the southern Mesopotamian cities and the other to the coastal ports of Syria. The maritime route was an attractive alternative to such an arduous path. Besides the inherent benefits of all water transport, those of economy and speed, ships traveling the Arabian Sea had the additional advantage of the monsoon system. Winds that alternate, season to season, between completely opposite directions provided, as will be seen, an extraordinary advantage to the ancient sailor.

THE TWO AXES OF MARITIME TRADE

Throughout this paper the term "trade axis" will be used as a general term for the two major trade route systems in use during the period discussed. Specifically, the "northern axis" will refer to the routes between India and Mesopotamia. The "southern axis" will refer to the routes between India and southern Arabia and, in the
later periods, the Red Sea coast of Egypt. The term "axis" is used in distinction to
the more specific "route." Both axes were systems which included various sub-
routes that differed over time. While including a direct route from Mesopotamia to
India, the northern axis, for example, is not limited to it. It also includes the
different routes transversing the Persian Gulf: one following the western and another
the eastern shore, etc. Additionally, the term accommodates the down-the-line
method of exchange between two distant lands by conceptualizing the process as a
chain of smaller routes.

The two axes can be seen as the result of two different
geographically-determined strategies to move goods from one place, India, to
another, the Mediterranean. Each had various paths and secondary avenues that
complemented and broadened its main function. Each axis was dynamic. Their
various components, whether sub-routes or participants, were continually changing in
both their relative importance and relationships to each other. Just like the dynamics
within each axis, the dynamics between the two also changed over time.

SCOPE OF THIS WORK

The scope of this work is specifically limited to maritime trade between India
and the West. The broader topic of general seafaring and trade within the Arabian
Sea regions is only mentioned in relationship to this more restricted theme.

Our examination commences with the reemergence of a maritime route
between Mesopotamia and India in the first quarter of the first millennium B.C.
Until be come to the Neo-Babylonian period, the evidense for this trade is both scant
and indirect, but is what is available is examined to serve as a background for the trade of the later periods. The work's other temporal border is necessarily less tidy. The development of maritime trade in the Arabian Sea was, by definition, dynamic. It is impossible to pick any discreet point in time as the exact terminus of one phase and the beginning of another. The closest thing there is to such a watershed mark may be the development of direct western trade with India, i.e., the use of the monsoon for a direct passage between the Red Sea and India starting circa 120 B.C.

The effects of this discovery on the Arabian Sea's trade dynamics can hardly be overestimated. Aspects of the trade that had characterized the system since its first development started to be replaced. The event is also a convenient date for this paper's terminus as it coincides approximately with the decline of many of the Indian trade's major participants. Prominent among these were the two Hellenistic kingdoms, the Seleucid and Ptolemaic, that were driving forces in the trade's promotion. Arabia also entered a period of political transition. Many tribes that had played such a prominent role, the Gerrhaeans, Minaeans, Habashats and to a certain degree the Sabaeans were either economically superseded or outright conquered by other powers. Finally, in India the last vestiges of the Mauryan Empire were being swept away.
EARLY PHOENICIAN ACTIVITIES

THE PHOENICIANS

Perhaps the most famous of the early seafaring peoples were the Phoenicians. Their mercantile and colonizing activities in the Mediterranean are justifiably well known. Evidence also points to their involvement in maritime trade in the Indian Ocean and its constituent divisions. They have even been credited by some with sea voyages to India as far back as the tenth century B.C. Their alleged activities are encountered along both the northern and southern trade axes.

SOUTHERN AXIS

The earliest reference to a maritime link between the West and India using the southern axis may be the biblical account of King Solomon's Ophir:

And King Solomon made a navy of ships in Ezion-Geber, which is beside Elath on the shore of the Red Sea, in the land of Edom; and Hiram sent in the navy his servants, shipmen that had knowledge of the sea, with the servants of Solomon. And they came to Ophir and fetched from thence gold, four hundred and twenty talents, and brought it to King Solomon.⁶

Additional information on the type of commodities obtained in Ophir is also provided by the Bible. One passage mentions Hiram's ships bringing gold, almog

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⁶ I Kings 9:26-28. All biblical quotes are from the Revised Standard Version.
wood and precious stones back to King Solomon, and yet another is even more specific:

For the king had a fleet of ships of Tarshish at sea with the fleet of Hiram. Once every three years the fleet of Tarshish used to come bringing gold, silver, ivory, apes and peacocks.

Ezion-geber is often identified as Tell el-Kheleifeh, a site located at the head of Gulf of Aqaba excavated just before the second world war by Nelson Glueck. Solomon's town is commonly ascribed to Glueck's Period 1. Items that may be related to ship construction, such as copper and iron nails, globules of tar and segments of rope, were uncovered during the excavation. The site has been the focus of considerable discussion and Glueck has retreated from some of the earlier, more spectacular theories. A structure once held to be a copper smeltery, for example, is now thought to be a warehouse or granary, and the site itself is now considered to be possibly only a satellite of the biblical Ezion-geber. It is notable that the site is not located directly on the current shoreline and it possesses no recognized port facilities. It has also been suggested that Ezion-geber may actually

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7 I Kings 10:11.

8 I Kings 10:22.


have been located on the island of Jezirat Fara'um about three hundred yards offshore of Eilot. ¹¹

The term Tarshish, in the Biblical passage above, probably refers to the Phoenician colony of Tartessos in southern Spain. A "ship of Tarshish" therefore likely refers to a sturdy vessel capable of long distance travel. Whether or not the term refers to a more technical aspect of the ship's construction is unknown.

The biblical accounts make it clear that the Phoenician sailors of King Hiram of Tyre were responsible for most of the original fleet's outfitting. Both Solomon and Hiram, however, seem to have been in full cooperation in the enterprise.

A number of details concerning the trip to Ophir have given rise to the speculation that the land was located in India. The three-year delay between trips is often taken to mean the trip took three years. ¹² Such a period is seen as suitable for a voyage to the subcontinent and back. More significantly, however, most of the products listed in the biblical passages have a strong Indian association. This identification is made stronger by the probable facts that the ancient Hebrew word for ape, koph, is a derivative of the Sanskrit kapi, and similarly that the ancient Hebrew word for peacock, tukki, comes from the Tamil word togai. Almog wood


has been variously identified with coral, brazilwood and a type of cedar. More often, however, it is identified as sandalwood, another Indian product.

This Indian connection suggests to Hornell that Ophir was a "great mart on the west coast of India." Some scholars have even identified Ophir specifically with Supara, an ancient port near modern Bombay.

It seems more likely, however, that Ophir was a mart of Indian goods located in southern Arabia such as was common in later times. Hornell counters this theory by contending that the goal of "wise" King Solomon was to skip the Sabaean middlemen in the Indian trade. How the fleet could survive a voyage along the coast of a hostile Arabia he does not tell. Similarly the king's known good relations with the Queen of Sheba (Saba) are not addressed. Such friendly ties would be unlikely if the king was actively attempting to cut the Queen, and her profits, out of the route.

When the Queen of Sheba visited Solomon it is notable that she came by caravan. This detail may be an indication that the caravan route from Southern Arabia, which is known so well from the later Hellenistic period, was in operation as

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14 Almog may be a derivative of a Sanskrit word for sandalwood: valguka. R. L. Basham, The Wonder that Was India (New York 1954) 230.

15 J. Hornell, "Sea-Trade in Early Times," Antiquity 15 (1941) 244.

early as the tenth century B.C. While it is impossible to rule out the event as an anachronism, scholars have suggested that the Sabaean kings were active as agents in the South Arabian and Indian trade by that period. The argument for the authenticity of the biblical story is bolstered by references, in inscriptions of the Neo-Assyrian kings Tigrath-Pileser III (745-727 B.C.) and Sargon II (745-727 B.C.), to two queens of Arabia, Zabibê and Samsi. These references indicate that female monarchs were known in Arabia by at least the eighth century B.C. and that they had political and economic contacts with states to their north.

It is important to note, however, that the question of Ophir's location is largely irrelevant to the basic importance of the Biblical passages. They constitute the earliest known implication of an active maritime trade, for it can hardly be any other kind, between India and southern Arabia. The volume of this trade must have been limited; there is little evidence that Indian goods made it to the Mediterranean in any significant quantity during this period.

It seems that the Judaic/Phoenician sea-trade to the East did not long outlive Solomon. King Jehoshaphat of Judah (873-849 B.C.) attempted to reestablish the trade, but his ships were wrecked by a storm. Period 2 at Tell el-Kheleifeh may be attributed to his reign.

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18 Arab I, 772, 778, 817; Arab II, 8, 55.

NORTHERN AXIS

The Phoenicians were once also believed to have played a role in the early development of the northern maritime axis. This belief was based mainly upon comments from two ancient authors.

Herodotus reported that, in his day, the Phoenicians believed that they had migrated to the Levant from the Persian Gulf. Eratosthenes later claimed that there were Phoenician temples on the island of Tylos (Bahrain) and Aradus (Muharraq). The islands' inhabitants were also said to regard the Phoenicians as descendants of their colonists.

In the late nineteenth century western explorers first "discovered" the grave mounds of Bahrain. A couple of statuettes uncovered in these tombs were originally thought to have parallels with Phoenician ones. On these shaky grounds the grave mounds were associated with the Phoenicians, and Bahrain itself with the legendary Phoenician homeland. From that erroneous conclusion even grew the idea of a Phoenician maritime network to the East. Systematic excavations begun in Bahrain

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20 Herod. 1.1; 7.89.

21 Strabo 16.3.4.

22 The statuettes were published in F. B. Prideaux, The Sepulchral Tumuli of Bahrain (Calcutta 1912).

23 J. Kennedy, "The Early Commerce of Babylon with India," JRAS (1898) 246-47.

during the nineteen-fifties, while uncovering important new sites, have proven false any idea of a Phoenician connection with the island.\textsuperscript{25}

\textsuperscript{25} For a more extensive description of the re-discovery of Bahrain see G. Bibby, \textit{Looking for Dilmun} (New York 1969). His pages 15-16 and 24-5 detail the supposed Phoenician connection.
THE REEMERGENCE OF THE NORTHERN AXIS

NEO-ASSYRIAN PERIOD

Early evidence for the reemergence of maritime commerce between Mesopotamia and the East comes from the records of the Neo-Assyrian rulers.

These reveal a route that extended down the Persian Gulf to Oman and perhaps as far as India.

Among the earliest of these records is one in which Tiglath-Pileser III (745-727 B.C.) lists the goods he received as tribute from Merodach-baladan, the king of the Sea Lands. The Sea Lands were located in the vicinity of the head of the Persian Gulf. The inhabitants of this region, commonly known as Chaldaeans, were a constant irritant to the Assyrians who made many campaigns in attempts to subdue them. At times the Chaldaeans' power extended to ruling Babylon. The list reads:

Gold, the dust of his mountain(s), in great quantity, articles of gold, golden necklaces(?), precious stones, the products of the sea, logs of 'maple' and elligu-tu-wood, LAL- and LU-a-ru-plants, colored garments, all kinds of herbs, cattle and sheep, I received as his tribute.  

The people of the Sea Lands must have obtained most of those items through maritime trade. It is notable that many of the objects are later identified with India. Until the terms for the wood and plant objects are conclusively identified, however, we cannot categorically identify their origin. Interestingly, gold-dust, as we will see,

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26 ARAB I, 794.
is also identified with India in Persian times. The metal certainly could not have come from a mountain in the Sea Lands.

In Neo-Assyrian times Dilmun, generally identified with Bahrain and its surrounding area, begins to be mentioned again after a lapse of nearly a millennium since Akkadian times. The only reference dating to the intermediate period comes from a record of the Middle Assyrian ruler Tukulti-Ninurta I (1244-1208 B.C.) who professes kingship of Dilmun and Meluhha. It seems, however, to be only a formulaic title and probably should not be taken literally. Moreover, it is an isolated example.

More specific and informative references start during the reign of the Neo-Assyrian Sargon II (721-705 B.C.). A certain Upēri, King of Dilmun, is recorded as sending tribute to the Assyrian king after the latter gained control of Babylon. It is unlikely that Dilmun was under the direct military control of the Assyrians, but rather it gave tribute to gain the friendship, or at least the cooperation, of the rulers of Babylon. Without the Mesopotamian market, maritime trade through the Persian Gulf, no doubt the major contributor to Dilmun's economy, would suffer severely.

Subsequent Neo-Assyrian kings also mention Dilmun. After Sennacherib's (705-681 B.C.) sack of Babylon, the Dilmunites again sent tribute, further illustrating the pattern of submission whenever the Assyrians dominated Babylon. The tribute

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27 *ARAB* I, 170.

28 *ARAB* II, 41, 43, 70, 81, 92, 99, 185.

29 *ARAB* II, 438.
took the form of "a copper chariot, copper tools, vessels of the workmanship of their land." Dilmun was serving, as it had in Akkadian times, as an entrepôt in the gulf trade. The copper must have been mined further east, probably in the area of modern Oman, the Makan of the Akkadians. It is also significant that Dilmun was now a craft center in its own right.

When Sennacherib entered Babylon he looted Merodach-baladân's palace, finding gold, silver and precious stones: more indications of the lucrative trade being pursued by the Sea Lands.

Another episode occurring in the reign of Sennacherib illustrates another, less commercial, aspect of maritime activity in the Persian Gulf. After the defeat of Merodach-baladân, his Chaldaean tribe, the Bit-Yakin, escaped from the Sea Lands to the coast of Elam. There they continued to cause trouble for the Assyrian kings. Perhaps they even interfered in the aforementioned sea trade down the Persian Gulf, although this is purely conjectural. Sennacherib, in his sixth campaign, decided to end their activities. In Nineveh he had Syrian shipwrights build a fleet that he manned with sailors from Tyre, Sidon and Cyprus. They sailed down the Tigris to a point where the ships could be transported overland to a canal joining the Euphrates. Then, after traveling down to the Gulf, Sennacherib embarked his troops and sailed to Elam where he captured several towns.

30 ARAB II, 438.

31 ARAB II, 260, 270, 301.

32 ARAB II, 246, 318-22, 329.
The use of Mediterranean sailors was not, necessarily, a reflection of some Mesopotamian inadequacy. Rather, the Assyrian king was forced to use them. The normal Mesopotamian sailors, those from the Sea Lands and Babylonia, could hardly be employed as they were, to a large extent, the enemy. Kennedy, on the other hand, contends that the Mediterranean sailors would not have been allowed to return home and that their transplanted expertise was responsible for the "opening up of the eastern seas" that he postulates for the subsequent Neo-Babylonian period. While this position perhaps overstates these mariners' importance, their expertise would have indeed facilitated the expansion of maritime trade to the East.

A proclamation of Esarhaddon (681-669 B.C.) suggests that the Babylonians were active participants in the maritime trade. Esarhaddon's father, Sennacherib, had destroyed Babylon with such a thoroughness that he "removed its ground and had it carried to the Euphrates (and on) to the sea. Its earth reached (was carried) unto Dilmun." The new monarch, however, took a conciliatory tone and restored Babylon to her previous position. He rebuilt and repopulated the city and gave her a new charter of freedom. In part it reads:

Towards the four winds of heaven I opened up their ways so that,
establishing their tongue in every land, they might carry out their plans.\(^{35}\)

\(^{33}\) Kennedy (supra n. 23) 265.

\(^{34}\) \textit{ARAB II}, 438.

\(^{35}\) \textit{ARAB II}, 659E.
This passage can be interpreted as the Assyrian king's boast that he gave the Babylonians freedom to travel to foreign lands in order to "carry out their plans," i.e., trade.

Ashurbanipal (669-626 B.C.), the last strong Assyrian king, claimed that he "established the yoke of his rule over Tyre, which is in the midst of the Upper Sea, and Dilmun, which is in the midst of the Lower Sea." Some scholars see this as a possible indication of direct Assyrian rule over Dilmun, but the evidence is too slight to argue the position conclusively.

NEO-BABYLONIAN PERIOD

The fall of Nineveh to the Medes and Babylonians did not affect the increasing Mesopotamian maritime trade with the East. Records from the succeeding Neo-Babylonian period show continued contact. Prickly pears and dates from Dilmun are listed among the supplies for a New Year's festival during Nebuchadnezaar's reign (604-561 B.C.). Many of the larger cities in Babylonia increased in both size and wealth. Oppenheim believes this could only be due to

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36 _ARAB_ II, 970.


38 Oates in Al Khalifa (supra n. 37) 432.
foreign trade.\textsuperscript{39} While the issue is doubtless too complex for any single-factor explanation, trade must have played a central role in this urban flourishing.

Nebuchadnezzar seems to have taken some interest in the promotion of the maritime activities of his domain. An ancient fragment, attributed to Eusebius, records that he built a harbor in the swamps at the head of the Persian Gulf.\textsuperscript{40} He then founded the town of Teredon to the west of the Euphrates to protect the new harbor from raids coming from the Arabian desert. King believes that this concern for maritime traffic was limited to short-distance commerce only,\textsuperscript{41} a position necessitated by his belief that there was no sea trade between Babylon and India before Alexander. With all the other evidence, however, it would make just as much sense to see the harbor as an attempt to encourage long-distance maritime commerce. Probably it was intended to do both; the two types of trade are not mutually exclusive.

The last reference to Dilmun, by that name, comes from the eleventh year of Nabonidus' reign (544 B.C.), when a governor of that land is mentioned.\textsuperscript{42} This suggests an even stronger connection with Babylonian lands than previously when the rulers of Dilmun had been at least semi-independent monarachs. Nabonidus was

\textsuperscript{39} Oppenheim in K. Polanyi, ed., \textit{Trade and Market in the Early Empires} (Glencoe 1957) 34.

\textsuperscript{40} \textit{FHG IV} frag. 8, 284-5.

\textsuperscript{41} Leonard King, \textit{A History of Babylon} (London 1919) 7.

\textsuperscript{42} Oates in Al Khalifa and Rice (supra n. 37) 432.
the last of the Neo-Babylonians rulers. Starting in the Persian period, Bahrain was known as Tylos and is no longer mentioned in documents relating to trade.

The increase in Mesopotamian references to Dilmun (i.e., Bahrain) is paralleled by archaeological remains on the island dating to this period. There is evidence of what has been called an "important" Neo-Babylonian level at the site of Qal'at: City IV.43 The date of this level is often pushed back to include the Neo-Assyrian period. J.-F. Salles has proposed that a distinction is appropriate: City IVa would represent the Neo-Assyrian level, and City IVb the Neo-Babylonian and Persian periods.44 Romantically, Bibby even suggests that the palace found at the site may be that of Upēri, the king of Dilmun mentioned in the Neo-Assyrian records.45

Clearly there was an active maritime trade between Babylonia and Bahrain during the Neo-Assyrian and Neo-Babylonian periods. We now need to investigate whether this trade extended as far as India.

In his ambitious 1898 article, Kennedy makes the astute observation that "letters and coinage are the natural fruits of commerce."46 He attempts to show that both can be used to prove the presence of maritime trade between Babylon and India as early as the seventh century B.C.

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43 Boucharlat in Al Khalifa and Rice (supra n. 37) 443.
45 Bibby (supra n. 25) 218.
46 Kennedy (supra n. 23) 241.
Kennedy contends that early Chinese coinage was based upon a Babylonian prototype.\textsuperscript{47} His argument maintains that any maritime contact between Babylon and China would have required a route that included India. Unfortunately, I know of no recent scholar of Chinese coinage who perceives any such outside influence. Porteous goes as far as saying that Chinese coinage received no influences from the outside world until the late nineteenth century.\textsuperscript{48} When, by the late sixth century B.C., coinage was in use in China it took the form of miniature spades and knives, quite unlike any coinage in the West.\textsuperscript{49} Kennedy also sees Babylonian influence on the early Indian coins called \textit{puranas}.\textsuperscript{50} Again, no later numismatists seem to have accepted the idea and as even as far back as 1897 the position was disputed.\textsuperscript{51}

Kennedy fares better when it comes to "letters." He suggests that the Indians used a script that they picked up during the seventh and sixth centuries B.C. "in the bazaars of Babylon."\textsuperscript{52} In this theory he is supported by more recent linguists such as Coulmas,\textsuperscript{53} Healey\textsuperscript{54} and Diringer\textsuperscript{55} who believe that the Indian Brahmi script,

\textsuperscript{47} Kennedy (supra n. 23) 265-56.


\textsuperscript{50} Kennedy (supra n. 23) 279.

\textsuperscript{51} E.J. Rapson, \textit{Indian Coins} (Strassburg 1897, rpt. San Diego 1968) 2. Rapson sees no outside influence.

\textsuperscript{52} Kennedy (supra n. 23) 282.


dating to the seventh century B.C., is an adaptation of Aramaic. The alphabetic Aramaic was becoming increasingly popular in Babylon during that period, replacing the more awkward cuneiform Akkadian. Brahmi became the most important Indian script, eventually being used throughout most of the subcontinent.

Kennedy also submits as evidence for his thesis the presence of Indian loan-words in the West. Not surprisingly, all these terms refer to commodities probably imported from India. An example of this is "rice," known to the Greeks of the fifth century B.C. as ῥυζα, a word derived from the Tamil āriśi. It first appears as ῥυζης κρτος in Sophocles frag. 609 Pearson (in Athenaeus Deipnosophistae 3.75.31). This bread was made with rice which grew in Aethiopia. It was that region where Triptolemus brought the gift of Demeter in Sophocles' play. See A. C. Pearson, ed., Fragments of Sophocles II (Cambridge 1917) 250. It is worth noting that this first reference to rice comes in the context of the Red Sea region. While such evidence proves that there was contact between the West and India by the fifth century B.C., it is less helpful in determining its route. Given all the other evidence, it is probable that Babylon was the intermediary. The use of a southern route via the Red Sea, however, cannot be completely ruled out. According to Kennedy, the items must have been introduced through Mesopotamia during the sixth century as "direct intercourse between Babylon and India practically came to an end after 480 B.C."

After that date he believed there was a serious economic decline in Babylonia due to


56 It first appears as ῥυζης κρτος in Sophocles frag. 609 Pearson (in Athenaeus Deipnosophistae 3.75.31). This bread was made with rice which grew in Aethiopia. It was that region where Triptolemus brought the gift of Demeter in Sophocles' play. See A. C. Pearson, ed., Fragments of Sophocles II (Cambridge 1917) 250. It is worth noting that this first reference to rice comes in the context of the Red Sea region.

57 Kennedy (supra n. 23) 268-9.

58 Kennedy (supra n. 23) 269.
the Persian conquest. That there was such a serious deterioration of Babylonia is
doubtful. Herodotus records it as the richest province in the Persian Empire,\textsuperscript{59} and
Alexander thought the city important enough, even after centuries of foreign
domination, to make it his \textit{de facto} capital. In any case, as we will see,
Mesopotamia certainly did not lose contact with the East. Therefore, peacocks and
rice may have been introduced into Athens by 430 B.C. through the Mesopotamia of
the later Persian period.

Kennedy also presents as evidence of an active trade with India a number of
wood finds from Mesopotamian sites.\textsuperscript{60} One such item, for example, is a beam of
"Indian cedar" found in the palace of Nebuchadnezzar. Two logs of "teak" found at
the temple of the Moon-god at Ur in a layer associated with the Neo-Babylonian
rebuilding of the structure are also submitted as evidence. One must be cautious in
accepting these identifications. Both were made during the nineteenth century and
were subjective in nature. Given that caveat, the presence of Indian timbers would
be a strong argument for maritime trade. Transporting sizable logs across the Hindu
Kush mountains and Iranian plateau would be a difficult, yet not impossible, task.

It has been noted that there are few commercial documents from this period
in Mesopotamia referring to long-distance trade. This seems to run counter to the
evidence presented above. Oppenheim has argued, however, that there were two

\textsuperscript{59} Herod. 3.92.

\textsuperscript{60} Kennedy (supra n. 23) 266-67.
separate practices regarding mercantile records in the ancient Near East.\textsuperscript{61} One is typified by the copper importers of Ur in the Larsa period and is characterized by extensive written records. The other practice seems to have favored oral agreements which naturally leave no material record. It is this latter practice, Oppenheim believes, that the Neo-Babylonians employed. Further, it was during this period that alphabetic Aramaic was supplanting cuneiform Akkadian for recording transactions.\textsuperscript{62} Aramaic was normally written in ink on papyrus and parchment, materials not likely to survive in the archaeological record, unlike the durable clay tablets on which Akkadian was inscribed. Therefore, the lack of records may not be due to a lack of trade but may simply be a reflection of the survivability of the record's medium.

That there was some contact between India and Mesopotamia during the Neo-Babylonian Age is relatively certain. Champdor, while admitting that Babylon was the "principle thoroughfare for the commerce of India," believes the commerce was transacted solely by land.\textsuperscript{63} However, given all the evidence of a reemergence of the maritime trade route to the east (i.e., Bahrain, Oman, etc.), it would seem reasonable to attribute, at least partially, the Indian commerce to that route.

\textsuperscript{61} Oppenheim in Polanyi (supra n. 39) 34.

\textsuperscript{62} H. W. F. Saggs, \textit{The Might that was Assyria} (London 1984) 179.

\textsuperscript{63} A. Champdor, \textit{Babylon} (London 1958) 113.
SECTION CONCLUSIONS

Starting in the Neo-Assyrian Period there was an increase in the use of a southern, maritime route from Mesopotamia to the East. Saggs sees this as a shift away from land routes across the Iranian plateau due to increased migratory activity in that area.\textsuperscript{64} He also postulates that this shift was partially responsible for the decline of the Urartian civilization centered around Lake Van. That area no longer had direct access to trade routes to the East. Whatever the ultimate reason, we know that Dilmun began to gain prominence after a lapse of nearly a millennium, as both textual and archaeological records testify. In all likelihood, Dilmun was in the geographical center of a trade route to India, although it must be admitted that the material evidence is scant. Perhaps the strongest evidence is the development of the Brahmi alphabet in the Indus valley from Aramaic. Babylonia was in an ideal position to exploit this trade. The wealth and power of the area during the period are testaments to the fact that the trade was exploited. This growth was expedited by the region's change "from the old export-import to the more profitable carrying trade."\textsuperscript{65} From Babylonia items imported from the East were transhipped to the Mediterranean.

\textsuperscript{64} H. W. F. Saggs, \textit{The Greatness that was Babylon} (New York 1969) 284-85.

\textsuperscript{65} A. Leo Oppenheim, \textit{Ancient Mesopotamia} (Chicago 1964) 94.
THE PERSIAN PERIOD

Starting in the sixth century B.C. great changes in the political climate occurred among the nations bordering the Arabian Sea. These modifications were not limited to the substitution of one dynasty for another, or other petty political changes, but were of a more profound and general nature. They would inevitably bring about significant alterations to the region's social and economic character.

The territorial desires of the Persian kings of the sixth century B.C. caused the beginnings of a new era of maritime trade in the Arabian Sea. Since the time of Cyrus the Great the most easterly province of the Achaemenid empire had been Gandhara, now generally identified as the Kabul River basin. This situation remained unchanged until Darius the Great's invasion of India around 510 B.C. Regrettably, almost nothing is known about this venture, its only literary mention being a short passage in Herodotus' Histories.

Herodotus relates that as a prelude to the Persian king's campaign he sent an expedition down the Indus with the goal of finding the river's mouth. Cook has argued that the expedition would have taken place after Darius' military campaign.

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66 A. T. Olmstead, History of the Persian Empire (Chicago 1948) 144.


68 Herod. 4.44.

69 Cook (supra n. 67) 62.
a position also taken by Schiwek.\textsuperscript{70}

It is true that the later experiences of Alexander the Great on the Indus demonstrated the problems of traveling down an unknown river in the midst of potentially hostile peoples. Cook does not, however, support his position with any evidence while Herodotus' statement is unambiguous on the matter. Moreover, we know that the same Persian king, on at least one other occasion, sent a naval reconnaissance before attempting his military venture.

Preceding his first campaign in Greece, Darius dispatched the physician Democedes of Croton along with fifteen "notable" Persians to scout out the region.\textsuperscript{71} After starting out from Sidon the expedition, consisting of two triremes and a merchant ship, surveyed and made records of the Greek coast. It faltered, however, when Democedes deserted it at Taras, Italy, and the other expedition members gave up and attempted to return to Asia. Unfortunately the ships never made it back but were wrecked off the Iapygian coast, on the heel of Italy.

For the Indus expedition, Darius put a Carian, Scylax of Caryanda, in charge. The journey started in the district of Pactya\textsuperscript{72} at Caspatyrus. The only other ancient


\textsuperscript{71} Herod. 3.129-38.

\textsuperscript{72} The land of the Pactyians was a region undoubtedly included in the satrapy of Gandhara. Herodotus (3.102) tells us the Pactyians were the "most warlike of the Indian tribes" and among the most northerly situated. This tribe may be connected with the Vedic \textit{Paktah}. See Daffina, "On Kaspayros and the so-called Shore of the Scythians," in J. Harmatta, \textit{From Hecataeus to Al-Huvarixmi} (Budapest 1984) 2.
author who mentions this city is Hecataeus whom Herodotus may have used as a source.\textsuperscript{73} It was likely situated on the lower Kabul River, a tributary of the Indus,\textsuperscript{74} but there has been a considerable range of opinions on its exact location.\textsuperscript{75} Moreover, no archaeological remains have been identified with the city.\textsuperscript{76} After traveling down the river and reaching the Arabian Sea, Scylax proceeded west along the coast. Thirty months later he reached Egypt.

A Scylax of Caryanda is also identified as the author of a \textit{Periplus}, written in Greek, that describes the Mediterranean and Euxine (Black) Seas. The work does not mention any locations in the Red or Arabian Seas, areas with which Darius' Scylax would have been familiar. Moreover, the \textit{Periplus} can be attributed to the fourth century B.C. By analyzing towns mentioned in the work with regard to their known foundation-dates, Niebuhr arrived at a date of sometime between 360 and 348 B.C.\textsuperscript{77} It could not, therefore, have been written by the Scylax that Darius employed. This later Scylax is often given the name of Pseudo-Scylax to differentiate him from the Scylax of Darius.

It has often been assumed that Scylax's description of India was compiled in a work now lost to us.\textsuperscript{78} Many scholars have suggested that Hecataeus or Herodotus

\textsuperscript{73} Daffina (supra n. 72) 1.

\textsuperscript{74} A. V. Williams Jackson in \textit{CHI} I (1962) 301.

\textsuperscript{75} For summary see Daffina (supra n. 72).

\textsuperscript{76} E. H. Bunbury, \textit{A History of Ancient Geography} (New York 1959).

\textsuperscript{77} For a summary of the arguments see Bunbury (supra n. 76) 404 n. A.

\textsuperscript{78} Daffina (supra n. 72) 1.
or both may have used it as a source for their descriptions of India. Hecataeus, in particular, seems to have been familiar with the region of the Indus valley. A comment made by Aristotle does imply that Scylax left some account of his voyage with which that philosopher was familiar. He writes:

... and kings have no marked superiority over their subjects, such as Scylax affirms to be found among the Indians, it is absolutely necessary on many grounds that all citizens alike should take their turn at governing and being governed.  

Tozer argues that, if the voyage did take place, Scylax must have never returned to Caryanda or left an account of his adventures.  

He observes that Caryanda was located very close to Halicarnassus, the home city of Herodotus. Yet, that great historian is sometimes quite inaccurate when describing the geography of the lands Scylax would have known well. One example is Herodotus' ignorance about the existence of the Persian Gulf. Such errors suggest to Tozer that either the voyage was fictitious or a full account of it never reached western Anatolia. Given the meager amount of information about Scylax in ancient sources, he leans toward the former view. His argument, however, seems tenuous. First, it assumes that Herodotus would know of Scylax's works simply because of the geographical proximity of their home towns. Second, Herodotus' unfamiliarity with the Persian Gulf would not be surprising even if he was familiar with Scylax's account. Given

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the origin and destination of the Carian sailor's expedition, it is unlikely that he ever 
entered the Persian Gulf.

Vincent also dismisses the whole voyage as imaginary. 81 He notes that 
Herodotus describes the expedition as following the Indus eastward down to the sea, 
an obvious impossibility for the Indus flows to the south and southwest. Some 
scholars have claimed that the statement supports the theory that the voyage started 
on the Kabul tributary of the Indus. 82 That river does, in places, flow in a south-
easterly direction. Thomson, however, is unconvinced by this argument. 83 He notes 
that later Ionian maps show the Indus flowing eastward. Their cartographers shared 
Herodotus' mistaken geographical view. By itself, however, it is hard to see how 
this invalidates the Kabul theory. Vincent also submits that there are no other 
records of a Persian fleet in the Indian Ocean. This does not prove, however, that 
such did not exist and obviously has little bearing on the question of maritime trade 
or Scylax's journey. Vincent's weakest argument regards the Carian seaman's voyage 
around Arabia. Displaying an obvious bias, he contends that the Persians could not 
possibly accomplish a task at which, three hundred years later, Alexander's men 
failed.

Although the information on Scylax is indeed scant this hardly makes the 
voyage unlikely. There is no reason to doubt that some kind of exploration was


82 Daffina (supra n. 72) 3.

made on behalf of Darius, whether it was a reconnaissance before the invasion or a survey of his new lands afterwards. As noted above, precedents are known for such activities by the king.

The length of thirty months given for Scylax's trip has interesting implications. While it could simply be an error on Herodotus' part, it may also provide us with information on the voyage itself. This seemingly excessive amount of time could reflect problems the explorers had with adverse monsoons. Some two centuries later Nearchus endured a delay, albeit only a month long, for just this reason during his voyage from India. Such delays would suggest that the seasonal use of those winds was unknown to the Persians. The indigenous peoples of the Arabian Sea, however, would not have been so ignorant. It has also been theorized that the expedition carried out trading along the way, which delayed the voyage's completion.84

It is important to note the Persians' unfamiliarity with the Indus valley and the Arabian Sea. That an expedition was needed to explore the coast or even to find the mouth of the Indus River might suggest a relative lack of previous official contact between India and the Persian-controlled areas in the West. As we will see later in the case of Alexander, however, officially sanctioned voyages are by no means always the first to navigate a given route.

By 513 B.C., in the wake of Darius' invasion, a satrapy was formed from the newly conquered lands. The "Hindush" province was limited to the area immediately around the river from which it took its name, the Indus (Sanskrit Sindhu), and its tributaries. In the south, the Thar desert formed its eastern border while to the north its extent is not as well known. It may have been the Beas river (ancient Hyphasis), which would explain why Alexander's army later refused to cross that river; it signified the limit of the old Persian Empire. The greater part of India and its peoples remained outside Persian domination.

The exact nature, or intensity, of the Persian occupation of northwest India is unknown. There are many indications that it was very influential culturally if not extensive physically. Hecataeus mentions a "royal fort" located by the Indus near a tribe called the Opioi. Given that Hecataeus was contemporary with the reported Persian control of the region, the "royal" adjective probably refers to the Persian monarchy. In such a case, the fort may represent a Persian frontier garrison. The Persian presence in northwest India is also reflected in the archaeological record. Marshall believes it likely that Taxila (Sanskrit Takshaśilā) was refounded by the victorious Persians. Stratum four of the Bhir Mound, the oldest section of the city,

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85 Olmstead (supra n. 66) 145.
86 Herod. 3.98.
87 A. V. Williams Jackson in CHI I (1962) 302.
88 A. V. Williams Jackson in CHI I (1962) 301 n. 2.
dates to the fifth or sixth century B.C. In subsequent centuries Taxila, located between the Jhelum and Indus rivers, became the most important city in the whole region. Its growth was due to its strategic location at the convergence of three trade routes: One proceeded to Kashmir and Central Asia, another ran westward through Bactria to western Asia, and the last ran eastward to eastern India. The city's refoundation in the Achaemenid period is another indication of the rise of international trade during that period, in this case, of course, terrestrial.

Annual tribute for the new satrapy was reported by Herodotus as three hundred and sixty Babylonian talents of gold dust, a figure which he coverts to 4680 Euboean talents. The total amount of the Persian king's revenue was valued at 14,560 Euboean talents. Hindush, therefore, accounted for about a third of the empire's income. This incredible figure demands comment. Bunbury suggests that it included tribute from Indian tribes farther east not directly under the control of the Persians. Tarn, on the other hand, sees the figure as simply too fantastic and, moreover, unsupported by other sources. He suggests that it must be an error.

Herodotus reports that gold-dust was collected by the Indians in a desert, usually identified as the Thar. "Gold-ants" were responsible for digging up the gold and depositing it on the surface. The Indians would mount their expeditions to

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90 Herod. 3.94.

91 Bunbury (supra n. 76) 226.


93 Herod. 3.102-5.
gather the dust during the hottest part of the day when the ants had been driven underground. This was necessary as the insects were reported to be bigger than foxes and extremely aggressive. The late fourth century B.C. writers Megasthenes\textsuperscript{94} and Nearchus\textsuperscript{95} left similar stories about the ants. Megasthenes, who was familiar with the Thar, moved their location to a plateau up in the mountains to the east among a people known as the Dardai. In each case the ants are located just beyond the fringes of civilization.\textsuperscript{96}

Much has been written about this "ant-gold." One theory contends that mammals of some kind, perhaps marmots, were the actual creatures that dug up the gold when creating their burrows.\textsuperscript{97} This would explain why Nearchus reported that he had seen skins of the creatures.\textsuperscript{98} Another theory blames the confusion between a Mongolian tribal name (Shiraighol) and the Mongolian word for ant (Shirgol) as the origin of the story.\textsuperscript{99} Mongolia was possibly on the gold route. McCrindle suggests that the ants were in reality Tibetan miners who preferred to work in the winter

\textsuperscript{94} Strabo 15.1.44; Arrian \textit{Indica} 14.5-7.

\textsuperscript{95} Strabo 15.1.44; Arrian \textit{Indica} 14.4.

\textsuperscript{96} Tarn (supra n. 92) 106-7.

\textsuperscript{97} Bunbury (supra n. 76) note D 257.

\textsuperscript{98} Strabo 15.1.44; Arrian \textit{Indica} 14.4

\textsuperscript{99} B. Laufer as related in Tarn (supra n. 92) 107.
when the ground was harder and less likely to cave in on them. He claims that gold was still found in that region as late as the end of the nineteenth century.

Whatever its basis, the myth of "ant-gold" originated in India and was passed via Persia to Herodotus. It is mentioned in the Indian text Mahābhārata which achieved its final form early in the Christian era but contains significantly older sections. The main plot centers on historical events that probably took place around 1000 B.C. In the epic a passage refers to "that gold which is dug up by Pippilikas (ants) and therefore called Pippilika (ant-gold)." It is probably from this story that the western sources were inspired.

For most of her history India has not been a major gold-exporting nation. During many periods it imported the metal. In later Roman times it was primarily with gold coin and bullion that the West purchased commodities from the subcontinent.

As for India's indigenous supply of gold during this period, both Megasthenes and Pliny mention that a small amount was recovered from the washings on the upper Ganges. Today gold is mined in southern India, just west of Madras, in the Kolar region. However, no ancient sources mention the area being

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100 J. W. McCrindle, The Commerce and Navigation of the Erythraean Sea... Arrian's Account of the Voyage of Nearchus (Calcutta 1879) 341-42 n. H.

101 Bunbury (supra n. 76) 230 n. 2.

102 Warmington (supra n.3 ) 258.

103 Strabo 15.1.57.

104 Pliny N.H. 33.66.
worked, and archaeological evidence suggests it was only utilized during the Christian Era.\textsuperscript{105} Pointedly, both Gorgos,\textsuperscript{106} an engineer with Alexander, and Megasthenes\textsuperscript{107} had low opinions of the native Indians' mining abilities. It seems that they simply did not have the need or desire to develop such skills. Gorgos comments that they did not significantly exploit any of their own mineral resources.

As it produced only small amounts of gold, if India was responsible for such large contributions to the Persian coffers as reported by Herodotus, the metal must have been obtained elsewhere, i.e., the Indians were intermediaries in the trade. Given this, the "ant-gold" story may have been an attempt to keep their sources a mystery from inquisitive westerners.\textsuperscript{108} Possibly the Indians themselves were unaware of the original source's location.

A primary source of gold in Asia was Siberia, specifically the Ural-Altai region.\textsuperscript{109} The metal may have reached India through either Bactria or across the mountain passes from Kashmir or Gandhara. Tellingly, Bactria was also known for

\textsuperscript{105} Wood samples from a mine shaft in the Hutti field have been radiocarbon dated to 1890 and 1810 (both ±70) years B.P. Artifacts recovered from the mine also date to the first two centuries A.D. F. R. Alchich, "Upon the Antiquity and Methods of Gold Mining in Ancient India," JESHO 5 (1962) 205-208. Alchich, however, believes that the area was probably first mined in the last two centuries B.C. See also S. Narayanswami et al., "Structural Control and Localization of Gold Bearing Lodes, Colan Gold Fields, India," Econ. Geol. 55 (1960) 1429-59.

\textsuperscript{106} Strabo 15.1.30.

\textsuperscript{107} Strabo 15.1.44.

\textsuperscript{108} Tarn (supra n. 92) 105-09.

\textsuperscript{109} Tarn (supra n. 92) 104-06; C. H. V. Sutherland, Gold (London, 1957) 69.
its gold during this period. The palace foundation tablets from Susa list the province as a source of the metal used in the building.\textsuperscript{110} Notably, India is not listed as such. The famous Amu Darya hoard of artifacts found next to the Oxus River in the late 19th century also attests to Bactria's wealth. Again, the original source of the gold was probably east-central Asia.\textsuperscript{111}

Rostovtzeff believes there was significant cultural contact between Bactria and Siberia and South Russia during the subsequent Hellenistic period, but admits the evidence is slight.\textsuperscript{112} Another spectacular group of gold artifacts, these found in tombs at Tillya-Tepe near Shibarghan, provide vivid testimony, however, that the Bactrian "gold connection" lasted at least well into the Roman era. In the tombs were the remains of local Kushan rulers.\textsuperscript{113} The Kushans (Yueh-chih) had swept into Bactria from the steppes of Central Asia after having been pushed from their homeland by the aggressive Huns (Hsiung-nu). Among the grave goods found in the tombs were numerous golden objects of Greco-Bactrian origin. The Kushans doubtless plundered these from the Hellenistic Greco-Bactrian kingdoms that they had conquered. A host of gold objects of Kushan artistry were also buried with the rulers. The quantity of these items is proof of both the region's continued wealth and its access to the most precious of ancient metals.

\textsuperscript{110} Olmstead (supra n. 66) 168.

\textsuperscript{111} O. M. Dalton, \textit{The Treasure of the Oxus} (London 1926) xix-xx.


\textsuperscript{113} Victor Sarianidi, \textit{The Golden Hoard of Bactria} (New York 1985) 18.
It may have been that the stories of its plentiful gold was one reason for Alexander's expedition into India. He found, however, little of the metal. It seems that the gold trade from east-central Asia stopped sometime after the reign of Darius I. Tarn attributes this cessation to the movements of people in central Asia. It seems the route was never reopened to any great extent. As previously noted, India was later supplied with gold, in the form of bullion and coins, from the West. Perhaps the route to central Asia was never very significant. The only reason we have to believe that it was a conduit of much gold are the western stories of India's wealth and in particular Herodotus' account of her great tribute. In either case, those myths may have stimulated contact between the West and the subcontinent.

After Scylax's expedition and the incorporation of the Indus Valley into the Persian realm, Herodotus says that Darius "made regular use of the southern ocean." The obvious implication of this passage is that previously, at least to the Persians, the Arabian Sea was not in general use. It was not long before Indians were seen in Persia and even farther west. Herodotus mentions them serving in the king's armies. The so-called fortification-tablets from Persepolis, which record transfers of food payments from the palace in the reign of Darius I, mention Indian work-parties being employed. Reliefs on the walls of the same palace show

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114 Tarn (supra n. 92) 109.
115 Herod. 4.44.
116 Herod. 7.65; 7.86.
117 Cook (supra n. 67) 87.
Indians among those bringing tribute to the Persian king.\textsuperscript{118} The Persian governor of Babylon owned so many Indian dogs that four villages were exempted from all taxes in exchange for being burdened with the effort to feed them.\textsuperscript{119}

Elsewhere in his empire Darius resumed the excavation of a canal between the Nile and the Red Sea in 510 B.C. According to Herodotus, the project was first started by the Egyptian King Necho who abandoned it after losing 120,000 laborers.\textsuperscript{120} Darius' canal left the Pelusiac Branch of the Nile a little south of Bubastis and ran east thorough the Wadi Tumilat to Lake Timsah. From there it turned south to the Suez Gulf.\textsuperscript{121} Upon its completion in 498 B.C. the Persian king set up commemorative stelae to mark the event. Five have been found along the canal's course. Upon one side was written, in Old Persian, Elamite and Akkadian, the following proclamation of Darius:

I am a Persian; from Persia I captured Egypt; I ordered this canal to dig, from the river by name Nile, which flows in Egypt, to the sea which goes from Persia. Afterwards this canal was dug thus as I

\textsuperscript{118} Donald N. Wilber, \textit{Persepolis} (New York 1969) 91.

\textsuperscript{119} Herod. 1.192.

\textsuperscript{120} Herod. 2.158. There is some debate over the veracity of this passage. There are no archaeological or textual confirmations of the project being started under Necho. References from other Greek authors to his involvement were probably derived from Herodotus. There is also a tradition that the canal's construction was first attempted by Sesostris (Aris. \textit{Met.} 352b; Strabo 17.1.25; Pliny \textit{N.H.} 6.165.) See A. Lloyd, \textit{Herodotus Book II} (Leiden 1975) 149-57, and A. Lloyd, "Necho and the Red Sea: Some Considerations," \textit{JEA} 63 (1977) 142-53.

commanded, and ships went from Egypt through this canal to Persia 
thus as was my desire.¹²²

On the other side is a longer hieroglyphic inscription that includes a list of 
the Persian provinces. On one stele, found three kilometers south of Kabret, the text 
also declares that tribute was sent from Egypt to Persia in twenty-four (or thirty-six) 
boats.¹²³

These two events, the building of the canal and Scylax's voyage, show that 
the Persian monarch had developed a deliberate strategy to promote utilization of the 
Arabian Sea. Yet another element in this plan may have been the relocation of 
maritime peoples to the head of the Persian Gulf, for Persians were not comfortable 
with the sea and preferred to employ nationals from traditionally seafaring societies 
for their maritime endeavors. The citizens of Miletus suffered this fate after the 
unsuccessful Ionian rebellion when they were deported to Ampe at the mouth of the 
Tigris River.¹²⁴ Another obvious example of this practice was the use of the Carian 
Scylax to explore the Indus River. In the Mediterranean, the Persians relied upon 
Phoenicians, Ionians and other seafaring peoples to provide fleets for their purposes.

It was probably during this Persian period that the practice of cotton plant 
cultivation spread west from India. By the time of Alexander it was known on


¹²³ Georges Posener, La première domination perse en Égypte (Le Caire 1936) 181.

¹²⁴ Herod. 6.22.
Bahrain and, by the time of Pliny, in Arabia Felix. Later the practice spread to Ethiopia, Nubia and Upper Egypt. The path of this diffusion indicates the maritime trade routes being used. The first connected India and Mesopotamia via the Persian Gulf. The second linked India with Southern Arabia and the Red Sea.

Although Persian influence on India proper was considerable, some scholars over-estimate its extent. Sir Mortimer Wheeler even suggested that the use of iron in India was due to Persian influence, a position not borne out by the archaeological evidence. It seems that by 1000 B.C. the Aryans of India understood the metallurgy of iron, perhaps having learnt it from the iron-using tribes of the Iranian plateau.

The development of the Kharoshthi script was one area in which Persia exerted a direct influence on India. This form of writing evolved in northwest India during the fifth century B.C. as an adaptation of Aramaic to the local Prakrit language. It was used in the area widely in subsequent centuries and can be found on coins of the later Indo-Greek rulers of Bactria.

Wheeler also credited the Persians with the introduction of coinage into India. He is supported by Spooner who identifies many motifs on early Indian


127 N. R. Banerjee, The Iron Age in India (Delhi 1965) 239.


129 Wheeler (supra n. 126) 171-2.
coins as Zoroastrian. However, Vincent Smith contends that many motifs might have Jainist or Buddhist origins. He aptly observed, when referring to one such motif, that "symbolism assumes such an infinite variety of meaning that either interpretation, or both interpretations, may be right." It has been asserted, since the last century, that a type of Indian coinage found exclusively in the Northwest during this period used the Persian system of weights. The coinage took the form of bent bars of silver, weighing the same as two Persian shekels, with a wheel symbol struck at each end. A fractional coin with the weight of half a siglos (shekel) was also used. Silver punch-marked coins also began to be used in the Ganges province of India during the sixth century B.C. They later became the common currency of the Mauryan rulers. Maity, however, shows that many punch-marked coins can not be fitted into the Persian weight system. It is undeniable, given the standard of the bent-bar currency, that the Persian darics and sigloi did influence native Indian coinage. Very few gold darics, it should be noted, have been found in India itself and only a marginally larger number of the silver sigloi.

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130 D. B. Spooner, "The Zoroastrian Period of Indian History," JRAS (1915) 411.

131 Vincent A. Smith, "The Zoroastrian Period of Indian History," JRAS (1915) 801.

132 Spooner (supra n. 130) 411; Rapson (supra n. 51) 3.


135 Macdonald in CHI I (1962) 306-08.
Their use in trade with India proper was no doubt small when compared to the later use of Roman species.

Descriptions of the fourth century B.C. Mauryan court, such as that of Megasthenes, describe it as having a close similarity to the Persian one. Even the famous pillars of Asoka have Persian ancestry.\(^{136}\) Asoka’s use of rock-cut edicts was also foreshadowed by those of Darius I.\(^ {137}\) Spooner takes an extreme position on the Persian influence on India, going as far as contending that the Mauryan rulers were actually Persians.\(^ {138}\) Scholars have, for the most part, discredited this position\(^ {139}\) while still acknowledging the role Persia played in the development of Mauryan India. The exact extent of Persian artistic influence on the subcontinent, however, is still debated.\(^ {140}\)

Most of this cultural influence was no doubt transmitted through commercial channels. The question remains as to what those channels were. Were they limited to land routes from India proper through Persia’s province of Hindush and on to Persia/Mesopotamia? Additionally, was the sea route from Egypt to Persia/Mesopotamia greatly exploited? Was there any long-distance maritime

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\(^ {137}\) Wheeler (supra n. 126) 175.

\(^ {138}\) Spooner (supra n. 130) 63-89, 405-455.


\(^ {140}\) For a brief overview of the problem see S. Chattopadhyaya, The Achaemenids and India (New Delhi 1974) 62-65.
commerce in the Arabian Sea during the Persian period or was it all local in nature? While we have a clear indication that the Persians made concerted efforts to promote utilization of the Southern Sea, we now need to see if there is any evidence of any positive response to those efforts.

From Darius' canal stelae we have proof that ships traveled from Egypt to Persia. Further evidence may be found in another monument of that king. During the excavations of the palace at Susa in 1972 a greater than life-size statue of Darius I executed in typical Egyptian style was uncovered. Even the workmanship bears characteristics associated with Egyptians.\textsuperscript{141} A list of provinces recorded in hieroglyphs on its base is identical in number (twenty-four) and order to those on Darius' canal stele. This may suggest that the statue was made in Egypt at the same time as the opening of the canal. The excavators' date for the inscriptions of just before 490 B.C. accords with this idea.\textsuperscript{142}

The statue bears texts in Old Persian, Elamite and Akkadian. Two of these are unambiguous in their statement that Darius ordered the statue made in Egypt.\textsuperscript{143} This evidence, coupled with the fact that such a massive item would most likely be sent to Persia by boat, is an indication to some scholars of an Egypt-to-Persia

\textsuperscript{141} Stronach observes that the lack of chisel marks on even the unpolished parts of the statue reflects the traditional Egyptian method of working stone; it seems that no hard-tipped metal tools were used on the statue. David Stronach, "Une statue de Darius découverte à Suse: Description and Comment," \textit{JA} 260 (1972) 244.

\textsuperscript{142} Stronach (supra n. 141) 246.

\textsuperscript{143} François Vallet, "Une statue de Darius découverte à Suse. L'inscription cuneiforme trilingue," \textit{JA} 260 (1972) 250.
maritime route.\textsuperscript{144} Perhaps it was the cargo of one of the twenty-four vessels mentioned on the canal stelae. While there is evidence for the use of that route, we must be cautious about including the statue as such. Stronach reports that it is made of a grey limestone that \textit{may} be local Zagros limestone used elsewhere in Susa.\textsuperscript{145} If this identification is correct, we have a contradiction: a statue seeming, and even claiming, to be Egyptian being made with local material. J. Yoyotte theorizes that the statue is an exact copy, made by Egyptian artisans at Susa, of a statue at the temple of Atoum at Heliopolis.\textsuperscript{146} This would nicely resolve the seeming contradiction and remove the statue from the body of evidence for a maritime route to Egypt.

If such a route was exploited one would expect to find some evidence from Arabia. Any ship travelling from Egypt to Mesopotamia would have had to skirt the peninsula. Unfortunately, we have little specific information about the history of Arabia during this period. We do know, however, that there was a resurgence of the southern Sabaean kingdom around the middle of the 5th century B.C. In an inscription from this period a local ruler, Karib II Watr, claims to have unified the

\textsuperscript{144} Shea (supra n. 121) 33, and Sentance, "Ships and their Significance in the Re-appraising of Indian Ocean history," \textit{I.C.I.O.S. The History of Commercial Exchange and Maritime Transport} (Perth 1979) 4, believe the statue must have been transported by ship. Cook (supra n. 67) 58, simply states that it came from Egypt without speculating on the means of transport.

\textsuperscript{145} Stronach (supra n. 141) 241.

Sabaean tribes and made himself king.\textsuperscript{147} Prominent among his other listed accomplishments is the destruction of the kingdom of Awsan's cities "by the sea." Awsan, located along the coast of the Gulf of Aden, prospered in the Persian period probably as the result of the sea traffic around the peninsula. Karib II Watr may have been trying to divert the sea trade to his own territory, specifically, to the overland caravan routes controlled by the Sabaeans.\textsuperscript{148}

The rise of the Sabaean kingdom was no doubt due, mostly, to an increasing trade with the West in Arabian products, notably frankincense and myrrh. An expanding maritime trade with the other regions around the Arabian sea probably also played a part. An additional result of this trade growth was the establishment of the Minaean kingdom north of Saba' on the caravan route to Syria.\textsuperscript{149} Also during this period, in another indication of the rising Arabian trade, the city of Petra developed into a trading establishment. Previously a simple watering-stop rather than a true emporium, the city was later to become famous as the major crossroads of the east-west caravan trade routes.\textsuperscript{150}

While we have little knowledge about the growing economic power of the Arabian tribes during this period, by the beginning of the Hellenistic era, as we will

\textsuperscript{147} K. Salibi, \textit{A History of Arabia} (Delmar 1980) 32.

\textsuperscript{148} Salibi (supra n. 147) 32-33.

\textsuperscript{149} Salibi (supra n. 147) 34.

\textsuperscript{150} I. Browning, \textit{Petra} (London 1982) 15.
see, their trade networks were already well developed. They were undoubtedly based on those of the Persian period.

It seems probable that the sea trade between Egypt and the Persian Gulf was minor in comparison to the trade between southern Arabia and the East. The Indian goods in demand in the West could be supplied by either the northern trade axis of India-Babylonia or the southern trade axis of India-Arabia-Egypt/Syria. There was simply no significant economic reason for a maritime trade to exist between Egypt and Mesopotamia.

Additional evidence for the use of the northern axis comes from Darius’ palace at Susa. An excavated foundation-tablet lists the places where various construction materials for the building originated. Gandhara is listed as a source of yaka timber.\textsuperscript{151} Yaka is often identified as teak but may in fact be sisoo wood.\textsuperscript{152} India is credited with providing ivory. It is quite possible that these products were transported to Persia by sea. In the case of the teak it would even seem likely, for the transportation of logs of wood overland across Persia would have been exceedingly difficult.

Excavations at Susa have also uncovered libation cups, bangles and various ornaments made from Indian sankha or chank.\textsuperscript{153} This pure white shell (species

\textsuperscript{151} Wilber (supra n. 118) 93.


\textsuperscript{153} J. Hornell, "The Chank-Shell Cult of India," Antiquity 16 (1942) 132; Hornell (supra n. 15) 248.
*xancus pyrum*) is found exclusively in Indian waters, particularly off the Kathiawar coast. While it is possible that these objects were transported via the Indus Valley-Bactria-Iran route, a sea-route is just as likely, and probably more so.

On the island of Bahrain, no definite Achaemenid level has been isolated at the site of Qal'at.  

Some scholars, however, believe that one exists. Some of the pottery shapes of City IV hint that the phase may include the Persian period. With what we know about Darius' efforts to promote maritime commerce, a hiatus in the occupation of Bahrain during the Achaemenid Period would seem paradoxical. It may be that the role of entrepot for Babylonia was starting to be filled by other Northern Arabian states as was the case in the later Hellenistic period.

Indian literary sources conservatively dated to the Persian period also indicate the presence of a maritime trade link between the subcontinent and Mesopotamia. The Buddhist *Pitakas* and *Jātakas* both supply tantalizing bits of information on this commerce as well as Indian seafaring in general. One tale comes from the *Kevaddhasutta* of the *Dīgha-nikāya*, itself a section of the *Sutta-Pitaka*, which has been dated to the fifth century B.C. It reads:

In very ancient times the sea-going merchants took direction-finding birds on their ships which were released when required. They flew in

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154 Boucharlat in Al Khalifa (supra n. 37) 444.

155 Level IVb can be attributed to both the Neo-Babylonian and Achaemenid periods according to J.-F. Salles in Boucharlat (supra n. 44) 156.

156 Boucharlat in Al Khalifa (supra n. 37) 438.

all directions and alighted when they saw solid ground. But if no
such ground was seen they returned to the ship.\textsuperscript{158}

This form of navigation is also encountered in ancient Mesopotamian
literature. Utanapishtim, in the story of Gilgamesh, first sighted land by releasing in
turn a pigeon and a sparrow. In the Biblical version of this story, Noah uses a raven
and a dove.\textsuperscript{159} Interestingly, Pliny later mentions the same custom being used by the
natives of Ceylon in the absence of celestial navigation.\textsuperscript{160}

The \textit{Pitaka} also tells us about voyages that took up to six months and the
practice of laying ships up during winter. As a whole the tale confirms that
respectably long voyages, made out of the sight of land, were known to the Indians
at least as far back as the fifth century B.C.

The \textit{Bavaru-Jātaka (Jātaka 339)} is even more specific.\textsuperscript{161} It tells of maritime
trade between India and \textit{Bavaru}, a location often identified as Babylon.\textsuperscript{162} The tale
tells the story of some Indian merchants who travelled by ship to Bavaru to sell
birds to its inhabitants. The first bird sold was a crow which the Indians, while
haggling over its price, described as being "very useful." This may be a reference to

\textsuperscript{158} Davids (supra n. 157) 432.

\textsuperscript{159} \textit{Genesis} VIII, 2.

\textsuperscript{160} Pliny \textit{N.H.} 4.22. See J. Hornell, "The Role of Birds in Early Navigation,"
\textit{Antiquity} 20 (1946) 142-49.

\textsuperscript{161} \textit{Jātaka} III, 83-4.

\textsuperscript{162} Kennedy (supra n. 23) 268; G. L. Adhya, \textit{Early Indian Economics} (New York
1967) 102; Chandra (supra n. 4) 60.
the bird's aforementioned use in navigation. The second bird sold was a peacock.

The story is nicely corroborated by the use of the Tamil word for peacock in the West as early as the fifth century B.C. (see pages 9 and 22). The tale dates to around 400 B.C., but like the Sutta Pitaka, may reflect folk stories from much earlier times.

Many other Jātakas mention long-distance maritime trading ventures. Most tell us little more than that they took place. Their frequency in the corpus of tales, however, suggests that such trips were not infrequent.

It has even been suggested that there was an Indian presence in Egypt during the Persian period. Flinders Petrie published a number of terra-cotta figurines excavated at Memphis which are remarkably Indian in style. Among the finds are figures with strikingly Indian/Aryan attitudes and, as described by Petrie, heads with Tibetan (?) facial features. He dates them to the Persian occupation (525-405 B.C.) and contends they are evidence for an Indian population at the site. If his hypothesis is correct, it would be a forceful argument for direct, probably maritime, contact between India and Egypt during the period. The lack of any additional contemporary archaeological evidence warns us, however, to take a cautious attitude towards this interpretation. Petrie's dating of the finds has also been called into question; Gordon suggests a date in the early years of the Christian era based upon their stylistic affinities to Indian sculpture of that period.

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Such is the evidence for use of the Arabian Sea for trade in the Persian era. We can say with a high degree of confidence that ships of the period sailed from Egypt to Persia and from Mesopotamia to India. The latter route was simply a continuation of the Babylonian/Indian trade of the previous Neo-Babylonian period. The lack of much physical evidence, however, may suggest a relatively modest traffic. There were still obstacles to maritime trade. After his conquest of Mesopotamia, Alexander removed several "weirs" from the Tigris that the Persians placed there to keep enemy ships from sailing up the river.\textsuperscript{165} Such precautions were necessary as the Persians had no naval force in the Gulf to deal with threats from the sea. This, of course, raises the question of what maritime power the Persians were preparing themselves against. The weirs are described as being considerable feats of engineering and would hardly have been erected without good cause. Arrian, however, dryly notes that the ease with which they were destroyed was a clear indication of their actual military value. The only seafaring peoples that could conceivably have been of danger to the Persians would have been the various Arabian tribes of Northern Arabia. There is no record, however, of any such threat. One of the earlier Persian monarchs may have perceived some kind of trouble from the Sea Lands such as the Neo-Assyrians had previously faced. Or perhaps the weirs were not constructed for military reasons at all but for some economic purpose and were simply misinterpreted by the ancients. An irrigation or fishing function of

\textsuperscript{165} Arrian \textit{Anab.} 7.7.6.; Strabo, 16.1.9.
some kind is easily imagined. There is no way of being sure given the meager evidence. In any case, such devices are hardly conducive to maritime trade.

What is more important is that for all of Darius' efforts, it seems that these maritime routes did not increase greatly in prosperity. By the time of Alexander the Great the Indian Ocean was once again something of a mystery. In none of the accounts of Nearchus' exploration of the Iranian coast is Scylax mentioned, as we might expect. His trip seem to have been almost entirely forgotten.

The Persians, contrary to some scholars' opinions, do seem to have kept some control over the Indus Valley. Xerxes was reported to have included Indians among his troops, and even the last Persian king, Darius III, received aid from India in his fight against Alexander. The Macedonian conqueror, however, later found no Persian representative east of the Hindu Kush mountains. Moreover, in the Indus valley both Porus and Taxila are referred to as kings, presumably meaning that they were independent. If India was still a Persian province one would expect officials in the Persian court, who now reported to Alexander, to have information on the area. Yet, this did not seem to be the case. Alexander was ignorant about Scylax's voyage and Indian geography in general. It is probable that the later Persian kings had only nominal control over their old province.

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166 Such devices have been used by fishermen in many societies to funnel fish into traps or holding ponds. See J. Hornell, *Fishing in Many Waters* (Cambridge 1950) especially 50-57 and 153-57.

167 Herod. 7.65.

168 Arrian *Anab*. 3.8.3-6.
In Egypt Darius’ canal was left to silt up and soon western writers claimed it had never even been finished.\textsuperscript{169} A decline in maritime trade probably started with the later Achaemenid rulers who seemed to have less interest in its promotion than Darius. Bevan concludes that they had a "weak commercial policy."\textsuperscript{170} He notes that even the ten-percent duty placed on items imported into Babylon seems to have been ignored during those later years.

SECTION CONCLUSIONS

The Persian period was significant for the development of maritime trade in the Arabian Sea. For the first time a single political unit encompassed many of the major geographical areas around that body of water. A single person ruled from Egypt to the Indus Valley. Moreover, the early Persian monarchs, in particular Darius I, made concerted efforts to promote commerce on their southern sea. This was coupled with a growing demand for eastern goods in the West. The result was maritime trade on a scale and geographical extent previously unknown to the region.

Contact, some no doubt maritime, between Persia and India greatly influenced the subcontinent’s economic, social and cultural development. While evidence is more scant, Indian influence probably flowed in the other direction. For the first time we have definite evidence of ships traveling from Egypt to Mesopotamia. It seems, however, that this route was not very significant. Evidence

\textsuperscript{169} Arist. \textit{Mete.} 352b; Diod. 1.33.9; Pliny \textit{N.H.} 6.165; Strabo 17.1.2.

from India, Mesopotamia and, indirectly, from Arabia show that sailors were active throughout the Arabian Sea. Already, we see a development of two trade axes. The northern, India-Babylonia, route was a continuation of the old Neo-Babylonian one. While there is less direct evidence for the southern, India-South Arabian, route the formation of the southern Arabian kingdoms suggests that it had developed.

The scene was set for a blossoming of maritime trade in the Arabian Sea. Probably this potential had only been partially fulfilled with only modest growth in maritime traffic. It was for the later Hellenistic Period to see significantly greater development and exploitation.
THE CONTRIBUTIONS OF ALEXANDER OF MACEDON

In the spring of 327 B.C. Alexander the Great crossed the Hindu Kush and descended into India. The Macedonian king spent the next two years there fighting some of his most difficult campaigns. After its subjugation Alexander was ultimately, like Darius before him, to go to great lengths to promote maritime contact between India and the West. Also like Darius, his efforts were to be only partially successful.

When Alexander entered India from Bactria he already had made plans for a maritime venture. His boyhood friend Nearchus had been recalled from Lycia where he had governed as satrap from 334 to 329 B.C.\textsuperscript{171} The Cretan was one of the king's closest companions. He had been among those confidants that Alexander's father, Philip II, had exiled from Macedonia during the family altercation known as the "Paxos affair."\textsuperscript{172} Upon his arrival in Bactria, with a group of army reinforcements, Alexander appointed him a battalion commander in the hypaspists or guard brigade. While this would seem to be a reduction in rank, it was probably only meant to be an interim command held until Nearchus' maritime skills were

\textsuperscript{171} For Nearchus' career see W. Heckel, \textit{The Marshals of Alexander's Empire} (London 1992) 228-36.

\textsuperscript{172} Plut. \textit{Alex.} 10.1-3; Arrian \textit{Anab.} 3.6.5.
needed. Alexander had also sent for numerous Phoenicians, Cypriots, Carians and Egyptians in anticipation of building and manning a fleet.\textsuperscript{173}

The Macedonian king doubtless had many reasons for his invasion of India. Perhaps the dominant motivation was his desire to reach the Eastern Ocean, either in the pursuit of glory or out of simple curiosity. From his old teacher, Aristotle, he had probably picked up some mistaken geographical ideas. The philosopher erroneously believed that the ocean on the far side of India was close enough to be seen from the Hindu Kush.\textsuperscript{174} Maybe Alexander planned to send a fleet back around India to Mesopotamia after he reached that sea. He may have even thought of sending one back by a northern route. He certainly believed in the possibility that the Eastern Ocean was connected with the Caspian Sea.\textsuperscript{175} In any case, once across the Indus he must have realized that his tutor was wrong. He pressed on, however, believing (or professing to believe) that the sea was near.\textsuperscript{176} Unfortunately for him,

\textsuperscript{173} Arrian (\textit{Anab.} 6.1.6; \textit{Indica} 18.1) merely indicates that they were accompanying the army. P. A. Brunt, \textit{Arrian: History of Alexander and Indica} (Cambridge 1983) Appendix XXV.2, convincingly argues that, as they are never mentioned in the muster of the army before, they must have arrived with a group of army reinforcements perhaps as late as 326 B.C.

\textsuperscript{174} Arist. \textit{Met.} 1.13.15.

\textsuperscript{175} Arrian \textit{Anab.} 7.16.1-4; see details about Alexander's planned exploration of the Caspian Sea below.

\textsuperscript{176} Tarn points out that half of Alexander's army was "on communications with his advanced base" and his own detachment had suffered significant casualties. The king did not even have enough men to garrison his most recent conquests without using local Indian troops. To Tarn, that he still wanted to advance must have meant that he thought the end was near. W. W. Tarn, \textit{Alexander the Great II} (Cambridge 1948) 275 n. 5. Green, however, believes he must have known, before reaching the Beas, that the sea was still far off. P. Green, \textit{Alexander of Macedon} (Berkeley 1991)
when the army reached the river Hyphasis (modern Beas) they mutinied and refused to go forward. Alexander's men were worn out and wanted no further part in the king's adventure. So the future fleet was to be used for another mission.

Alexander backtracked westward until he reached the Hydaspes (modern Jhelum). It was there that he finally gathered his fleet, for he had conceived of another nautical venture. He was to follow the Indus river system down to the sea with part of the army going by boat and the rest marching down both banks.

Some vessels had previously been built on the Indus to aid in its fording. Later, when Alexander needed to cross the Hydaspes in the face of the Indian king Porus, these boats had been disassembled and brought to that river. Arrian records that they were broken down into sections, the shorter ones into two and the triacontoroi into three. Additional ships were built from "fir, pine, cedar and other logs of all kinds fit for shipbuilding." These were cut in a forest near the Emodi mountains and floated down the Hydaspes. The Macedonians commandeered still more boats from the locals. The Indian kings Taxiles and Porus were said to have given their "unqualified support" in the construction of the flotilla.

404-405. All that can be said with certainty is that at that point, the Macedonian army definitely believed the latter.

177 Arrian Anab. 5.8.5.
178 Strabo 15.1.29.
179 Quintus Curtius 9.3.22.
According to Ptolemy, cited in Arrian's history of Alexander, the fleet totaled nearly two thousand vessels. It included eighty triacontoroi\textsuperscript{180} with the remainder made up of hippagoga\textsuperscript{181}, hemiolai\textsuperscript{182}, kerkouroi\textsuperscript{183} and other craft that "had been long plying on the rivers or that had been constructed at the time."\textsuperscript{184} In his Indica, however, Arrian reports, presumably using Nearchus as a source, that the fleet contained eight hundred vessels.\textsuperscript{185} Diodorus Siculus wrote that it was made up of two hundred aphractoi\textsuperscript{186} and eight hundred "service vessels."\textsuperscript{187} Quintus Curtius also gives the figure of a thousand boats.\textsuperscript{188} It may be that Ptolemy included a

\textsuperscript{180} Thirty-oared vessels, probably two-banked (dikrotoi: Arrian, 6.5.2). See L. Casson, Ships and Seamanship in the Ancient World (Princeton 1971) 136 n. 1. This is, however, contested by W. W. Tarn, "The Greek Warship," 24 JHS (1905) 145.

\textsuperscript{181} Horse transports.

\textsuperscript{182} A fast type of galley popular with pirates. The name literally means "one and a half." Casson believes that these vessels were originally adapted to pursue their prey under both sail and oar. By having only half an upper bank of oars, space was created behind the mast for easy manipulation of the sails and mustering a boarding party. The ship-type subsequently gained use in more respectable navies. See Casson (supra n. 180) 128-9 and "Hemioila and Triemioila," JHS 78 (1958) 14-19.

\textsuperscript{183} A merchant galley. The word is a Greek rendition of the Assyrian qurqurru, a type of Mesopotamian river-craft. They probably carried the army's heavy equipment while the other assorted craft carried the lighter effects. See Casson (supra n. 180) 163.

\textsuperscript{184} Arrian Anab. 6.1.1; 6.2.4.

\textsuperscript{185} Arrian Indica 19.7.

\textsuperscript{186} "Unfenced." Frequently taken as "undecked." The term was often used by laymen for a small galley with one layer of oars. See Casson (supra n. 180) 134-5.

\textsuperscript{187} Diod. 17.95.5.

\textsuperscript{188} Quintus Curtius 9.3.22.
thousand very small vessels in his total (found in the Anabasis) while the other authors did not. At first these numbers may seem extreme for a fleet built and gathered in a relatively short time. They are, however, quite reasonable. During the later Mogul Empire, some forty thousand vessels are mentioned as employed on the Indus and its tributaries.\textsuperscript{189}

Besides the peoples previously mentioned as sent for by Alexander, the fleet was manned by islanders, Ionians and Hellespontines taken from the army, who were "practiced in these things."\textsuperscript{190} Alexander then appointed thirty-three men as trierarchs. Arrian names them all along with the helmsmen of Alexander's own ship, Onesicritus, and the fleet's secretary, Evagoras of Corinth.\textsuperscript{191} Of the trierarchs, twenty-four were Macedonians, eight were Greeks and one a Persian. Obviously the position did not involve the command of a trireme (there were none) but was honorific. Moreover, it is likely the title was used in the Attic sense with the honored men taking responsibility for the cost of part of the fleet.\textsuperscript{192} It was not the first time, or the last, that Alexander had to borrow from his friends. Nearchus was appointed admiral (Nauarch) of the flotilla.

\textsuperscript{189} From the Ayeen Akbari. See R. K. Mookerji, A History of Indian Shipping (Allahabad 1962) 71; Vincent (supra n. 81) 12.

\textsuperscript{190} Arrian Indica 18.2.

\textsuperscript{191} Arrian Indica 18.3-10.

\textsuperscript{192} Green (supra n. 176) 413-14; U. Wilcken, Alexander the Great (New York 1967) 188. The trierarchs are mentioned (Arrian Indica 20.9.) as "providing for the rowers and other personnel."
After Alexander sacrificed to the Hydaspes, Acesines and Indus, the fleet started downstream in November, 326 B.C. Eight thousand troops were embarked on the ships. Arrian relates that the native Indians were duly impressed, especially by the horse transports, the likes of which they had never seen before.\textsuperscript{193}

When the fleet reached the meeting of the Hydaspes and Acesines (modern Chenab) it ran into trouble. The waters at the confluence were rough and full of whirlpools. The "round boats" (στρογγύλα) had little difficulty. The warships (μαξαράτα), on the other hand, got into trouble, especially the two-banked vessels which had a hard time keeping the lower bank clear of the water.\textsuperscript{194} Two galleys were completely lost and many others were damaged. Both Diodorus and Curtius even have Alexander in danger of drowning during the turmoil.\textsuperscript{195} It seems the king had never learned how to swim.\textsuperscript{196}

Alexander's fleet was continually being enlarged as it proceeded downstream. Many vessels were added while the king was recovering from a nearly fatal wound received while storming a Mallian city.\textsuperscript{197} At the junction of the Acesines and Indus, additional triacontoroi and "round vessels" joined the fleet.\textsuperscript{198} Significantly, Arrian

\textsuperscript{193} Arrian Anab. 6.3.4.

\textsuperscript{194} Arrian Anab. 6.5.2-3.

\textsuperscript{195} Diod. 97; Quintus Curtius 9.4.12.

\textsuperscript{196} Plut. Alex. 58.4.

\textsuperscript{197} Arrian Anab. 6.14.4.

\textsuperscript{198} Arrian Anab. 6.15.1.
says that these were built among the Xathrians and Sogdians, a clear demonstration of the shipbuilding capabilities of the local Indians.

During his excursion down the Indus, Alexander created both dockyards and ship-stations, the latter presumably simpler facilities than the former. One dockyard was built at the meeting of the Acesines and Indus, while ship-stations were built in the city of Sogdia. At Pattala, at the head of the Indus Delta, he built both ship-stations and dockyards. Alexander then sailed down both arms of the Indus to the Ocean and found that the eastern branch was easier to navigate. Just before reaching the Ocean, the river expanded into a large lake. There Alexander had wells dug and additional dockyards and ship-stations built. It is obvious that the Macedonian king had not come to India simply as an adventurer for he was taking conscious steps to promote traffic, and therefore trade, on the Indus. As will be seen, this interest in water-born trade is well attested to by other actions of the king.

The Mediterranean seamen of Alexander's forces experienced phenomena in India with which they were quite unfamiliar. When the king was exploring the right-hand branch of the Indus delta, the ships anchored in a canal to escape a storm. While they were there the tide receded, leaving the ships stranded on the resulting mudflats, producing considerable concern among the sailors. Their distress was

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199 Arrian Anab. 6.15.2.
200 Arrian Anab. 6.15.4.
201 Arrian Anab. 6.20.5.
202 Arrian Anab. 6.19.1.
compounded when the tide returned as a tidal bore which caused much damage to the fleet.

Arrian reports that Alexander intended to station a "fleet of many ships" at Pattala. Unfortunately, it is unknown what the exact nature of this unrealized fleet was to have been. Probably it would have been a "police force" responsible for the security of the eastern end of his newly envisioned maritime trade network. The king undoubtedly planned to form the nucleus of this fleet with some of those vessels in the Indus flotilla that were not suitable for the upcoming voyage to Mesopotamia.

The trip down the Indus had taken a full nine months. Once it was completed, Nearchus was given a more ambitious mission. He was to sail the fleet from the mouth of the Indus to the head of the Persian Gulf. The exact number and composition of the ships detailed for this adventure is unknown. Quintus Curtius merely mentions that Nearchus and Onesicritus were charged to take the "strongest" vessels. Tarn suggests a reasonable total of some 100 to 150 vessels with a total crew consisting of perhaps 3000 to 5000 sailors. Archers and catapults also accompanied the fleet for defensive purposes.

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204 Quintus Curtius 9.10.3.

205 Tarn (supra n. 176) I, 105.

206 Arrian *Indica* 24.7-8; 28.5.
Alexander's objective for this venture is clearly related by Nearchus via Arrian:

He desired to reconnoiter the coasts that lay on the line of the voyage and the roadsteads and islets, to explore thoroughly every bay which they found, to learn about all the cities of the sea-coast, and to discover which land was fruitful and which desert.\textsuperscript{207}

Additionally, in determining Alexander's reasons for sending Nearchus off on his adventure, one should not overlook the king's characteristic \textit{pothos}, or overwhelming desire, to do spectacular and extraordinary feats. By all accounts, it was a driving force throughout Alexander's life and, indeed, elsewhere Nearchus reports that it was the desire to do something new that first prompted the king to contemplate the voyage.\textsuperscript{208}

Peter Green, however, proposes that the fleet's actual mission was to carry bulk supplies for the army marching along the coast. That Nearchus, via Arrian, relates that the fleet often had to forage for food is explained away as the admiral's smokescreen to cover up his failure in his mission.\textsuperscript{209} Unfortunately, this theory does not bare much scrutiny. It would seem unlikely that Alexander, a man not noted for tolerating gross incompetence, would award a golden crown to a man, as

\textsuperscript{207} Arrian \textit{Indica} 32.9-12. See also the very similar mission statement in \textit{Anab.} 7.20.10.

\textsuperscript{208} Arrian \textit{Indica} 20.2.

\textsuperscript{209} Green (supra n. 176) 430.
he did Nearchus\textsuperscript{210}, for so failing him. It is simply more plausible that, as related by the admiral, it was the army that was given the job of supporting the fleet by providing food and digging wells.\textsuperscript{211}

The dependence of ancient fleets on the shore is widely attested in ancient sources. The most memorable example of a commander using this practise to his advantage was the battle of Aegospotami (Goat's Rivers). In this decisive point of the Peloponnesian war Lysander destroyed an Athenian fleet while its crews were off gathering supplies.\textsuperscript{212} A similar tactic was also used by the Eretrians in their rebellion against the Athenians.\textsuperscript{213} The crews of the Athenian fleet stationed in Eretria were lured to the far side of the town in search of supplies. Meanwhile a Peloponnesian fleet caught the Athenian ships unprepared. The result was predictable.

Nearchus informs us that a ten-day supply of food\textsuperscript{214} and a five-day supply of water\textsuperscript{215} was carried on board his ships. These numbers are quite in line with what we know about the stocks carried on board ancient warships. The fleet did possess "round" or cargo ships. It could not have conceivably contained enough such vessels, however, to provision the some 85,000 souls Alexander had with him. The

\textsuperscript{210} Arrian \textit{Indica} 42.9.

\textsuperscript{211} Arrian \textit{Anab.} 6.21.3; 6.23.1; 6.23.6; 6.24.3.

\textsuperscript{212} Xenophon \textit{Hellenica} 2.1.27-8.

\textsuperscript{213} Thucydides 8.95.

\textsuperscript{214} Arrian \textit{Indica} 23.7.

\textsuperscript{215} Arrian \textit{Indica} 40.11.
problems that the fleet faced on its voyage were due to the failure of the army in its mission. This would also help explain the king's great relief upon its safe arrival: a guilty conscience. Given the available evidence it is clear that the king, by sending Nearchus on his mission, was scouting out the coast with the goal of providing practical information to those who would benefit from it: sailors and merchants.

Both Nearchus and Onesicritus wrote accounts of their journey. Neither work has been passed down in its entirety but fragments of each can be found in the texts of later authors.\textsuperscript{216} Nearchus is generally counted as the more reliable source due to the down-to-earth nature of his narrative. He was, however, not immune to putting his own achievements in the best light possible. Some of his adventures have a decidedly heroic bent resembling those of Odysseus. Onesicritus' account is more fantastic in nature and he is roundly criticized by many ancient (and modern) authors.\textsuperscript{217}

Alexander and his army set out in August 325 B.C. while Nearchus and the fleet waited for the end of the southwest monsoon. On September 20th, before the end of the summer monsoon, the fleet departed from an unnamed harbor on the Indus. After reaching the ocean and starting westward they were forced to put in to

\textsuperscript{216} By far the most extensive excerpt of Nearchus's work is found in Arrian's \textit{Indica}.

a harbor (probably Karachi) that Nearchus named "Alexander's haven."²¹⁸ It is possible that a temporary lull in the southwest monsoon had fooled them into starting too early. Strabo, however, reports that they left due to the growing hostility of the Indians.²¹⁹ They stayed in this harbor for twenty-four days before the winds abated. No local pilot is mentioned in any of the accounts, a fact which may help explain the premature departure; an Indian pilot would, no doubt, have been familiar with the monsoon's patterns and would have known the suitable time to leave.

Many scholars have attempted to trace Nearchus' voyage and locate his various stopping places.²²⁰ For the most part, these exercises in minutiae are unimportant to us. It is notable that at Mosarna (modern Pasni), the fleet picked up a pilot, a Gedrosian named Hydraces.²²¹ Gedrosia is the area, part of which is known today as the Makran, along the southern shore of modern Iran. Hydraces promised to take the fleet as far as Carmania, the country to the north of the Straits of Hormuz. From there the voyage was reported as easier, perhaps meaning the Greeks and Macedonians were sailing in more familiar waters.

It would seem, from Nearchus' account, that the route along the Makran coast was little plied in the years before Alexander. This view is supported by the general

²¹⁸ Arrian Indica 21.10.

²¹⁹ Strabo 15.2.5.

²²⁰ Notable are Vincent (supra n. 81), Brown (supra n. 217), Brunt (supra n. 173), McCrindle (supra n. 100) and Schiwek (supra n. 70) 1-97.

²²¹ Arrian Indica 27.1. In actual fact, it seems that Hydraces was merely the chief pilot as more than one are alluded to throughout Nearchus' account. Arrian Indica 30.3; 31.3; 32.7; 40.11.
attitude of the ancients, including Alexander, on the spectacular and dangerous nature of Nearchus' adventure. When, after nearly two months, Nearchus anchored off the river Anamis (modern Minab) at a place called Harmozia,\textsuperscript{222} he knew the hazardous part of his journey was over. He reported as much to Alexander whom he met not far from there. The king, overjoyed that both his friend and his fleet were intact, wanted Nearchus to stay with him and let someone else command the fleet on the last leg of the voyage. Nearchus replied that he wanted to stay in charge of the fleet with the plea:

Let it not be said that you entrusted me with the difficult and desperate work, but that the easy task, with fame sure to follow, was taken away and put into another's hands.\textsuperscript{223}

Alexander relented and the admiral continued up the Persian Gulf and ultimately to Susa. This leg, however, was not without mishap. On at least two occasions some of the ships ran aground causing the fleet to stop and make repairs.\textsuperscript{224} One such refit period took three weeks.\textsuperscript{225} Shallows were a problem throughout most of this last segment of the voyage. Nearchus' account, however, reveals a coast accustomed to a higher volume of sea-traffic. At Apostana, on the

\textsuperscript{222} Arrian \textit{Indica} 33.2.

\textsuperscript{223} Arrian \textit{Indica} 36.6.

\textsuperscript{224} Arrian \textit{Indica} 37.5; 39.8.

\textsuperscript{225} Arrian \textit{Indica} 38.9.
Persian coast, he mentions seeing "many boats anchored."\textsuperscript{226} Along the marshy coast of Susiana there were even navigation aids: poles driven into the seabed to mark shallows for sailors.\textsuperscript{227} The fleet was guided through the Persian Gulf by a certain Mazenes, the governor of the island of Oaracta (probably Kishm).\textsuperscript{228}

The entire voyage from the Indus to Susa took five months. Not its least significance lies in its being the first voyage of discovery of which we have a detailed account. Notably, for all the hurrah surrounding the voyage and Alexander's reported relief at the fleet's survival, the trip was not that perilous. Three ships, two warships and a merchant vessel, had been lost when a heavy squall caught the fleet on a lee shore.\textsuperscript{229} Even then the men from the disabled ships were able to swim to safety. The only other ship lost was a \textit{kerkouros} with an Egyptian crew which disappeared without a trace.\textsuperscript{230}

The main danger for the fleet had been the lack of food along the Makran coast and, as previously noted, at least one modern scholar argues that dilemma was an invention of Nearchus. In any case, the fleet definitely had an easier time than Alexander and his army which returned via the Makran. Perhaps only a third of that army and its camp followers survived the march through the desert.\textsuperscript{231} Given proper

\textsuperscript{226} Arrian \textit{Indica} 38.5.

\textsuperscript{227} Arrian \textit{Indica} 40.2.

\textsuperscript{228} Arrian \textit{Indica} 37.2.

\textsuperscript{229} Arrian \textit{Indica} 23.3.

\textsuperscript{230} Arrian \textit{Indica} 31.3.

\textsuperscript{231} Green (supra n. 176) 435.
way-stations, the fleet's voyage would have been virtually uneventful. The coasting voyage between India and Persia had proved to be "safe and feasible even for river craft."²³²

Moreover, for all the implications from the Greek authors that the Indus Valley/Mesopotamian maritime trade axis was unknown, there are still clues in Nearcu's own account that it was, in fact, commercially active. The Cretan noted that cinnamon and other commodities were imported into Assyria from Ras Masandan in Northern Arabia.²³³ As cinnamon grows only in India and farther east it must have been exported to Arabia by sea. We have already seen Nearcu's references to an apparently considerable sea-traffic along the eastern coast of the Persian Gulf.

Greek accounts also give only some indications of trade in other parts of the Indian Ocean. Onesicritus probably obtained his knowledge of Ceylon²³⁴ from an Indian sailor who had voyaged there. Nearcu also mentions voyagers sailing far to the south.²³⁵

There is considerable evidence from Greek accounts that seafaring on a significant scale took place on the Arabian Sea during the age of Alexander. It would seem that Nearcu and his subsequent chroniclers played up the uniqueness

²³² G. Ballard, Rulers of the Indian Ocean (Lahore 1979) 9.

²³³ Arrian Indica 32.7.

²³⁴ Strabo 15.1.15.

²³⁵ Arrian Indica 25.4-8.
and dangers of the voyage in order to gain prestige for themselves and/or the king. This exaggeration for effect can also be seen in the overly theatric adventures found in Nearchus's account.\textsuperscript{236}

Upon his return to Mesopotamia, Alexander continued to be concerned with promoting maritime commerce. As noted previously (see page 51), he removed obstructions to shipping in the Tigris. In April or May 324 B.C. he founded Alexandria-in-Susiana between the Eulaeus and Tigris estuaries.\textsuperscript{237} The port was settled with inhabitants of the nearby city of Durine and invalids from the army. It was eventually to grow and become the main entrepôt of Babylon. Moreover, the king started construction of a massive harbor at Babylon itself, along with attendant dockyards, large enough to hold a thousand ships of war.\textsuperscript{238}

Alexander's mind also turned to new maritime explorations. He ordered an investigation of the Caspian sea.\textsuperscript{239} A certain Heraclides was sent to Hyrcania (Mazanderan) to build warships, "both decked and open, in the Greek style." The king's goal was to see if the Caspian joined the Euxine (Black) Sea and if either joined the great ocean surrounding Asia. While the plan seems to have been abandoned at Alexander's death, it is another illustration of the king's interest in maritime exploration. Later the Seleucid successors would continue the pursuit.

\textsuperscript{236} See Pearson's (supra n. 217) discussion of Nearchus especially 131-137.

\textsuperscript{237} Pliny, \textit{NH} 6.138.

\textsuperscript{238} Arrian \textit{Anab.} 7.19.4.

\textsuperscript{239} Arrian \textit{Anab.} 7.16.1-4.
The last venture that Alexander planned, indeed was planning when death took him, was the natural follow-up to Nearchus' Arabian Sea endeavor. His admiral had both proved the feasibility of a sea route to India and had scouted out its path. Now the king was about to extend that maritime network to Egypt.

The Macedonian king, along with Nearchus, set about organizing an exploration of the coast of Arabia. While it has been suggested that he was preparing for the invasion and conquest of Arabia, almost certainly his intention was simply to explore and colonize the peninsula. Arrian reports that Alexander was "planning to colonize the coast along the Persian Gulf and the islands there, as he thought that it would become just as prosperous a country as Phoenicia."\(^{240}\)

Moreover, he adds that Alexander intended to allow self-government for the Arabians, similar to his arrangement in India. Arrian's own opinion was, it must be noted, that the king was just insatiable for conquests. It might be more accurate, however, to say he was insatiable for fame.

Arrangements in Babylon for the expedition were extensive.\(^{241}\) Ships, to be added to the existing fleet, were built out of local cypress. Vessels were also constructed in Phoenicia, disassembled, carried overland and rebuilt on the Euphrates. Arrian reports that these included two quinqueremes, three quadriremes, twelve triremes and some thirty triacontoroi. Curtius' details on the fleet are less

\(^{240}\) Arrian \textit{Anab.} 7.19.5.

\(^{241}\) Arrian \textit{Anab.} 7.19.3-4; Strabo 16.1.11.
probable.\textsuperscript{242} He reported that seven hundred ships, all septemremes made of wood from Mt. Libanus, were ordered built at the Syrian city of Thapsacus. From there they were to be transported overland to Babylon.

An envoy, Miccalus of Clazomenae, was dispatched to Phoenicia with five hundred talents to hire sailors,\textsuperscript{243} a comment on the relative lack of experienced seamen available in Mesopotamia. The kings of Cyprus were ordered to supply bronze, hemp and sails for the fleet.\textsuperscript{244} After the ships were built and manned, Alexander conducted training exercises to increase the readiness of the fleet.\textsuperscript{245} Contests were held between the ships, and crowns awarded to the winners.

In further preparation for his venture, Alexander sent four reconnaissance parties to report on the coast of Arabia. The first was commanded by Archias of Pella who was previously a trierarch of the Indus fleet and had played a prominent role in Nearchus' voyage.\textsuperscript{246} He was sent out with a triaconters to report on the Persian Gulf side of Arabia.\textsuperscript{247} He reached Tylos (Bahrain) before turning back. A certain Androtheneus sailed with another triaconters and continued beyond Tylos but again turned back before getting to the straits of Hormuz.\textsuperscript{248} He did, however, leave

\textsuperscript{242} Quintus Curtius 10.1.19.
\textsuperscript{243} Arrian Anab. 7.19.5.
\textsuperscript{244} Quintus Curtius 10.1.19.
\textsuperscript{245} Arrian Anab. 7.23.5.
\textsuperscript{246} Arrian Indica 18.3; 27.8-28.9; 34.6-35.8.
\textsuperscript{247} Arrian Anab. 7.20.7.
\textsuperscript{248} Arrian Anab. 7.20.7; Strabo 16.3.1-6.
an account of what he had seen which was used by later geographers. Hieron of Soli was also dispatched from Mesopotamia. His orders were to circumnavigate the whole peninsula to reach Heroönpolis, on the Suez isthmus. He too stopped short and returned, after reaching Ras Mussendam, being disheartened by the barrenness of the land. He reported to the king that Arabia was comparable to India in size. From Heroönpolis an additional ship (or ships) was sent south, probably with the design of meeting the explorers coming from the Persian Gulf. Anaxicrates, its commander, however, turned back due to a lack of supplies before his mission was complete. He reached just beyond Bab-el-Mandeb.

The great Arabian adventure, however, was not to be. Four days before the fleet was to set out, Alexander fell ill. Even while bedridden he continued to give orders to Nearchus and his officers about the expedition. Early on the 10th of June 323 B.C. the great king died and with him his Arabian enterprise.

SECTION CONCLUSIONS

Alexander the Great's campaigns in the East opened up those lands to the Mediterranean world. From this point forward the two regions would be increasingly connected by political and commercial ties. The Macedonian king's ultimate goal of a unified empire was never realized and his officers soon divided it

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249 Arrian Anab 7.20.7-8.

250 Arrian Indica 43.7; Theophrastus Hist. Plant. 9.4.2-4; Strabo 16.4.4. For a full discussion see W. W. Tarn, "Ptolemy II and Arabia," JEA 15 (1929) 13-14.
up into independent kingdoms. The knowledge acquired of, and interest in, the lands to the East, however, would remain part of the Hellenistic world.\textsuperscript{251}

Specifically, Alexander had an acute desire to promote maritime trade in his empire. His planned Arabian campaign and Nearchus' voyage back from India both were expressly designed with that goal in mind. Alexander's Caspian Sea exploration probably had less of a commercial purpose but nevertheless illustrates the king's interest in maritime ventures. In all, Hornell is only slightly exaggerating when he claims that Alexander was the "father of sea-trade between East and West."\textsuperscript{252}

While the Arabian and Caspian expeditions were canceled at the death of Alexander, his successors undertook similar, although less ambitions, enterprises. The division of the Empire did little to slow the development of new contacts between East and West. On the contrary, as each kingdom fought for access to the riches involved in the trade between the areas, great efforts would be made to promote it within each kingdom.

\textsuperscript{251} We have the names of no less than fifteen men who accompanied Alexander in India and who eventually became authors. See J. W. McCrindle, \textit{The Invasion of India by Alexander the Great} (Westminster 1896, rpt. New York 1969) 7.

\textsuperscript{252} Hornell (supra n. 15) 246.
INTRODUCTION

Information on maritime trade in the Arabian Sea is more abundant for the Hellenistic period, particularly in western sources. This is partially due to the new western awareness and interest in southern Asia. It also reflects, however, an increase in the region's maritime activity.

The Hellenistic period saw a dramatic expansion in international trade of all kinds. Tarn notes that the most successful cities of the period (Seleucia-on-the-Tigris, Antioch, Rhodes, Ephesus, Alexandria, Corinth and Delos) all grew wealthy from the transit trade. This commerce was aided by the introduction of international coinage standards. Greece, Asia Minor, the provinces of the Seleucid kingdom and eventually Italy all used the Attic standard. The Ptolemies toyed with the Rhodian standard but eventually adopted the Phoenician one. Naturally, Phoenicia and her colonies also used this standard.

WhileIndia(169,540),(849,909) was reintroduced to the West by Alexander the Great, it was left to his successors to foster subsequent contacts, both economic and political. An often overlooked demonstration of Alexander the Great's extraordinary charisma and leadership ability was the ease with which he controlled and intimidated his generals. It has been written that he possessed "the most extraordinary and talented team of

subordinates in all history." Yet, under Alexander they remained subservient almost to the point of anonymity. Soon after the king's death, however, the immense ambitions of these men were unleashed. It is said that upon his deathbed Alexander was asked to whom he wished to leave his empire; he replied "to the strongest." His words were to prove prophetic. While the complex series of wars and political intrigues that characterize the Hellenistic period are beyond the scope of this work, their profound effect on maritime trade in the Arabian Sea cannot be ignored.

Immediately after Alexander's death his maritime plans were abandoned or curtailed. His grand Arabian expedition was cancelled altogether. His scheme to promote trade between Mesopotamia and India, as reported by Nearchus, was docked. It would, however, eventually be realized in an altered and more limited form. The Diadochoi (successors) were simply too occupied with securing their own political and military positions to worry about promoting new commercial endeavors. By 301 B.C., however, relatively stable states had been established. Subsequently, the two Hellenistic kingdoms that could directly benefit from this trade, the Ptolemyes and the Seleucids, began to consider ways to maximize their involvement.

In regard to maritime trade in the Arabian Sea, the most obvious characteristic of the post-Alexandrian world order was the political separation of Egypt from Asia. From now on two "western" powers would compete for the Indian trade. The Seleucids and the Ptolemyes both had vested interests in actively

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254 Green (supra n. 176) 421-22.
promoting trade with the East. Each wanted to exploit the ever increasing western demand for Arabian and Indian goods. Trade, along with promoting economic growth within the kingdoms, was a significant source of revenue for the state coffers. At the same time, due to the almost perpetual hostilities between the two kingdoms, each wanted to deny such profits to the other.

The Seleucids, with their power base in Syria and Mesopotamia, had many obvious advantages. They had exclusive access to the traditional coastal and terrestrial routes eastward. They were also the first major Hellenistic kingdom, as we will see, to have political contacts with Indian powers, a natural outgrowth of their geographical and economic proximity. It was not long, however, before the Ptolemies of Egypt began to compete. Where once there had been one central political power (in theory), now there was active competition with the Seleucids trying to keep control of the trade routes to India and the Ptolemies trying to circumvent them or at least share in the profit. One result of this economic competition was the fairly continuous military struggle for control of southern Syria, the Mediterranean outlet for eastern goods. Another, indirect, result was an increase in the volume of maritime commerce in the Arabian Sea.

This geo-political situation naturally resulted in an amplification of the two possible trade routes between the Indian and the Mediterranean worlds. In other words, there was now mutually exclusive political support for two maritime trade axes. Each state was, however, too preoccupied to exert any concerted effort to monopolize the trade. Each relied on the services of Arabian intermediaries, another characteristic of Hellenistic trade in the Arabian Sea. The Seleucids employed the
Gerrhaeans while the Ptolemies employed the southern Arabian tribes. This "cooperation" did not preclude the Macedonian kings from attempting to bully the Arabs into compliance with their desires. Both states, however, never seriously attempted militarily to conquer or dominate the Arab states to gain complete control over the Indian trade. The Ptolemies did eventually attempt to bypass the Arab tribes.

It is important to note that when we first see the trade between the West and India at the beginning of the Hellenistic Period many of its characteristics are already formed. Petra is already a prosperous town due to the Arabian caravan routes. The Gulf route, as indicated by Nearchus, is already well trafficked. The beginnings of these characteristics can, therefore, be safely dated to at least the Persian period despite the lack of much specific evidence from that period.

Contemporary with the western "successor states" was the Mauryan Empire, the first major state of historical India. Texts from this period provide us with our first substantial look at the Indian end of the maritime trade network.

If Alexander had lived, his Arabian campaign, along with his general interest in encouraging maritime commerce, may have changed the trade dynamics outlined above. It is pointless to speculate. As it was, they were to typify maritime trade in the Arabian Sea during the Hellenistic period.

MARKETS AND COMMODITIES

A characteristic of western trade with India, whether via maritime or terrestrial routes, until fairly recent times was an imbalance in demand between the
two regions. Western societies had a greater demand for Indian goods than Indian societies had for western goods. This imbalance had several effects. Among the most apparent was the necessity for western traders to exchange the one good in their possession that was consistently in demand in India: gold. A classic example of this species drain can be found in the experience of Imperial Rome. The Emperor Tiberius was distressed enough about the situation to angrily complain about "female extravagance by which, for the sake of jewels, our wealth is transported to alien or hostile countries." More specifically, Pliny states that Rome was shipping at least a hundred million sesterces overseas each year to China, India and Arabia. He echoes Tiberius by scornfully adding that "that is the sum which our luxuries and our women cost us." In a separate passage he isolates India as responsible for fifty million of the lost sesterces and notes that merchants sold the Indian goods at a hundred times their prime cost.

Western states were forced to develop strategies to reduce, or eliminate, the drain of species to India. The obvious solution was to find some other product, that was in demand in the subcontinent, to exchange for Indian goods. A good example of this economic policy was the British exportation of manufactured goods to the subcontinent in exchange for Indian resources during the 18th and 19th centuries of our era. Another instance was the extensive exportation of horses to India by the

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255 Tac. Ann. 3.53.
256 Pliny N.H. 12.84.
Arabs in Medieval times. This latter trade was taken over by the Portuguese upon their arrival in eastern waters and was, responsible, to a large extent, for their commercial success in the region.

Another strategy was to raise capital, other than western gold, by making profit-making sales along the way to India. This capital was then used to buy Indian goods. Thus, a complex multi-avenue trading network existed.

The *Periplus Maris Erythraei*, dating to just after the period of our interest,\(^{258}\) illustrates how early western and Arabian sea-merchants used these same strategies. This work was composed by a Greek-Egyptian merchant as a "guide book" for Roman traders in the Indian Ocean.

There is no trade without demand. The Mediterranean world had been familiar with eastern, including Indian, goods since at least the Persian period. Alexander's conquests, however, greatly increased that knowledge. The Greek world soon developed an ever expanding appetite for Indian products. These consisted, for the most part, of luxury goods. The *Periplus* is our most detailed western account of what goods were imported from India by the West. While the work is dated to the first century A.D., its information is also no doubt applicable to the Hellenistic age. The later Roman trade, for the most part, was different in scale and route rather than in type of commodities. Indian texts also give us some idea about the items traded to and from the subcontinent.

\(^{258}\) Various dates given by scholars in the past for the *Periplus* range from A.D. 30 to A.D. 230. It can now be stated, due to the dating of the Nabataean king-sequence, that the work definitely dates to the middle of the first century A.D. See Casson (supra n. 3) 6.
The most characteristic category of Indian goods imported by the West was spices and aromatics. A large variety of Indian plant products were known in Greece as early as the late fourth century B.C. Theophrastus knew about cardamon, cassia/cinnamon, nard, pepper, ginger-grass, citron, rice, lentil, cotton, jackfruit, banana and mango. Naturally, many of these were probably only known to the West in small quantities. Additionally, as Adhya points out, some of this knowledge may have come from travelers rather than from the substances actually having reached the Mediterranean.259 By the end of the Hellenistic period, however, Indian spices were being imported into the West in quantity. The Periplus mentions nard, pepper, costus, bdellium, cinnamon and cassia as the prominent Indian commodities shipped into Egypt during the first century A.D.

The Indian products most frequently mentioned in Hellenistic sources were cinnamon and cassia.260 Ironically, these spices may not even have been, strictly speaking, Indian products. Casson believes that they mainly originated in Southeast Asia and southern China.261 In this case, India would be a transshipment point mistakenly labeled as the products' origin.262

259 Adhya (supra n. 162) 143.

260 In general, cinnamon was made from the more tender shoots, flowers, buds, etc., of the several cinnamon plants (genus Cinnamomum). Cassia, on the other hand, was a coarser spice made from the plants' wood, bark and roots. The plants are native to China, the Indian subcontinent and southeast Asia.

261 L. Casson, Ancient Trade and Society (Detroit 1984) 225-46; Casson (supra n. 3) 122-23. Casson holds this position primarily because the Periplus does not mention either product as among those prominently found in India.

262 Strabo 16.4.25; Philostratus V.A. 3.4.
Such misunderstandings are by no means unknown. As early as the fifth century B.C., Herodotus believed cinnamon was an Arabian product.\textsuperscript{263} Subsequent western authors were no more informed on the true origin of the spice. Theophrastus held the same conviction as Herodotus.\textsuperscript{264} Aristobulus even reveals that among Alexander's incentives for his Arabian campaign were the spices, including cassia, cinnamon and nard, which supposedly grew there.\textsuperscript{265} The \textit{Periplus},\textsuperscript{266} Eratosthenes,\textsuperscript{267} Diodorus\textsuperscript{268} and Pliny\textsuperscript{269} all identify modern Somalia as the origin of cinnamon. This region became so famous for the spice that, in Strabo, it is often referred to it as the "cinnamon country."\textsuperscript{270} The trees that produce the spice, however, require a significantly moister climate and have never grown in Somalia or Arabia. The western misunderstandings, however, clearly illustrate the route the spices followed westward. In a telling comment, Pliny even reports that some authors believed that Barygaza (modern Broach, in India) was a distant Ethiopian town.\textsuperscript{271}

\textsuperscript{263} Herod. 3.107.

\textsuperscript{264} Theophrastus, \textit{Enquiry into Plants} 9.4.1.

\textsuperscript{265} Arrian, \textit{Anab.} 7.20.2. All these spices are products of India.

\textsuperscript{266} \textit{PME} 8-13.

\textsuperscript{267} Strabo 16.4.4.

\textsuperscript{268} Diod. 3.46.2.

\textsuperscript{269} Pliny \textit{N.H.} 12.86-7.

\textsuperscript{270} Strabo 1.63; 2.72, 95, 114, 119, 132.

\textsuperscript{271} Pliny \textit{N.H.} 6.175. For the location of Barygaza see page 104.
Cinnamon was not the only Indian spice believed by the West to be Arabian. Pliny held that ginger and cardamon, both Indian products, also came from Arabia.\textsuperscript{272} This clearly shows how ignorant the West was about the sea traffic in the Arabian Sea. It may also be a reflection of an active effort by the Arabians to protect their monopoly.

In Roman times pepper was a major Indian import in the West. In early Tamil literature the spice was often referred to with the epithet \textit{Yananaapriya} (dear to the \textit{Yavanas}).\textsuperscript{273} Even western sources acknowledge it had an inordinate value in their society. Pliny dryly comments: ". . . to think that its only pleasing quality is pungency and that we go all the way to India to get this."\textsuperscript{274}

Pepper was known in the West as early as the fifth century B.C.\textsuperscript{275} As Tarn has pointed out, however, during the Hellenistic period it seems that only small amounts were available.\textsuperscript{276} Theophrastus, for example, only knew it as a drug used

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\textsuperscript{272} Pliny \textit{N.H.} 12.28 and 12.50 respectively.

\textsuperscript{273} \textit{Yavanas} was a term used by the Indians for westerners. Derived from 'Iανοες (Ionians) during the Achaemenid period (via the Prakrit \textit{Yona} and ultimately the old Persian \textit{Yauna}), it originally meant "Greeks" but soon gained a wider application. The term is often found in Tamil literature of the early centuries A.D. applied to various kings' bodyguards and engineers. It seems probable these were Mediterranean mercenaries. See Iyengar (supra n. 4) 312-17, and Himanshu P. Ray, "The Yavana Presence in Ancient India," \textit{JESHO} 31 (1988) 311-25.

\textsuperscript{274} Pliny \textit{N.H.} 12.29.

\textsuperscript{275} Hippocrates \textit{Disease III} 12,16; \textit{Regimen} 34.

\textsuperscript{276} Tarn (supra n. 92) 370-371.
as an antidote to hemlock poisoning.\textsuperscript{277} From a passage in Plutarch it seems that by 88 B.C., however, the substance was being imported in significantly larger amounts.\textsuperscript{278} Tarn, therefore, reasonably postulates that the beginnings of the pepper trade between Egypt and northwest India can be dated to the end of the second century B.C., just after the western discovery of the monsoon winds (see page 156). The lack of references to the spice in Hellenistic sources supports this theory. Pepper was only imported by the west, in any quantity, considerably later than cinnamon, cassia and nard.

From the story of Eudoxus (see page 157), and indirectly from the riches of the Arabians, we know that precious stones were imported to the West from India. The \textit{Arthaśāstra}, an Indian text of the fourth century B.C., illustrates a very active trade in precious and semi-precious stones.\textsuperscript{279} Ceylon produced sapphires, amethyst and possibly rubies. India itself was the source of diamonds and various unspecified varieties of crystal. The \textit{Periplus} mentions turquoise, lapis lazuli, onyx, pearls, diamonds, and sapphires being imported from India. A final comment on the subcontinent's reputation regarding gems is Pliny's belief that "of all the lands that produce them, India is the most prolific."\textsuperscript{280} He also notes that the Indians were not

\textsuperscript{277} Theophrastus, \textit{Enquiry into Plants} 9.20.1.

\textsuperscript{278} Plutarch, \textit{Sulla} 13. The tyrant Aristion could afford to use two quarts of it in a joke against a local priestess.

\textsuperscript{279} Chandra (supra n. 4) 88.

\textsuperscript{280} Pliny \textit{N.H.} 37.201.
above counterfeiting, being particularly notorious for passing off rock crystals
stained to appear as beryls.\textsuperscript{281}

Indian marble was also a western import. Ptolemy IV reportedly adorned the
dinning salon of his massive state barge with columns made of the material.\textsuperscript{282} This
is, however, our only such reference. It seems that marble was never a mainstay of
the Indian trade and the Egyptian king's use of it was simply in keeping with the
grandiose theme of his monstrous vessel.

The \textit{Periplus} also lists ivory and fine textiles (silk, cotton, Chinese pelts) as
items imported from India. Cotton cloth is noteworthy as it represents one of the
few manufactured products exported from the subcontinent. The \textit{Arthaśāstra}
suggests it was mainly made in Bengal and Gujerat.\textsuperscript{283}

The presence of Indian ivory in the West is known from Hellenistic sources.
One reference mentions eight-hundred elephant tusks that Antiochus IV displayed
during his triumph at Daphne.\textsuperscript{284}

There was some trade in slaves across the Arabian Sea. The scale of the
traffic is unknown but was doubtless modest in comparison to that in the
Mediterranean. All our sources indicate that it was limited to slaves employed as
entertainers and personal attendants. There was nothing in India resembling the

\textsuperscript{281} Pliny \textit{N.H.} 37.79.

\textsuperscript{282} Athenaeus, \textit{Deipnosophistae} 5.205 (citing Callixeinos).

\textsuperscript{283} \textit{Arthaśāstra} 2.11.

\textsuperscript{284} Polyb. 31.3-4.
great latifundia or slave farms of the Roman Mediterranean. This commerce, however, was unique among those between India and the West as it was carried out in both directions. From Ptolemy II's procession we know Indian women were imported into Egypt as early as the third century B.C. When Eudoxus attempted to reach India by sailing around Africa he included in his cargo some "flute-girls." Presumably he had learned during his previous two voyages to India (see page 157) that such "goods" were in demand in that land. The *Periplus* also mentions that "slave musicians, beautiful girls for concubinage" were imported by the Indian king at Barygaza.

Tellingly, Indian loan-words in Greek are almost all trade items. Besides rice, mentioned above (see page 22), the Greek terms for beryl, ginger, pepper, sugar, cotton and possibly emerald all have their origins in Sanskrit words.

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285 Megasthenes was wrong, however, when he declared that there were no slaves in India (Strabo 15.1.54). Numerous Indian texts mention their existence, although the Indian concept of slavery was considerably more humane than the western one. Slaves enjoyed protection under the law from abuse and possessed a significant number of rights. As slavery was so much milder and less conspicuous than in the West it seems the Greek ambassador simply did not recognize the institution. See Rekha Rani Sharna, "Slavery in the Mauryan Period," *JESHO* 21 (1978) 185-94.

286 Athenaeus *Deipnosophistae* 5 (citing Callixeinos).

287 Strabo 2.3.4.

288 *PME* 49.

289 Basham (supra n. 14) 230.
According to the *Periplus*, items exported from India to other areas around the Arabian sea, besides the luxury goods so desired by the West, included more mundane commodities such as cotton, copper, wood and rice.

Among the goods listed by the *Periplus* as imported into India from the West were fine wines, gold, silver, coral and fine garments. The *Yavanas'* "cool sweet-smelling wine" was evidently highly valued among the Indian nobility depicted in Tamil literature.\textsuperscript{290} The *Arthaśāstra* lists a coral, *Alasandaka*, imported into India that probably got its name from Alexandria in Egypt. It is possible, however, that the passage is a later addition to the work and not dated to Mauryan/Hellenistic times.\textsuperscript{291} Pliny also mentions a red Mediterranean coral that the Indians greatly admired.\textsuperscript{292}

Additionally, the *Periplus* mentions that the Indians imported some common raw materials including copper, tin and lead. Pliny's statement that India possessed no lead or copper lends support to this detail.\textsuperscript{293} As Casson has noted, however, India does have ample deposits of these two metals and, moreover, these deposits were worked in ancient times.\textsuperscript{294} Therefore, it is puzzling that ancient Indians would import these metals. Glass was reportedly shipped to all four of the major Indian

\textsuperscript{290} Iyengar (supra n. 4) 212.

\textsuperscript{291} Chandra (supra n. 4) 88.

\textsuperscript{292} Pliny *N.H.* 32.21-22.

\textsuperscript{293} Pliny *N.H.* 34.163.

\textsuperscript{294} Casson (supra n. 3) 28-29.
ports. While one port imported it in the form of finished glassware,\textsuperscript{295} the other three imported it "unfinished," or raw.\textsuperscript{296} It is unknown whether or not these raw materials were shipped to India before the Roman period.

MAURYAN INDIA

According to Buddhist sources, at the beginning of the sixth century B.C. northern India was politically divided into sixteen Mahajanapadas or "great realms." These included both kingdoms and republics. Soon, however, this number was reduced by conquest and consolidation to only four rival states. Eventually, during the fifth century B.C., the kingdom of Magadha grew to take the foremost position in wealth and power. Centered in the central Ganges plain, it was favorably located. It controlled trade along the lower Ganges, had easy access to both rich iron deposits and timber supplies and possessed rich agricultural lands.

In 321 B.C., Chandragupta Maurya gained the throne of Magadha. He quickly expanded the kingdom both to the south and west creating the first Indian empire of historic times. Many historians contend that he was inspired by the example of Alexander. Plutarch\textsuperscript{297} and Justin\textsuperscript{298} record that as a young boy

\textsuperscript{295} PME 39:13.9.

\textsuperscript{296} PME 49:16.23; 56:18.19.

\textsuperscript{297} Plut. Alex. 62.

\textsuperscript{298} Justin (15.4) says that Alexander, angered by the defiant attitude of Sandrocottus, ordered his execution and that only by "the swiftness of his feet" did the Indian escape.
Sandrocottus\textsuperscript{299} actually met the Macedonian king. In his later years, he was said to have remarked that Alexander had been but a hair's breadth away from becoming master of India. Whatever the psychological influence of Alexander was, it is clear that Chandragupta took advantage of the political situation that he had created in northwest India.

Upon his departure from India Alexander divided his Indus valley conquests into three provinces. The first territory was centered on the realm of Ambhi, the king of the famous mercantile city of Taxila. It consisted of the area west of the Jhelum (ancient Hydaspes) and north of the meeting of the Indus and Chenab (ancient Acesines). Ambhi had allied himself with Alexander even before the Macedonian king's entry into India and had thus been allowed to keep his kingdom, albeit as a dependent state. Placed in charge of the new province's Macedonian garrison was Philip, son of Machatas.\textsuperscript{300} He was supported by a certain Eudamus, the commander of a Thracian contingent of troops.

The second Indian province was held by Porus, the king whom Alexander had defeated at the battle of the Jhelum.\textsuperscript{301} Alexander had been so impressed with the Indian king's bravery and nobility of character that he returned to him all his lands. Furthermore, after Alexander was forced by his troops to turn back at the

\textsuperscript{299} The Hellenized form of the name Chandragupta.

\textsuperscript{300} Arrian \textit{Anab.} 6.14.

\textsuperscript{301} Some Indian scholars, not without some reason, believe the battle was actually inconclusive and the western chroniclers only distorted it into a victory for the Macedonian king. See Buddha Prakash, \textit{History of Poros} (Patiala 1967).
Beas he added all his conquests east of the Chenab to Porus' control. Even more ironically, Alexander did not even bother installing a Macedonian "resident" in Porus' kingdom as he had with Ambhi at Taxila. Porus wound up more powerful than before his defeat, controlling all of the Punjab east of the Jhelum. The population of this area was considerable, for between the Jhelum and the Beas there were reportedly over five thousand towns, each "no smaller than Cos." This number is undoubtedly an exaggeration--Strabo himself was skeptical of the figure--but it gives some idea of the relative size of Porus's domain.

Alexander's third Indian province stretched from Ambhi's kingdom down to the Indian Ocean. Its capital was Pattala at the head of the Indus delta. Peithon, son of Agenor, was placed in charge as governor.

Soon after Alexander had left the Indian scene the fragile structure of his easternmost arrangements began to crumble. Philip was murdered by a group of Greek mercenaries before the king even reached Babylon. The rebellion, however, was quickly put down by the governor's Macedonian guards. As a temporary measure Alexander instructed Ambhi and Eudamus to take over Philip's position until a new governor could be sent out but the king died without making the appointment.

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302 Arrian Anab. 5.29.2.

303 Strabo 15.1.33. From Onesicritus or Aristobulus. See Pearson (supra n. 217) 106.

304 Arrian Anab. 5.27.2.

305 Arrian Anab. 5.8.3.
During the wars of the successors the Indian provinces were generally forgotten by the protagonists. At some point Peithon returned to the West and joined the camp of Antigonus. Eudamus, for his part, supported the royalist cause.\textsuperscript{306} He allegedly killed Porus and took his elephants\textsuperscript{307} before heading east in 317 B.C. in an attempt to join Eumenes' forces. His treachery earned him a just reward, however, when he was captured in the battle of Gabiene by Antigonus and executed.\textsuperscript{308} It is likely that many Macedonians and Greeks left India during this tumultuous period.

Alexander's foray into northwestern India had several effects on the geopolitical climate of that land. It removed all the small political divisions that had previously characterized the area and, upon the Empire's subsequent collapse, created a power vacuum. Both situations facilitated the rapid rise of Chandragupta to power over all Northern India. It is even possible that Porus, with his newly increased political stature, played an instrumental part in the story. In Indian sources, a ruler with a similar name, Parvataka, aids Chandragupta in his early conquests.\textsuperscript{309} In either case the remaining Macedonian garrisons in the Indus valley were massacred and the area added to Chandragupta's new empire.\textsuperscript{310}

\textsuperscript{306} Quintus Curtius 10.1.21.

\textsuperscript{307} Diod. 19.14.8.

\textsuperscript{308} Diod. 19.44.1.

\textsuperscript{309} CHI 1, 424.

\textsuperscript{310} Justin 15.4.
Western historians, however, tend to overemphasize the political effects of Alexander on the subcontinent; Niese wrote that "upon the institutions brought in by Alexander the whole subsequent development of India depends." Such a declaration is grossly overstated. It is notable that there is not one contemporary Indian reference, direct or indirect, to Alexander or his invasion.

The Mauryan dynasty that Chandragupta inaugurated ruled over the first Indian empire of historic times. At its greatest extent it ranged from the Hindu Kush mountains in the west, to the Bay of Bengal to the east and as far as Mysore, in the Deccan Plateau, to the south.

The Mauryan state enjoyed considerable political contact with the West. While we know the names of various western diplomats sent to India we can only assume that their missions were reciprocated by Indian emissaries.

Seleucus I Nicator (r. 312-281 B.C.) dispatched Megasthenes to be his ambassador at the court of Chandragupta (r. 321-297 B.C.). The Greek diplomat wrote a four-book treatise on the history of India that, unfortunately, has not survived. Luckily, he was used as a primary source by various other ancient authors whose works have come down to us. These give us a good idea of what Megasthenes' text was like. It seems he included a fair number of travellers' tales.


\[313\] They have been collected by Schwanbeck and presented in J. W. McCrindle, *Ancient India as Described by Megasthenes and Arrian* (Calcutta 1877, rpt. New Delhi 1972).
He also, however, provides a description of Mauryan society that closely matches that found in the *Arthaśāstra*, a contemporary Indian text. The works are especially similar in their depictions of Mauryan India's huge governmental bureaucracy and the subcontinent's dominant religious caste system. Megasthenes' description of the Indian capital Pataliputra (near modern Patna) also parallels what archaeology has revealed.\textsuperscript{314}

Seleucus and Chandragupta were also allied by treaty. Sometime around 305 B.C. Seleucus turned away from the West, where he had been occupied with struggles among the successors, and traveled to the East where he met the Indian king. His intention was, undoubtedly, to secure his eastern border. Little is known of his actual encounter with Chandragupta. The result, however, is recorded. The Macedonian king ceded rights to many of his eastern provinces, including all the trans-Indus areas, Arachosia, Paropanisadae and parts of Gedrosia and Aria, in exchange for large number of war elephants and a treaty.\textsuperscript{315}

Some historians contend that Seleucus was vanquished in battle and forced to agree to these terms, while others have the victorious Syrian king reaching as far as

\textsuperscript{314} Megasthenes (Strabo 15.1.35-6; Arrian *Indica* 10) describes a town surrounded by an impressive wooden palisade with some five hundred and seventy towers and sixty-four gates. Excavations have uncovered sections of this wooden wall, one being over two hundred and fifty feet long. B. Kumar, *The Archaeology of Pataliputra and Nalanda* (Delhi 1987) 168-70; L. A. Waddell, *Report on the Excavations at Pataliputra* (Delhi 1903, repr. 1975) 59. A columned structure (the so-called palace of Asoka), displaying wood-working craftsmanship of the highest order, has also been revealed.

\textsuperscript{315} App. *Syr.* 55; Strabo 15.2.9; Just. 15.4.20.
the Ganges. It is extremely unlikely the latter extreme ever happened. Not a single ancient source mentions it, a most unlikely oversight given its propaganda value and general glamour. It seems more likely that the two kings simply made a mutually agreeable deal, perhaps after an inconclusive military encounter. Seleucus got rid of some provinces that he only nominally held in the first place. In exchange for such a minimal forfeiture he received elephants to strengthen his army in the coming conflict with the other successor kings. Indeed, these animals would later be decisive at the critical battle of Ipsus in 301 B.C. Chandragupta, for his part, greatly expanded his empire for a small price. For him elephants were a renewable resource. To secure the deal a marriage contract was included in the treaty. Unfortunately, it is unclear what exactly this entailed. Later Indian sources claim a daughter of Seleucus was given to the Indian king in wedlock.

Seleucus's successor, Antiochus I Soter (r. 281-261 B.C.), also sent a representative to the Mauryan court, this time to Chandragupta's son, Bindusara (r. 297-272 B.C.). The new ambassador, Deimachus of Plataea, wrote about India,

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316 For a full discussion of the various positions see CHI, I, 430-32. The oldest Indian text that refers to the encounter, the Rajavamsapustaka of the third century A.D., not surprisingly has Seleucus being defeated and taken captive by the Indian king. For ancient Indian treatments of Alexander and the Hellenistic kings see Paranavitana (supra n. 312), especially 36-39.

317 Paranavitana (supra n. 312) 22.

318 The Indian ruler was known to the Greeks as Amitrochates, the name perhaps coming from a Sanskrit title amitraghata, the destroyer of foes. R. Thapar, A History of India I (London 1966) 71.
but all we now possess are some references to his work. Pliny also mentions that a certain Dionysus was sent as an ambassador to India by Ptolemy II Philadelphus (r. 283-246 B.C.). It is unknown if this ambassador visited the court of Bindusara or his son Asoka (r. 269-232 B.C.).

Political relations between India and the West were warm. Gifts were exchanged. We have one reference to a shipment of aphrodisiacs being sent to Seleucus by Chandragupta. Bindusara, for his part, asked Antiochus to send him a shipment of characteristically Greek goods: sweet wine, dried figs and a sophist. The Syrian king replied that he would send the wine and figs but that, according to Greek custom, the sophist was not an article for export.

The third Mauryan emperor, Asoka, was exceptional as both a ruler and an individual. Under his reign the Mauryan Empire grew to its largest extent. After his conquest of the Kalinga region of eastern India (modern Orissa), however, the emperor professed a profound sense of guilt. He underwent a conversion to Buddhist ideals. From that point on his energies were devoted to promoting "righteousness." This task primarily involved looking after the general welfare and happiness of his people. He also took up the doctrine of nonviolence by promoting vegetarianism and renouncing war. So enthusiastic in his beliefs (or as the skeptics

319 Strabo (2.1.9) commented that, in his opinion, Deimachus deserved "first place in the set of liars" that wrote about India.

320 Pliny N.H. 6.58.

321 Phylarchus frag. 37; FHG i, 344 (from Athenaeus Deipnosophistae 1.18).

322 Hegesander frag. 43; FHG iv, 421 (from Athenaeus Deipnosophistae 14.652).
would contend, valuing their ability to unify the various peoples of his vast state) he dispatched officials to insure that the peoples' welfare was looked out for by local authorities.

It is from Asoka's reign that we have the first Indian reference to official contact with the Greek West. His "rock edict XIII," an often remarked-upon inscription dating to 256-255 B.C., refers to the king's dispatching of religious missionaries westward:

... where reigns the Greek King named Amtiyoga and beyond the realm of that Amtiyoga in the lands of the four kings Tulamaya, Antekina, Maka, and Alikyashudala ... \(^{323}\)

These five kings can be identified respectively as Antiochus II Theos of Syria, Ptolemy II Philadelphus of Egypt, Antigonus Gonatus of Macedonia, Magas of Cyrene and Alexander of Epirus. It is obvious that the Mauryans were kept well informed on the political landscape of the West.

Fortunately, several sources have come down to us that illustrate the character and details of the Mauryan state. Perhaps the most valuable of these is the Arthaśāstra. Traditionally attributed to Kautilya, Chandragupta's minister and advisor, this work is often compared to Machiavelli's *Prince* due to its, at times, brutally practical and manipulative attitude toward the art of governing. It probably

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reached its current form as late as A.D. 250.\textsuperscript{324} Many parts of it, however, date back to Mauryan times. Much of what it reflects on Mauryan India is substantiated by the observations of Megasthenes. Care must be taken, however, not to assume that it is a completely accurate description of Mauryan reality. More likely it was, to an extent, an idealized plan for the state. There is no reason, however, to dismiss it outright as a "theoretical work little reflecting reality."\textsuperscript{325} What we know of the Mauryan state from other sources, including Megasthenes and the rock inscriptions of Asoka, nicely parallel the state depicted in the work.

Many aspects of Kautilya’s treatise are of interest to the student of maritime history. It describes a highly structured and organized bureaucracy that regulated and controlled many facets of Indian society, including commerce and banking. In fact, some scholars see the text as a blueprint of a complete social welfare state.\textsuperscript{326} Echoes of this paternal view of government can be seen in the proclamations of Asoka.

Mauryan society contained a relatively sophisticated commercial sector which compared favorably with the Hellenistic West.\textsuperscript{327} There were numerous guilds which

\textsuperscript{324} A vast amount of material has been written on the subject of the \textit{Arthaśāstra}'s date and authenticity. For an overview see Thomas Trautmann, \textit{Kautilya and the Arthashastra: A Statistical Investigation of the Authorship and Evolution of the Text} (Leiden 1971).

\textsuperscript{325} Rostovtzeff (supra n. 112) 457.


\textsuperscript{327} The Hellenistic Greeks, for all their intellectual acumen, never really developed any sophisticated economic institutions or ideas. See P. Green, \textit{Alexander to Actium} (Berkeley 1993) 362-81.
exercised considerable control over their various trades. Well regulated bankers also played a prominent role, paying interest on money deposited in their care and making loans for commercial ventures.

Maximum interest terms for loans were set by the government.\textsuperscript{328} The normal rate was one and a quarter percent per month. For trading ventures it was allowed to be higher. With such loans the normal rate was five percent. If the merchant's caravan, however, had to pass through forests it could be raised to ten percent. For a sea voyage it could go as high as twenty percent. In this way, the loan's rate was relative to the merchant's risks. The extraordinarily high rates reflect both the perilous nature of commercial ventures and their profitability. They may also be an indication that there was a shortage of capital in India during the period.\textsuperscript{329}

As reflected in the \textit{Arthaśāstra}, trade, both internal and external, was heavily regulated. A Director of Trade (\textit{Panyadhyaskha}) was charged with overseeing government policy in this area.\textsuperscript{330} Goods were examined to determine if they were of an acceptable quality. The Director decided according to market conditions whether any given product should be sold or stored. He was also in charge of selling items from the state workshops at fair prices. He made sure merchants were

\textsuperscript{328} \textit{Arthaśāstra} 3.11.1.

\textsuperscript{329} Adhya (supra n. 162) 100. Later texts also mention high rates of interest. \textit{Manu} (8.142) suggests a rate of two, three, four or five percent per month depending on the caste of the borrower.

\textsuperscript{330} \textit{Arthaśāstra} 2.16.1-25.
not allowed to reap excessive profits from their goods. In some situations he was even charged with setting the prices of various commodities. Monopolies on common goods were also guarded against.

The Director of Trade was also charged with actively promoting foreign trade. His duties are described as follows:

11. He should encourage the import of goods produced in foreign lands by [allowing] concessions. 12. And to those [who bring such goods] in ships or caravans, he should grant exemptions [from taxes] that would enable a profit [to be made by them]. 13. And no lawsuit in money matters [should be allowed] against foreign traders, except such as are members [of native concerns] and [their] associates.331

Another chapter of the Arthaśāstra is devoted solely to outlining the duties and functions of the Controller of Shipping (Nāvādhyaksha).332 He was charged with regulating ocean going ships (samudrasamyana) as well as those on rivers and lakes. Most of his specific responsibilities involved keeping accounts on the numerous taxes, tariffs and fees relating to maritime and riverain activities. He was also, however, given other, less revenue-related, duties to perform. He was authorized to


332 Arthaśāstra 2.28.1-27.
destroy both pirate vessels and those that tried to avoid the set taxes or regulations.\textsuperscript{333}

The \textit{Nāvādhyaaksha} was also in charge of a sort of disaster relief policy for ship owners and merchants. Any weather-beaten ships that limped into port were to be shown "fatherly kindness."\textsuperscript{334} Merchandise spoiled by water was exempted from toll. Even more significantly, the superintendent could make good any losses caused by a vessel being overloaded, sailed during the wrong season, undermanned or in disrepair.\textsuperscript{335} In effect this policy acted as a form of insurance, with the premiums taken being the large number of duties, fees and taxes levied on the shipper and merchant by the government. The availability of insurance has a number of positive effects on trade. It frees the merchants' capital that would otherwise be held in reserve for emergencies. Such capital can then be actively invested in trade. Insurance also lets the merchants calculate a regular, predictable cost for their ventures. Probably in cases of negligence, however, the ship's crew or owner was still held liable. The laws of Manu, composed in the first two centuries A.D., are clear on the subject:

Whatever may be damaged in a ship by the fault of the sailors shall be made good by the sailors collectively. In lawsuits brought by

\textsuperscript{333} \textit{Arthaśāstra} 2.28.12.
\textsuperscript{334} \textit{Arthaśāstra} 2.28.8.
\textsuperscript{335} \textit{Arthaśāstra} 2.28.26.
passengers this rule only holds good in case of negligence. The crew has no responsibility for damage caused by Acts of God.\textsuperscript{336}

Megasthenes wrote that the Indian military was supervised by six boards.\textsuperscript{337} One was responsible, along with an admiral, for the navy. Despite what some Indian scholars believe,\textsuperscript{338} it seems unlikely, however, that the Mauryans possessed any formal, permanent navy. There are no references to one in any Indian text relating to the period. It seems likely that the Greek ambassador misinterpreted the duties of the Nāvādhyaksha and his staff.

Megasthenes also reported that ship construction was a monopoly of the government.\textsuperscript{339} Once built, vessels were then let out for hire to sailors and merchants. The \textit{Arthāśāstra} also refers to the renting of the king's ships.\textsuperscript{340} Fishermen were to pay one-sixth of their catch in such rent while traders, conch-shell farmers and pearlers were to pay at an unspecified rate. The Indian text, however, clearly indicates that not all ships were owned by the king. The conch-shell and pearl fishermen, for example, "shall pay rent for the boats or sail in their own boats."\textsuperscript{341} It seems, Megasthenes overgeneralized from his observations. It

\textsuperscript{336} \textit{Manu} 8.409.

\textsuperscript{337} Strabo 15.1.52.

\textsuperscript{338} Sridharan suggests that Asoka's conquest of the Kalingas, a tribe noted for its maritime activities, somehow implies that the Mauryans possessed a navy. K. Sridharan, \textit{A Maritime History of India} (New Delhi 1982) 23.

\textsuperscript{339} Strabo 15.1.46.

\textsuperscript{340} \textit{Arthāśāstra} 2.28.3-5.

\textsuperscript{341} \textit{Arthāśāstra} 2.28.5.
should be noted, however, that the central element, royal ownership of an evidently sizable part of the mercantile and fishing fleets, is reflected in both accounts.

From the *Arthaśāstra*’s descriptions it is clear that the Mauryan state valued maritime commerce highly and made active efforts to promote it. Another passage, in which Kautilya comments on the relative importance of maritime and terrestrial routes, however, displays a rather skeptical attitude towards such ventures. He disagrees with people who contend that transporting goods by water was cheaper than by land and therefore made for better profits. In his opinion, water routes were "restricted in movements, not usable at all times, a source of great dangers and without remedies."\(^{342}\)

Kautilya also makes the comment that coastal routes were preferable to open sea routes because ports were available nearby in case of trouble. While this seems a rather obvious observation, the comparison is another demonstration that open water voyages were known and undertaken by the Indians during the Mauryan period.

In his bias against the sea, Kautilya, a Brahmin, may be reflecting the attitude of the religious orthodoxy which frowned upon maritime ventures. The Hindu religion has always had proscriptions against sea voyages. By the tenth century A.D., the act of traveling overseas for trade was strictly forbidden by the *Kalivarjas* (deeds forbidden in the Kali period).\(^{343}\) This bias was present, in a less dogmatic

\(^{342}\) *Arthaśāstra* 7.23.18-21.

form, in the period of our interest, as illustrated by the following two passages from the *Baudhāyan-dharmaśūtra*, which dates to between 600 and 300 B.C.:

I.1.4 Now [the customs particular] to the north are ... to go to sea.

I.1.5 He who follow [these practices] in any other country than where they prevail commits sin. I.1.6 For each [of these customs] the [rule of the] country should be [considered] the authority. II.1.2(1) Now [follow the offenses] causing loss of caste. II.1.2(2) [viz.] making voyages by sea.\footnote{Varadarajan (supra n. 343) 3.}

The first passage in particular suggests that, while not endorsing sea travel, the Brahmin tolerated it among those classes whose livelihood depended on it. Moreover, we have already seen from other Indian sources that maritime ventures did commonly take place. The prohibitions against maritime activities became more rigid during later times when, probably not coincidentally, Arab, and then European, seafarers dominated Indian waters.\footnote{For a fuller evaluation of this trend see Varadarajan (supra n. 343) 1-12.} Eventually the high-caste Hindu became "the world's most thoroughgoing landlubber."\footnote{A. L. Basham, "Notes on Seafaring in Ancient India," *Art and Letters* 23 (1949) 69-70.} Even in the Mauryan era, however, the hostility of the Brahmin may have kept Indians from reaching their full maritime potential. Not surprisingly, maritime activities were often more vigorous in regions affected by Buddhist beliefs, for the Buddhist religion held no such proscriptions against sea travel.
The reasons for the development of this negative cultural attitude are doubtless many and complex. The topic is well beyond the scope of this paper. One contributory factor, however, may have been the demand-inequality between India and the West previously discussed; if the foreigners were willing to come to you on your terms there is little incentive to go to them.

Many of the major Indian ports of the western trade were found in the northwest of the subcontinent. The Buddhist Jātakas, which date as far back as the fifth century B.C., mention Barygaza (Bharukachchha, Bhrgukaccha, Broach), Supparaka (Supara) and Sovira as the major west coast ports. Barygaza and Supparaka both gained particular prominence in Mauryan times. Pattala, a town in the Indus delta, was also active in the western trade. Ships hailing from there were seen as far away as Socotra. By the time of the Periplus, however, the most important ports of India were Barbarikon, in the Indus delta, and Barygaza, in the gulf of Cambay. Further south, the ports of Muziris and Nelkynda had also gained prominence.

It would seem obvious that local sea traffic would connect most of the subcontinent's ports. Ceramic evidence suggests, however, that the northwest and

347 Chandra (supra n. 4) 63.
349 Purushatlan in Rao (supra n. 16) 121.
350 Diod. 3.47.9.
351 Casson (supra n. 3) 22.
Coromandel coastal areas were trading with the West independently of each other, for they seem to have developed distinctive pottery types based on different western models.\(^{352}\)

On the Gujarat-Maharashtra coast a mold-made ware enters the archaeological record during the first century B.C. As this pottery type has no Indian predecessors, Begley looks west for possible parallels.\(^{353}\) Very similar Hellenistic mold-made pottery (such as Megarian bowls) dates to about 150-75 B.C. Another possibility is that the pottery was derived from metal models. The best parallels for these would be bronze and silver cups found in Macedonian graves that date to 325-300 B.C. The time span between these dates and when the mold-made pottery is thought to have appeared in India, however, argues against this latter theory, for it would require a complete reevaluation of the dates ascribed to sites where the mold-made pottery has been found.

There is growing evidence that trade between the Coromandel coast and the West began earlier than previously thought. In the 1940s Wheeler excavated what appears to be a Roman trading station at Arikamedu near Pondicherry.\(^{354}\) It is now


\(^{353}\) Begley (supra n. 352) 166-82.

believed that the town was probably founded by the 3rd century B.C.\textsuperscript{355} Begley proposes that the pottery technique of rouletting and a similar stamp design found in southern India were introduced from the West. If so, maritime contacts between the two areas would date back to at least 200 B.C.\textsuperscript{356} Farther south, at Kaveripathinam, a port settlement dating to 250 B.C. has been uncovered revealing remains of a structure resembling a wharf, supported by piles driven into the soil.\textsuperscript{357}

After the death of Asoka in 232 B.C., the Mauryan Empire suffered a rapid decline. In 184 B.C. the last king of the dynasty was killed. India then underwent a political disintegration that saw the rise of numerous smaller states. The rulers of the former Seleucid province of Bactria, who had first declared themselves independent in 256 B.C., advanced from the northwest. By 180 B.C. they had control of the entire Punjab.

The history of these Indo-Greek kingdoms is scanty at best. Most of their rulers are known only from their coins. Predictably there is considerable debate over the extent of the states' geographical limits. Among the ambitions of the Indo-Greek rulers some scholars have seen designs to control the ports of northwest India.\textsuperscript{358}


\textsuperscript{356} Begley (supra n. 355) 470-1.

\textsuperscript{357} L. Lahiri, \textit{The Archaeology of Indian Trade Routes up to c. 200 B.C.} (Delhi 1992) 395; Begley (supra n. 355) 471.

\textsuperscript{358} Adhya (supra n. 162) 109; Chandra (supra n. 4) 91.
There is no way of actually knowing what value they placed on this goal. In any case, it seems that they never controlled much of the seaboard.\textsuperscript{359}

The state doubtless had less control over commerce after the collapse of the Mauryans. The idea of state involvement, however, did not die out. The Dharma-sastras, including the laws of Manu, still reflect a society where the government was actively involved in trading.\textsuperscript{360} In the first century A.D., the Periplus reports that at Barygaza a towing service was provided by the Indian king.\textsuperscript{361} Aid was necessary for larger merchant ships attempting to enter the port, which was difficult to find because the low-lying land and shoals made its navigation dangerous.

The Mauryan state greatly improved India's capacity for trade both internal and external.\textsuperscript{362} The proliferation of Northern Black Polished ware throughout the subcontinent during the third century B.C. bears witness to this effect. The Empire's centralized administration took direct action to promote and facilitate commerce. The Mauryans' experiment in Indian unity was ultimately to prove a failure. The trends towards increased external contacts, both political and commercial, that they inaugurated, however, only gathered momentum after the kings of Pataliputra passed from the Indian scene.

\textsuperscript{359} A. K. Narain, \textit{The Indo-Greeks} (Oxford 1957) 68-69, 93-94.

\textsuperscript{360} Adhya (supra n. 162) 95.

\textsuperscript{361} PME 44.

\textsuperscript{362} For a brief general overview of the contributions of the Mauryan state to the Indian economy see U. N. Ghoshal in K. A. Nilakanta Sastri, ed., \textit{The Age of the Nandas and Mauryas} (Banaras 1952) 271-74.
THE NORTHERN AXIS: THE SELEUCIDS AND GERRHAENAS

Due to their military and political struggles, none of the Diadochoi were immediately able to follow up on Alexander's maritime plans. The political situation was stabilized, however, in 301 B.C. with the defeat of Antigonus at the battle of Ipsus. Among the victors was Seleucus (later given the surname Nicator), the former governor of Babylon, who secured a relatively stable state based in Mesopotamia and Syria. He and his successors were then able to turn some of their attention to commercial affairs. From their geographical position the Seleucids had a number of obvious advantages over the other successor kingdoms in the exploitation of the growing Western demand for Indian goods.

Seleucus, as previously seen, concluded a treaty with the new Mauryan state. He and his successors also dispatched diplomatic representatives to the Indian court. Except for a single mention of an emissary from Ptolemy II, the Seleucids were the only Hellenistic state to send, as far as we know, such representatives. These political maneuvers were no doubt partially driven by commercial interests.

Seleucid Routes to India

The adventures of Alexander and his men during their return from the Indus valley had confirmed that there were two viable routes to that country from Mesopotamia. The first, Bactrian, route connected Iran, via the Khyber and Kabul regions, to the Indus system. The second route was the maritime one followed by Nearchus. Both routes had been used before the Hellenistic age. The evidence for the use of the sea route has already been examined. There is also plenty of literary
and archaeological evidence that the overland one had been commonly used.\textsuperscript{363} A third possible route to India has been suggested.\textsuperscript{364} It followed a southerly course from India through Gedrosia and Carmania, Persia and then Susiana.\textsuperscript{365} There is little evidence, however, that this route was as well traveled during the Hellenistic period as it was in later Medieval times. Perhaps Alexander's misadventure in the region dissuaded others from using it. In any case, the Seleucids did not open any new trade avenues to India but concentrated on promoting the existing ones, both of which they controlled.

As previously noted, there is considerably more evidence for contacts between India and the Seleucids than for India and the Achaemenids. Much of this, undoubtedly, is due to a relative lack of literary sources for the Persian period. Be this as it may, however, for the first time since the Akkadian period we have a record from Mesopotamia that mentions the presence of an Indian resident. A certain Busasa, described as a Hindu, is found in Kish running an inn.\textsuperscript{366}

Given the closer political contact between the two areas, it is reasonable to assume that the increase in references to Indian products in the Seleucid kingdom reflects, at least in part, an increase in trade. What quantitative data we do have

\begin{itemize}
  \item \textsuperscript{363} Lahiri (supra n. 357) 393; Tarn (supra n. 253) 243; Adhya (supra n. 162) 103-106.
  \item \textsuperscript{364} Rostovtzeff (supra n. 112) 457; Tarn (supra n. 253) 243.
  \item \textsuperscript{365} This was the route followed by Alexander's general Craterus and later Antiochus III on their way back from India.
  \item \textsuperscript{366} E. W. Moore, \textit{Neo-Babylonian Business and Administrative Documents} (Ann Arbor 1935) 218, 235.
\end{itemize}
suggests that its volume was not insubstantial. Seleucus I and Antiochus I were able to give the temple of Didyma near Miletus two minae each of cassia, cinnamon and costus, along with ten talents of frankincense and one of myrrh.\textsuperscript{367} The proportions of Arabian to Indian goods may be indicative of the relative volume of the two trades in general.

Naturally, a significant portion of these goods traveled by the overland route, the elephants of the kings' armies being an obvious example.\textsuperscript{368} It is difficult to tell with any degree of certainty, however, which route other Indian goods followed. There is no way of knowing, for example, how Antiochus IV imported the eight-hundred elephant tusks that he displayed during this triumph at Daphne.\textsuperscript{369} The large quantities of Indian spices, such as cinnamon and nard, also present at the celebration may, however, give an indication of the trade route involved.

A good percentage of the Indian goods reaching Mesopotamia no doubt followed the maritime route. We have already examined how it was active by this period and there are an adequate number of references to its continued use and even expansion. More significantly, in Hellenistic sources Indian spices and aromatics are almost always associated with Arabian goods. In several cases, as previously seen,

\textsuperscript{367} C. Bradford Wells, \textit{Royal Correspondence in the Hellenistic Period} (London 1934) 33-35.

\textsuperscript{368} This seems self-evident, especially given the chronicled elephant shipments of Seleucus and his descendants. It should be noted, however, that the Ptolemies transported the elephants they captured along the lower regions of the Red Sea and Somalia by sea.

\textsuperscript{369} Polyb. 31.3-4.
products of India were misattributed to Arabia. This demonstrates that they arrived via a southerly (i.e., maritime) route. If they had come overland, there would have been no such association.

The Sea Route to India

The northern maritime trade axis was not a single path from one point to another. Many variations and sub-routes made it a complex system. Not all ships, and probably not many, sailed from one end, Mesopotamia, to the other, India. The Arabians acted, for the most part, as middlemen. Moreover, the system was connected to an extensive network of caravan routes. The ultimate destination of many Indian goods heading west, the Mediterranean market, had to be reached through a combination of land and sea routes.

Once the ships traveling our northern axis left the Indian ports they followed the Gedrosian coast to the Straits of Hormuz. Here, at Ras Musandam, Nearchus had noted that there was an emporium for eastern commodities being shipped to Mesopotamia.\(^{370}\) Tarn suggests, using numismatic and literary evidence, that throughout the Seleucid period there was a thriving Greek center on the Gulf of Hormuz and that during the break-up of the Seleucid Empire it briefly obtained its independence.\(^{371}\) Stephanus called Carmania "a country of India." This is doubtless a reflection on its importance as an emporium of Indian goods. It is also notable

\(^{370}\) Arrian Indica 32.7. Also see page 69.

\(^{371}\) Tarn (supra n. 92) 481-486.
that it was here that Nearshus' Gedrosian pilot, Hydraces, left the fleet. This change of personnel (he was replaced by the Persian Mazenes) may be a reflection of a change in the nationality of the trade's participants at this point. One should be careful, however, not to read too much into a single event.

It was also at the Straits that Nearshus and Onesicritus argued over the route that they should take to Mesopotamia. Onesicritus wanted to cross over to Ras Musandam and follow the Arabian coast, arguing it was the easier route home. Nearshus, however, overruled him. He argued that the purpose of their voyage was to explore the coast of the Persian Gulf (presumably meaning its eastern coast) and when he eventually reported back to Alexander he meant to have done so.\textsuperscript{372}

Exactly why Onesicritus believed that the Arabian coast would provide the easiest voyage is not told. Perhaps he had heard from the local pilots that such was the case.

After this point the Hellenistic route divided, paralleling the division of opinion in Alexander's fleet over which side of the gulf to take. One route took that of Nearshus along the eastern coast of the Persian Gulf until it reached Mesopotamia. The second one skirted the Arabian coast until it reached the port of Gerrha.

Gerrha was situated in the Hasa region of East Arabia. Its exact location is uncertain. Strabo reported that it was 200 stadia (about 60 miles) inland.\textsuperscript{373} Pliny

\textsuperscript{372} Arrian \textit{Indica} 32.9-13.

\textsuperscript{373} Strabo 16.3.3.
describes it as being on the coast opposite Tylos with the region of Attene being fifty miles inland.374 Traditionally the town of Uquair was held to be the modern location of Gerrha, due in part to its similar name.375 There is now some reason to believe it may be, in fact, under the town of Thaj.376 In any case Gerrha's origins probably date to the Persian period. Strabo reports that it was originally founded by Chaldaeans exiled from Babylon.

Gerrha grew to become fabulously wealthy during the Hellenistic period. Artemidorus, quoted by Strabo, relates how by his time (late second century B.C.) its inhabitants had become, along with the Sabaeans, among the richest of the Arabian tribes:

\[\ldots\text{and they possess a great quantity of wrought articles in gold and silver, such as couches, tripods, basins, drinking vessels; to which we must add the costly magnificence of their houses; for the doors, walls, and roofs are variegated with inlaid ivory, gold, silver, and precious stones.}\]377

Strabo notes that Eratosthenes and other historians also made similar statements about the Arabian tribes' prosperity. Agatharchides was more specific about the source of their wealth:

\[\text{\textsuperscript{374} Pliny } \textit{N.H.} \text{ 6.147.}\]
\[\text{\textsuperscript{375} Bibby (supra n. 25) 348.}\]
\[\text{\textsuperscript{376} Bibby (supra n. 25) 297-300.}\]
\[\text{\textsuperscript{377} Strabo 16.4.19.}\]
For no nations seems to be wealthier than the Sabaeans and Gerrhaeans, who are the agents for everything that falls under the name of transport from Asia and Europe. It is they who have made Ptolemaic Syria rich in gold, and who have provided profitable trade and thousands of other things to Phoenician enterprise.\(^{378}\)

It is clear that the Gerrhaeans, and their southern counterparts, were carriers in the eastern trade during the third century B.C. before the Ptolemies lost Syria to the Seleucids.

From Gerrha the eastern goods proceeded to Babylonia. Strabo reports a difference in opinion on how this transpired: Eratosthenes credited an overland route while Aristobulus reported a maritime one.\(^{379}\) In all probability both avenues were utilized. Goods shipped by sea would end up at the ports of Teredon, at the mouth of the Euphrates, or Alexandria-in-Susiana (later Charax) at the junction of the Tigris and Eulæus.

The goods transhipped by Gerrha included frankincense and other Arabian spices that came overland from the southern Hadramawat region.\(^{380}\) No ancient author specifically mentions Indian products in regard to the town and so one may question the extent of the Indian-Gerrhaean connection. Most scholars have simply

\(^{378}\) Agatharchides 102.

\(^{379}\) Strabo 16.2.33.

\(^{380}\) Arrian *Indica* 41.6-7.
assumed the fact.\textsuperscript{381} Indeed in all likelihood the majority of goods, including Indian, arriving in Mesopotamia by sea were transshipped from Gerrha. We know it grew rich from shipping Arabian spices and aromatics to Mesopotamia. As already seen, Arabian and Indian goods were closely associated by the Greeks. Additionally, the town was obviously the major transshipment center in the Persian Gulf, although Tarn believes that the Greek center at Hormuz eventually began to compete in this regard.\textsuperscript{382}

Gerrha also shipped eastern goods to Coele-Syria via the caravan routes across northern Arabia.\textsuperscript{383} At least one scholar has wondered how this could be a profitable trade as Petra (the chief Nabataean city) was known as the emporium of such goods. Tarn likens the process to that of having "carried coal to Newcastle."\textsuperscript{384} Petra was supplied predominantly via the caravan route to southern Arabia and the Sabaeans. Tarn himself argues that Gerrha was able to participate in this trade as a result of the Nabataeans being starved from their normal route by the Ptolemies during the third century B.C.\textsuperscript{385} He sees relations between the two powers as basically confrontational. Nodelman contends, however, that the chaos in

\textsuperscript{381} Salibi (supra n. 147) 37; Tarn (supra n. 92) 367.

\textsuperscript{382} Tarn (supra n. 92) 367-68 and especially his Appendix 12: "Ormuz: A Lost Kingdom," 481-85.

\textsuperscript{383} Strabo (citing Artemidorus) 16.4.18.; Diod. 3.42.5. Arrian (\textit{Indica} 43.4-5) also mentions this route but in a non-trade-related context.

\textsuperscript{384} Tarn (supra n. 250) 22.

\textsuperscript{385} Tarn (supra n. 250) 22-23.
Mesopotamia that accompanied the Parthian invasions during the second and first centuries B.C. caused a change in the trade routes to the West. He believes that Gerrha was forced to find an alternative route to the Mediterranean for their goods. Tarn's view, of the two, would seem to be the most satisfactory. First, Artemidorus' comment predates any significant Parthian inroads into Mesopotamia. Second, the merchants of Petra would hardly import Gerrhaean goods, no matter how much the Gerrhaeans wanted them to do so, unless their normal route was inadequate or became too expensive to use. The two theories, however, are in no way mutually exclusive.

Early Seleucid Efforts

The early Seleucid kings displayed some of Alexander's interest in promoting maritime trade in the Arabian Sea. Like him, they founded numerous colonies and cities throughout their kingdom. Arguably the most famous and successful of these was Seleucia-on-the-Tigris. Located at the site of ancient Opis just below Baghdad, this city served, along with Antioch in Syria, as the kingdom's capital. It soon replaced Babylon as the commercial center of Mesopotamia.

Seleucus also founded Seleucia-on-the-Erythraean-Sea, probably just to the east of the Tigris outlet. An Antioch-in-Persis (usually identified with Bushire) was also established by the early Seleucids. An inscription has been found which

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recounts how Antiochus I asked Magnesia-on-the-Maeander to help him recolonize it.\textsuperscript{387} It seems the city had not prospered.

Three colonies were also established on the Arabian side of the Gulf between the Tigris outlet and Gerrha: Larisa, Chalcis, and Arethusa.\textsuperscript{388} Pliny notes that by his time all of these were "destroyed by various wars." They also probably date to the time of the early Seleucids. The later kings, with a single possible exception, showed little interest in colonization of the gulf region. There is little doubt that these municipalities were created to exploit the maritime commerce of the Gulf. As military outposts they also had the useful function of keeping the Arab tribes of Northern Arabia in check.

During the 1930s an inscription was uncovered on Failaka by a farmer ploughing a field. This island, at the head of the Persian Gulf, is doubtless the one Alexander named Ikaros.\textsuperscript{389} The inscription reads:

\begin{quote}
Soteles the son of Arthenaious (or Soteles Athenaious, or Soteles the Athenian) and the soldiers to Zeus Soter, Poseidon, Artemis Soteira.\textsuperscript{390}
\end{quote}

\textsuperscript{387} Bevan (supra n. 170) 280.

\textsuperscript{388} Pliny \textit{N.H.} 6.160.

\textsuperscript{389} Arrian \textit{Anab.} 7.20.3.

Originally the dedication was attributed to the men of one of Alexander's Arabian reconnaissances. In light of the subsequent discoveries on the island it now seems it was probably commissioned by a Seleucid garrison.

Subsequent archaeological excavations have uncovered remains of a Greek colony, including a sanctuary. The oldest ceramic evidence, some black-glazed Attic ware, dates to 285-250 B.C. Not surprisingly the pottery of the site indicates a close connection between Susiana and the island.

A stele dating to the reign of Seleucus II has also been found on Failaka. It records a letter from Ikadion, a Seleucid official, to his subordinate, Anaxarchos. The latter then added a cover letter and addressed the inscription to the island's inhabitants. The most significant section of the inscription is a commandment from the king ordering the Greek colonists to stop interfering with the indigenous population.

The archaeological evidence, along with this inscription, enables a partial and tentative reconstruction of the island's history. It was probably Antiochus I, around 268-261 B.C., who decided to colonize the island as a fortified way-station for ships heading down the gulf. The colony soon prospered. The Greek settlements grew and eventually came into conflict with the indigenous population. It was this friction

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392 K. Jeppesen, *Ikaros: The Hellenistic Settlement*. 3. *The Sacred Enclosure in the EH Period* (Moesgaard 1989) 76. Jeppesen dates the inscription to 238/7 B.C. while Roueché (supra n. 390) assigns it to 203 B.C. and thus from the reign of Antiochus III. In the latter case, the letter would reflect that king's well known interest in the Gulf.
that prompted Ikadion's inscription. Whether or not the king's order was followed is unknown.

While there are a number of references to Tylos (Bahrain) during the Hellenistic period, the island seems to have ceased to be an emporium of products from the East.\textsuperscript{393} Instead it exported its own natural resources with fruits and pearls being the most famous.\textsuperscript{394} Archaeological evidence points to continued settlement but it seems that there was never any Greek colonization as on Failka. Theophrastus, at the beginning of the third century B.C., writes that a wood found on the island was used by inhabitants to build their ships.\textsuperscript{395} It had the quality of being almost impervious to decay, lasting more than two hundred years if kept submerged. He also records that the island was known for a heavy but brittle wood that had a pleasing appearance, being variegated like a tiger's skin. It is impossible that the island was utilizing its own wood. Not only is modern Bahrain barren of trees, but Arrian records the same for the late fourth century B.C.\textsuperscript{396} Because of their descriptions, the woods mentioned by Theophrastus are often identified as teak and calamander, respectively, both of which are indigenous to India. Arabia has traditionally imported teak from India for construction of its ships. The practice

\textsuperscript{393} R. Boucharlat, "Some Notes about Qal'at al-Bahrain during the Hellenistic Period," in Al Khalifa (supra n. 37) 443-44.

\textsuperscript{394} Arrian \textit{Anab}. 7.20.6; Pliny \textit{N.H.} 6.147.

\textsuperscript{395} Theophrastus, \textit{Enquiry into Plants} 5.4.7.

\textsuperscript{396} Arrian \textit{Anab}. 7.20.6.
continues down into this century. It seems that Tylos, and no doubt other Arabian localities, were importing the wood for the same reason by at least the Hellenistic period.

A short reference in Pliny refers to an early Seleucid venture that also illuminates the trade links between Mesopotamia, Arabia and India. In a section evaluating the success of transplanting trees from their native habitats, he notes:

The delicate perfume of anomum and nard cannot endure to travel out of India and be conveyed by sea even as far as Arabia—an attempt to import them was made by King Seleucus.

The Seleucus referred to here is probably Nicator. He alone, of all such monarchs of the name, had the interest and ambition for such a venture. From this passage it can be inferred that the normal, if not the predominant, path for Indian aromatics traveling to Mesopotamia was by sea. Furthermore, it implies that the route included Arabia. Most importantly, however, the passage is testimony to the already significant Indian aromatics trade; a Seleucid king thought it potentially profitable enough to personally intervene and attempt to usurp the role of the perfumes' source. Interestingly, it may not be the only such attempt of the Seleucids; in the same section on tree transplantation he mentions that cinnamon will not grow in Syria. Unfortunately, he does not relate who was responsible for that experiment.

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Subsequent Seleucid rulers were less interested in the East whether economically or politically. There was a general shift westward in the kingdom's area of interest. Under Antiochus I, Antioch-on-Orontes in Syria became the capital, and preeminent city, of the kingdom.\textsuperscript{399} Subsequent kings were also too preoccupied with Mediterranean affairs to expend much energy on the East. Inevitably this inattention led to the provinces of Bactria and Parthia breaking away from the kingdom.\textsuperscript{400} In the Persian Gulf, Gerrha was left alone to monopolize the trade with the East.

Antiochus III and Antiochus IV

Upon his accession to the throne in 223 B.C., Antiochus III was determined to see the Seleucid kingdom regain the status that it held under his great, great grandfather, Seleucus Nicator. Among the accomplishments of this energetic ruler was a seven-year campaign (212-205 B.C.) in the East which mimicked those of Alexander and Seleucus I. He first attempted to subdue the breakaway province of Bactria. After three years, however, he was forced to make an agreement that all but recognized the independence of Euthydemus I in the province. Next he crossed the

\textsuperscript{399} G. Downey, \textit{A History of Antioch in Syria} (Princeton 1961) 87.

\textsuperscript{400} In 245 B.C. the Seleucid governor of Parthia, Andagoros, declared his independence from the kingdom. Around 239 B.C. he was deposed and replaced by a native Parthian ruler named Arsaces. In 238 B.C. the governor of Bactria, Diodotus, broke away from the Seleucid kingdom. See M. Colledge \textit{The Parthians}, (New York 1967) 25, and J. Wolski, "The decay of the Iranian Empire of the Seleucids and the Chronology of Parthian Beginnings," \textit{Berytus} 12 (1956-57) 43.
Hindu Kush and signed a treaty with a local Indian king. Among his intentions in doing so may have been to encourage trade with India.\textsuperscript{401}

The king's subsequent Persian Gulf expedition may also be a reflection of an active, aggressive attitude towards commercial promotion. In 205-204 B.C. Antiochus embarked on a campaign against Gerrha.\textsuperscript{402} No military encounter, however, ended up taking place. The Arabs, begging the king not to take away their God-given gifts of "everlasting peace and freedom," bought him off. The bribe consisted of five hundred talents of silver, a thousand of frankincense and two hundred of "so called stacte."\textsuperscript{403} Diverted from his stated objective, the king sojourned with his fleet in Bahrain before returning to Seleucia.

It is unlikely that the king's true objective was a military conquest and annexation. Antiochus' interests were in restoring the kingdom of Seleucus Nicator. New and untenable conquests would only make such a quest harder. A more plausible explanation for his expedition was that he was out to intimidate the Arab state.\textsuperscript{404} He doubtless wanted to see more eastern goods sent through Mesopotamia rather than over northern Arabia to the Nabataeans and the Ptolemies who were, at this time, in control of Southern Syria. Whether or not he was successful in this goal is not known. In either case, it was soon made largely irrelevant when, during

\textsuperscript{401} Rostovtzeff (supra n. 112) 459.

\textsuperscript{402} Polyb. 13.9.4-5.

\textsuperscript{403} στακτή, probably oil of myrrh. F. W. Walbank, \textit{A Historical Commentary on Polybius} II (Oxford 1967) 422.

\textsuperscript{404} Rostovtzeff (supra n. 112) 458.
the fifth Syrian war (202-195 B.C.), Antiochus took Palestine and southern Syria from the Ptolemites. He now controlled the spice trade no matter what route it took.

Another possible explanation for Antiochus' Gerrhaean venture, and one that is not at all incompatible with the previous one, is the simple pursuit of booty. Hellenistic kings often used plunder as a form of revenue. Antiochus himself was to die while attempting to loot a temple in Elam. The famously wealthy Gerrhaeans would make a tempting target for such activities.

During the reign of Antiochus the Great, Seleucia-on-the-Tigris reached the peak of its economic prosperity. From this point forward the city suffered a marked decline before undergoing a partial recovery under Mithridates II of Parthia. There seems to have been no decrease in the quantity of eastern goods heading west, rather there was a shift in the trade routes away from the city. This change may have been the impetus for Antiochus' efforts in the Gulf.

It was probably also Antiochus III who dispatched a force under Numenius, the governor of Mesene, down the Gulf to deal with Persians vassals of the Parthians. This action may have been in response to Parthian interference with the

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405 Green (supra n. 327) 362.

406 O. Mørkhølm, Antiochus IV of Syria (Kobenhavn 1966) 31 n. 44.

407 Pliny N.H. 6.152. This campaign is usually attributed to Antiochus the Great or Antiochus IV; Pliny is ambiguous, only crediting an "Antiochus." His previous passages refer to Antiochus IV, leading some scholars to associate the expedition with him. See Mørkhølm (supra n. 406) 169-70. Pliny, however, called Numenius the governor of Mesene. It is known that Hyspaosines was Antiochus IV's governor in Mesene (see S. A. Nodleman, "A Preliminary History of Characene," Berytus 13 [1960] 85-86). Barring Antiochus IV's having had two governors in Mesene over the course of his eleven-year reign, it would seem that Numenius was Antiochus III's
eastern maritime trade that passed by their lands. The Seleucids were forced to fight for a route that they had taken for granted. At Cape Musandam, Numenius defeated them twice: once in a fleet action and a second time, at the same place after the tide was out, in a calvary action. He marked the location with a dual trophy to Zeus and Poseidon.

At least one scholar has seen these campaigns as an indication that the Seleucids kept a standing fleet in the Gulf. While it is likely that they did keep some naval presence there it was probably minor. The fleets could just as easily have been built especially for the operations just as Alexander had built his fleet in Babylon for his Arabian expedition.

The grand plans of Antiochus III were only partially realized. The king's eastern campaign was more of a propaganda success than an actual political coup. The provinces of Bactria and Parthia soon reasserted their independence. Moreover, Antiochus' ambitions inevitably caused him to run up against the Roman state, much to his misfortune. His actions in the Gulf, however, demonstrate how important the maritime trade to the East was deemed.

Antiochus IV Epiphanes shared much of his father's energy and ambitious nature. Upon his ascension to the throne, he immediately set about organizing and strengthening the kingdom. His ultimate goal was to deal with the rising Parthian and Bactrian states to the east before they got too powerful. He would die before appointment.

408 Tarn (supra n. 253) 240.
being able to complete this task. Part of his strategy, however, involved enhancing the Seleucid position in the Persian Gulf.

The king refounded Alexander's old Alexandria-in-Susiana as an Antioch after it was destroyed by a flood in 166/5 B.C. It may have been his intention for the renewed city to divert some of the eastern trade that was going via Gerrha to southern Syria.\textsuperscript{409} In this way, the middleman's profits would go into his own coffers. A great embankment built by Antiochus' governor, Hyspaosines, was responsible for the name under which the city was later known: Charax Spasinu (Palisade of Hyspaosines).

Around 165 B.C. Antiochus organized a survey of the Arabian side of the Persian Gulf.\textsuperscript{410} It started at Charax, continued past Gerrha, and stopped somewhere around El Katr, being forced to turn back "due to rocks." Antiochus' goal must have been, like his father's, to secure additional access to the eastern maritime trade route. Again we have indications that Gerrha may have begun to shift its commerce overland to Petra at the expense of its trade with Babylonia.

Despite the efforts of Antiochus III and Antiocus IV, Seleucid control of the Gulf, and the maritime trade associated with it, was soon eliminated. During the conflicts between the Seleucids and the Parthians, Hyspaosines declared himself king of Mesene (the region around Charax). He was even, for a short time, able to expand his domain to include Babylon itself. By 120 B.C., however, the Parthian

\textsuperscript{409} Nodleman (supra n. 407) 86.

\textsuperscript{410} Pliny \textit{N.H.} 6.147-9.
king Mithridates II had gained the upper hand in Mesopotamia and was able to turn his attention to Mesene. Hyspaosines was only able to stay in power by agreeing to become the Parthian's governor of a greatly reduced province.

As we have noted, of the two maritime routes in the Persian Gulf, it seems that the western one was dominant during the Hellenistic Period. There is plenty of evidence that Gerrha was a thriving market of Arabian, and probably Indian, goods. It doubtless commanded the Gulf's traffic. It has been seen, however, from Nearchus' account that the eastern gulf route was also commercially active, at least at the beginning of the period. It may be inferred from his account that this route was frequently used in the preceding Persian period. After the Hellenistic period with the Parthian occupation of Babylonia, Gerrha entered a terminal decline. This decay may have been the result of a shift in the trade routes back to the eastern side of the Gulf.\(^{411}\)

After losing Mesopotamia to the Parthians, the Seleucids never regained any direct participation in the eastern maritime trade. The Greek inhabitants of Seleucia doubtless continued their activities under their new masters. Any Seleucid control of the Arabian and Indian trade would now, however, depend on their command of southern Syria. Before long this too was lost, this time to Roman arms.

Some have contended that the Seleucids demonstrated "little interest in the navigation of the Persian Gulf."\(^{412}\) This view has been propagated due to general

\(^{411}\) Rostovtzeff (supra n. 112) 457-58.

scholarly preoccupation with the Ptolemaic exploration of the Red Sea and discovery of the southwest monsoon. The Seleucids' maritime activities were to some degree simply overshadowed in both ancient and modern histories. We have seen that the Syrian kings, particularly the early ones, did pay attention to their maritime contacts with the East. Later monarchs, specifically Antiochus III and his son Antiochus IV, also attempted to counter the rise of Parthia astride the routes to India.

It must be acknowledged, however, that for the most part the Seleucids were content with a passive role in the maritime trade with the East. They happily let the Gerrhaeans act undisturbed as their middlemen. Only when their position as subsequent destination of the eastern goods was threatened did they act forcefully to influence the Arab tribe.

With the conquest of Babylonia by the Parthians, the northern axis of maritime trade with India passed from the hands of the West. The route itself was never abandoned. When Trajan stood on the quays of Charax he watched a ship set sail for India and lamented that he was too old to indulge in such a passage.413 Palmyran dedication inscriptions also mention sea traffic to the Indus delta.414 The Mediterranean world, however, would now have to deal with Parthia or get its Indian goods via southern Arabia and Egypt.

413 Dio Cassius 68.28-29.

THE SOUTHERN AXIS: THE PTOLEMIES AND SOUTHERN ARABIANS

The well-known procession of Ptolemy II Philadelphus demonstrates that, as early as 275 B.C., there was a significant trade connection between Egypt and India.\(^4\) In that extravagant celebration Indian women, birds, cattle and dogs were paraded through the streets of Alexandria. Additionally, alongside the ubiquitous Arabian aromatics, frankincense and myrrh, Indian spices, including cassia and cinnamon, were present in quantity.

These goods, both Indian and Arabian, reached Egypt via the traditional Arabian incense route. By Ptolemaic times this trade avenue was well established. Merchants had trodden its paths since at least the time of Solomon.

The Traditional Arabian Incense Route

Trade along the southern maritime trade axis during the Hellenistic period followed a pattern similar to the northern one in that Indian goods were shipped to Arabian intermediaries who in turn transported them, along with their own Arabian products, on to the West. The pattern was first developed in previous periods but was now carried out on an ever-increasing scale.

Indian goods first made their way to the southern Arabian Hadramawat coast and Somalia. The inter-tribal conflicts and relations of southern Arabia are beyond

\(^4\) Athenaeus *Deipnosophistae* 5.196-203 (citing Callixeinos *Alexandria* 4). A major theme of the celebration was Dionysus’ return from India, thus making the presence of Indian objects particularly appropriate. The Ptolemies associated their dynasty with this god. See E. E. Rice, *The Grand Procession of Ptolemy Philadelphus* (Oxford 1983) 82-95.
the scope of this work, but it can be stated generally that the Sabaeans were the
dominant power in the region throughout most of this period.\textsuperscript{416} Other tribes such as
the Hadramawats and Qatabans were, in effect, their dependents. The Qatabans, for
their role, seem to have had a special relationship at some point with the cinnamon
trade.\textsuperscript{417} A major Arabian port in this Indian trade was Aden. The \textit{Periplus} tells
how "in earlier days" the town grew wealthy as an emporium of Indian goods, thus
earning its name, Eudaimon (prosperous) Arabia.\textsuperscript{418} Pliny also lists Kalhat as a port
of embarkation for India.\textsuperscript{419} During the time of the \textit{Periplus} Kane, in the
Hadramawat, and Muza, on the coast of Yemen, were the major ports of the region.
From Photius we know that the island of Socotra was also a major participant in the
Indian trade. When describing the ports of the "fortunate islands," which doubtless
included Socotra, he states:

\begin{quote}
\ldots one may see many boats of the nearby peoples lying at anchor,
most of them from the place where Alexander established roadsteads
for ships by the Indus.\textsuperscript{420}
\end{quote}

\textsuperscript{416} For a more complete resumé of the changing southern Arabian political
situation see Salibi (supra n. 147) 32-33, and Gus W. Van Beek, "Frankincense and

\textsuperscript{417} Pliny \textit{N.H.} 12.93.

\textsuperscript{418} \textit{PME} 26.

\textsuperscript{419} Pliny \textit{N.H.} 4.152.

\textsuperscript{420} Photius in Warmington, \textit{Greek Geography} (London 1934) 205.
Photius' source for this observation was Agatharchides, who wrote a work entitled *On the Red Sea* during the mid-second century B.C. In Diodorus' version of Agatharchides' passage, Alexander's port is specified as Potana (Pattala).\(^{421}\) The modern name "Socotra" may have been derived from the Sanskrit *Dvipa Sukhatara* (Most Pleasant Island), a title doubtless given to the island by thankful sailors after a long voyage across the Arabian Sea.\(^{422}\) The ancient Greeks, however, knew it as Dioscurides Nesos. Agatharchides states that Socotra was also visited by ships from Persis and Carmania.

The Sabaeans, like their northern Gerrhaean counterparts, grew wealthy from the carrying trade. Ancient authors often associated the two tribes in this regard.\(^{423}\) While much of this prosperity was derived from shipping Arabian products, a good deal was due to the resale of Indian goods. Artemidorus reported that at the Sabaean capital of Mariaba (Ma'rib) there were "aromatics in such abundance that they use cinnamon and cassia and the others instead of sticks and firewood."\(^{424}\)

Westerners played no part in the sea trade to India during the third and second centuries B.C., a fact amply illustrated by their mistaken beliefs about the origins of Indian goods. Additionally, Greek geographers of this period are almost

\(^{421}\) Diod. 3.47.9.

\(^{422}\) Von Bohlen first proposed the Sanskrit etymology of the name in the mid-19th century. See Basham (supra n. 346) 63; Hourani (supra n. 12) 22; Cary and Warmington, *The Ancient Explorers* (Baltimore 1929) 92.

\(^{423}\) See page 113 above. Also for the Sabaeans' reported wealth see Strabo 16.4.22; Diod. 3.47.4-8.

\(^{424}\) Strabo 16.4.19.
totally unfamiliar with any Arabian geographical features beyond Bab-el-Mandeb. It is uncertain whether this western ignorance reflects an active Arab effort to keep control of their monopoly, as is often contested,425 or a simple lack of enterprise among the Greek and Egyptian merchants. Able to get spices from the Arabs and make a handsome profit on their resale, these dealers had little motivation to explore alternative means of acquiring them.

Frankincense and myrrh, the Arabian products so much in demand in the West, were grown in both the Hadramawat region of Arabia and across the Gulf of Aden in Africa. The Sabaeans imported aromatics from the latter district in "leather boats."426 They were then shipped, along with Indian products, to the Sabaean capital of Ma'rib. From there caravans proceeded northward.

The caravan route along the western coast of the Arabian peninsula was the predominate means of moving goods northward for several reasons. First, the Red Sea is notoriously difficult to navigate for sailing vessels.427 Coral reefs and the northerly winds that predominate above latitude 20° make voyages along its length impractical. Second, the Arabians doubtless knew that by relying on the caravan route they would be, for the most part, safe from competition or interference from

425 Warmington (supra n. 420) xxvi; Casson (supra n. 3) 123.

426 Strabo 16.4.19. Probably these were the same type of craft as the well-known keleks of Mesopotamia. See page 174 below.

427 Strabo (17.1.45) mentions this difficulty in navigation especially for those who "set sail from its innermost recesses."
the Egyptian rulers. A modest coasting traffic, however, probably always existed.\textsuperscript{428} The Minaeans controlled much of the route's overland section. They also seem to have shipped some goods from their ports directly to Egypt.\textsuperscript{429} This latter policy doubtless failed to endear them to their neighbors and may have contributed to their eventual downfall.

Finally, at the northern end of the caravan trails, were the Nabataeans with their famous capital of Petra. Here the caravan routes that crossed northern Arabia from Gerrha (see page 115) converged with those from the south. Additionally, the Nabataeans had access to the Red Sea traffic through their port of Aelana.

From this strategic and lucrative crossroads, eastern goods proceeded toward the Mediterranean markets by three routes. The first route headed directly to the Phoenician coast at Gaza,\textsuperscript{430} the second proceeded north to the Syrian city of Damascus before heading west to the coast, and the third crossed the Sinai to Egypt. From all these termini the goods were loaded onto ships heading to Greece, Italy and beyond.

Thus, the Nabataeans were in control of most of the eastern goods entering the Mediterranean world through the Syrian and Egyptian ports. While the Ptolemies controlled those ports, they too shared in the trade's profits. Moreover,

\textsuperscript{428} Rostovtzeff (supra n. 112) 387.

\textsuperscript{429} M. Rostovtzeff, \textit{Caravan Cities} (Oxford 1932) 22; Salibi (supra n. 147) 38.

\textsuperscript{430} The volume of spices passing through this town is illustrated by an episode from the life of Alexander. After the Macedonian king had taken Gaza he found enough spices to be able to give some thirteen and a half tons of frankincense and two and a half tons of myrrh as a gift to his old boyhood teacher. Plut. \textit{Alex.} 25.4-5.
they held the trump card in dealing with the Arabs. If they denied the Arabs access to the Mediterranean market, the Arabs had nowhere else to sell their goods. The two powers had every reason to have affable relations and did so for as long as the Ptolemy controlled Palestine and left the Red Sea to the Arabs. As early as 312 B.C., however, Petra had become wealthy enough to attract the attention of the other diadochoi. Antigonus I tried to take the town but, significantly, failed.

The Ptolemies

In 305 B.C. Ptolemy followed the example of Antigonus the One-eyed by taking the title of king. In doing so he inaugurated a dynasty that would survive until Cleopatra committed suicide in 30 B.C. It was the most enduring of the major Hellenistic kingdoms.

Soon after the death of Alexander in 323 B.C., Ptolemy had shrewdly obtained the satrapy of Egypt. He proclaimed himself to be the loyal servant of the joint inheritors of the Empire, the half-wit Philip III and the infant Alexander IV. In actuality, he made himself the absolute ruler of a stable, well populated, potentially rich and easily defensible country. In 321 B.C. he instigated the first war among the successors by seizing Alexander's body. This round of conflicts ended in 301 B.C. with the defeat of Antigonus. By then Ptolemy had extended his domain to include southern Syria including the Phoenician coastal cities. This territory was known as Coele-Syria or "Hollow Syria" (a term that referred to the depression of the Jordan Valley).
During his brief stay in Egypt Alexander had laid the foundations of what rapidly became the commercial center of the eastern Mediterranean: Alexandria. Strategically situated on the crossroads between East and West, this city grew at a phenomenal rate by feeding on the ever-increasing Mediterranean desire for eastern goods. The Ptolemaic kings themselves were perhaps the most commercially minded of all the Hellenistic rulers.

The early Ptolemics sponsored many Red Sea explorations and founded numerous ports along its African coast. These ports owed their origins to the kings' quest for African elephants to counter their Seleucid rivals' Indian ones on the battlefield. The early Hellenistic kings had been greatly impressed by Porus' use of these animals against Alexander at the hard-won battle of the Jhelum. This favorable impression was reaffirmed by the decisive role they played in the critical battle of Ipsus. Specifically, both Ptolemy II\textsuperscript{431} and Ptolemy III\textsuperscript{432} had a personal passion for hunting elephants. They spent great sums of money on expeditions and collected vast herds of the animals. Tarn even interprets the dispatch of the ambassador Dionysus to India by Ptolemy II Philadelphus as an attempt to obtain Mahouts and trainers.\textsuperscript{433}

The early Ptolemaic ventures in the Red Sea were organized specifically with elephant-procurement in mind. As a general rule, elephants do not breed in close

\begin{thebibliography}{999}
\bibitem{431} Diod. 3.36.3.
\bibitem{432} Diod. 3.18.4.
\bibitem{433} W. W. Tarn, "Ptolemy II," \textit{JEA} 20 (1928) 250.
\end{thebibliography}
captivity. Frequent hunting trips, therefore, were required to keep the king's stables full. Trade was not a major consideration of the ventures. There was no incentive for the Ptolemies to promote direct maritime trade with Arabia or India while they controlled Southern Syria. The ports they created, however, eventually grew, despite their non-commercial beginnings, to gather much of the Red Sea trade. Eventually these ports would be the bases for direct maritime trade between Egypt and India.

The Exploration of the African Coast: The Hunt for Elephants

One early Ptolemaic Red Sea explorer was a certain Philo who discovered the island that became known as Ophiodes (Snakey). Here (probably Jazirat Zabarjad) he found quantities of topaz. Upon his return, Philo presented some of the gems to Queen Berenice, the mother of Ptolemy II.434 The king was impressed with the gift and subsequently had a statue made out of topaz in honor of his wife Arsinoe. From then on the island was jealously guarded by the kings of Egypt.435 Some Ptolemy is later credited with removing the snakes that infested the island.436 This was no doubt accomplished in order to facilitate the exploitation of its resources.

The names of two other expedition commanders who served Ptolemy II have come down to us. The first, Satyrus, founded a town on the Gulf of Suez and

434 Pliny N.H. 37.108.
435 Diod. 3.29.4-9.
436 Strabo 16.4.6; Diod. 3.39.4-9.
named it Philotera, after the king's sister.\textsuperscript{437} The second, Eumedes, established a
Ptolemais Theron near modern Suakin.\textsuperscript{438} Here, the Pithom stele tells us, he
established friendly relations with the local population and cultivated the area "with
plough and cattle." The stele is, however, unambiguous about the principal purpose
of the new town:

He caught elephants in great numbers for the king and he brought them on
his ships to the king, on his transports on the sea. He brought them also on
the Eastern Canal; no such thing had ever been seen by any of the kings of
the land. There came ships and ships to Kemuurma. . . there was abundance
after scarcity.\textsuperscript{439}

Even considering the promotional nature of the inscription, the effect of these
hunts on the Red Sea's traffic is clear. The region of Kemuurma was located around
the present Lake Timsah. The Eastern Canal mentioned was the one between the
Red Sea and the Nile that Ptolemy, during the sixth year of his reign, reopened.\textsuperscript{440}
Evidently, Darius' canal had silted up at some point. Ptolemy's waterway ran from
Bubastis through the Bitter lakes to emerge on the Red Sea near Arsinoe. It was

\textsuperscript{437} Strabo 16.4.5 (citing Artemidorus); Satyrus' expedition, therefore, probably
took place before Arsinoe II was made queen sometime around 276 B.C. See Tarn
(supra n. 250) 14.

\textsuperscript{438} Strabo 16.4.7 (citing Artemidorus).

\textsuperscript{439} Line 24 of the stele that was uncovered at Tell el-Maskhutah. E. Naville, The
Store City of Pithom and the Route of the Exodus (London 1888) 21.

\textsuperscript{440} From the Pithom stele. See Naville (supra n. 439) 19-20.
noted for possessing an "ingenious kind of lock." This may have been created to calm fears over a difference in height between the two bodies of water or pollution of the Nile with salt water.

From the reign of Ptolemy II we also know of an Arsinoe, named after Ptolemy II's sister (and queen), built near modern Suez and a Berenice, named for his mother, founded just south of Ras Benas.

Other ports were built by Ptolemy II's successors along the whole length of the African coast of the Red Sea. Among the more important ones were Fons Tadnos and another Berenice. Fons Tadnos, later called Myos Hormos (Mussel Harbor), was located near modern Kossier and later became a major port for ships heading to Arabia and India. Berenice, differentiated from the previous one by the surname Panchrysos, "all golden," was established at Massowah. In the second century B.C. yet another town, Cleopatris, was founded near Suez and another Arsinoe built near the straits of Bab-el-Mandeb.

Along with providing elephants for the army, the new hunting stations of Ptolemy II provided new economic resources for Egypt to exploit. During the first

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441 Diod. 1.33.11. Strabo (17.1.25) merely states that Ptolemy "made the straight a closed passage."

442 Pliny (N.H. 6.165) claims Philadelphus never completed the canal for these reasons.

443 Pliny N.H. 6.167; Pithom stele, line 21.

444 Pliny N.H. 6.168.

part of the third century B.C. the price for ivory at Delos was eight drachmas per mina. This ivory was imported in part, via the Seleucid realm, from India. Sometime between 269 and 250 B.C., however, the Ptolemies flooded the market with their new African ivory. The prices dropped to three and a half drachmas per mina. Not only was this a new form of revenue for the Egyptians, it effectively undercut the, up-to-then, profitable trade of their rivals.

Ptolemy III shared his father’s passion for hunting elephants. During his reign the exploration of the African coast continued. He first sent his friend Simmias to "spy out the lands" along the coast and another Philo to investigate "Ethiopia." Later a series of explorations proceeded as far as Somalia. Agatharchides, our main source of information on the Red Sea during this period, does not reveal any knowledge of African geography beyond Cape Guardafui. It is safe to assume, therefore, that the Ptolemaic explorers did not proceed beyond that point. Among the intrepid hunters Strabo lists Pytholaus, Lichas, Pythangelus, Leon and Charimortus. They all set up altars and pillars at points along the coast, probably to mark the farthest extent of their voyages. Various geographical features along the shoreline were named after these explorers. There were, for example, the

446 Tarn (supra n. 250) 250.
447 Diod. 3.18.4 (citing Agatharchides).
448 Strabo 2.1.10; Antigon, Mirab. 145.
449 Strabo 16.4.15.
Hunting Grounds of Pythangelus and Lichas, a Lookout of Leon and a Harbor of Pythangelus.\textsuperscript{450}

A dedication from Edfu dated to the reign of Ptolemy IV confirms Strabo's accounts. It records that Lichas (mentioned above) was sent out a second time to the elephant-country. Another inscription tells us that an Alexander, the second in command of Charimortus (also mentioned above), and his soldiers gave thanks to Ares Nikephoros Euagros (Victory-Bringer and Good-Hunting-Giver).\textsuperscript{451}

The elephants captured during Ptolemaic hunting trips were brought back up the Red Sea to the northern Berenice by ship. We are told that these \textit{elephantegoi} ("elephant-carriers"), having a deep draft "because of their weight and heavy by reason of their equipment,"\textsuperscript{452} often ran aground in the shallow waters off the African coast. There the sailors slowly died of thirst and exposure. Diodorus wrote of the derelict vessels:

As for the ships which have been stripped of their crews in this pitiable fashion, there they remain for many years, like a group of cenotaphs, embedded on every side in a heap of sand, their masts and yard-arms still standing aloft, and they move those who behold them from afar to pity and sympathy for the men who have perished. For it is the king's command to

\textsuperscript{450} Strabo 16.4.14.


\textsuperscript{452} Diod. 3.40.4.
leave in place such evidence of disaster that they may give notice to sailors of the region which works their destruction.\textsuperscript{453}

One ship that suffered this fate is mentioned in a document dating from 224 B.C. We also learn from this letter that, for their return journeys to the south, these ships were laden with supplies for the hunting stations' garrisons. In the correspondence the members of one station's garrison are told that the replacement for a ship lost on its return voyage was nearing completion in Berenice. They are reassured that it would be leaving soon with supplies to relieve them.\textsuperscript{454}

The towns founded by the early Ptolemies soon outgrew their original function as hunting stations. They developed into ports for the eastern trade. Merchants using them could avoid the Red Sea's inherently dangerous northern section. Indeed, the early Ptolemies may have envisioned a commercial role for the towns. Philadelphus cut a road from Berenice to Coptus on the Nile.\textsuperscript{455} Way stations were built along its length to provide water and security for travelers. Another road connected Myos Hormos to Coptus. This latter town soon became an emporium of eastern goods. From there the goods traveled down the Nile to Alexandria where ships were waiting to distribute them throughout the Mediterranean.

\textsuperscript{453} Diod. 3.40.

\textsuperscript{454} Bevan (supra n. 451) 176.

\textsuperscript{455} Strabo 17.1.45.
Agatharchides states that the "kings of Alexandria" made the sea navigable to merchants.\textsuperscript{456} While the author may be referring specifically to the Gulf of Aqabah, he is a little ambiguous and the statement is equally true when applied to the Red Sea as a whole. A funeral inscription from Giza written in the South Arabic script and Minaean language is additional evidence of these new economic activities. It refers to a Minaean merchant importing myrrh and calamus from Arabia for use in an Egyptian temple. In exchange he exported, in his own ship, fine Egyptian linen garments.\textsuperscript{457} The inscription probably dates to 263 B.C., in the reign of Ptolemy II.

The Arabian Coast

The early Ptolemies did not limit their explorations of the Red Sea to its African side. Ptolemy II sent a certain Ariston to investigate the Arabian coastline.\textsuperscript{458} It has been suggested that his records are probably the basis for later geographers' treatments of the area.\textsuperscript{459} Pythagoras, another Ptolemaic officer, also

\textsuperscript{456} Diod. 3.43.5.

\textsuperscript{457} Hourani (supra n. 12) 21.

\textsuperscript{458} Diod. 3.42.1.

\textsuperscript{459} Tarn (supra n. 250) 13-14, suggests that Ariston was the source of the Arabian section of Agatharchides (found in parts of Photius and Diodorus) and Eratosthenes. Artemidorus (found in Strabo) then took it from Agatharchides. Tarn believes Alexander's explorer Anaxicrates, whom he admits as a source for Theophrastus (and hence Strabo), was not used by these other authors. He argues that Anaxicrates was only ordered to round Arabia—not to explore it—and hence he left few geographical descriptions to be borrowed by later writers. This logic seems tenuous.
investigated the Red Sea coast of Arabia and wrote a book on his findings. At best these explorers reached as far as Bab-el-Mandeb. The southern coast of Arabia was unknown to all the Hellenistic authors.

At some point the Nabataeans turned to piracy. Strabo mentions that they "formerly lived a peaceful life" but then began to prey on vessels sailing up the Red Sea from Aegyptos. Their piratical activities grew to the point that the tribe became infamous for them. The Nabataeans probably viewed the early Ptolemaic enterprises in the Red Sea as a direct threat to their monopoly as the outlet for eastern goods. This may have resulted in their sinister transformation. Specifically, the voyages of Anaxicrates and Ariston along the Arabian coast must have been perceived as a direct provocation.

The Ptolemies quickly took action against these deprivations. Pirate vessels were hunted down on the high seas and an expedition was sent over to the Nabataean's lands to punish them. The Pithom stele also states that an expedition of Ptolemy II was sent south "as far as the land of Parsepet," i.e., Persia, between

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460 Strabo 14.1.16; Pliny N.H. 37.24; Athenaeus 4.183.

461 Strabo 16.4.18.

462 Diod. 2.48.2; 3.43.5.

463 Diod. 3.43.5.

464 Strabo 16.4.18. Also, as Tarn has pointed out, Diodorus' statement (2.48.4-5) that the "Macedonian kings" could never conquer the Nabataeans may refer to both Antigonus's attack on Petra and an invasion by Ptolemy. Tarn (supra n. 250) 15-16.
280 and 273 B.C. Tarn has suggested that, as it is implausible that this is a reference to the actual Persian homeland, it probably refers to the lands of the Nabataeans, former Persian vassals.465

The Nabataeans' piratical activities were, for them, ultimately counterproductive. The Ptolemies were easily able to suppress the Arabs militarily. Additionally, the Egyptians developed an even greater desire to bypass the Nabataeans and trade directly with southern Arabia to get their Arabian, and Indian, goods.

Sometime during this period, at the mouth of the Wadi Hamd on the Hjaz coast of Arabia, the Milesian colony of Ampelone was founded.466 We have already seen the practice of a Hellenistic king asking a Greek town to sponsor a colony in the case of Antigonus and Magnesia (see page 116). Miletus was controlled by the Ptolemies between 279 and 258 and 245 and 197. Ptolemy II seemed to be particularly popular in the town.467 Given all the Red Sea activity of that king, including his Arabian campaign, it is reasonable to credit him with the creation of Ampelone.468 Some have also suggested, less convincingly, that the colony was founded much later, after the Ptolemies had lost southern Syria.469

465 Tarn (supra n. 250) 9-12.
466 Pliny *N.H.* 6.159.
467 Bevan (supra n. 451) 68-69.
468 Tarn (supra n. 250) 21-22.
469 Salibi (supra n. 147) 39.
It is unknown if Ampelone was a response to the Nabataean piratical activities or a cause of them. In either case, the town had the potential to cut the tribe out of the spice trade altogether. With the Ptolemies in control of Coele-Syria and with their superior military, and naval, capacity there was, however, little the Arabian tribe could do.

The period after the reign of Ptolemy III saw a decrease in Egyptian Red Sea activity. Elephants lost their allure to Hellenistic generals and while Coele-Syria was in their hands, the Ptolemies had no pressing reason to promote any direct maritime trade with the East. At the beginning of the second century B.C., however, this situation changed dramatically. During the Fifth Syrian War, Antiochus III defeated the Ptolemaic general Scopas at the battle of Panion and took control of all southern Syria. The region was henceforth to remain in the possession of the Seleucids. The Nabataeans, dependent as ever on the Mediterranean coastal outlets, took the opportunity to make themselves independent of Egyptian control.\(^470\) Seleucid support may have played some role in this endeavor. It may have also been during this period that the Nabataeans took and destroyed Ampelone. After that colony's elimination, the Arabs built their own town to replace it. The new port, called Leuce Come by the Greeks, was located either at the same site\(^471\) or somewhat further north.\(^472\)

\(^{470}\) Salibi (supra n. 147) 39.

\(^{471}\) Tarn (supra n. 250) 23.

\(^{472}\) Salibi (supra n. 147) 39.
Later Ptolemaic Efforts

The Ptolemies were now forced to find a way to circumnavigate the Nabataeans and find a new source for eastern spices. The obvious solution, and the one they soon pursued, was a maritime route to southern Arabia. This was eventually to evolve into a direct route to India.

Ptolemy VIII Euergetes II (r. 144-116 B.C.) was the first to recognize and act on the new necessity of the southern maritime route to the economic well-being of his kingdom. During his reign Agatharchides wrote his handbook on the Red Sea. His agenda was probably to provide both a practicable guide to merchants and to rekindle interest in the area.  

Starting towards the end of the second century B.C. a new government position is mentioned in Egyptian records. This officer is styled "commander of the Red and Indian Seas." Presumably he was charged with overseeing Ptolemaic trade concerns in those regions. Probably the towns and stations along the Red Sea were also under his authority. At first the post may have been associated with the stategos of Coptos. By the reign of Ptolemy XI Auletes, it was definitely connected with the epistrategos of the Thebaid. A certain Callimachus possessed both titles during that period. The creation of the post must be a reflection of the

473 Rostovtzeff (supra n. 112) 925.

474 Rostovtzeff (supra n. 112) 924; Tarn (supra n. 253) 246; Bevan (supra n. 451) 362.

475 Rostovtzeff (supra n. 112) 928.

476 Bevan (supra n. 451) 362.
growing importance of the Indian trade and the Ptolemies' determination to control, or at least share in, its profits.

Additionally, a comment of Posidonius may suggest a fleet was kept in the Red Sea during this later period. The anonymous Indian that guided Eudoxus' party on its voyage to India was taken from a ship intercepted in the Red Sea by the Egyptian "coast-guard." 477

With the Ptolemaic investigations of the Somali coast and the new ports around Bab-el-Mandeb it was only a matter of time before someone conceived of the idea of bypassing Arabia altogether to reach India. The precipitation of this event was the recruitment of an Indian sailor found in the Red Sea. The famous voyages of Eudoxus are chronicled elsewhere (see page 157); it suffices to say here that they were the first direct maritime contact between the Ptolemies and India.

We have only one name of an Indian who visited Egypt in the Hellenistic era. A late Ptolemaic inscription found in a temple at Redesiye on the road between Coptus and the Red Sea reads "Sophon the Indian does homage to Pan for a good journey." 478 At least one scholar has expressed doubt that an Indian would bear a Greek name. 479 Others, however, believe it was probably a Hellenized form of an Indian name such as Subhanu and that Pan was probably associated by the Indian

477 Strabo 2.3.4.

478 E. Hultsch, "Remarks on a Papyrus from Oxyrhynchus," JRAS (1904) 399.

479 P. M. Fraser, Ptolemaic Alexandria (Oxford 1972) 312 n. 391.
with Krishna, another flute-playing god of flocks and herds.\textsuperscript{480} Perhaps Sophon was an Indian merchant taking advantage of the new direct route between Egypt and India.

In assessing western trade with India one can not overlook Strabo's comment that in Ptolemaic times less than twenty ships a year ventured to "get a peep outside the straits [of Bab-el-Mandeb.]"\textsuperscript{481} He also states that, as compared to his era, previously few vessels (meaning, naturally, western vessels) traveled as far as India.\textsuperscript{482} As Rostovtzeff cautions, however, these statements must be taken "\textit{cum grano salis}."\textsuperscript{483} We do not know from where Strabo got his information. It has often been suggested that he may have been referring to the last Ptolemies.\textsuperscript{484} As such, the statement may simply reflect the economic disruptions created in the last tumultuous years of the dynasty. Given what is known about the numerous trips to Somalia (outside Bab-el-Mandeb) by the ships of the earlier kings this may certainly be the case.

It is perhaps fitting that one of the last acts of the final Ptolemaic ruler, the famous Cleopatra VI, involved the Arabian Sea. It illustrates the dynasty's eastern maritime ties even down to its final years. After the disastrous battle of Actium,

\textsuperscript{480} Basham (supra n. 14) 228.

\textsuperscript{481} Strabo 17.1.13.

\textsuperscript{482} Strabo 2.5.12.

\textsuperscript{483} Rostovtzeff (supra n. 112) 929.

\textsuperscript{484} Bevan (supra n. 451) 155; Adhya (supra n. 162) 126.
Antony and the queen escaped to Alexandria. There Cleopatra decided, in desperation, that their future lay in escaping down the Red Sea. Some have seen this as an attempt to find refuge in Ethiopia while others contend her destination was ultimately India. That she believed that such an adventure was viable suggests that maritime ties between Egypt and her intended destination, wherever it was, were close. She must have been reasonably confident about the reception she would receive upon her arrival. If voyages to this land were rare it is unlikely that the queen would have even entertained the idea.

According to Plutarch the Egyptian queen got as far as transporting some ships across the Isthmus of Suez to the Red Sea. The Roman governor of Syria, however, convinced the Nabataeans (without too much trouble one would think) to destroy the ships before the expedition was ready to proceed.

As first pointed out by Mahaffy, this story inadvertently informs us that the canal of Ptolemy II must have been allowed to silt up, at least to the extent that larger vessels could no longer use it. The creation of Myos Hormos and Berenice

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485 Plutarch (Ant. 69.3.) remarks that she intended to "settle in ports outside of Egypt." Dio Cassius (51.7.1) records that her "Arabian Sea" ships "had been built for the voyage to the Red Sea." The term "Red Sea" refers to what we know as the Arabian Sea and "Arabian Sea," our Red Sea.

486 Bevan (supra n. 451) 380; J. P. Mahaffy, The Empire of the Ptolemies (London 1895) 482.

487 Rostovtzeff (supra n. 112) 929.

488 Dio makes no reference to the ships being brought from the Mediterranean. He simply relates that they "had been built for the voyage...." Dio Cassius 51.7.1.

489 Mahaffy (supra n. 486) 482.
probably accounts for this negligence. The Alexandria to Coptos to Red Sea trade route, which avoided the northern half of the Red Sea, had proven to be a safer and more practical alternative.

Compared to that of the Roman period, the direct Ptolemaic maritime trade with India was no doubt modest. Even after the discovery of the monsoon, Greek and Egyptian merchants were still generally content to let the Arabians act as intermediaries. There can be no question, however, that Westerners from Egypt did trade directly with India in the later years of the Ptolemaic kingdom.
THE MONSOON

The basic mechanics of the monsoon are well known and not, by any means, unique to the Indian Ocean. Certain geographical and oceanographic features distinctive to the region, however, cause the monsoon to be the most powerful system of its kind.

In essence the monsoon is simply an air circulation system stimulated by the differential heating of land and sea. Heat is trapped by the land masses to the north of the Indian ocean during the summer. This stored warmth causes hot air to rise and thus creates a low pressure zone near the earth's surface. Water-laden air from over the ocean then rushes into this zone creating an onshore wind, known in the Arabian sea as the southwest monsoon. As this ocean air is drawn into the upward air current it cools and the moisture condenses as rain. In winter the exact opposite of this process occurs. Water stores heat better than land so the ocean is now the warmer area. Warm air rises over the ocean creating a new low pressure zone around thirty degrees south latitude. This zone draws air to it and thus creates an offshore wind: the northeast monsoon. This reversing nature is what makes these winds so useful to mariners.

An additional factor helping to drive the annual monsoon-cycle is the presence of the Himalayas in the north of the Indian subcontinent. These mountains provide an elevated source of heat in the summer and a physical barrier, both of which encourage a stronger upward flow of air.
The monsoon's effects are wide-ranging and profound. It influences global water-vapor and heat transport and thus the earth's climate in general. The early development of agriculture and animal husbandry in the lands north of the Indian Ocean were enabled by the rains provided by the monsoons. More interesting to students of maritime trade, however, is its use by ancient sailors.

Compounding the effect of the monsoon winds on sea-travel are the seasonally reversing currents they propel. Strongest of these is the Somali Current, which follows the northeast coast of Africa and extends across to India. This flow, at times, has an intensity roughly double or triple that of the famous Gulf Stream.\textsuperscript{490} It is particularly useful for the sailor traveling from the Red Sea toward India during the summer months. In winter the current reverses direction back towards Africa but is not nearly as strong.

The advantages of the monsoon to merchants traveling east and west are obvious. Ancient square-rigged ships were far from being well suited to sailing against the wind.\textsuperscript{491} They were much more comfortable and efficient when sailing before it. The great value of the monsoon system was that it reversed itself completely over the course of the year. Ships could sail both east- and westward while taking advantage of a following wind.

The ultimate benefit of the monsoon, however, was in its facilitation of a direct journey between southern Arabia (and the Red Sea) and India. A direct


\textsuperscript{491} The lateen rig did not gain widespread use until the Medieval period (see page 184).
passage, as opposed to a coasting one, both saved merchants time and cut out the need for middlemen. Intermediate stops at ports, and the tariffs and dangers associated with them, could be avoided altogether.

PRE-WESTERN USE OF THE MONSOON

We have already seen how there was significant commercial activity within the Arabian Ocean by the Neo-Assyrian period (ignoring here the Akkadian period). That the participants in these mercantile activities were aware of the monsoons' patterns should be obvious. They could hardly live in the region without gaining that knowledge. Consequently, references to seasonal winds are found in ancient texts.

The Arthaśāstra says that the Director of Trade should be careful in determining "seasons suited for voyage." Additional, in his diatribe against maritime commercial routes, one of Kautilya's complaints was that they were "not useable at all times." This is undoubtedly a reference to the sailing seasons dictated by weather patterns such as the monsoon.

From Arrian's account of Nearchus' voyage we also have references to seasonal winds:

492 Arthaśāstra 2.16.24.
493 Arthaśāstra 7.12.18.
When the Etesian winds, which continue all the hot season blowing landward from the sea, making navigation on that coast impractical, had subsided then the expedition started on the voyage . . . . 494

From these passages it is clear that the monsoon's seasonal nature was known and utilized. This comes as no surprise. They do not prove, however, that the people of the time appreciated the full value of the monsoon: that of enabling a crossing of the Arabian Sea without the contact of land. They may simply illustrate the use of the winds for coasting.

It has long been contended that the monsoon's use for a direct passage from Arabia to India was known by Arabians and Indians before it was used by the Greeks or Romans.495 Direct evidence for this contention is scarce but not lacking. The most persuasive item is Strabo's account of the voyages of Eudoxus. Eudoxus, who will be discussed later in more detail, gained his knowledge of the monsoon from a shipwrecked Indian.

Passages from various Sanskrit epics relating to voyages from India to overseas lands have been mentioned previously. The shore-sighting birds of the Kevaddhasutta of the Sutta Pitaka (and perhaps the tale of the Bavaru-Jātaka) prove that Indian sailors did voyage out of the sight of land as far back as the fifth century B.C. Agatharchides' description of Indian ships from Pattala at Socotra and the

494 Arrian, Indica 11.

495 See McCrindle (supra n. 100) 135.
Sanskrit origin of the island's name also suggest that at least by the mid-second century B.C. Indians were traveling across the Arabian Sea.

The *Periplus* tells us that ships voyaged between Eudaimon Arabia (near modern Aden) and India in "earlier days." This traffic, apparently, travelled directly between the two regions. Eudaimon acted as an entrepot for Indian goods with western ships from Egypt proceeding no further east. It was Indian and Arabian vessels that traveled between the town and India.

From the available evidence it is safe to conclude that the Arabs and Indians knew about the monsoon's use to travel directly between Arabia and India for a considerable span of time before the westerners even became aware of the possibility. The knowledge of this route may even have been a "trade secret" that the Arabs and Indians consciously kept to themselves. Van Beek has pointed out such measures were not unknown in ancient history.\(^{497}\)

Even accepting the likelihood of pre-western travel directly from southern Arabia to India there has, still been some difference of opinion as to whether the powerful *southwest* monsoon was used for the eastward passage. Today, as undoubtedly in the past, Arab vessels that sail from Aden to southern India often use the northeast monsoon.\(^{498}\) They set out in winter, traveling along the Hadramawat coast until they can fall away before the *northeast* monsoon. Their reason for doing

\(^{496}\) *PME* 26:28-29.

\(^{497}\) Van Beek (supra n. 416) 147, especially n. 41.

\(^{498}\) Hourani (supra n. 12) 26.
so is simple: the southwest monsoon is notorious for being rough and the Malabar coast of India is unsafe to lie off in a strong westerly wind.

Hourani believes that the Arab vessels, being presumably of lashed construction, were "fair-weather craft which would fall apart in heavy seas." This seems to be an unduly harsh criticism of this method of construction. We know that in the fifteenth and sixteenth centuries Arab vessels that were lashed used the southwest monsoon without prohibitive difficulty, as have Arab vessels down to this century. Moreover, Tim Severin's replica of a Medieval Arab boom, the Sohar, demonstrated the seaworthiness of such a vessel. There may be little direct evidence that the Arabs used the southwest monsoon, but it certainly can not be ruled out because of their shipbuilding technology.

The most convincing argument for the pre-western use of the southwest monsoon comes from the characteristics of the ancient ship's rig. Modern Arab vessels are able to use the northeast monsoon due to their lateen rig. Fore and aft sails, in general, enable ships to sail closer to the wind than square ones. As we will

499 Hourani (supra n. 12) 28. Hourani also flatly claims that all the Arab vessels were "stitched together with fiber cords, and this made it impossible for them to sail with the southwest monsoon." George F. Hourani, "Ancient South Arabian Voyages to India--Rejoinder to G. W. Van Beek," JAOS 80 (1960) 136.


502 T. Severin, "In the Wake of Sindbad," National Geographic 162/1 (1982) 2-40, gives a vivid account of weathering numerous vicious squalls in the replica on its voyage from Oman to China.
see later, the ancient seamen of the Arabian sea doubtless used square sails. They would have been less successful in sailing with the wind in any position forward of abeam, such as is required with the northeast monsoon.

A gradual process of learning to "cut across" from Arabia to India is the most likely theory for an Arab development of the use of open water voyages. It takes no great act of imagination to vision early sea captains progressively shortening their coastal route by "cutting corners" in a gradual process to find the most direct route. One is tempted to associate the rise of the southern Arabian tribes during the Persian period with the evolution of a direct passage to India. We know that their wealth was partly due to the transshipment of Indian goods. It also seems that the Arabs and Indians shrewdly kept their knowledge to themselves. Competition from the western sailors of Egypt was thus kept curtailed.

WESTERN USE OF THE MONSOON

The earliest Western seafarer who made use of the monsoon to travel directly to India may have done so inadvertently. Diodorus, writing in the first century B.C., records one such story. He tells how a man by the name of Iambulus and his ship were blown from the coast of Ethiopia to an island in the "south."\(^{503}\) This open water journey was reported to have taken four months. After living on the island for seven years Iambulus departed only to be shipwrecked in India. From there he returned to Greece via Persia. It has been suggested that this island, described as a

\(^{503}\) Diod. 2.55.3-6.
utopia, was, in fact, Ceylon.504 A good deal of skepticism must be retained about the historicity of this voyage, however, due to the fantastic nature of the account.

The first intentional voyage to India from the Red Sea by a westerner is usually ascribed to Eudoxus of Cyzicus. According to Poseidonius he was sent to India by Ptolemy VII around 118 B.C.505 This navigational milestone was enabled by the appearance in Egypt of a shipwrecked Indian sailor. This mariner, who remains nameless in the account, was found adrift near the entrance to the Red Sea. After being nursed back to health and taught Greek he volunteered his services to the Egyptian ruler. A vessel was outfitted and, with Eudoxus, made for India. The venture was a success and the expedition brought back a cargo of spices and precious stones. The king confiscated it all.

A second expedition under Eudoxus was commissioned by Euergetes II's successor, Queen Cleopatra II. During its return passage Eudoxus' ship was driven by the northeast monsoon to southern Ethiopia. The adventurer persevered and eventually made his way back to Egypt. Once again the crown took all his Indian merchandise. Fed up with this royal "monopoly" on Indian commodities, Eudoxus later tried to reach India by sailing down the western coast of Africa.

Thiel has convincingly argued that during these voyages the southwest monsoon was used to sail directly to India.506 If so, it may have been these voyages

504 Warmington (supra n. 3) 43.

505 Strabo 2.3.4-5 (citing Poseidonius).

506 J. H. Thiel, Eudoxus of Cyzicus (Groningen 1966) 16.
that introduced the technique to western sailors. Tarn, on the other hand, believes that Eudoxus coasted.\textsuperscript{507} It is difficult to believe, however, that the Arabians, whose ports it would be necessary to visit during such a voyage, would kindly put up with the threat to their monopoly. In any event, the pioneering trips did not start any great expansion of direct Western trade with India. The rarity of Ptolemaic coins or artifacts in India attests to this fact.\textsuperscript{508} It seems certain that the Ptolemies continued to rely largely on Arab middlemen.

Although the \textit{Periplus Maris Erythraei} was intended primarily for merchants rather than seamen, it provides many details on navigation in the Arabian Sea. Its author credits a man other than Eudoxus for discovering the monsoon's use in traveling from Arabia to the Gulf of Cambay and Indus delta:

The ship captain Hippalos, by plotting the location of the ports of trade and the configuration of the sea, was the first to discover the route over open water . . . . In this locale the winds we call "etesian" blow seasonally from the direction of the ocean, and so a southwesterly makes its appearance in the Indian Sea, but it is called after the name of the one who first discovered the way across.\textsuperscript{509}

Pliny, writing about the development of the sea trade to India, does not attribute this innovation specifically to a man named Hippalos. He does, however,

\textsuperscript{507} Tarn (supra n. 92) 370.

\textsuperscript{508} Tarn (supra n. 92) 370.

\textsuperscript{509} \textit{PME} 57.
state that the "native name" for the southwest monsoon was Hippalos.\footnote{Pliny \textit{N.H.} 6.26.} In this regard his account coincides with the \textit{Periplus}. It may be that Hippalos, rather than an actual man, was simply a personification of the monsoon.\footnote{Tarn (supra n. 92) 369.} We know the Greeks personified other winds, such as Boreas and Zephyrus. Eventually a promontory and a sea were also named after the explorer.\footnote{Ptol. 6.7.12.} The historicity of Hippalos may never be determined satisfactorily. In regard to the development of the trade in the Arabian Sea the specific point is largely unimportant.

Pliny does not credit the discovery of a direct passage to India to one man. He divides it up into a series of stages:\footnote{Pliny \textit{N.H.} 6.26.}

1) The age-old coastal trip followed by the fleet of Alexander.

2) Cutting across from Arabia (at place called Syagrus, probably Cape Fartak) to Demetrias-Pattala in the Indus delta.

3) Sailing directly from Arabia to a port called Sigerus somewhere south of Barygaza.

4) Sailing directly from the Red Sea to the southern ports of India.

This final step was important as it was the Tamil land of southern India that provided many of the luxury goods that the Roman market, and the Hellenistic one
before it, demanded.\textsuperscript{514} Sailing from the Indus delta or Gulf of Cambay south along the coast to reach southern India, as was necessary in Pliny's first three stages, is of considerable danger. That coast is still infamous for its treacherous nature.\textsuperscript{515} As previously noted (page 105), during the early Roman era ceramic evidence suggests that the northwest and Coromandel coastal areas of India were not in close maritime contact. It seems the ancients were just as anxious to avoid the Malabar coast.

Pliny gives no exact dates for the various phases but does make some general remarks that give us some clues. He comments that only a generation had passed after the discovery of the second stage before the third was implemented. That stage, he adds, lasted for "a long time" until just before his lifetime when it was supplanted by the fourth.\textsuperscript{516} A generation can be estimated as between twenty and thirty years and, as Tarn has pointed out, "a long time" must mean, in the context given, \textit{at least} a hundred years.\textsuperscript{517}

By working backwards we can roughly date each of Pliny's stages as follows. The first, coastal, stage was used exclusively until the second half of the second century B.C., when the second stage was first implemented. The third stage then started by 100-50 B.C. Finally, the last stage began around A.D. 40-50. It is


\textsuperscript{515} Cary and Warmington (supra n. 514) 97.

\textsuperscript{516} Warmington (supra n. 3) 47, and Tarn (supra n. 92) 369, argue that this must have been at least a hundred years.

\textsuperscript{517} Tarn (supra n. 92) 369.
important to note that these are conservative dates; if anything, the sequence could easily be pushed back.

Pliny's dates probably only refer to the dawning of western awareness of the routes involved. His third stage, for example, seems to start with Eudoxus' (or Hippalos') voyage. Given what we have previously examined regarding pre-Western use of the monsoon, we can say with some certainty that this is only the first Western use of the southwest monsoon. There is no reason to completely dismiss Hippalos as "obvious Roman ethnocentric nonsense."\(^{518}\) His "discovery," however, was probably only a discovery to his countrymen.

Various dates, ranging from the first century B.C. to the mid-first century A.D., have been assigned to the pioneering voyage of Hippalos.\(^{519}\) From the evidence in the *Periplus*, however, it seems Hippalos was the instigator of Pliny's third stage. If one uses the later dates for the Greek sailor, however, one must either dismiss the stages of Pliny or squeeze them into a shorter span of time than he gives. It is simply more sensible to date Hippalos to sometime in the early first century B.C. This raises the interesting possibility that Hippalos and Eudoxus may somehow be connected.\(^{520}\) Thiel has suggested that Hippalos may have been a


\(^{519}\) Warmington (supra n. 3) 47.

\(^{520}\) Casson (supra n. 3) 224; Rostovtzeff (supra n. 112) 929.
subordinate of Eudoxus during the latter's trips to India.\textsuperscript{521} This is an appealing idea, but one totally lacking in proof.

A final point is also worth noting. The West's discovery of the monsoon's use to sail directly to India from the Red Sea, whether due to Hippalos or someone else, was the discovery of the southwest monsoon. Both the *Periplus* and Pliny agree on this fact. The dangers of this wind have been pointed out before. The author of the *Periplus* comments that "the crossing with these [southwest winds] is hard going but absolutely favorable and shorter."\textsuperscript{522} Even so, the Roman captains waited until the last possible moment to catch the southwest monsoon; in this way they reached the coast of India when the monsoon was beginning to loose most of its violence.\textsuperscript{523}

The advantages for westerners of using the monsoon to cross directly to India were threefold. First, the voyage could be made in a single year. Leaving in July, merchants could reach India at the end of September. After carrying out their trading they could then wait until around the end of November to leave, arriving back in Egypt in February. Second, by avoiding all the intermediate stops Roman merchants could avoid any local ruler's tariffs or restrictions. The *Periplus* tells us, however, that such stops were often taken in order to exchange goods. Third, by staying out of site of land Roman ships could minimize the risk of being attacked.

\textsuperscript{521} Thiel (supra n. 506) 18.

\textsuperscript{522} *PME* 39:13.13-14.

\textsuperscript{523} Casson (supra n. 3) 290.
This was apparently a serious concern as Pliny notes that companies of archers were
carried on board ships to ward off the pirates that "greatly infested" the Indian
Ocean.\textsuperscript{524}

THE EFFECTS OF THE DISCOVERY

The effect of the monsoon's discovery was, at first, minor. It was only with
the \textit{implementation} of this knowledge by Western merchants during the first
centuries A.D. that the trade was transformed. When Roman traders, driven by their
"thirst for gain,"\textsuperscript{525} did finally follow the path blazed by the adventurers of the
previous century they ushered in a great era of expanded commerce between the
Mediterranean world and India. The advantages of a direct route to India (speed,
economy and safety) coupled synergistically with the increased demand of the
Roman Empire's Mediterranean market for Indian goods to create this blossoming.

The former intermediaries in the India trade were doubtless affected by the
new route. The author of the \textit{Periplus} notes that the city of Eudaimon Arabia
suffered a severe decline after it began to be bypassed.\textsuperscript{526} When the Arabians
realized that they had lost their monopoly on Indian goods they were probably quite
disconcerted. It may be conjectured that they vented their displeasure by harassing
or even taking Roman vessels. Referring to Eudaimon, the \textit{Periplus} states that "not

\textsuperscript{524} Pliny \textit{N.H.} 6.26.

\textsuperscript{525} Pliny \textit{N.H.} 6.26.

\textsuperscript{526} Casson (supra n. 3) 26.
long before our time, Caesar sacked it."  It has been suggested that perhaps this was a Roman response to piratical actions of the Arabians.  

The decline of a single Arabian town, however, should not be overgeneralized into a decline in the economic well-being of all the southern Arabian tribes.  As Hourani has pointed out there is no conclusive evidence for such a decline until the second century A.D.  Even then, the economic deterioration could just as easily be blamed on a decline in the demand for eastern goods in the Mediterranean market as on Western maritime competition.  Reasons for this decreased demand include the general economic downswing suffered by the West and the replacement of Paganism, and its considerable consumption of Arabian aromatics, by Christianity.

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527 There is considerable debate over which Caesar was responsible for the attack. With the concrete dating of the *Periplus*, however, it now seems the perpetrator had to be one of the Emperors of the early 1st century A.D. See Casson (supra n. 3) 160.

528 Charlesworth (supra n. 3) 61.

THE SHIPS

Compared to what is known concerning ship construction in the Mediterranean there is a dearth of information about vessels used in the Arabian Sea during the Hellenistic period. An obvious reason for this contrast is the lack, in the Indian Ocean, of any contribution to the question by the field of nautical archaeology. No shipwrecks dating to the period have been discovered, let alone excavated. There is undoubtedly no lack of such wrecks in the Arabian Sea; people have simply not been looking as long or as intensely as they have in other regions of the world. Textual references to vessels used in the Indian Ocean are also rare for this period. The Indians in particular were less interested in compiling historical or geographical treatises than religious works. Correspondingly, their textual material is often of limited use to the maritime historian. As for pictorial representations of ships that plied the Arabian Sea during the period, there are few.

This near void of information is largely responsible for the neglect of the region's maritime history. Yet it is not a reflection of any lack of seafaring endeavors. We have already seen how active the region was in such matters. Moreover, even during the subsequent period with its even more extensive and better known contacts between India and the Roman world we still have little knowledge about the ships used.
WESTERN SHIPS

References to the state-sponsored maritime endeavors of the Hellenistic kings suggest that the same types of vessels as were used in the Mediterranean were sometimes employed as naval vessels in the Arabian Sea. Alexander’s western shipwrights built triacontoroi, hippagogae, hemioliai, and kerkouroi for his Indus fleet. It should be cautioned, however, that such Greek terms do not necessarily mean the ships were built in the Mediterranean tradition. While the western shipwrights and carpenters employed by Alexander no doubt used the techniques familiar to them, many ships, including those designated triacontoroi, were built by the Indians.\footnote{Arrian Anab. 6.3.4.} Arrian (Ptolemy and Nearchus) no doubt used this term in a literal sense, i.e., a thirty-oared vessel. The horse transports, however, are specifically mentioned as being previously unknown to the Indians.

For his planned Arabian campaign Alexander had quinqueremes, quadriremes, triremes and triacontoroi built in Phoenicia, taken apart and carried to Mesopotamia.\footnote{The seven-hundred septemremes of Curtius can be discarded as hyperbole.} The quinqueremes and quadriremes were the largest warships afloat during this period. They were designed to employ ramming tactics to destroy or disable enemy vessels. It is unlikely, however, that such uses were anticipated for the ships in this expedition. There is no evidence to suggest that the Arabians had any naval capacity for Alexander to be concerned about. The king, however, had learned other uses for naval vessels during his seven-month siege of Tyre. Until he
gathered a fleet, his attempts to capture that port had proven to be a costly failure. The Tyrians were easily resupplied by sea and thus there was no possibility of starving them out of their walls. Moreover, they could harry the Macedonians at will, a tactic they used with great results. After the appearance of Alexander’s superior fleet, however, the Tyrians were forced on the defensive. In his final attack, Alexander used his ships as platforms, sometimes lashing them together, to assail the town’s walls. The large warships Alexander gathered at Babylon were probably included in the fleet to aid in any similar sieges and for prestige purposes.

All the vessels imported from Phoenicia were doubtless built with the techniques common in Phoenicia during the third century B.C. The Athlit ram discovered off the coast of Israel, which probably came from a quadrireme, provides us with our only archaeological evidence of a Hellenistic warship. J. Richard Steffy’s examination of the bow timbers found inside the ram has shown how substantial these vessels were. The Athlit warship was built with the pegged mortise-and-tenon technique that is known so well from other Mediterranean shipwrecks.

The fact that the vessels were built in Phoenicia, taken apart and then transported overland to Mesopotamia, however, raises some interesting questions.

532 This fleet was predominantly supplied by the Phoenician cities of Byblos, Aradus and Sidon along with the kingdoms of Cyprus. Arrian Anab. 2.20.1-3.

533 William M. Murray in L. Casson and J. R. Steffy, eds., The Athlit Ram (College Station 1991) 72-75.

534 J. Richard Steffy in Casson and Steffy (supra n. 533) 6-39.
about their construction. Any vessel built by the pegged mortise-and-tenon method of construction would be impossible to take apart down to its component parts for shipment once the pegs had been driven home.

We have seen that the ships on Alexander's Indus fleet were also disassembled for transport. The shorter vessels were reportedly cut into two pieces and the triaccontoroi into three. As Casson has noted, it is hard to imagine that the larger vessels could be reduced to only three pieces but Arrian's source in this instance is Aristobulus, who was probably an eyewitness. Although it is impossible to know from this passage exactly how the ships were disassembled, it is important to note that they were not reduced to their original components, i.e., planks, frames, etc., but into large sections. This may reflect their pegged mortise-and-tenon construction, which would prevent any such procedure.

That the ships of Alexander's last fleet were built using the shell-first pegged mortise-and-tenon technique, however, is beyond any reasonable question. A lashed method of construction, in lieu of pegs, is known from the Mediterranean and

535 The task also has an earlier parallel in Sennacherib's expedition against Elam. In that instance ships were transported overland from the Tigris to the Euphrates (see page 16).

536 Arrian Anab. 5.8.5.

537 Casson (supra n. 180) 136.

538 Authors have used various designations to describe the technique of using ligatures to hold the edges of planks together. Examples include such terms as sewn, lashed, laced and stitched construction. Each can be used to describe a specific application of the general construction concept. For consistency, the term "lashed" is used throughout this treatment.
vessels fastened in this fashion would be considerably more convenient to take apart for transport. Given the purpose for which the ships were designed and the structural features it necessitated, however, any thought that Alexander's warships were built using this technique can probably be discarded. This rationale, naturally, only applies to the larger ram-tipped warships mentioned by Aristobulus. The smaller triacontoroi and their likes may have been lashed. It is unknown, however, if the technique was still widely used in Phoenicia by the second half of the fourth century B.C. While any non-lashed ship of this fleet could not have been fully built (i.e., the mortises pegged and frames nailed) and then disassembled, there is no way of knowing exactly to what extent they were constructed before being taken apart.

For the later Hellenistic monarchs' naval activities in the Arabian Sea and its littoral regions there is little information on the types of ships used. During the Ptolemaic efforts to curb the piratical activities of the Nabataeans, Agatharchides wrote that the Arabs were run down on the open sea by quadriremes. As for the Ptolemies' elephantegoi, all we know is that they were of "deep draft because of their weight and heavy by reason of their equipment." Given these ships' function, these traits would have been safe to assume even without Diodorus' comment.

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539 Diod. 3.43.5.

540 Diod. 3.40.4.
From the Hellenistic settlement on Failaka two types of boat models have been uncovered.\textsuperscript{541} Both represent simple double-ended vessel forms with rather pronounced shear with stems and sterns of about equal height. The first type has a raised band indicating the sheer strake and holes at both ends (see figure 1). The second type has the same form as the first but also sports elements, termed by the excavator "bulkheads," crossing the interior of the boat (see figure 2). These models also have a series of oarlocks along both sheer strakes. Both types were made in molds, which explains their uniformity, but the "bulkheads" and oarlocks were modelled by hand.

The Failaka models have, not surprisingly, parallels with other Hellenistic boat models from Mesopotamia.\textsuperscript{542} Being unadorned with any details they tell us little about the construction of the vessels they were meant to imitate. From the one figure provided by Mathiesen, however, it seems his "bulkheads" may actually be representations of frames. In this example the "bulkhead" is low to the interior of the vessel and follows its curvature. One would expect a bulkhead's top to be straight and perpendicular to the sheer line of the vessel. The oarlocks indicate that the models represent smaller local craft as opposed to long-distance merchantmen.


\textsuperscript{542} Mathiesen (supra n. 541) 25.
Fig. 1. Reassembled type 1 model of boat, no. 47. (After H. E. Mathiesen, *Ikaros: The Hellenistic Settlements. 1. The Terracotta Figurines* [Copenhagen 1982] Fig. 15).

Fig. 2. Fragment of boat model type 2, no. 54. (After H. E. Mathiesen, *Ikaros: The Hellenistic Settlements. 1. The Terracotta Figurines* [Copenhagen 1982] Fig. 26).
ARABIAN SHIPS

Even less is known about the ships used by the Arabs during the Hellenistic age. The *Periplus* does provide some information which we may examine. Shipbuilding traditions evolve slowly and techniques probably did not change radically between the third century B.C. and first century A.D. Caution, however, should still be maintained before drawing any firm conclusions. Moreover, the *Periplus* gives us no information on the type of ships used in long-distance commerce. Its author only mentions small local craft that he, presumably, found interesting and different.

As noted before (page 119) Arabia imported wood from India to build its ships. The *Periplus* also remarks that complete vessels were exported to Arabia from Omana, a port on the Gedrosian coast, which in turn got its wood from India.\(^{543}\) It has been suggested that Omana may be located at Chad Bahar in modern Iran.\(^{544}\) The vessels, known as *madarate*, are described as being of lashed construction. It has even been suggested that the name itself is derived from the Arabic for "fastened with palm fiber."\(^{545}\) This position, however, has recently come under attack as faulty etymology.\(^{546}\)

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\(^{543}\) *PME* 36.

\(^{544}\) Casson (supra n. 3) 180-81. Tarn (supra n. 92) 481-82 believes the town was located in Carmania.


\(^{546}\) Casson (supra n. 3) 181.
Lashed vessels have characterized the Indian Ocean down to this century. From the Medieval ages there is considerable literary and pictorial evidence that this was the typical method of ship construction used in the region.\textsuperscript{547} Whether the technique was dominant in earlier periods is less certain but probable. Twenty years before Mohammed a Bedouin poet referred to Arab vessels as made of "plank and twine."\textsuperscript{548} It is reasonable to suggest that lashed vessels were a long-standing Arab tradition which probably reached back to the Hellenistic period. It must be emphasized, however, that given the lack of any real evidence from that period this hypothesis must remain speculative.

The \emph{Periplus} also mentions lashed vessels on the coast of Somalia which were used for fishing.\textsuperscript{549} From this context it seems the vessels were, again, small local craft. As mentioned previously (page 155), vessels constructed by lashing are not, as might at first be thought, necessarily small or frail. From later periods we know of lashed dhows displacing up to two hundred tons.\textsuperscript{550}

\textsuperscript{547} The general characteristics of Indian Ocean vessels during the Medieval period are reasonably well known. At least nine European and Arab authors commented on their lashed construction and/or perceived weakness. See L. Gopal, "Indian Shipping in Early Medieval Period," in Lokesh Chandra et al., eds., \emph{India's Contribution to World Thought and Culture} (Madras 1970) 108-22, and Hourani (supra n. 12). We also have some pictorial evidence such as the famous thirteenth-century miniature of a-Hariri's Maqamat. See Bowen (supra n. 397) 213 figure 12.


\textsuperscript{549} \emph{PME} 15,16.

\textsuperscript{550} Bowen (supra n. 545) 107.
On the southeastern coast of Arabia the *Periplus* reports that a type of raft buoyed by inflated skins was used.\textsuperscript{551} Pliny also mentions "leather rafts" of this type being used nearby off the coast of Ethiopia.\textsuperscript{552} This type of craft is well known from many regions of the world. Known as *keleks* (from the Akkadian *kalakku*) they were used along the Tigris and Euphrates rivers down into this century. Their earliest depiction may be in Neo-Assyrian reliefs of the eighth century B.C.\textsuperscript{553}

The only other piece of evidence for what ancient Arabian ships were like is a stone monument found outside the south gate of Timna, a site a hundred and forty miles inland from Aden.\textsuperscript{554} Reportedly, it resembles a boat with a rounded bow. Unfortunately, I know of no more detailed description that has been published on this potentially important find.

**INDIAN SHIPS**

The *Periplus* casts some light on the vessels of India. It mentions two types of vessels, the *trappaga* and *kotymba*, being employed by an Indian king to tow merchant vessels into the port of Barygaza.\textsuperscript{555} These are probably the mid-sized

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\textsuperscript{551} *PME* 27.

\textsuperscript{552} Pliny *N.H.* 6.176. Strabo (16.3.19) also mentions "leather boats" used by Arabs in this region.

\textsuperscript{553} James Hornell, *Water Transport* (Cambridge 1946) 20-34; Casson (supra n. 180) 4-5, especially note 3.

\textsuperscript{554} Van Beek (supra n. 501) 137.

\textsuperscript{555} *PME* 44.
tappaka and tottimba described in a fourth century A.D. Jain text. Nothing is said, however, about these vessels' construction or appearance. Another Indian vessel-type mentioned in the Periplus is the sangara. These boats are described as "big dugout canoes [monoxyla] held together by a yoke." They may be the samghada of the aforementioned Jain text. Vessels that fit this description have been used in India down into this century. The modern Tamil sangadam is built by hollowing out two tree trunks and lashing them together. It is doubtless the direct descendent of the sangara.

"Very big" kolandiophonta are mentioned in the Periplus as employed along the eastern coast of India. It has been suggested that they were the predecessors of the modern Sinhalese yatra-oruwa. The latter vessels are characterized by a sturdy outrigger. Hornell bases this determination on the Tamil term for a large outrigger fishing canoe, kulla. He theorizes that the Greeks derived their kolandiophonta from this word. Casson, however, believes the term comes from the Chinese word for various coastal peoples of Southeast Asia, k'un-lun, and their term

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556 Casson (supra n. 3) 203.

557 PME 60.

558 Casson (supra n. 3) 229.

559 J. Hornell, "Origins and Ethnological Significance of Indian Boat Designs," Memoirs Asiatic Society of Bengal 7 (1923) 139-256.

560 PME 60:20.9-10.

561 Hornell (supra n. 559) 215.
for a large vessel, po. While far from conclusive, this latter explanation seems more compelling.

During the Medieval period we know that Indian vessels, like Arabian ones, were of lashed construction. The *Yuktikalpataru*, a manual of practical knowledge based on an eleventh-century work by Bhoja, argues that such a technique was preferable to nailing in ship construction "for the iron will be attracted by loadstone and the ship will sink in the water." It is important to note that the passage proves that nailing was known by the medieval Indians for the construction of ships, but was simply not the preferred method. Some medieval sources, such as Ibn Jubayr, state that vessels in the Indian Ocean were lashed because they were less liable to break up upon hitting a reef. In reality, the reasons for building a ship with ligatures probably lie exclusively in the realm of tradition and economics. Of these two factors, tradition was probably the dominant one by Medieval times. Natural fibers (coconut husk, palm fiber, etc.) were plentiful and cheap. Iron-use was common in India, however, as early as 700 B.C. There is no reason to believe its cost was prohibitively high for use in shipbuilding. As demonstrated by the statement of Bhoja, lashed vessels were simply seen as more than adequate, and indeed better suited, for the demands placed upon them. Lashed boats are notorious for their high

562 Casson (supra n. 3) 230.

563 Basham (supra n. 346) 65.

maintenance needs.\(^{565}\) This was probably only a minor disadvantage in ancient India given the abundance of cheap labor available, and the limited sailing season.

Indian texts shed only a little light on vessels used during the last half-millennium before the Christian era. The fifth-century B.C. grammarian Panini lists four types of timbers used in ship construction, but mentions nothing about their utilization.\(^{566}\) The Buddhist Jātakas name various parts of the ships' construction and equipment such as timber planks (dāruphalakānī), masts (kūpa), rigging (yottarān), sails (sitam) and oars (lankharoh).\(^{567}\) They do not, however, supply much information on the ships' construction techniques. Ships large enough to carry seven-hundred people are mentioned.\(^{568}\) Such a capacity is probably, however, an exaggeration. The Arthaśāstra mentions that a ship's crew included a śāsaka (captain), a niyāmaka (steersman), a datraraśmigrāhaka (manipulator of the cutter [or sickle] and ropes) and a utsecaka (bailer).\(^{569}\) The datraraśmigrāhaka may have been in charge of the rigging and/or the anchor line. The text, however, again tells us nothing about the ships themselves.

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\(^{565}\) John of Montecorvino wrote in the 12th century A.D. that "if the twine breaks anywhere there is a breech indeed! Once every year therefor there is a mending of this, more or less, if they propose to go to sea." H. Yula and H. Coodier, Cathay and the Way Thither 3 (London 1915) 53. This necessity is also well known from more recent ethnological accounts.

\(^{566}\) A. K. Bag, "Ships and Ship-Building Technology in Ancient and Medieval India," in Rao (supra n. 16) 9.

\(^{567}\) Chandra (supra n. 4) 62.

\(^{568}\) The Supparaka-Jātaka; see Jātaka IV, 86-90.

\(^{569}\) Arthaśāstra 2.28.18.
Very few ship representations dating to the period of our interest are known from India, a fact which has been noted as both unfortunate and curious.\textsuperscript{570} Two small vessels, however, are shown in the bas-relief sculptures at the Buddhist temple of Sanchi. The gateways of the stupa, from which the depictions come, were built during the second century B.C.

The first boat at Sanchi is found on the south pillar of the eastern gateway. In the sculpture three ascetics are depicted in a small riverain craft. The scene is usually interpreted as the conversion of the Kasyapas.\textsuperscript{571} Three brothers were attempting to save the Buddha from a flash flood. The Buddha (not depicted, as per convention) astonished them, however, by creating a dry path in the bottom of the river. This broke the last of their skepticism. The most interesting detail of the depiction, regarding the boat's construction, is the hour-glass-shaped designs overlapping the edges of the planking strakes (see figure 3).

Two boats depicted in a sculptural relief from Barhut, dating from the second century B.C., also display this feature (see figure 4). In the relief two boats, each carrying three men, are being attacked by a giant sea-creature. While one vessel is being swallowed whole, the occupants on the other look on awaiting the same fate. An inscription tells us that the scene shows the story of Vasugupta, a devout Buddhist, who was saved from the disaster simply by the power of the name of the

\textsuperscript{570} Nalini N. Rao, "Marine Art in India," in Rao (supra n. 16) 95.

Fig. 3. Ship depicted on the eastern gateway at Sanchi. (After S. R. Rao, ed., *Marine Archaeology of Indian Ocean Countries* [Goa 1988] Pl. 41c).

Fig. 4. Ship depicted on sculptural relief from Barhut. (After H. Luders, ed., *Bharhut Inscriptions* [Ootacamund 1963] Pl. B62).
savior. It is perhaps a scene of the *Dharmaruchi-Avadana*.

The hour-glass shapes no doubt represent devices holding the edges of the planks together. Many scholars have described them as lashings. Given what we know about the preponderance of lashed vessels in later periods, such an explanation seems plausible, if not probable. The devices' ambiguous shape, however, has led to alternative theories as to what they represent.

Some scholars have interpreted the devices as iron clamps. Unfortunately, there is no other evidence to support this contention. The use of such clamps in the subcontinent is, at best, unrecorded.

Rao interprets the devices as "wedge-shaped" fasteners used in dove-tail joinery. Theoretically, there is a specific advantage to this method of fastening strakes. When the wedges expand upon immersion in water they pull the two strakes together thus providing a tighter fit. Use of this technique in ancient boats is, to say the least, rare. The Dashur boats found beside the nineteenth-century B.C. pyramid of Sesostis III do have dove-tail clamps. Haldane, however, suggests that these are not original but added by modern carpenters after the four vessels were

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573 Chandra (supra n. 4) 227; Adhya (supra n. 162) 120; Gopal (supra n. 547) 108; Mookerji (supra n. 189) 71.


575 S. R. Rao, "Shipping in Ancient India," in Chandra (supra n. 547) 98.
uncovered.\textsuperscript{576} Moreover, they are found on the insides of the boats, not the exteriors as at Sanchi and Barhut.

Ramachandran feels that boats portrayed at Barhut were "made of planks joined by dowels."\textsuperscript{577} Unfortunately it is unclear how he comes to this conclusion. It is possible that by "dowels" he means the wedge-shaped fasteners of Rao's theory. Doweling, as conventionally known, involves using cylindrical pegs of wood implanted in the edges of the planks to hold them together, a concept similar to mortise-and-tenon joinery.

One of the Barhut boats possesses another distinctive construction feature: the planking strakes have joggled edges. Instead of a straight edge along the run of the strake, the planks were cut to provide interlocking areas with the strakes to either side.

The most famous ancient boat to share this feature is the Royal Ship of Cheops, which dates to about 2650 B.C. Steffy believes that, in this fourth dynasty vessel, the joggled plank edges "prevented longitudinal shift and supplied much of the strength required to keep the ends of the hull from sagging."\textsuperscript{578} This function was required because the Cheops boat lacked any construction features (keel, keelson, stringers, wales etc.) that would later, in more developed vessels, provide


\textsuperscript{577} K. S. Ramachandran, "Ancient Indian Maritime Ventures," in Chandra (supra n. 547) 71.

\textsuperscript{578} J. Richard Steffy, \textit{Wooden Ship Building and the Interpretation of Shipwrecks} (College Station 1994) 28.
longitudinal strength. The Dashur boats, which may share the Barhut boat's "dovetail joints," do not have joggled planking. The planks do, however, widen and then narrow along their length. The wider sections of the planks are adjacent to butt joints in adjacent strakes. They were probably intended to "strengthen this otherwise weakened area."\(^{579}\) This variation in width may, however, have served, in a reduced sense, the same function as the Cheops boat's joggles. The Dashur boats, again, have no keel.

The second Barhut boat does not show joggled planking, but this is undoubtedly due to the limitations placed upon the artist in his composition. The boat had to be depicted greatly reduced in height in order to fit into the monster's mouth. There was, therefore, no room to depict the joggles.

It is best to assume that this construction feature found in both the Barhut and Cheops vessels is simply a similar response to a similar problem. Following this logic, one comes to the possible conclusion that the vessels depicted on the Barhut sculpture were also in need of longitudinal strengthening. Perhaps, like the Cheops boat, they were without the devices that commonly provide such strength, i.e., a keel, etc.

It must be noted, however, that Hornell, for totally different reasons, sees a strong ancient Egyptian connection with Indian riverain craft of this century.\(^{580}\) He sees numerous parallels between the two traditions, including general vessel form,

\(^{579}\) Steffy (supra n. 578) 33.

\(^{580}\) See Hornell (supra n. 559) especially 222-23.
use of a square sail, the reliance on quarter rudders or centrally located steering oars, and the presence of oculi. All of these features, barring the last, are common, however, to many riverain traditions so that to suggest an influence upon modern Indian craft by ancient Nile vessels seems unwarranted. As for oculi, it is more reasonable to imagine their introduction to India during late Hellenistic or Roman times.\textsuperscript{581}

Admittedly, arguing from negative evidence carries definite risks. The lack of any indications of contact between Pharaonic Egypt and India, however, suggests that if the boat-building traditions of each region did evolve along similar lines, they did so simply because they were the result of similar ecological adaptations. This does not preclude influences being transmitted during later periods.

A second vessel at Sanchi is depicted on the north pillar of its western gateway (see figure 5). Its bow takes the form of a winged griffin-like creature (a śārdūla), complete with beaked nose, while its stern ends in a fish tail. In the center of the boat is a pavilion. The boat is said to fit the description of a madhyamandira vessel-type.\textsuperscript{582} This latter vessel is described in the much later Yuktikalpataru of Bhoja. The classification, therefore, must only be made with care.

No construction details are visible on the vessel’s hull. A single quarter rudder, however, is depicted. It seems to be attached to the vessel by a socket, the details of which are, unfortunately, not visible. The rudder itself is a wide

\textsuperscript{581} R. Le Baron Bowen, "Origin and Diffusion of Oculi," \textit{AN} 17 (1957) 262-91.

\textsuperscript{582} N. Rao (supra n. 570) 95.
Fig. 5. Ship depicted on the western gateway at Sanchi. (After S. R. Rao, "Shipping in Ancient India," in L. Chandra et al., eds., India's Contribution to World Thought and Culture [Madras 1970] Fig. 7.)

rectangular type and possesses a tiller. There is no indication of whether it was matched by one on the other side of the vessel.

Rig

As alluded to previously, the rig used by ancient ships in the Indian Ocean is of considerable importance in determining the date for the earliest use of the southwest monsoon. If Arab and Indian vessels were square-rigged, this would be strong evidence for the monsoon's use in pre-Roman times to sail between India and southern Arabia. Indeed, square sails practically require its employment for such a voyage. Vessels so rigged would be unable to use the northeast monsoon as do some modern Arab dhows today (see page 154).
A fore-and-aft rig was first used, in the Mediterranean, during the last two centuries B.C.\textsuperscript{583} Representations from that period show the use of a sprit rig, with its characteristically forward-placed mast, on smaller vessels. The lateen rig was in use by the second century A.D. It was, however, slow to replace the square sail as the prevalent rig in the Mediterranean. The square sail was the favorite sail of European sailors well into the late Medieval period.\textsuperscript{584}

The Indian Ocean was later famous for its use of the "Arab" lateen sail. Bowen has shown, however, that the square sail was still used in the Arabian Ocean during the last century and that it was used off the coasts of Yemen and East Africa well into this one.\textsuperscript{585}

Pictorial evidence is unhelpful in determining the rig of Indian vessels in the last three centuries B.C. What representations are available show riverain craft without any masts or sails. Some ships depicted on the, admittedly crude, second century A.D. Satavahana coins, however, seem to have crossed yards on their two masts (see figure 6). Additionally, the ship depicted in cave number two at Ajanta, which dates to the sixth century A.D., clearly has three masts with high-aspect square sails (see figure 7). Interestingly, it also has a smaller forward-raking mast that looks much like a bow-sprit. Bowen has suggested that this is a reflection of

\textsuperscript{583} Casson (supra n. 180) 243-45.

\textsuperscript{584} This well substantiated fact is illustrated by Ibn Jubayr's comment on the salibutjah (cross-like) sails favored by the Rum sailors in the twelfth century. See Broadhurst (supra n. 564) 332 and note 132.

\textsuperscript{585} Bowen (supra n. 397) 217-20; also Bowen (supra n. 581) 288.
Fig. 6. Ships depicted on second century A.D. Satavahana coins. (After M. Chandra, *Trade and Trade Routes in Ancient India* [New Delhi 1977] Fig. 5).

Fig. 7. Ship depicted in Ajanta cave number two. (After S. R. Rao, "Shipping in Ancient India," in L. Chandra et al., eds., *India's Contribution to World Thought and Culture* [Madras 1970] Fig. 5).
outside influences, being a direct copy of the artemon of Western vessels.\textsuperscript{586} Indeed, the vessel does have a general "Western" appearance. It even possesses an oculus. Given what we know from these late Roman-era vessels it seems the lateen rig only gained popularity in the Arabian Sea sometime after that period.

This position is supported by the fact that the author of the Periplus never mentions any ships with "unusual" rigs in his description of the Arabian Sea trade of the first century A.D. As he seems to have been a curious man who never missed an opportunity to point out strange or interesting local craft, we can assume he never saw any rig that was particularly different from what he was used to: the square rig common in the West.

The Barhut sculpture, Andhra coins and Ajanta vessels all show that two quarter rudders were the normal steering method on ancient Indian vessels. In this regard they were the same as their Mediterranean counterparts.

As this summary shows, we possess very little real information on the types of vessels used in the Arabian Sea during the Hellenistic period. Until additional pictorial or textual evidence comes to light (or, better, a ship from that period is discovered and studied) we are limited to making very general statements about the vessels. Moreover, even for these we are often forced to extrapolate backwards from the better known Roman and Medieval periods. As always with such a perilous method, caution should be taken before drawing any firm conclusions. Moreover, with so few items of contemporary information, it is dangerous to generalize what

\textsuperscript{586} Bowen (supra n. 581) 268-69.
we do have into a widespread tradition. The joggled planking of the Barhut boat, for example, may be a feature characteristic of only local riverain craft of that specific region.
CONCLUSIONS

Trade between the West and India during the Roman era has been the focus of a significant amount of scholarly interest. In particular, the sea trade between the Red Sea and India has been analyzed and described in detail, reflecting the relative abundance of material, both literary and archaeological, dating to that era.

The blossoming of trade in the Arabian Sea during the Roman period, however, did not occur suddenly or without precedent. Ships had been plying the maritime lanes between India and the West since at least the Persian period. The routes they used probably had their nascence as far back as Neo-Assyrian and Neo-Babylonian times.

The growth of this traffic was gradual but continual, driven by the growing Mediterranean market for goods from India. Individuals played a notable part in the development of specific routes. They were also responsible to a significant degree for the awareness of India that led to the growth of the western market's demand. The Persian king Darius I and Alexander of Macedon are the most obvious examples of such people. I do not pretend to address the thorny and complex theoretical issue of "great man" verses "cultural process" theories of historical development. It may be pointed out, however, that both theories can be used in explaining the evolution of this trade.

587 These views have also been called the psychological and culturological schools of historical interpretation. L. White, "Ikhnaton: The Great Man vs. the Cultural Process," JAOS 68 (1948) 92.
By the Hellenistic period, trade between India and the Greek West had developed a number of characteristics. Prominent among these was the role of the Arabian intermediaries who were the trade's principal active participants. These middlemen grew wealthy from the carrying trade. Reasons for their dominance in this role were both geographical and political.

The geographic advantages of the Arabian peninsula are obvious. The region was ideally situated in the middle of the East-West trade axes. Ships traveling from India along the southern axis to Egypt naturally made landfalls along the southeast coast of Arabia. The tribes and kingdoms of this area could then tranship the Indian goods along the same routes that they used to convey their own resources to the West. The Arabians, therefore, had the advantage of a pre-existing infrastructure which was doubtless responsible for their dominance in the trade until Roman times. The Gerrhaeans of northeast Arabia had a similar advantage in that they too held a monopoly on Arabian goods. In their case the monopoly was of such goods being shipped to Mesopotamia. With the decline of Bahrain in the Persian Gulf as an entrepot after the Neo-Babylonian period, they were also ideally situated to inherit control of the maritime trade passing through the region.

Politically, none of the Hellenistic kingdoms ever had the will to muster enough resources to dominate completely the Arab middlemen. Both the Seleucids and the Ptolemies did mount expeditions against Arabian states, but they were always of a punitive and/or intimidating nature. Conquest was never attempted. The Ptolemies, as long as they controlled southern Syria and Palestine, were content to share in the profits of the eastern trade; the cost and trouble of conquest was not
worth the gain. The Seleucids shared similar sentiments. They had no reason to dominate a tribe, the Gerrhaeans, that was forced to trade exclusively with them. Notably the two major campaigns against Arabia, Ptolemy II's expedition against the Nabataeans and Antiochus III's mission against the Gerrhaeans, took place when the Arabians attempted to upset the Hellenistic kings' dominance over the trade's arrangements. The Nabataeans had attempted to interfere with the Ptolemaic Red Sea ventures and the Gerrhaeans had attempted to bypass the Seleucids. As long as the Arabians accepted the situation as dictated by, and favorable to, the Hellenistic states, they were left in peace.

The Roman era marks a transformation in the dynamics of the Indian trade. With the western discovery of the monsoon the southern Arabians were no longer needed as intermediaries, although they continued to act in that capacity for centuries. In the north the rise of the Parthian state saw the decline of the Gerrhaeans. The reasons for this development are less apparent. A new preference for the route along the eastern coast of the Persian Gulf, perhaps at the instigation of the Parthians, was probably at least partially responsible. With these new routes, the main characteristic of Hellenistic trade between India and the West, the use of Arabian intermediaries, lost its raison d'être.

The trade between the Roman world and India was thus quite different, in character if not commodities, than in previous periods. Nevertheless, Roman trade grew directly out of the systems that preceded it. When a Tamil poet at the Malabar
port of Mujiri looked out to sea and wrote how "the large and beautiful ships of the
Yavanas disturb the white foam, bringing gold and taking pepper," he was
describing the manifestation of a maritime trade that had been nearly a thousand
years in development.

588 Iyengar (supra n. 4) 197; translation from Basham (supra n. 346) 62-63.
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APPENDIX 1

GLOSSARY OF INDIAN TEXTS

This appendix is included for those readers who are not as familiar with ancient Indian texts as they may be with Western ones. The brief listing incorporates only major works and those mentioned directly in the text. The works are listed alphabetically regardless whether they are religious or political, Buddhist or Hindu.

Āranyakas -- Like the Upanishads, these are later mystical additions to the Brāhmaṇas.

Arthasastra ("Science of Material Gain") -- Treatise on government and economics ascribed to Kautilya, the adviser of the first Mauryan king. While parts of this work probably do date back to the third century B.C. it took its final form in the third century A.D.

Ashtadhyayi ("Eight Chapters") -- Grammar text written by Panini during the fourth century B.C.

Bhagavad Gītā ("Song of the Blessed One") -- A work which was incorporated into the Mahābhārata sometime around 200 B.C. It details how Krishna (an incarnation of Vishnu) counseled a despondent Arjuna, one of the warring Pandava brothers, before battle. Philosophically complex and beautifully composed, it is often regarded as the definitive sacred book of the Hindus.

Brāhmaṇas -- Prose commentaries made on the Vedas. Their name comes from the prominent position they ascribe to the priestly caste.

Dharmaśastras -- Legal texts. The most famous of these is the Manava Dharmaśāstra (named for Manu the legendary first king of the Aryans) written sometime in the first two centuries A.D.

Jātakas -- A sizable collection of folk-stories adapted for the instruction of Buddhist doctrine and beliefs. They are part of the Khuddaka Nikāya (see Sutta Pitaka).

Kalivarjas -- Customs which were once permissible but are now forbidden in this Kali age when men are no longer naturally righteous.

Mahābhārata ("Great Bhārata") -- Named after the foremost of the Aryan tribes, this poem of 90,000 stanzas is the longest in the world. Its story centers on a war between two groups of cousins over their territorial inheritance. The traditional date for this war is 3102 B.C. but the core of the story was probably composed around 1000 B.C. The poem reached its final form sometime early in the Christian era.
Mahābhāshya ("Great Commentary") -- Grammar text written by Patanjali during the second century B.C.

Pitakas ("Baskets") -- The three sections of the Buddhist Pāli canon. They are the Vinaya ("Conduct"), Sutta ("Sermon") and Abhidhamma ("Metaphysics") Pitakas.

Purāṇas ("Ancient Stories") -- A group of legends and religious instructions written between 500 B.C. and A.D. 500. There are eighteen main Purāṇas including the Vāya, Visnu, Agni, Bhavisya and Bhāgavata Purāṇas.

Rāmāyana -- The second great epic of Vedic times, this work is a quarter the size of the Mahābhārata. It is traditionally ascribed to Vālmiki. The poem concerns the trials of Rama, the heir of the throne of Kosala.

Samhitās ("Collections") -- The oldest of the Aryan religious texts. There are four of them.

Rig Veda ("Verses of Knowledge") -- 1028 hymns dedicated to the Aryan Gods. This work is the oldest of the Vedas and probably dates from 1500 B.C. to 900 B.C. Interestingly, the four main Gods found in this work (Indra, Varuna, Mitra and Naksatras) are nearly identical to those found in a Hittite tablet found at Bogazkoy (Indara, Uruvna, Mitira and Nasatiya) which dates to the 14th century B.C. In that tablet they are listed as divine witnesses to a treaty between the Hittite king Suppiluliumas and the Mitanni king Mattiwaža.

Sāma Veda -- A collection of some verses from the Rig Veda arranged for liturgical purposes.

Yajur Veda -- A collection of sacrificial formula in prose and verse.

Atharva Veda -- A collection of magical spells and incantations in verse.

Sutta Pitaka -- Largest of the Pitakas. It is divided into five Nikāyas ("Groups"). These are the Dīgha ("Long"), Majjhima ("Medium"), Samyutta ("Connected"), Anguttara ("Graduated") and Khuddaka ("Minor") Nikāyas.

Vedanta Upanishads -- These works are, in effect, appendices to the Brāhmaṇas. Probably written from the seventh century B.C. on these are more mystical in nature than the ritualistic, materialistic Vedas and Brāhmaṇas. In some ways they parallel the early ideas of Buddhism.

Yuktikālapataru -- A manual of practical knowledge perhaps based on an eleventh-century A.D. work by King Bhoja.
APPENDIX 2
THE MAPS

Map of Arabian Sea Region.
Map of the Persian Gulf Region.
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