

Ancient Seaports on the Western Coast of India: The Hub of the Maritime Silk Route Network

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The extensive maritime trade network between the Harappan and Mesopotamian civilizations as early as the 3rd millennium BCE is a testimony to the long maritime trade history of India. From the dawn of the historical epoch, the maritime trade network of India expanded extensively. The findings of a large number of coins, pottery, amphorae and other materials from Italy and various other European countries, west Asia, China, Korea, Africa, the Arabian Peninsula, Sri Lanka, Southeast Asia and Far-East countries in India, particularly in the coastal regions, are a testimony to the dynamic maritime trade of India with other countries in the early period. Similarly, pottery, sculptures, inscriptions and other materials of Indian origin are also found in those countries. The depiction of different types of ships on the coins, paintings, sculptures, seals and sealing, exhibit the variety of vessels used for navigation and other purposes in the early period. The over 7500 km-long coastline of India is well known for its seaports located at river mouths or outlets to the sea. The *Periplus Maris Erythraei*, Ptolemy, and Indian literary sources mention many seaports on the western coast of India. Interestingly, archaeological investigations in many of these port towns have yielded material evidence exhibiting their dominant role in transoceanic trade and commerce with many countries in the early period.

This paper discusses in detail all the major ancient seaports on the western coast of India and their maritime trade activities. At the outset, the paper briefly deals with the Harappan's maritime network, their seaports and the type of ships of that period. Following this, the maritime trade network of India during the historical period with various countries in

the east and west, the traces of Indian influence and materials abroad and foreign materials found in India, the products exported from India, the trade winds and navigational devices and the depiction of ships on the coins, paintings, and sculptures of the period are discussed in detail. After briefly highlighting the coastline of India and its favourable nature for safe anchorage of ships and the strategic position of the seaports of western India, an extensive account of the major ancient seaports of western India like Barygaza, Ashtacamptra, Gundigar, Kammoni, Khambhat, Bardaxema, Suparaka, Calliena, Semylla, Sanjan, Naura, Tyndis, Muziris, Nelcynda and other seaports, and their maritime trade activities are given based on archaeological excavations and explorations, literature, epigraphy, foreign accounts, and numismatic evidence.

Keywords: Harappan Civilization, Mesopotamian Civilization, *Periplus of the Erythraean Sea*, Ptolemy, Hippalus, Seaport, Amphorae, Roman coin, Chinese pottery, Intaglio, Pepper

Introduction

India has a long maritime trade history. Indeed, sea-borne trade played a significant role in the growth and expansion of the economy of the Harappan civilization (Plate No. 1). There was an extensive maritime trade network between the Harappan and Mesopotamian civilizations as early as the 3rd millennium BCE (Plate No. 2). The seals and sealings (Plate No. 3), weights, beads, ivory items, pottery and many others of Harappan make or bearing obvious Harappan influence are found distributed in Mesopotamia, Oman, the United Arab Emirates, Bahrain, Fialaka, the hinterland of Iran and Central Asia.

Harappan's Maritime Trade Network

The Harappan civilization was mentioned as Meluha in Sumerian literature. The Harappan had contact with Barbar, Umm-an-Nar, Ras al Jinz, Tell Asmar, Dilmun, Ur, Susa, Logas (in Mesopotamia), Kish, Lagash, Tall Abraq, Hili, Wadi Suq, Ras al-Hamra, Ras al-Hadd, Ras al-Jinz, as-Suwayh, Nippur, Tapa Garwa, Jokha, Ashur, Ras-al-Qala (Bahrain), Rosal Junyaj and other places. Seals of Harappan style are found at Ur (Iraq), Lagash, Susa, Tell Asmar, Umma and other places. In fact, a sealing from Umma is reported to have been found in association with a bale of cloth, which evidently was exported from India. The excavations at Ras al-Jinz (Sultanate of Oman) have demonstrated the existence of a direct connection between Lothal and other Indian coastal sites and this coastal site through the sea. At RJ-2 (Ras al-Jinz), archaeologists found the remains of the so-called Black Boats of Magan, as

named in cuneiform texts, which positively exemplify the connection of Mesopotamia with India through coastal hubs in the Arabian Peninsula during the Bronze Age.¹ The finding of bitumen fragments from the coating of a boat and objects like ivory combs, seals and sealings, and painted potsherds of Harappan origin found in excavations at Ras al-Jinz also attest to this fact. Interestingly, a painted jar found in Ras-al-Junayaz (Sultanate of Oman) is inscribed with four Harappan characters on its shoulder.²

In addition to the local supply, copper was probably brought from Oman, on the south-eastern tip of the Arabian Sea, by the Harappans. Chemical analysis has shown that both Omani copper and Harappan artefacts have traces of nickel, suggesting a common origin. A large jar coated with a thick layer of black clay, a distinctive Harappan type of vessel, has been found at Omani sites. Such thick coatings prevented the percolation of liquids.

Mesopotamian texts datable to the 3rd millennium BCE refer to copper coming from a region called Magan, perhaps a name for Oman, and interestingly, the copper found in the Mesopotamian sites also contains traces of nickel. Mesopotamian texts mention contacts with regions named Dilmun (probably the island of Bahrain), Magan and Meluha, possibly the Harappan region. They mention the products from Meluha were carnelian, lapis lazuli, copper, gold, and varieties of wood. A Mesopotamian myth tells of Meluha: "May your bird be the *haja*-bird, may its call be heard in the royal palace." The *haja*-bird may be considered a peacock.

Materials from the Arabian Peninsula and the Gulf region are found in many Harappan settlements in India. Interestingly, a circular seal of the Dilmun-type or of the Persian Gulf was found at Lothal (Plate No. 4). Harappan seals are mainly square, although rectangular, cylindrical and circular have also been found. The Harappan people preferred stamp seals in contrast to ancient Mesopotamians who generally used cylinder seals. The presence of cylindrical types, often with Harappan motifs, suggests a cultural interaction with the Mesopotamian and Persian worlds, whereas the circular types are characteristic of the Gulf area.

Harappan Seaports

Mesopotamian texts refer to Meluha as the land of seafarers. In fact, the Harappans constructed many sea-ports/dockyards for their maritime activities. The first high-tide dock in the world for berthing and servicing ships was constructed in the port town of Lothal, located at the head of the Gulf of Khambhat, now situated about 23km away from the shoreline and about 12m above mean sea-level, on the left bank of the River Bhogawa (Plate

¹ Serge Cleuziou and Maurizio Tosi, "Black boats of Magan: Some Thoughts on Bronze Age Water Transport in Oman and Beyond from the Impressed Bitumen Slabs of Ra's al-Junayaz," *Annales Academiae Scientiarum Fennicae* Series B 271, no. 2, (1994): 745–761; Serge Cleuziou and Maurizio Tosi, "Ra's al-Jinz and the Prehistoric Coastal Cultures of the Ja'alan," *Journal of Oman Studies* 11 (2000): 19–73.

² Maurizio Tosi, "The Proto Urban Cultures of Eastern Iran and Indus Civilization. Notes and Suggestions for a Spatio-temporal Frame to Study the Early Relation between India and Iran," in *South Asian Archaeology 1977*, ed. M. Taddei (Naples: Istituto Universitario Orientale, 1979), 149–171.

No. 5). There were other smaller ports such as Bhagatrav, Sutkagen Dor in Pakistan, Mehgam, Shikarpur and Sokhta Koh (also known as Sotka Koh) in Pakistan, and perhaps a large one at Dholavira in the Harappan period (Plate No. 6).

Type of Ships during the Harappan Period

Harappan peoples not only built docks and warehouses, but also boats. The terracotta models of boats from Lothal and engravings on Indus seals give some idea of ships during Harappan times. An engraving on a seal from Mohenjo-daro represents a sailing ship with a high prow and a stern made of reeds. In the centre, it had a square cabin. A Harappan ship depicted on a terracotta amulet is quite interesting. This boat had a flat bottom with a raked stern and prow and there are two steering oars at the stern. In the middle of the boat, there is a cabin. At both ends of the ship, a sea-bird is depicted. They are called *dishakak* and were used by sailors to find land. There are two masts on both sides of the central cabin (Plate No. 7).

Maritime Trade Networks during the Historical Period

From the dawn of the historical epoch, the maritime trade network of India expanded extensively. The emergence of new powers in the Western world such as the Greeks, the Romans and Sassanians in the last centuries BCE and the first centuries CE also boosted active maritime trade in the Indian Ocean. Increased use of shipping along the Red Sea tipped the balance of power and prosperity in southern Arabia in favour of those states with control of the major ports, such as Qana, Muza and Eden, and the east African kingdom of Axum accordingly thrived.³ Classical records and archaeological sources reveal the voyages undertaken and places seen by maritime explorers and traders. One of the earliest classical records is a story in Book IV: Melpomene, of the *Histories of Herodotus* (a historian and traveller of c. 500 BCE from Greece) on the voyages of Scylax of Caryanda, who was sent by the Persian emperor Darius to find the mouth of the Indus. Records of this journey are also preserved by Hecataeus of Miletus (c. 550–476 BCE), who mentions an encounter with the land of Maka (Oman) and the Farasan Islands (possibly Socotra and the Kurya-Murya islands). This is the first historical record of sailing around the Arabian Peninsula, although the Gulf seems to have remained the most popular route between India and the Mediterranean for another few centuries.⁴ The Red Sea continued to be the classical world's most important entry to the silk route for several centuries, especially as hostilities between Rome and the Parthian and then Sassanid rulers of Persia made the Gulf route unsafe. In the

³ Nicole Boivin, Roger Blench, and Dorian Q. Fuller, "Archaeological, Linguistic and Historical Sources on Ancient Seafaring: A Multidisciplinary Approach to the Study of Early Maritime Contact and Exchange in the Arabian Peninsula," in *The Evolution of Human Populations in Arabia: Palaeoenvironments, Prehistory and Genetics*, eds. Michael D. Petraglia and Jeffrey I. Rose (London: Springer, 2009), 251-278.

⁴ J. Keay, *The Spice Route: A History* (Berkeley, CA: University of California Press, 2006).

fourth century CE, however, the situation was reversed, as Mediterranean power transferred from Rome to Constantinople, shifting the silk route north to the Gulf.

Foreign Materials Found in India

The dynamic maritime trade of India with other countries in the early period is attested by the finding of a large number of coins, intaglio, rings, pottery, amphorae and other materials from Italy and various other European countries, China, Korea, Africa, the Arabian Peninsula, Sri Lanka, Southeast Asia and Far-East countries mainly in the coastal regions of India (Plate No. 8).

Amphorae imported from Western countries are found in many places in India (Plate No. 9).⁵ Amphorae found in south India were examined by experts who concluded that these amphorae were generally used to carry wine, olive oil and garum (fish sauce). The sources of these amphorae were Italy, the Greek islands of Rhodes, Knidos, and Kos, the Istrian Peninsula (northern Adriatic Sea), Egypt, Cilicia (eastern Turkey and Syria), Aqaba (Jordan), Catalonia (Spain), and Gaul (France). Chinese and Southeast Asian potteries and other materials are also found at many places, particularly on the coast of peninsular India. Obviously, the materials reached there through maritime contact. Chinese white porcelain sherds of the 11th-12th centuries CE, celadon pieces from the 13th-14th centuries CE, and blue and white porcelain pieces are often found in port cities.

Traces of Indian Influence and Materials Abroad

Pottery, sculptures, inscriptions, beads and other materials of Indian origin are also found in many countries. The discovery of potsherds with Tamil-Brāhmī script from the early centuries CE at Mannitalai, Paramankirāy, Veṭṭukāṭu, Kantarōḍai, Tissamahārama and other places in Sri Lanka; Phu Khao Thong in Thailand;⁶ Myos Hormos (Quseir-al-Qadim)⁷ and Berenike,⁸ ancient ports on the Red Sea coast of Egypt; and Khor Rori-Sumharam, Oman,⁹

⁵ Alagankulam, Arikamedu, Karaikkadu, Karur, Kudikkadu, Mamallapuram, Nattamedu and Vasavasamudram in Tamil Nadu & Pondicherry; Dharanikota and Nagarjunakonda in Andhra Pradesh; Pattanam in Kerala; Junnar, Kolhapur, Nevasa, Paunar and Ter in Maharashtra; Besnagar and Ujjain in Madhya Pradesh; Mathura in Uttar Pradesh; Ajabpura, Hathab, Bet Dwarka, Devnimori, Dhatva, Dwarka, Junagadh, Kaj, Kamrej, Koteswar, Mandvi, Nagara Shamalaji, Somnath and Vallabhi in Gujarat; Gopakapattana in Goa and many other places.

⁶ I. Mahadevan, "Potsherd with Tamil-Brāhmī Script from Thailand," *Annam, vol. 17* (2006): 12-13; Captain Boonyarit Chaisuwan and Rarai Naiyawat, *Thung Tuk: A Settlement Linking Together the Maritime Silk Route* (Songkhla: Trio Creation, 2009); Bunchar Pongpanich, *Beyond Beads* (Bangkok: Matichon Publishing House, 2009).

⁷ D. S. Whitecomb and J. H. Johnson, *Quseir al-Qadim 1980: Preliminary Report* (Malibu: Undena Publications, 1982).

⁸ Steven Sidebotham and Willemina Wendrich, *Berenike 95: Preliminary Report on the Excavation of Berenike* (Leiden: CNWS Publications, 1996).

⁹ D. Dayalan, "Tamil Brahmi Script on Amphora Sherd found at Khor Rori-Sumharam, Oman," *Epigraphy of the*

attest to the early maritime activity of the south Indians with far off countries.

Apart from this, many sites in Thailand, Sumatra, Java, Malaysia and China have also yielded inscriptions on south Indian and north Indian scripts, coins, sculptures, beads and other objects of Indian, particularly south Indian origin. There is ample evidence to show that even Buddhist and Hindu icons from India were transported to Sri Lanka, Thailand and Southeast Asian countries for worship in early times.¹⁰ Some of the limestone sculptures found at Anurādhapura (Jetavana and Citadel area) and the Mantai area are, in fact, from Andhra Pradesh (south India). Furthermore, the depiction of Buddha icons with flame-tipped *ushnisha* in south India was adopted by Sri Lankan Buddhists who presumably maintained close contacts with the nearby Tamil Nadu. There are many sculptures of Hindu gods and goddesses and Buddhist sculptures found at various sites in Sri Lanka, Thailand (Phukhao Thong, Khao San Kaeo, Klongton, Khao Wiang, Khao Phra Narai, Khao Phra Noe, Thung Tuk, Chaiya, Khao Sri Vichai, Khuan Pun Pin, Muang Thong and a few other sites), and other Southeast Asian countries exhibiting an unmistakable affinity with Indian sculptures. The circular gold plaque found at Bang Kluay, Thailand, has writing in Brāhmī letters from the 2nd-3rd centuries CE all along the margin within the border, and at the centre is a symbol. The inscription reads “*naavikasa Brahaspati Sarmasa*,” i.e., a shipman (*naavika*) named Brahaspati Sarma (Plate No. 10).¹¹ The name and title of the person and the nature of the script indicate that the shipman was from south India and came to Thailand as the sailor of a ship.

The motif at the ends of the architrave of the gateways and the beams in ancient edifices in China, Japan and Southeast Asian countries are nothing but an imitation of the *makara* motif. Korean green glazed tiles (7th-8th centuries CE) with demon heads are clear prototypes of the *kīrtimukha* motifs found in the temples of the Gupta and later periods. It is noteworthy that the *Samguk Yusa* (삼국유사) or *Memorabilia of the Three Kingdoms*, compiled in the 1280s during the Goryeo (or Koryo) dynasty (918-1392 CE) by the Buddhist monk Ilyeon (일연), referred to the legend of Heo Hwangok (Suriratna) who arrived on a boat from a distant kingdom and married King Suro of Geumgwan Gaya (Gimhae) in the year 48 CE. The legend of Heo Hwangok is found in *Garakgukgi* (the record of the Garak Kingdom), which has been lost but is referenced within the *Samguk Yusa*. According to the legend, Hwangok belonged to the Heo family and was a princess of the Ajutuo Kingdom. The extant records do not identify Ajutuo except as a distant country. However, some scholars have identified this place with Ayodhya in India. Some suggest that Heo Hwangok came from Āy,

Orient XXX (2013): 146-148.

¹⁰Hindu and Buddhist icons of Indian origin/influence are found at Phukhao Thong, Khao San Kaeo, Klongton, Khao Wiang (Markandeya, devi), Khao Phra Narai (four armed standing Vishnu now in Thalang National Museum, Phuket; Markandeya), Khao Phra Noe (four armed standing Vishnu now kept in Bangkok National Museum), Thung Tuk (Ganesa), Chaiya (Avalokitesvara with eight arms now kept in Bangkok National Museum), Khao Sri Vichai (Standing Vishnu now in the Bangkok National Museum), Khuan Pun Pin (Avlokitesvara with two arms made of bronze), Muang Thong (Devi and Ganapati) and a few other sites. The standing Vishnu sculpture found at Khao Phra Narai exhibits an unmistakable affinity with south Indian sculptures.

¹¹D. Dayalan, “Plaque of South Indian Shipman in Thailand,” *Epigraphy of the Orient* XXX, (2013): 138-145.

a vassal state of the Pāṇḍiya Kingdom in present-day Tamil Nadu. There is a depiction of a double fish symbol in the so-called tomb of Queen Suriratna. It is interesting that the royal insignia of the Pāṇḍiya Kingdom was a double fish.

Trade Network with Mediterranean and West Asian Countries

There is ample evidence to show that India had an extensive trade network with Mediterranean and west Asian countries for quite a long time. The Greek and Latin inscriptions engraved on the walls of a cave in the Wadi Mineh area located in the Eastern Desert of Egypt about 80 km east of Luxor testify to the fact that Roman traders were travelling regularly to India by the turn of the millennium. The inscription of Numidius Eros states, “Caius Numidius Eros was here in the 28th year of Caesar’s reign on the way back from India in the month of Phamenoth.” The length of the reign implies that the Caesar in question was Augustus, so the date is February or March 2 BCE.¹² Pliny the Elder (c. 23-79 CE), a Roman naturalist and naval commander of the early Roman Empire, recorded in his compilation called *Natural History* that Indian trade cost Rome at least 50 million sesterces per year.¹³ The Roman emperor Tiberius (14-37 CE) expressed his anguish over the huge amount of Roman wealth pouring into foreign lands including India and complained about it to the Senate.¹⁴ These statements are well attested by the occurrence of numerous hoards of Roman *aurei*, *solidi* and *denarii* at a number of places, particularly in peninsular India (Plate No. 11). Substantial hoards have been reported from Tamil Nadu, coastal Andhra Pradesh, Kerala and Karnataka in that order.

Exports from India

Indian products like pepper,¹⁵ cinnamon, cardamom, perfumes, cassia bark, spices, metal, medicines, hide, ivory, sandalwood, muslin cloth, silk, pearl, aquamarine beryl and other semi-precious stones were in considerable demand in the Western world. According to records, there was great demand for cinnamon in Rome and one Roman pound of high-quality cinnamon cost 1,500 *denarii*. Around 1200 BCE, the first pepper appears in the Egyptian record, positively identified from the dried fruits in the nostrils of the mummy of Ramses II.¹⁶ This is the first indication of possible contact between Egypt and India, though by what

¹² D. Meredith, “Annius Plocamus: Two Inscriptions from the Berenice Road,” *The Journal of Roman Studies* 43 (1953): 38-40; D. Meredith, “Inscriptions from the Berenice Road,” *Chronique d’Égypte* 29 (1954): 281-287.

¹³ Pliny the Elder, *Natural History* VI, trans. W.H.S. Jones (Cambridge: Harvard University Press, 2005), xxvi.

¹⁴ R. C. Majumdar, *The Classical Accounts of India* (Calcutta: Firma K.L. Mukhopadhyay, 1960), 274.

¹⁵ J. I. Miller, *The Spice Trade of the Roman Empire* (Oxford: Oxford University Press, 1968); Rene T.J. Cappers, *Roman Footprints at Berenike: Archaeobotanical Evidence of Subsistence and Trade in the Eastern Desert of Egypt* (Los Angeles, CA: Cotsen Institute of Archaeology, 2006).

¹⁶ A. Plu, “Bois et Graines,” in *La Momie de Ramsès II. Contribution Scientifique à l’Égyptologie*, eds. L. Balout and C.

route remains unclear. There are virtually no Roman coins found to the east of India, i.e., Thailand, Vietnam, Malaysia or China. It seems only shallow draught native vessels could have passed through Adam's Bridge and large ships had to make the treacherous circumnavigation of Sri Lanka. This rounding of Cape Comorin was probably undertaken in the later period in the 2nd century CE and also in a limited way. This may be one of the reasons for the absence of early Roman coins on the eastern coast of India.¹⁷

Depiction of Ships in Coins, Paintings, Sculptures, Seals and Sealing

The depiction of different types of ships in coins, paintings, sculptures, seals and sealing exhibit the variety of vessels used for navigation and other purposes in the early period (Plate No. 12). The Tamil literature of the early centuries of the Common Era also speaks of various types of contemporary ships such as *ampi*, *cōṅku*, *kaipparicu*, *kalam* or *marakalam*, *kappal*, *matalai*, *mitavai*, *mutuku*, *nāvāy*, *ōṭam*, *paricil*, *pataku* or *patavu*, *punai* or *pimai*, *teppam*, *timil*, *tōni*, and *vaṅkam*. The historical text *Yuktikalpataru* (11th century CE) deals with ship building and gives details of various types of ships. Vessels used for different purposes were called different names. The ships depicted in the Buddhist edifices at Sanchi, Bharhut, Ajanta, Amaravati and other places are quite interesting. The painting of a ship in the Buddhist cave at Ajanta has two steering paddles mounted on the sides of the vessel, one on the port side and the other on the starboard, and their upper ends are connected with a device erected on the deck. The rigging consists of a jib-sail and three tall, narrow sails fixed onto masts which were apparently capable of being adjusted. The *Sammohavinodani*, while describing the exodus of Buddhist monks to South India during troubled times in the reign of Vatttagamani (103-77 BCE), refers to an unusual type of three-decked (*tibhūmakam*) raft that the monks supposedly used.¹⁸ Ibn Battutah (1304-1369), a Moroccan scholar and explorer, found some of the Chinese ships at Calicut (Kerala state) had four decks and were supposed to carry a thousand men. Massive oars were used to propel them when winds could not be utilized, and each of these oars was manned by ten to thirty men.¹⁹

Coastline of India and Location of the Seaports

An over 7500 km-long stretch of coastline of India, including the coastlines of the Andaman and Nicobar Islands in the Bay of Bengal and the Lakshwadweep Islands in the Arabian Sea, is well known for its seaports located at river mouths or outlets to the sea (Plate No. 13).

Roubet (Paris: Editions Recherches sur les Civilisations, 1985), 166–74; Boivin, Blench and Fuller, "Archaeological, Linguistic and Historical Sources," 251-278.

¹⁷ Paula J. Turner, *Roman Coins from India* (London: Royal Numismatic Society, 1989).

¹⁸ A.P. Buddhadatta, ed., *Sammohavinodani*, (London: Pali Text Society, 1923), 445-446.

¹⁹ Ibn Battutah, *Voyages d'Ibn Batoutah*, trans. B. R. Sanguinetti (Paris: Société Asiatique, 1858), 91-94.

The river deltas of India are favourable for navigation and the distributaries associated with estuarine mouths naturally led to the development of many ports. The large lagoons and lakes provided sheltered water bodies in which a large number of ports developed. Many of the ports of peninsular India are protected by bars and spits providing much-desired natural breakwaters for safe anchorages. The coastal length of the Indian mainland (except the Andaman and Nicobar Islands and Lakshadweep Islands) is about 5422.6 km and is surrounded by the Arabian Sea in the west, the Bay of Bengal in the east, and the Indian Ocean in the south.

Trade Winds and Navigational Devices

It is generally believed that at some time in the middle of the first century BCE, sailors learnt how to utilize the monsoon trade winds to shorten the voyage (Plate No. 14). The author of the anonymous *Periplus Mari Erythraei*, or *Periplus of the Erythraean Sea*, believed to have been written during the latter part of the first century CE, implies that the discovery was made by a man called Hippalus. For Pliny, however, Hippalus is a name given to the south-west monsoon, which blows in the Indian Ocean in the summer months. Neither author makes it clear when the discovery was made. Interestingly, a verse from the *Saṅgam* period called *Puṛṇāṇāṅṅuru* (2nd-1st centuries BCE) refers to the Cōḷa king Karikala Valava, as “a grand successor of a king who was well versed with the winds for sailing ships in the deep seas.”²⁰ This is obviously a reference to navigating ships by an assessment of monsoon winds (*vali thoḷi*). This passage, perhaps, suggests that voyages by seamen utilizing the monsoon winds was a common practice among Tamil mariners even during the early part of the first century BCE.

Subsequent to the learning of wind movement, many navigational devices were invented by adventurers, which make sea travel somewhat trouble-free. Kamal, a celestial navigation device that determines latitude, was invented by Arab navigators of the late 9th century and spread to India and China. With the use of this device, navigators could determine the locations of various ports and islands reliably.

Seaports on the Western Coast of India

The western coast of India, which cuts through Gujarat, Maharashtra, Goa, Karnataka and Kerala states, has many natural seaports of international fame even in early times. From north to south, the western coast of India is divided into the Kutch peninsula, the Kathiawar peninsula, the Gujarat plain, the Konkan coast, the Karnataka coast and Malabar or the Kerala coast. The Kutch peninsula has marshes and lagoons on its side. The salt soaked plain

²⁰ *Puṛṇāṇāṅṅuru*, verse 66, line 2 (*vali thoḷiḷ ānta uravōṅ maruka*); *Puṛṇāṇāṅṅuru*, verse 20, line 3 (*vali vaḷaṅku ticaiyum* -the direction of wind movement).

occurring all along its northern side is known as the Great Rann, and the salt soaked plain on its south is known as the Little Rann.

The *Periplus Maris Erythraei* mentions many ports such as Barygaza, Suppala (Sopara), Calliena, Semylla, Mandagora, Palaepatmoe, Melizigara, Togarum, Aurannoboas, Naura (Cannanore), Tyndis, Muziris, Nelcynda, and other seaports on the western coast, and Colchi, Camara, Argaru, Poduca, Sopatma and others on the eastern coast of India. Archaeological investigations supplemented by literary sources have brought to light a large number of seaports all along the coast of India. Some important south Indian port-cities like Alagankulam, Arikamedu, Kaveripattinam, Kayalpattinam, Korkai, Mamallapuram, Nagapattinam, Periyapattinam and others on the Tamil Nadu coast; Dharanikota, Kalingapatna, Kottapattanam, Machilipatnam (Maisolia) and Motupalli in Andhra Pradesh; and Kochi, Cannanore (Naura), Pattanam (perhaps the ancient Muziris) and others in Kerala have yielded material evidence exhibiting their dominant role in transoceanic trade and commerce with many countries in the early period.

Barygaza (Bharuch)

Barygaza or Bharukaccha or Bhrgukaccha, the ancient seaport referred to in the *Periplus Maris Erythraei* and by Ptolemy (2nd century CE) and others is identified with Bharuch situated at the confluence of the River Narmada and the Arabian Sea in the Gulf of Khambhat. The *Periplus Maris Erythraei* states, “Immediately after the gulf of Barake²¹ is the gulf of Barygaza and the coast of the region of Ariake, the beginning of both the kingdom of Nambanus and of all of India.” It further mentions how great quantities of cloth were brought to Barygaza from the metropolis of Minnagara, an important inland trade centre.²² However, the *Periplus* describes that those sailing to Barygaza passed across the gulf (of Khambhat), which was narrow and hard to navigate and was a bad anchorage because of strong currents and a rough and rocky bottom. This hurdle was tackled by the government by appointing native fishermen who were stationed at the entrance with long boat *trappaga* and smaller *kotymba*, from whence they went out as far as Syresthrene (Saurashtra) to meet ships and pilot them to Barygaza and nearby ports where goods were perhaps transferred to smaller boats and transported to the required places.

Passage 49 of the *Periplus* describes an extensive range of goods en route through Barygaza. From Barygaza, spikenard (an herb), costus (an herb), bdellium or bdella (a fragrant gum resin, probably transported from Kashmir), ivory, agate, carnelian, onyx, myrrh (aromatic gum resin), lyceum, silk and cotton cloth, mallow cloth, indigo, ruzot, boxthorn (Bocksdorn), long pepper and other items were exported. The imported items were wine; brass or copper, tin and lead; coral and gold stone or yellow stone; variegated sashes half a

²¹ The Gulf of Kachchh is referred to as the Gulf of Barake in the *Periplus Maris Erythraei*, although Ptolemy mentioned Barake as an island in the Gulf of Kanthi, which has been identified as the Gulf of Kachchh.

²² The city named Minnagara may be a popular emporium of cloths near Barygaza.

yard wide; styrax or storax (a fragrant gum resin); sweet clover; steinklee or melilot (a fragrant herbaceous plant); white or flint glass; gum sandarach or sandarac (a resin); (stibium) tincture for the eyes, *sūrmā* or *kajal*; gold and silver coins and specie; and perfumes or unguents. Pliny also confirms that Barygaza imported silverware, coral, wine, sweet clover and perfumes from the Mediterranean region and glass, clothing and styrax from Egypt.

The Supparaka Jataka refers to perilous adventures on the sea undergone by a company of seven hundred merchants, who sailed from the seaport town of Bharukachcha in a vessel under the pilotage of a blind but accomplished navigator. Again, the Janaka Jataka mentions that the ship sailed from Bharukachcha to the Sea of Seven Gems and was wrecked with all its crew and seven hundred passengers including the Supparaka Bodhisattva.²³ The Baveru Jataka refers to merchants from Varanasi and Rajgriha who sailed down the Ganga and then went westwards to reach the ports on the seaboard of Sobina in the Gulf of Kutch and others to Bharukachcha from where they exported goods to Baveru, i.e., Bahrain.²⁴

Ashtacampra or Astakapra (Hathab)

Hathab is situated on the rivulets of the Maleshwari River which flows into the Gulf of Khambhat. The site referred to as Ashtacampra in the *Periplus Maris Erythraei* and Astakapra by Ptolemy has been identified with Hathab by some scholars. Hathab has also been identified with Hastakavapra, a name that occurs in a copper plate grant (5th or 6th century) of Dhruvasena I of Vallabhi. Archaeological excavations undertaken at this site have not only revealed the cultural sequence of the site but also its maritime trade connection. Period I (4th century BCE-1st century CE) of the excavation has yielded a copper coin of Apollodotus (Plate No. 15). In addition, pieces of amphora of Western origin have also been found in the excavations.

Gundigar (Gogha)

Gogha an ancient seaport, is situated on the mid-western shore of the Gulf of Khambhat south east of the Saurashtra peninsula. Sheltered from the southwest monsoon, with its wide stretch of good anchoring ground with soft mud and clay bottom, Gogha remained an important seaport of the Arabian Sea until the development of nearby Bhavnagar in the 19th century. Ghogha was known as the port of Gundigar during the Maitraka rulers of Vallabhi (5th– 8th centuries CE). The port of Gogha was active from the 5th century CE and flourished as a major trading post from the 10th to the 16th centuries CE before Bhavnagar

²³ R. K. Mookerji, *Indian Shipping* (Bombay: Longmans, Green and Co., 1912), 29, 75.

²⁴ S. R. Rao, "Shipping in Ancient India," in *India's Contribution to World Thought and Culture*, ed. Lokesh Chandra (Chennai: Vivekananda Rock Memorial Committee, 1970), 83-107.

took the place of Gogha as a trading centre.²⁵ As it is a tidal port, sailing vessels entered and left the harbour only at high tides. The *Imperial Gazetteer of India* mentions that “the natives of this town are reckoned the best sailor or lascars in India.”²⁶ A famous proverb about Gogha is “*Lankani Ladi ane Ghoghono var*” (Bride of Lanka and groom of Gogha), which perhaps indicates some kind of direct overseas relationship between Gogha and Sri Lanka. The archaeological evidence indicates that Arabs settled at Gogha in the 7th century CE. It seems that the first Arab traders landed at Ghogha around the early seventh century CE and built a masjid here. The ancient masjid, locally known as the Baarwaada Masjid or Juni (Old) Masjid at Gogha is one of the oldest mosques in India. Explorations in the inter-tidal zone of Gogha have yielded several sherds of glazed ware and stone anchors.²⁷

Explorations in the site have also yielded a large number of glazed wares, probably from China and other countries, and also an anchor with grooves on all four sections, probably of Chinese origin. A gold signet ring studded with a gem intaglio from the 5th or 6th century CE was found. This came from Vallabhipur, the capital of the Maitraka rulers of Vallabhi (5th-8th centuries CE). A figure engraved on the gemstone, closely resembling a senmury or hippocamp usually found in Sassanian ornaments and textiles, shows Persian influence.²⁸ It seems that the object might have come to Vallabhipur through Gogha, one of the important ports situated very close to Vallabhipur. It is interesting to note that there were interactions between later Sassanids and the rulers of western India and the Deccan during the 7th century CE and the circulation of defaced Sassanian coins, commonly known as Gadhaiya coins, in Gujarat, Rajasthan, and Madhya Pradesh from 750 to 1100 CE. In fact, Sassanian contacts with India have been traced to at least as early as Chosroes I (531-579 CE) to whom is attributed the introduction of chess from India to Persia and who certainly received tributes from India rulers.²⁹

Kammoni (Kamrej)

Kamrej is situated on the left bank of the River Tapi, which falls into the Arabian Sea, and about 15 km upstream of Surat. It is referred to as Kammoni in the *Periplus Maris Erythraei*. Excavations here have revealed cultural deposits dating from the 1st or 2nd century CE to the 9th or 10th century CE. Interestingly, many objects of foreign origin such as glazed ware, amphorae and others have been unearthed at this site in addition to a large variety of locally

²⁵ Rajyagor has mentioned that there was a dock at Gogha during the 1st century CE. (Rajyagor, “Ancient Ports of Gujarat,” in *Marine Archaeology of Indian Ocean Countries*, ed. S. R. Rao (Goa: National Institute of Oceanography, 1988), 112-113.

²⁶ *Imperial Gazetteer of India, Provincial series Rajputana*, VIII (Oxford: Clarendon Press, 1908): 301.

²⁷ A. S. Gaur and B. K. Bhatt, “Marine Archaeological Exploration on the Western Coast, Gulf of Khambhat,” *Man and Environment* XXXII, 2 (2008): 99.

²⁸ V. H. Sonawane, “A Rare Gold Signet Ring from Vallabhipur,” in *Puraratna Emerging Trends in Archaeology, Art, Anthropology, Conservation and History (in Honour of Shri Jagat Pati Joshi)*, eds. C. Margabandhu et al. (Delhi: Agam Kala Prakashan, 2002), 306-308.

²⁹ S. A. Huzayyin, *Arabia and the Far East: Their Commercial and Cultural Relations in Graeco-Roman and Irano-Arabian Times* (Cairo: L institut Français D archeologie Au Cairo, 1942), 108ff.

made objects and potteries. The finding of an Aksumite sherd from the Red Sea area, where the Aksumite kingdom played an active role in trade from the 3rd to the mid-7th century CE, is quite interesting.³⁰ Excavations have revealed that this trading port probably had active overseas contacts with the Red Sea and the Persian Gulf regions.

Khambhat (Cambay)

Khambhat or Cambay, also known as Stambhatirtha, Stambhapura, Mahinagara, Tarakpura, or Karnavati, is situated north of the River Dhadar and at the head of the Gulf of Cambay, where the River Mahi discharges into the sea. It is mentioned by the Arab geographer Khardadha in his work *The Book of Roads and States*, written in 865 CE. The Arab traveller Al-Masudi visited Khambhat in 913-914 CE and records that “Khambhat enjoyed great fame for its semi-precious stones, which were very popular in the markets of Aden and Mecca and in Baghdad.” Al-Idrisi (1100 CE) mentions it as a pretty and well-known naval station and second among the towns of Gujarat. According to Marco Polo (1254-1324 CE), an Italian explorer, “when merchants come to Cambay with their wares loaded on many ships, they bring, above all, gold, silver, and copper.”³¹ Khambhat reached its zenith during the period of Sultan Muhammed Begda (1459-1511 CE) and had trade with Persia, Arabia and Africa in the west and as far as China in the east. Khambhat’s trade began to decline in the 17th century due to several factors, the main ones being the silting up of the navigational channel in the Gulf of Cambay and political disturbances. Many 17th century travellers like Finch (1611), Mandelslo (1638), Pietro Della Valle (1640), and Tavernier (1642-66) reported that vessels could no longer go up to Cambay and they instead moored at Gogha and sent boats laden with goods to Cambay. In the 15th century, Gujarat became part of the Mughal Empire and Surat became the dominant port of the Mughals on the west coast of India.

Bardaxema (Porbandar)

Porbandar, known as Pavr vela kul, Jeshthuka Desh and Sudamapuri in the early days, is situated on the south west coast of Saurashtra on the Arabian Sea. It is one of the natural seaports in western India nearer to the African ports. It is probably referred to as Bardaxema by Ptolemy.

After Barygaza, the *Periplus Maris Erythraei* enumerates many emporia between Barygaza and Dimurikē. Of those, the first of them are Akabarou, Sopara, and Calliena. Between the mouths of the Namados and of the Goaris, Ptolemy interposes Nousaripa, Poulipoula, Ariakē Sadinōn and Sopara. Nousaripa is Nausari, about 29 km to the south of Surat.

³⁰ R. Tomber, “Aksumite and Other Imported Ceramics from Kamrej,” *Journal of Indian Ocean Archaeology* 2 (2005): 100.

³¹ S. K. Bhowmik, “Examples of Fine Art Connected with Ancient Maritime Activities in Gujarat,” in *Marine Archaeology in Indian Ocean Countries*, ed. S. R. Rao (Goa: Indian Institute of Oceanography, 1988), 97-98.

Sopara or Suparaka (Nala Sopara)

Sopara or Suparaka or Supparak, the ancient seaport referred to in the *Periplus Mari Erythraei* and other sources and by Ptolemy, is identified with Nala Sopara near Mumbai. Some scholars have identified Sopara with the Ophir mentioned in Hebrew texts.³² It was originally an island cut off from the mainland by a creek known as Bassein or Nala Sopara. This topographical aspect ensured that it was a significant port with an extensive trade network with various ancient cities. It seems that during the early historical period, Sopara was located on the mainland facing Agashi Island to the north and Bassein to the south. The backwaters between the mainland and the island were suitable for the movement and anchorage of ships. Gass and Nirmal villages were once part of the creek. Up to the 19th century, this creek was navigable and ships of 20 tonnes used to ply their way here. The area around Bhatela pond is a landing place or bundar, where the remains of a Portuguese jetty and customs house can be seen.

Archaeological and literary sources clearly indicate that Sopara was a main entrepot dating from the pre-Asokan period (i.e., prior to the 3rd century BCE) up to the 3rd century CE and again from the 9th to the 13th century CE. However, it seems that during the period from the 4th to the 9th century CE, Sopara lost its importance. It was not only an important centre of maritime trade activities, but also a notable centre of Buddhism. The remains of brick *stupas*, Buddhist stone sculptures and bronzes, fragments of the major rock edicts of Asoka and other relics of the early period are found at Nala Sopara (Plate No. 16). This seaport was well connected with the majority of the Buddhist and trade centres in Maharashtra and Madhya Pradesh (Plate No. 17). Excavations at this site have also yielded fragments of Roman amphorae, red polished ware, glass and many other objects of foreign and indigenous origin datable to the early centuries of the Common Era.

Calliena (Kalyan)

Kalyan, situated on the bank of the Ulhas River near Mumbai, is identified with Calliena referred to in the *Periplus Maris Erythraei*. Cosmos Indicopleustus, a Greek monk who made several voyages to India in the 6th century CE, points out that Kalyan was one of the six biggest markets of India famous for its bronze work, black wood and textiles.

After Calliena, the *Periplus Maris Erythraei* mentions many maritime trading centres on the west coast of India such as Semylla or Sēmulla (Chaul); Mandagora (Bankot or Kuda); Palaepatmai (Dabhol or Debel); Meliziegara (Milizēguris or Milizigēris of Ptolemy and Sigerus of Pliny), identified perhaps with Rajpur; Buzantiom (possibly present day Vijayadurg or Esvantgadh); Toparon or Togaron (which may be identified with Devagadh) and Aurannosboas or Aurannoas (Malvan). Beyond these places occur a succession of islands (such as the Island of the Aigidio, which may be Goa), some of which gave shelter

³² A. L. Basham, *The Wonder That Was India* (New York: Grove Press, 1959), 230.

to pirates and of which the last is called Leukē or White Island. The actual distance from Barugaza to Naura, the first port of Damirica or Limyrike (Dravida region), is 4,500 stadia.³³

Semylla or Sēmulla (Chaul)

Chaul (Semylla or Sēmulla) is situated along the Roha Creek about 40 km south of Mumbai on the Arabian Sea. Chemulaka or Chaul is mentioned in an inscription in the rock-cut caves at Kanheri. Al-Biruni (973-1050) mentions that Chaul was a chief port of western India, and other cities on the same coast, namely Kambayat (Cambay), Bahruj (Broach), Sindan (Sanjan), Sufara (Sopara) and Tana (Thana), as having commercial contacts with Chaul.³⁴

Sindan (Sanjan)

Excavations at Sanjan, Gujarat, situated on the north bank of the River Baroli, have revealed its important role in maritime trade in the Indian Ocean during the early medieval period. It is the place where the Zoroastrians landed in the 8th century CE after they fled from Iran during the Arab invasion. Excavations have yielded many notable structures associated with Zoroastrians and ceramics and antiquities of Indian and foreign origin. The ceramics found here are Chinese eggshell ware, Yeuh and Qingbai porcelain and glazed stoneware, turquoise glazed ware, sgraffito ware, tin glazed ware, Kashan lustre ware and other ceramics of distinct west Asian/Persian Gulf origin and belonging to the 5th to 9th centuries CE, glazed pink ware, red slipped pink ware, and glazed buff ware (Plate No. 18).³⁵ A large number of glass artefacts probably of Persian origin have also been found in the excavations at Sanjan.

Naura and Tyndis of Damirica

Naura in Damirica or Limyrike referred to in the *Periplus Maris Erythraei* further down is probably identified with Mangalore.³⁶ The Nitra of Ptolemy and the Nitria of Pliny are also tentatively identified with this place. Arrian, a Greek historian of the 2nd century CE, refers to Mangalore as Mandegora. Cosmas Indicopleusta refers to Mangalore as Mangaruth. Pliny refers to the pirates that infested the west coast around Nitria.

The *Periplus Maris Erythraei* mentions Naura and Tyndis as the first markets of Damirica,

³³ The term “stadia” comes from the plural of the Greek stadion, the word for a distance of 185 to 192 metres (607-630 ft.). A very similar length is the modern furlong, or eighth of a mile, 660 ft.

³⁴ J. W. McCrindle, *Ancient India as Described by Ptolemy* (London: Trubner & Co, 1885), 42-44.

³⁵ S. P. Gupta et al., “On the Footsteps of Zoroastrian Parsis in India: Excavation at Sanjan on the West Coast,” *Journal of Indian Ocean Archaeology* 1 (2004): 93-108.

³⁶ Some scholars have identified Naura with Honnavar Port in Karnataka, located at the place where the Sharavati River joins the Arabian Sea, and a few others with Cannamore.

and then Muziris and Nelcynda. It further states that Tyndis was in the kingdom of Cerobothra (Keralaputra, i.e., Cēra kings) and it was a village in plain sight by the sea. The distance between Tyndis and Muziris, another important seaport on the western coast mentioned in the *Periplus Maris Erythraei*, is about five hundred stadia (about 95 km) by river and sea. Early Tamil literature (c. 2nd century BCE to 2nd century CE) mentions this place as Tōṇḍi and states that it was an important coastal town of the Cēra kings who ruled this region during the Saṅgam period (c. 2nd century BCE to 2nd century CE).³⁷ Tyndis or Tōṇḍi was an ancient seaport and harbour-town in the ancient Cēra kingdom (Cerobothra) on the Malabar coast. The exact location of the port is still unknown; however, scholars have tried to identify this place with either modern day Kadalundi or Ponnani or Pantalayani Kollam. Kadalundi is a coastal village close to the Arabian Sea in Kerala, India. After the breakdown of the Cēra kingdom, the Parappanad Kovilakam became the rulers of Kadalundi. They gave permission to the Dutch to build a fort in Kadalundi.

Muziris or Muciri

The *Periplus Maris Erythraei* states that Muziris of the same kingdom (i.e., the kingdom of Cerobothra), abounded in ships sent there with cargoes from Arabia and the Greeks. It is located on a river (Periyar), and twenty stadia (3.5 km to 4 km) up the river from the shore. Pliny the Elder mentioned that for those who were bound for India, Ocelis (on the Red Sea) was the best place for embarkation. If the wind, called Hippalus (Southwest Monsoon), happened to be blowing, it was possible to arrive in forty days at the nearest market in India, Muziris by name. This, however, was not a very desirable place for disembarkation, on account of the pirates who frequented its vicinity, where they occupied a place called Nitrias. Nor, in fact, was it very rich in articles of merchandise. In addition, the roadstead for shipping was a considerable distance from the shore, and cargo had to be conveyed in boats, either for loading or discharging. Furthermore, Pliny mentioned that the name of the king of this place was Caelobothras (Keralaputras). Claudius Ptolemy placed the Muziris emporium north of the mouth of the Pseudostomus River in his *Geographia*. Pseudostomus (literally “false mouth”) is generally identified with the modern-day Periyar River. According to Strabo, the ships that brought oriental goods from Muziris amounted to 120 per year on average. The pressure of the social demand for oriental goods is best expressed in Pliny’s mention of the Roman Senate about the drain of gold due to the regular import of pepper and other spices from the East. The goods exported from Muziri as mentioned in the *Periplus Maris Erythraei* were pepper (mainly came from Cottonara area), fine pearl, ivory, silk cloth, spikenard from the Ganges, malabathrum, transparent stones of all kinds, diamonds, sapphires, and tortoise-shells (from Chryse Island). The imported items were coins, topaz, thin clothing (less quantity), figured linen, antimony, coral, crude glass, copper, tin, lead,

³⁷ *Periplus Maris Erythraei*, verse 17, line 13; verse 48, line 4; *Akanāṇṇūru*, verse 10, line 13; verse 60, line 7; verse 290, line 13.

wine³⁸ (not as much as at Barygaza), realgar and orpiment.

Early Tamil literature from the Saṅgam period (c. 2nd century BCE to 2nd century CE) mentions this place as Muciṛi.³⁹ Verse 149 of Akanāṇṇūru, a work of Saṅgam literature, mentions that the port-town Muciṛi belonged to the Cēra kings and was situated on the Sulltiāru (Sullti River) also known as Pēriyāru (a river). Here the splendid ships of the *yavanas* (foreigners), brought gold and returned with pepper, beating the foam on the Sullti.⁴⁰ *Puṛānāṇṇūru*, another Saṅgam work of literature, states, “Each and every house in Muciṛi was filled with heaps of paddy and other materials brought by the boats (*ampi*) after selling fishes. The sacks of pepper were heaped upon the boisterous riverbank. The gold (gift things) brought in the splendid ships (*kaalam*) were brought to the river bank by local boats (*tōnu*).”

⁴¹ The stanza in this poem attested to the statement of Pliny the Elder, who mentioned that ships had to be anchored at a considerable distance from the shore and the cargo had to be conveyed in boats. *Silappatikāram* (The Story of the Anklet), a Tamil epic of the post-Saṅgam period (c. 2nd-5th century CE), referred to Muziris as a vibrant trade destination and also an important stopover along the spice route. It was the place where foreign traders would arrive in their ships to barter their gold to buy pepper. Since barter trade was time-consuming, they lived in the city and their lifestyle was “exotic” and also a source of “local wonder.”

Muziris Papyrus or the Vienna Papyrus

The discovery of the Muziris Papyrus (also known as the Vienna Papyrus as it is presently kept in Vienna) in 1985 provides interesting information about the international trade links of Muziri.⁴² The Muziris Papyrus, a Roman document probably of the 2nd century CE, is reportedly a part of two separate documents, one pertaining to a maritime loan and another relating to the security.⁴³ The recto contains part of an agreement that covers the transport

³⁸ Early Tamil literature mentions the foreign liquor as “*Yavana tēral*”

³⁹ *Akanāṇṇūru*, verse 57, line 15; verse 149, lines 7-11; *Puṛānāṇṇūru*, verse 343, line 10.

⁴⁰ “*Yavanar tanta viṇaimāni naṅkaalam poṇṇōtu vantu kariyōtu peyarum vahamkelu mucīri*,” *Akanāṇṇūru*, Verse 149, lines 7-11.

⁴¹ *Puṛānāṇṇūru*, verse 343.

⁴² H. Harrauer and P. Sijpesteijn, “Ein neues Dokument zu Roms Indienhandel, P. Vindob. G. 40822,” *Philosophisch-Historische Klasse der Österreichischen Akademie der Wissenschaften* 122 (1985): 124-155; L. Casson, “New Light on Maritime Loans: P. Vindob. G. 40822,” *Zeitschrift für Papyrologie und Epigraphik* 84 (1990): 195-206; L. Casson, “P. Vindob G 40822 and the Shipping of Goods from India,” *The Bulletin of the American Society of Papyrologists (BASP)* 23 (1986): 73-79.

⁴³ The Muziris Papyrus reads as follows:

... of your other agents and managers. And I will weigh and give to your cameleer another twenty talents for loading up for the road inland to Koptos, and I will convey [sc. the goods] inland through the desert under guard and under security to the public warehouse for receiving revenues at Koptos, and I will place [them] under your ownership and seal, or of your agents or whoever of them is present, until loading [them] aboard at the river, and I will load [them] aboard at the required time on the river on a boat that is sound, and I will convey [them] downstream to the warehouse that receives the duty of one-fourth at Alexandria and I will similarly place [them] under your ownership and seal or of your agents, assuming all expenditures for the future from now to the payment of one-fourth-the charges for the conveyance through the desert and the charges of the boatmen and for my part of the other expenses.

of goods from the point on the Red Sea where these had been unloaded, i.e., Myos Hormos or Berenice or Berenike, across the eastern desert to Koptos and thence down the Nile to Alexandria. It also refers to the provision of a loan, which must have been a maritime loan, that made possible the acquisition of the goods. The verso contains an account of amounts of nard, ivory, and textiles, all of which figure regularly among India's exports, and the calculation of their value for customs duty. The account on the verso is undoubtedly related to the agreement on the recto, both dealing with the same shipment of goods. The loan agreement was drawn up at Muziris by an Alexandrian creditor with a transmarine trader, signed by the main merchant, the financier and a third person, the goods manager, probably a Greek stationed at Muziris across the seasons. The document, which contains a wide variety of information regarding Mediterranean overseas trade with the west coast, particularly with Muziris, the major port to which ships from Berenike sailed, mentions a ship named *Hermapollon* engaged in mercantile circuits between Berenike and Muziris during the mid-2nd century CE. The document states that the cargo had to be unloaded at Myos Hormos or Berenike, and from the port, the goods were carried by camels to Koptos through the desert and from there to Alexandria by river. It was a very wide trader network extending from Pozzuoli near Naples through Alexandria and Berenike to Muziris, and involving many agents and managers under strict agreements of obligations and assurance. The record shows that the price of oriental goods was astounding with 25% of the estimated cost added as taxes, tolls and transit wages paid at various points.

During the Ptolemaic-Roman period (third century BCE to fifth century CE), Berenike served as a key transit port between ancient Egypt and Rome on one side and the Red Sea-Indian Ocean regions on the other. Exotic goods from Rome and Egypt flowed into Berenike along the same desert road before being loaded onto large ships bound for the Indian Ocean. As mentioned elsewhere, many potsherds with Tamil-Brāhmī script from the early centuries CE have been found at Myos Hormos (Quseir-al-Qadim) and Berenike, ancient ports on the Red Sea coast of Egypt, and at Khor Rori-Sumharam, Oman. One of the great contributions of the papyrus, as concluded by Casson, is the concrete evidence it furnishes of the huge amounts of money that the trade with India required. The six parcels of the shipment recorded on the verso had a value of about 1155 talents, almost as much as it cost to build the aqueduct at Alexandria. The parcel of ivory and the parcel of fabric together weighed 92 talents and were worth 528,775 drachmas.

On *Pentinger's Map* or *Tabula Pentingeriana*, an odd-sized medieval period copy of an

With regard to there being- if, on the occurrence of the date for repayment specified in the loan agreements at Muziris, I do not then rightfully pay off the aforementioned loan in my name-there then being to you or your agents or managers the choice and full power, at your discretion, to carry out an execution without due notification or summons, you will possess and own the aforementioned security and pay the duty of one-fourth, and the remaining three-fourths you will transfer to where you wish and sell, re-hypothecate, cede to another party, as you may wish, and you will take measures for the items pledged as security in whatever way you wish, sell them for your own account at the then prevailing market price, and deduct and include in the reckoning whatever expenses occur on account of the aforementioned loan, with complete faith for such expenditures being extended to you and your agents or managers and there being no legal action against us [in this regard] in any way. With respect to [your] investment, any shortfall or overage [se. as a result of the disposal of the security] is for my account, the debtor and mortgage....

ancient Roman road map with information which could date back to the 2nd century CE, both Muziris and Tondis are well marked.⁴⁴ There is a large lake indicated behind Muziris, beside which is an icon marked Templ(um) Augusti, widely taken to mean a “Temple of Augustus.” A large number of Roman subjects must have spent months in this region awaiting favourable conditions for return sailings to the Empire. This could explain why the map records the existence of an Augustan temple.

Pattanam Excavations

Recent excavations at Pattanam, 7 km south of Kodungallur, Eranakulam District, Kerala, have provided tangible evidence to recognize this place as the ancient Muziris or Mucirī.⁴⁵ The excavations have yielded evidence for Mediterranean and west Asian contacts. The Mediterranean connections are explicit from a large number of amphora sherds mainly from Kos and Rhodes (Greek islands), Campania and the adjacent area (southern Italy, including Naples), Cilicia (Eastern Turkey and Syria), Hispania Tarraconensis and Hispania Baetica (Spain), Gallia (France), Aegyptus (Egypt) and other places; a few terra sigillata ware sherds; intaglios; cameo blanks; Roman board game counters and Roman glassware pieces. West and East Asian links are evident from the variety of ceramics such as turquoise glazed pottery from Mesopotamian and other areas, torpedo jar pieces of Mesopotamian origin, earthenware from South Arabia, and Chinese porcelain (Plate Nos. 19 & 20). In addition, a wharf-like structure and the remains of a small light narrow boat tapering at both sides known as a canoe have also been found in the excavations.

Malabar Coast

The Malabar coast (starting from south of Goa and stretching to Kanyakumari or Cape Comorin) played a vital role in maritime trade with various countries for centuries in the past. Marco Polo (1254-1324 CE) refers to ships from China often coming to ports on the Malabar coast like Quilon and Eli and that Levantine merchants, too, came there.⁴⁶ The account of Rashid al-Din on Malabar reads, “large ships, called in the language of China, “junks,” bring various sorts of choice merchandize and clothes from Chin and Machin, and the countries of Hind and Sind. The merchants export from Ma’bar silken stuff, aromatic roots; large pearls are brought up from the sea. The productions of this country are carried to Irak, Khurasan, Syria, Rum and Europe. The

⁴⁴ Emily Albu, *The Medieval Peutinger Map: Imperial Roman Revival in a German Empire* (New York: Cambridge University Press, 2014).

⁴⁵ K. P. Shajan, R. Tomber, V. Selvakumar, and P. J. Cherian, “Locating the Ancient Port of Muziris: Fresh Findings from Pattanam,” *Journal of Roman Archaeology* 17 (2004): 351-359; P. J. Cherian, G. V. Ravi Prasad, Koushik Dutta, Dinesh Kr. Ray, V. Selvakumar, and K. P. Shajan, “Chronology of Pattanam: A Multi-Cultural Port Site on the Malabar Coast,” *Current Science* 97, no. 2, (July 2009): 236-240.

⁴⁶ L. F. Benedetto and Aldo Ricci, *The Travels of Marco Polo* (London: Routledge, 1939), 327-331.

country produces rubies, and aromatic grasses, and in the sea are plenty of pearls.⁴⁷ Ibn Battutah noted the presence of thirteen large junks at Calicut.⁴⁸ Al Kaswin in his account about India, written sometime between 1263 and 1275 CE, which was gathered from the works of others, states “when the king of Kulam (Quilon), a large city in India, dies, the people of the place choose another from China.” If this is true, there might have been a colony of Chinese at Quilon before the 13th century CE.⁴⁹ In the *Ko-ryo-sa*, the annals of the Koryo dynasty (918-1392 CE) in Korea, the following story is recorded as having taken place in 1297 CE. A prince of Malabar named Bohali presented a cap of silver thread, a box of golden embroidery, perfume and cloth to the Korean king considering his matrimonial relations with a Korean lady.

Zheng He (1371-1433/1435 CE), the fleet admiral of China’s early Ming dynasty and a world-famous navigator, visited Calicut (Kozhikode) on the Malabar coast many times. He was said to have led seven naval expeditions in the Indian Ocean. Zheng He’s first voyage, according to several accounts, began in the year 1405, sailing from China through Indonesia and Malaysia to finally end at Calicut via Cochin. His fleet was estimated to be more than 20,000 men travelling in more than 60 treasure ships. His subsequent trips took him as far as Iran and eastern Africa to the shores of Mogadishu. For the Chinese explorer, Calicut, then a prosperous trading port that dealt extensively in Eastern spices under the rule of the Zamorin, was an ideal base to conduct trade across the Indian Ocean and the Middle East.

Nelcynda

The Periplus Maris Erythraei mentions that Nelcynda was about five hundred stadia (about 95 km) by river and sea from Muziris and was of another kingdom, the Pandian. This place was situated on a river, about one hundred and twenty stadia from the sea. There was another place at the mouth of this river, the village of Bacare, to which ships dropped by on the outward voyage from Nelcynda and anchored in the roadstead to take on their cargoes because the river was full of shoals and the channels were not clear. Nelcynda or Nelkunda is mentioned by various authors under various names. Ptolemy mentioned it as Melkunda, and places it in the country of the Aii (Āy kingdom). In the *Tabula Peutingeriana* or *Peutinger’s Tabula* it is mentioned as Nincylde, and in the *Ravenna Cosmography* (7th century CE), as Nilcinna. Pliny the Elder in his book *Naturalis Historia* calls the port Neacyndi. Nakkada near Niranam in Pathanamthitta District, Kerala, is often identified with Nelcynda. Other possible identifications of this place are with the modern Kallada or Neendakara or Nirkunnam or Kannetri or Kollam, all in south Kerala. Bakare or Becare, the shipping port of Nelcynda at the mouth of the river, is identified by scholars either with modern Markari or Varakkai or it may be between Kanetti and Kollam in Kerala.

⁴⁷ H. M. Elliot, *The History of India I* (London: Trubner & Co., 1877), 69.

⁴⁸ B. R. Sanguinetti, *Voyages d’ibn Batoutah*, Vol. IV (Paris: Imprimion Imperiale, 1858), 91-94.

⁴⁹ T. A. Gopinatha Rao, ed., *Travancore Archaeological Series*, Vol. II & III (Trivandrum: Government of Kerala, 1992), 117-118.

Conclusion

The Indian seaports, situated at a vital position on the globe, played a major role in promoting maritime trade for quite a long time, right from the 3rd millennium BCE. They served as a fulcrum of a maritime trade network for both Eastern and Western countries. The *Periplus Maris Erythraei*, Ptolemy, Pliny, Hiuen Tsang, I-Tsing, Marco Polo, Ibn Battutah and many others and local and foreign works provide ample evidence for the flourishing status of the ancient seaports in India and their active maritime trade activities with various countries. Interestingly, excavations at the sites where the ancient seaports existed have yielded lots of foreign materials in the form of pottery, amphorae, lamps, coins, intaglio, beads, rings, and glass. Indians were also familiar with ship building in ancient times. Many ship models depicted on the coins, seals and sealings, paintings, sculptures, and amulets and the enumeration of various types of ships in the literary works of the time attest to the fact that there existed a variety of ships in India. The seaports on the western coast of India, mainly Barygaza, Kammoni, Khambhat, Sopara, Calliena, Semylla, Naura, Muziris, and others not only played a dynamic role in promoting maritime trade, but also were the centre of the transmission of religion, culture, tradition, language, art and architectural idioms from India to foreign countries and vice versa.

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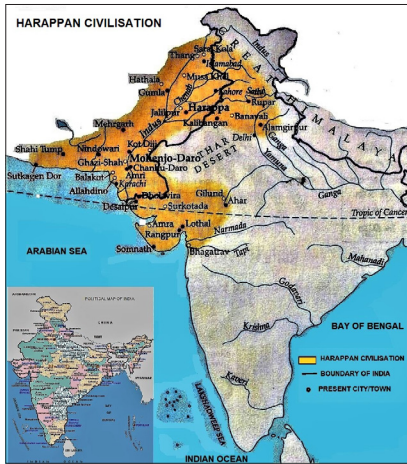


Plate No. 1)
Harappan Civilization

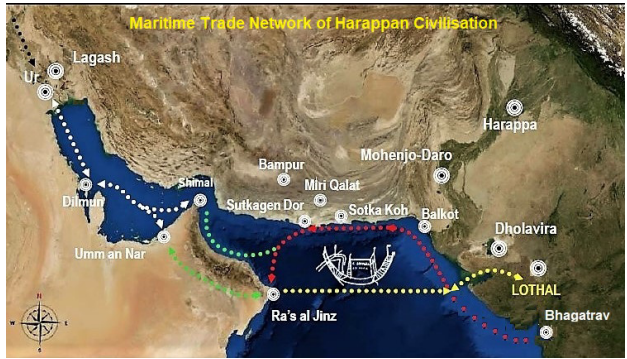


Plate No. 2)
Harappan Trade Link



Plate No. 3)
Harappan Seals and Sealings

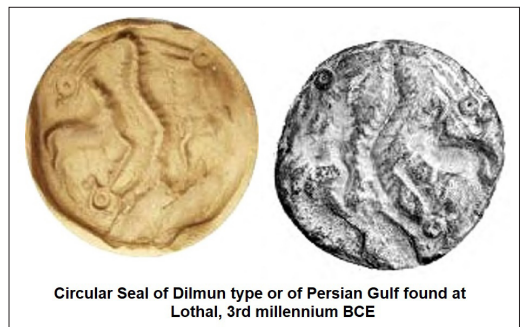
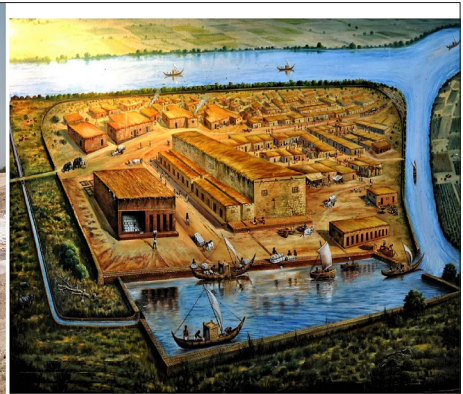


Plate No. 4)
Circular Seal of Dilmun Type or of Persian Gulf

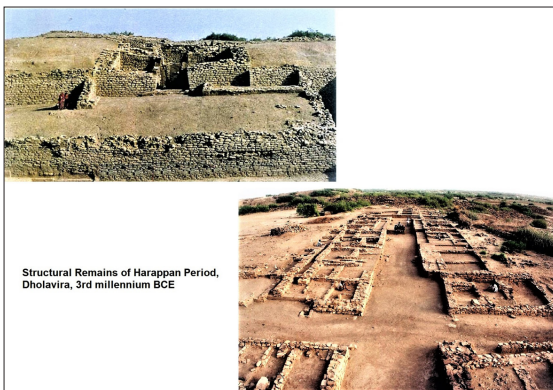


High Tide Dockyard, Lothal, Harappan Period, 3rd millennium BCE



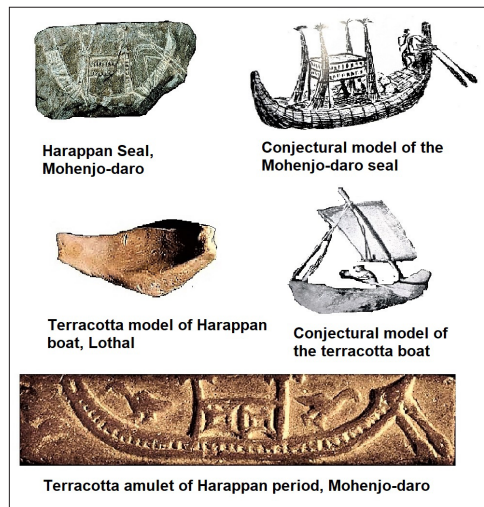
Conjectural Picture of the Dockyard

Plate No. 5) Lothal



Structural Remains of Harappan Period, Dholavira, 3rd millennium BCE

Plate No. 6) Dholavira



Harappan Seal, Mohenjo-daro

Conjectural model of the Mohenjo-daro seal

Terracotta model of Harappan boat, Lothal

Conjectural model of the terracotta boat

Terracotta amulet of Harappan period, Mohenjo-daro

Plate No. 7) Boat Seal

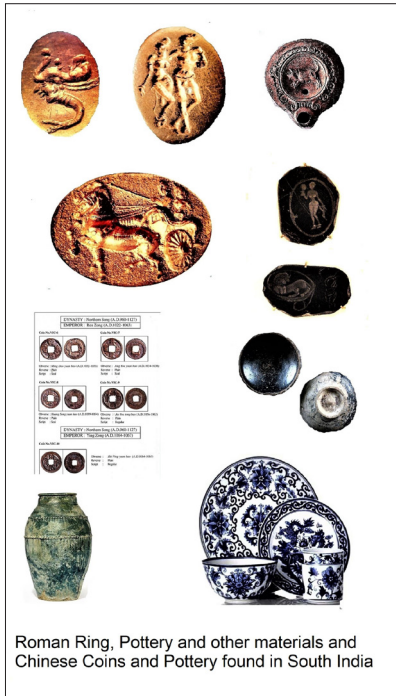


Plate No. 8) Foreign Items



Plate No. 9) Amphorae



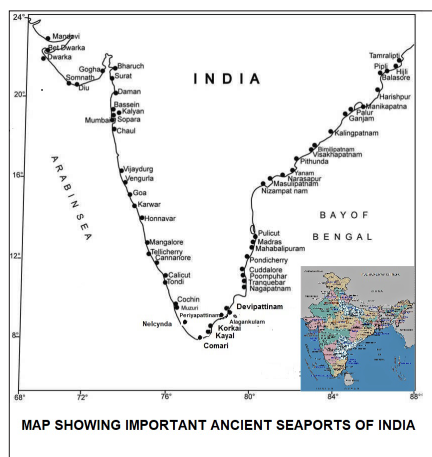
Plate No. 10) Thailand Seal



Plate No. 11) Roman Coins

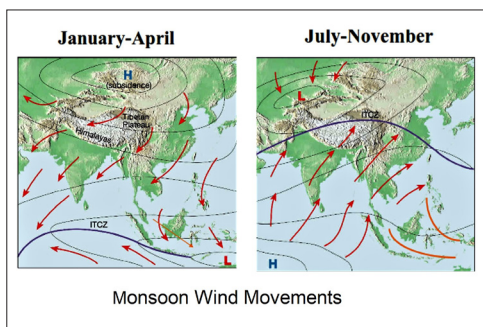


Plate No. 12) Boat Models



MAP SHOWING IMPORTANT ANCIENT SEAPORTS OF INDIA

Plate No. 13) Map of Seaports in India



Monsoon Wind Movements

Plate No. 14) Wind Movement



Copper coin of Apollodotus found at Hathab

Plate No. 15) Hathab



General view of Buddhist Stupa at Nala Sopara

Plate No. 16) Nala Sopara

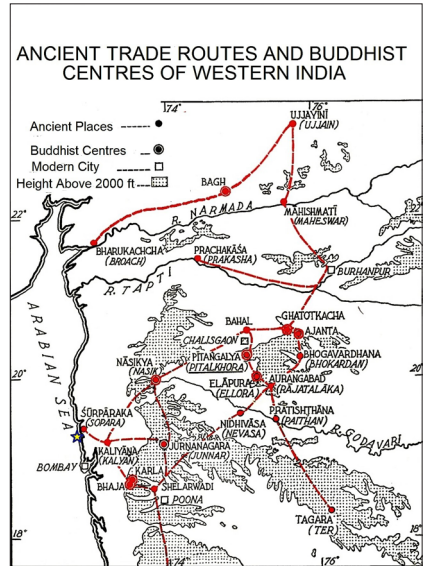


Plate No. 17) Trade Route



Sassanian Turquoise Glazed ware, Sanjan

Plate No. 18)
Sassanian Turquoise Glazed Ware



Carnelian Intaglio with Goddess Tyche, Pattanam

Plate No. 19)
Carnelian Intaglio with Goddess Tyche

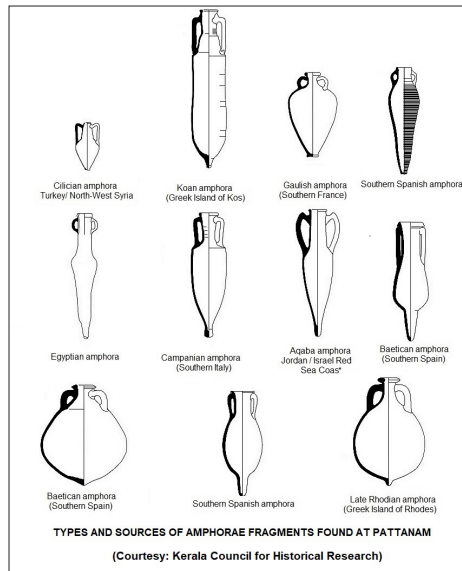


Plate No. 20) Amporea Pattanam