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*Scritti sull'antico Oriente mediterraneo*



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*ATTI DEL CONGRESSO INTERNAZIONALE (RAVENNA, 24-25 GENNAIO 2022)*

A CURA DI RAIMONDO SECCI

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# INDO-MEDITERRANEAN TRADE AND THE WESTERN DECCAN PORTS

PIA BRANCACCIO\*

## Abstract

*Indo-roman trade has been the subject of extensive investigation since the 1928 study “Commerce between the Roman Empire and India” by E.H. Warmington, based mostly on classical sources on the topic. The many findings of Roman gold coins from South India and Sri Lanka confirmed the existence of thriving Indo-Mediterranean exchange during the first centuries CE. The discovery of ceramic fragments identified as amphorae from archaeological contexts in the Deccan, South India and Sri Lanka, while adding to our knowledge, have hardly contributed to shed light on the dynamics and agents involved in Indo-Roman trade. We continue to know very little about the underlying forces involved in this exchange, partially because the archaeology of Indian ports is still very much in developing stages. One problem is that the Indian shores are susceptible to major river floods that have radically altered the coastal landscape.*

*All ancient ports on the West coast of India were situated within river estuaries; they were often hard to access in antiquity due to the rapid sedimentation processes associated with the intense monsoon rains. The Peryplus Maris Erythrei dated to the first century CE conveys the hardships in accessing an Indian port by ship during the summer monsoon. A review of data from archaeological explorations conducted at the ancient ports of Sopara in Maharashtra and Pattanam in Kerala sheds further light on the organization of Indo-Roman trade, its agents and the practices regulating access to coastal water in ancient India.*

Key words: ancient Indo-Mediterranean trade, Indian Ocean, Western Deccan ports.

## Riassunto

*Il commercio Indo-Romano è stato oggetto di numerosi studi e discussioni sin dall'epoca della pubblicazione nel 1928 dello studio di E.H. Warmington dal titolo “The commerce between the Roman Empire and India”, fondato principalmente sull'analisi delle fonti classiche. Numerosi depositi di aurei romani rinvenuti in India meridionale e Sri Lanka hanno confermato l'esistenza di contatti commerciali fra il mondo romano ed il subcontinente indiano durante i primi secoli della nostra era. Sporadici ritrovamenti archeologici di frammenti di materiale ceramico occidentale fra cui anfore nel Deccan, in India meridionale e Sri Lanka, hanno corroborato la storiografia dei fervidi rapporti commerciali tra l'India e il mondo romano senza però offrire alcuna chiarezza sulle dinamiche e sugli agenti di questo scambio. In realtà uno dei maggiori problemi è che nel subcontinente indiano l'archeologia dei porti è ancora allo stato nascente, in parte anche per le difficoltà dovute ai grandi cambiamenti del paesaggio costiero avvenuti in epoca recente in relazione alle frequenti ed imponenti esondazioni dei fiumi indiani. Una delle caratteristiche principali degli antichi porti della costa occidentale dell'India è che questi erano posizionati all'interno di ampi estuari fluviali di non facile accesso in quanto modificati da rapidi processi di sedimentazione. Il Periplus Maris Erythraei del primo secolo ci offre un'idea delle difficoltà che si potevano avere nel raggiungere tali porti situati all'interno di lagune costiere, specialmente in ragione del fatto che il commercio transoceanico in direzione dell'India aveva luogo durante la stagione dei monsoni. Un esame dell'evidenza archeologica documentata presso gli antichi porti di Sopara in Maharashtra, ed in parte a Pattanam in Kerala può aiutarci a comprendere meglio le dinamiche di questo commercio transoceanico e dei suoi agenti, nonché a far luce sulle prassi che regolavano l'accesso alle acque costiere nel mondo antico Indiano.*

Parole chiave: rapporti commerciali fra India antica e Mediterraneo, Oceano Indiano, porti del Deccan occidentale.

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## INTRODUCTION

The topic of Indo-Mediterranean trade has been the subject of extensive scholarly studies since the beginning of the 20th century<sup>1</sup>. Archaeological investigations carried out at a few coastal sites in India and Sri Lanka, analysis of diagnostic material of Mediterranean provenance found on the Subcontinent, including coins and amphorae sherds, along with readings of western texts such as the Periplus of the Erythrean Sea and the Muziris Papyrus (*P. Vindob.* G40822), brought a sharper focus to the dynamics of Indo-Roman commerce<sup>2</sup>. Recent studies on trade, globalization and connectivity across the ancient Indian Ocean added to discourse on agents and intermediary communities involved in this exchange<sup>3</sup>. However, our knowledge of the nature of Indian ports engaged in Indo-Roman trade, their main characteristics, as well as information on practices of access to Indian coastal waters remains limited<sup>4</sup>. In fact, looking at the evidence preserved at archaeological sites, one wonders if we could even characterize Indian coastal towns involved in transoceanic trade as “ports” like those in the Roman Mediterranean and Red Sea. The present contribution aims at teasing out the distinctive features of Indian ports at the beginning of the common era, including possible management of harbor waters focusing on the port of Sopara on the Konkan coast of modern Maharashtra.

## ANCIENT PORTS IN WESTERN DECCAN: EVIDENCE FROM THE PERIPLUS

The Periplus of the Erythrean Sea is the most relevant repository of information on Indo-Roman trade and ports on the West Coast of India at the beginning of the Common Era<sup>5</sup>. The text attributed to an Egyptian Greek, was written in the second half of the first century likely as a manual for Western merchants doing business in India<sup>6</sup>. It includes a description of the sailing routes between the Red Sea and India, relevant ports and products traded<sup>7</sup>. The Periplus is quite concise when it comes to descriptions of Indian ports, yet it devotes a few

<sup>1</sup> Notably since the 1928 study by Warmington entitled *Commerce between the Roman Empire and India* which focused on the different regional areas involved in Indo-Roman trade. For a brief historiography of works on this topic see Seland 2010: 2-3. On the colonial framework behind early studies see Ray 2007: 211 ff.

<sup>2</sup> Most relevant is the archaeological work conducted at the sites of Arikamedu in Tamil Nadu, Pattanam in Kerala and Mantai in Sri Lanka. On the excavations at Arikamedu see: Wheeler – Ghosh – Deva 1946; Begley *et al.* 1996. On Mantai see Carswell – Deraniyagala – Graham 2013. On Pattanam see: Cherian *et al.* 2008, 2009, 2010, 2011. On amphorae see Tomber 2008. On numismatic finds in India see De Romanis 2012, Metcalf 1979, Smagur 2020, Turner 1989.

<sup>3</sup> See Manzo – Zazzaro – De Falco 2019, Chakravarti 2020 and Autiero – Cobb 2022.

<sup>4</sup> All published studies dealing with Indian ports like Seland 2010, focus more on discussing trade goods and exchange dynamics rather than addressing in detail the physical nature of Indian ports and access patterns to coastal waters.

<sup>5</sup> The most recent published edition is by Casson 1989.

<sup>6</sup> On the *Periplus* as a literary genre see De Romanis 2020b.

<sup>7</sup> The text was preserved in a single manuscript, *Codex Palatinus Graecus* 398, fols. 40V-54V, dated to the beginning of the 10th century, in the holdings of the Universitätsbibliothek, Heidelberg. There is also

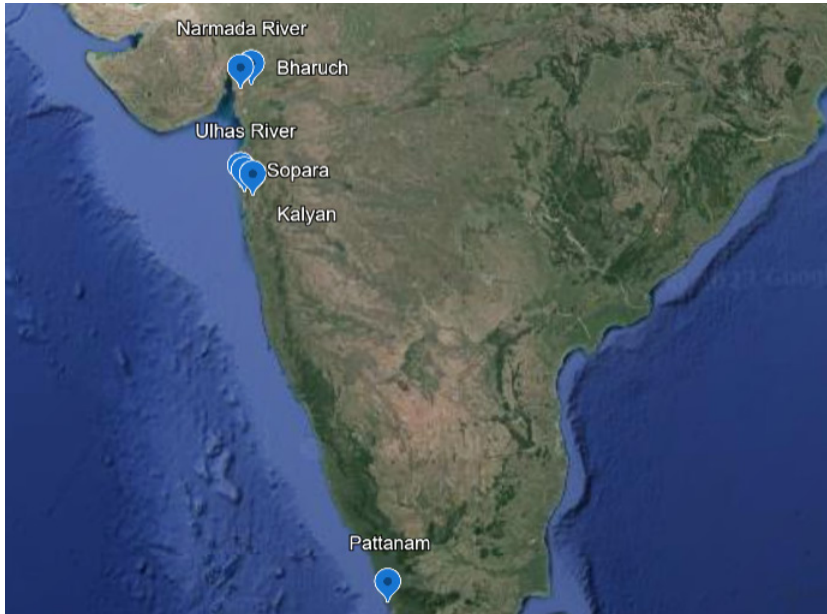


Fig. 1 – West Coast of India: Locations of Bharuch (Barygaza), Sopara, Kalyan and Pattanam (after Google Earth)

paragraphs to the port of Barygaza as a testament of the relevance of this commercial hub in 1st c. CE Indo-Roman trade. The city was a cosmopolitan emporium situated at the heart of the Kṣatrapa kingdom, at the mouth of the river Narmada where the modern city of Bharuch in Gujarat is now located (Fig. 1). The *Periplus*' includes a long list of goods of diverse provenance available to traders in Barygaza: precious stones, textiles and spices from the Indic world, Mediterranean wine, imported metals and sulfides, coral and peridot, raw glass, fancy garments, and Roman coins. When the Greek text talks about ports situated further south from Barygaza on the Western Deccan coast, it also alludes to a major political conflict unfolding in the area during the mid-part of the 1st century: the fight between the Kṣatrapa rulers based in Gujarat and the Sātavāhanas kings based in Western Deccan to control the coastal waters of Konkan and its international trade.

«52. The local ports [sc. of Dachinabades], lying in a row, are Akabaru, Suppara, and the city of Kalliena; the last, in the time of the elder Saraganos, was a port of trade where everything went according to law. [Sc. It is so no longer] for, after Sandanes occupied it, there has been much hindrance [sc. to trade]. For the Greek ships that by chance come into these places are brought under guard to Barygaza»<sup>8</sup>.

The *Periplus* tells that when the Kṣatrapas gained control of the emporium of Kalyan situated today about 50 km upstream on the course of the Ulhas River, they diverted all foreign commercial traffic to the port of Barygaza located 300 km away on the northwest-

a manuscript of the *Periplus* in the British Museum datable to the 14th-15th century that is a copy of the Palatine manuscript. Casson 1989: 5-10.

<sup>8</sup> Casson 1989: 83.

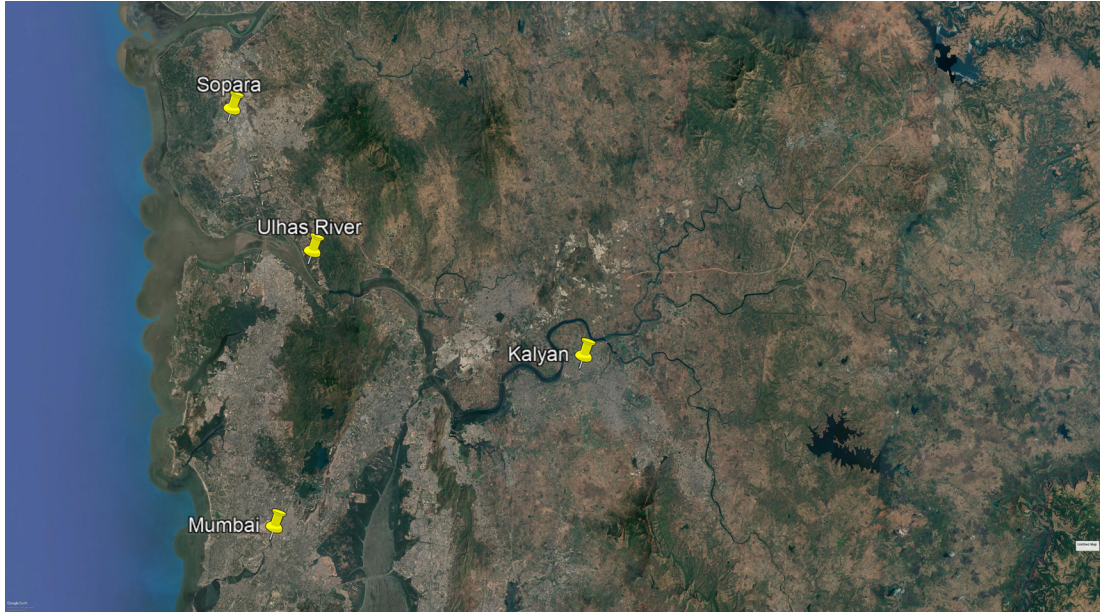


Fig. 2 – Map of the Ulhas river estuary (after Google Earth)

ern coast, in an act resounding of “state piracy”. Such an early reference to a military patrol on the sea is quite unique in Indian historiography. According to the *Periplus*’ account, the military navy of the Kṣatrapas heavily interfaced with commercial navigation – a practice uncommon in the Roman Mediterranean<sup>9</sup>. Diverging from the policy of sea intervention unforced by the Kṣatrapas, the Sātavāhana rulers in Western Deccan controlled trade on the land and in the ports. The Greek text tells that at the time of the Sātavāhanas the city of Kalyan, one of the major ports on the Ulhas River (Fig. 2), was an *emporion enthesmon*, “lawful” emporium, «where everything went according to law» before being downgraded to *emporion topikon* – a local emporium under the Kṣatrapas<sup>10</sup>.

The *Arthaśāstra*, a Sanskrit treatise on economic policy and military strategy attributed to Kautilya which relies on sources datable between the 1st c. BCE -1st c. CE<sup>11</sup> and therefore reflects the time of flourishing of Indo-Roman trade, mentions regulations and institutional figures specifically designated to oversee ports and maritime trade in India. According to this text, different administrative figures were working together to manage sea trade. The task of the Superintendent of Commodities was to «facilitate the import of commodities from other lands by granting favors. To boat and caravan operators, moreover, he should grant exemptions that would allow them to make a profit, as well as immunity from lawsuits to foreign traders with respect to financial matters, except for those who are members or associates of local corporate bodies (...). He should acquire a thorough knowledge of the charges for the boats, provisions for the journey, the value and quantity

<sup>9</sup> Personal communication by Pietro Spirito.

<sup>10</sup> Casson 1989: 83; Vivero 2017: 18.

<sup>11</sup> Olivelle 2013: 28.

of his own commodities and the commodities received in exchange, the suitable times for the voyage, safeguards against dangers, and the regulations at ports »<sup>12</sup>. The Superintendent of Shipping and the Superintendent of Ports were administrative figures intended to work together to supervise closely all operations of seafaring vessels. We learn that among the duties of the Superintendent of Shipping «was to uphold the customs of a port recorded by the Superintendent of Ports» and to «demand customs duty from boats traveling by sea when they sail within his territory»<sup>13</sup>. It is worthy of note that in the Periplus of the Erythrean Sea, the Greek words *limen* and *hormos* translated by Casson as “port” (*limen*) and “harbor” (*hormos*) are not used to describe the Indian ports from Gujarat and Western Deccan<sup>14</sup>. Rather, the Indian coastal centers are qualified as *emporion*, commercial markets, or simply *poleis*, cities, as if the presence of a “harbor” was not exactly the dominant feature. In essence foreign seafarers saw Indian ports in Western Deccan not as centers geared towards the sea and navigation, but mostly as market sites situated in proximity to the coast where profitable business could be made.

#### THE NATURE OF INDIAN PORTS

When thinking about ancient ports, the image of a Roman harbor with large built docks and monumental shipping infrastructures destined for commercial enterprises comes to mind. Roman ports, whether established on sandy shores or in natural harbors, included a variety of permanently built structures to facilitate the transit, storage and shipping of goods, and the mooring and loading of ships. The Romans improved the layout and structure of Hellenistic harbors by developing elaborate designs and technology which enabled ports to grow bigger, handle more traffic and function more efficiently. In particular, the Romans developed the ability to build permanent structures underwater by using a special type of pozzolana-mortar concrete which led to the creation of larger and more permanent landing points in ports established all over the Mediterranean<sup>15</sup>.

The situation was quite different at Indian ports involved with Roman trade as they were situated within unstable river mouths where no large permanent landing docks could be installed. Due to the geology of the Western Deccan shore, there are no natural harbors on this coast of India that could serve as ports<sup>16</sup>. The case of Kalyan mentioned in the Periplus is very telling: the port is situated well inside the river estuary, today ca. 50 km upstream on the course of the Ulhas, in the modern state of Maharashtra (Fig. 2). The rivers flowing

<sup>12</sup> Olivelle 2013: 139-40.

<sup>13</sup> Olivelle 2013: 160.

<sup>14</sup> The term *hormos* is the most recurrent one used to designate ports in the Periplus and is found in thirteen instances in the text, while *limen* is only found in six. Casson notes that the Greek papyri from Egypt did not really distinguish between the two terms. Casson 1989: 271.

<sup>15</sup> Brandon *et al.* 2005: 1.

<sup>16</sup> Natural coves are usually created by land shifts along fault lines. These land movements are absent from the Western Deccan shore made of large horizontal basalt layers. Personal communication by Ludovico Brancaccio.

from the Deccan Plateau to the west coast of India carry large quantities of coarse deposits during the rainy season that accumulate fast at the estuary constantly shifting the depth and configuration of the riverbed, making the navigation of large ships in the estuary very difficult. Quick sedimentation processes associated with ocean tides also augmented the process of rapid transformation of river estuaries, putting ships entering the river mouth at high risk of running into shoals and sinking. Docking at an Indian port, being the final step of a long and perilous journey undertaken by vessels during the summer monsoon with intense winds and rains, was not an easy feat. The *Periplus* is very eloquent in describing how difficult was to access the port of Barygaza in the Narmada estuary during the summer monsoon: «43. (...) mooring here is difficult because of the current around it and because the bottom, being rough and rocky, cuts the anchor cables. And, even if you manage the gulf itself, the very mouth of the river on which Barygaza stands is hard to find because the land is low and nothing is clearly visible even from nearby. And, even if you find the mouth, it is hard to negotiate because of the shoals in the river around it»<sup>17</sup>.

This kind of scenario required an efficient coastal water management system in place so that large foreign ships could get safely to their docking stations with their precious cargoes. The *Periplus* tells that local fishermen who knew well the seascape were involved in facilitating access to coastal waters and supervising the mooring of large commercial ships. They run pilot vessels along the coast to guide transoceanic ships through the treacherous coastal waters and into the river estuary.

«44. For this reason local fishermen in the king's service come out with crews [sc. of rowers] and long ships, the kind called trappaga and kotymba, to the entrance as far as Syrastrène to meet vessels and guide them up to Barygaza. Through the crew's efforts, they maneuver them right from the mouth of the gulf through the shoals and tow them to predetermined stopping places; they get them under way when the tide comes in and, when it goes out, bring them to anchor in certain harbors and basins. The basins are rather deep spots along the river up to Barygaza. For this lies on the river about 300 stades upstream from the mouth»<sup>18</sup>.

Docking areas were situated deep into the river estuary and could be reached only during specific tide cycles with the help of these local guides. Differently from the scenario of a Roman Mediterranean port with permanent docking structures built in concrete that were easy to access, the ships reaching the West coast of India had to steer through dangerous shoals to anchor in lateral estuary canals sheltered from currents. Much like in modern days, ships were moored in natural basins where in low tide they would ebb on their sides. The high tide was used by transoceanic vessels to enter the estuary and avoid treacherous shoals. However, the downstream river current clashing against powerful tidal flows made high tide navigation into ports even more challenging. Considering the brevity and conciseness of the *Periplus*, the author devotes quite lengthy passages to these challenges when describing entry in the port of Barygaza. This is a testament to the ordeal experienced by foreign ships mooring at Indian estuary ports on the west coast.

<sup>17</sup> Casson 1989: 78.

<sup>18</sup> Casson 1989: 79.



Fig. 3 – Lead coin issued by the Sātavāhana king Gautamīputra Śrī Yajña Sātakarṇi  
(© The Trustees of the British Museum)

«45. All over India there are large numbers of rivers with extreme ebb-and-flood tides that at the time of the new moon and the full moon last for up to three days, diminishing during the intervals. They are much more extreme in the area around Barygaza than elsewhere. Here suddenly the sea floor becomes visible, and certain parts along the coast, which a short while ago had ships sailing over them, at times become dry land, and the rivers, because of the inrush at flood tide of a whole concentrated mass of seawater, are driven headlong upstream against the natural direction of their flow for a good many stades.

46. Thus the navigating of ships in and out is dangerous for those who are inexperienced and are entering this port of trade for the first time. For, once the thrust of the flood tide is under way, restraining anchors do not stay in place. Consequently, the ships, carried along by its force and driven sideways by the swiftness of the current, run aground on the shoals and break up, while smaller craft even capsize. Even in the channels some craft, if not propped up, will tilt over on their sides during the ebb and, when the flood suddenly returns, get swamped by the first wave of the flow. So much power is generated at the inrush of the sea even during the dark of the moon, particularly if the flood arrives at night, that when the tide is just beginning to come in and the sea is still at rest, there is carried from it to people at the mouth»<sup>19</sup>.

The account from the *Periplus* is echoed by a passage from the *Arthaśāstra* where the dangers of seafaring during the monsoons are clearly spelled out. The Superintendent of Shipping «(...) like a father, he should come to the aid of boats battered by gale winds and charge no customs duty or half the customs duty on commodities damaged by water»<sup>20</sup>. The danger of damaging the cargo just a few miles away from reaching the port after a long and perilous journey remained enormous, and the custom rule described in the *Arthaśas-*

<sup>19</sup> Casson 1989: 79.

<sup>20</sup> Olivelle 2013: 160.

tra seems to offer some remedy to such accidents. The remarkably rough sea that ships encountered while sailing near the coast is even captured in the image of a two masts ship impressed on Sātavāhana coins dating to the reign of the Sātavāhana king Vāsiṣṭhiputra Śrī Pulumāvi (130 CE - 150 CE). The transoceanic vessel represented on this coin type, far from being a stylized emblem for maritime Sātavāhana power, represents a ship in rough water where the surf is graphically represented by curved lines beneath the vessel keel, in an unusual display of realism. An even more pronounced life-like depiction of a transoceanic ship can be found on coins issued by Gautamīputra Śrī Yajña Sātakarṇi, as in the example illustrated here from the British Museum (Fig. 3). The ship depicted on the coin is a two-mast vessel with a visible rudder at the stern and a buoy at the prow – the fluttering top parts of the sail suggest that the wind is blowing strong, and the rough sea is depicted through rough waves.

### THE PORT OF SOPARA

Sopara was one of the most important ports of ancient Konkan, mentioned in a variety of textual and epigraphic sources from South Asia, the Hellenistic, Byzantine and Islamic worlds<sup>21</sup>. It was situated in the ancient region of Aparanta (Konkan), at the mouth of the Ulhas River within the modern precinct of Nala Sopara, in the Palghar district of the greater Mumbai metropolitan area (Fig. 2). In the *Periplus*, Sopara is listed as one of three major commercial centers situated on the Konkan coast together with Akabaru and Kalyan<sup>22</sup>. The proximity of Sopara and Kalyan, all situated along the same Ulhas River course at a short distance from one another, is a striking feature that makes us wonder about the different roles these centers may have played in transoceanic trade at the beginning of the common era. Sopara, situated on a large coastal island right at the river mouth, with its lagoon and coastal canals, was by far the most convenient and accessible location for docking transoceanic ships within the Ulhas' estuary system. A local network internal to the river estuary, connecting the emporia mentioned in the *Periplus*, probably developed to transport different cargoes to be loaded onto transoceanic ships docked in the Sopara lagoon. Goods were locally transported on smaller boats, likely on wooden canoes comparable to the one unearthed at an ancient wharf discovered at Pattanam, Ernakulam in Kerala<sup>23</sup>.

The Pattanam excavations conducted over the course of two decades shed some light on what a maritime emporium involved in transoceanic trade may have looked like at the beginning of the Common Era. It has been proposed that this site located within the delta

<sup>21</sup> Indrajī 1882.

<sup>22</sup> The location of Akabaru remains unknown. The ports of Sopara and Kalyan are mentioned in early inscriptions from the Buddhist caves at Kanheri, situated between Sopara and Kalyan, not too far away from the ancient course of the river Ulhas. Among the forty-two Kanheri inscriptions in Prakrit written in Brahmi dated between the second and third centuries CE, Kalyan is mentioned in inscriptions 3, 4, 6, 20, 25, 28, 29, 38, 40, 43, 50, 54, and 55 while Sopara is mentioned in inscriptions 6, 17, 24, 32, and 46. See Gokhale 1991.

<sup>23</sup> Cherian 2011.

of the Periyar river, in the coastal lagoon at circa 5 km from the Indian Ocean, may have been part of the ancient port of Muziris mentioned in the Periplus and in the “Muziris Papyrus”<sup>24</sup>. The richness of material findings from Pattanam speaks for the nature of the site as a major manufacturing and distribution place for trade goods destined to international trade. At Pattanam there was a major center for working beads; the great quantity of stone and metal tools found in different units of the settlement prompted archaeologists to suggest that the site was also a thriving manufacturing center for a variety of export products including textiles. The numerous fragments of amphorae and terra sigillata uncovered at Pattanam confirm that the site experienced peak involvement in Roman commerce during the later first century BCE and first century CE, although some sherds suggest that international trade was strong at least through the second century CE<sup>25</sup>. There is no evidence that transoceanic ships would reach directly this site situated inside the lagoon and dock in its proximity. In fact, the finding of the small brick wharf and wooden a canoe may suggest that Pattanam was an emporium and distribution center for goods destined to transoceanic ships anchored elsewhere, possibly playing a role like that of Kalyan situated deep into the estuary of the Ulhas and connected to ports like Sopara at the mouth of the same river system<sup>26</sup>.

Sopara was probably the oldest of the Ulhas ports as attested by the local finding of two fragments of Aśoka’s eighth and ninth major rock edicts dating to the 3rd c. BCE<sup>27</sup>. There is ample evidence that by the 1st century CE this center was very prosperous: at this time a golden reliquary was offered and deposited at the core of the monumental Buddhist *stūpa* erected at a short distance from the ancient coastline of the lagoon<sup>28</sup>. The waterscape of Sopara situated on the coastal island at the estuary of the river has completely transformed through the centuries. Ancient Sopara lied on the west side of a creek, which opened onto the Thane Creek to the east of modern Vasai. The town is no longer on the water and the coastal lagoon where once the port was situated has been filled with in by river deposits; the area now consists of mudflats with small ponds encroached by urban settlement, making archaeological research especially difficult.

Trial trenches conducted in 1993 by the Archaeological Survey of India with the British Academy in zones located to the southeast of the Buddhist stupa which remains a major historical marker in the area, uncovered disturbed sequences containing Sātavāhana and Kṣatrapa coins, semiprecious beads, amphorae fragments and glazed ceramic of the Islamic period. An earth wall and traces of a stone wall were identified as belonging to a small docking structure, likely comparable to what archaeologists documented at Pattanam<sup>29</sup>. The actual port site was possibly on the Southeast shore of the coastal island within the

<sup>24</sup> De Romanis 2020a.

<sup>25</sup> Tomber 2008.

<sup>26</sup> On the Pattanam findings see: Cherian *et al.* 2008, 2009, 2010, 2011; De Romanis 2020a; Tomber 2008.

<sup>27</sup> Falk 2006: 136-38.

<sup>28</sup> The reliquary can be dated to the first century because its ornamental motif is consistent with the decoration of the façade of the 1st cent. Buddhist caves at Nasik (no. 18) and Junnar (unfinished *chaitya* hall). In the reliquary was found a 1st century CE Kṣatrapa imitation Satavahana coin. Indrajī 1882.

<sup>29</sup> Howell – Sinha 1994.



estuary, sheltered away from the dangerous crush of the river and tidal flows as described in the Periplus. A 2020 Field Survey conducted at the site by a joint team from the Institute of Archaeology, University of Warsaw and the Indian Numismatic, Historical and Cultural Research Foundation in Mumbai, documented the local paleo-landscape with different landforms such as estuarine areas with tidal flat zones and networks of paleochannels with traces of settlements. They were positioned on the edges of these channels and stable mud-flat areas now positioned 0.5 m below the current sea level<sup>30</sup>.

The Purṇāvadāna, or “Legend of Pūrṇa”, a Buddhist story that became popular throughout the Buddhist world, offers an interesting account of Sopara (in Sanskrit *Śūrpāraka*, Pali *Suppāraka*) at the beginning of the Common Era. The story is centered around the eponymous character who was an Indian Ocean merchant from this important harbor town. The narrative preserved in a variety of Buddhist sources, tells of ocean ships loaded with exports of sandalwood, and offers important details on the local organization of shipping. First, the text confirms that ships were docked in areas situated outside the settlement, as the protagonist of the story does not need to enter the city when he inspects the ship cargoes. Then, the text details the sale negotiations of a cargo vessel coming from across the ocean where the entire shipment was first secured through the payment of a deposit, and then the balance was paid later once the goods entered the market.

«(...) Five hundred merchants arrived in Surparaka from across the great ocean with their ships safe and sound. Without entering the city, he (Pūrṇa) went directly into their presence and asked them, “Sirs what have you got?” They showed him. “What is the price?” They replied, “Caravan leader, since you have travelled far and wide [and know the value of things], only you can name a price”. “That may be so”, said Pūrṇa. “Nevertheless name your price”. They indicated a price of one million eight hundred thousand gold coins. Pūrṇa said, “Sirs, take three hundred thousand as a deposit; I have that much. I shall give you balance later”. He then affixed his seal [to the merchandise] and departed». Such negotiations, however, were not supposed to happen through individual merchants, like Pūrṇa, the protagonist of the story, but rather through agents operating on behalf of the merchant guild established in the harbor town. The guild also owned warehouses and storage spaces where the cargo could be stored safely before distribution and sale. Individual merchants like Pūrṇa who interfered and speculated for the acquisition of entire transoceanic cargoes, were subjected to hefty fines. The merchants’ guild carried the monopoly on this kind of transaction. «Meanwhile the merchant’s guild dispatched their agents “Take a look. What merchandise have they got?” (...) “Our storerooms and warehouses are filled with such merchandise” (...) Five hundred merchants, sailing from the great ocean, their ship safe and sound, arrived in the city of Surparaka. The merchants’ guild [of Surparaka] made a rule: “No one of us – who must act in unison – may approach these [visiting] merchants independently. Only the guild as a body may purchase their goods. Anyone who deals with those merchants on his own shall be fined sixty silver coins”»<sup>31</sup>. The guild also regulated the margins of gains on the sale of merchandise imported from across the ocean, which had to

<sup>30</sup> Indian Numismatic Historical Council and Research Foundation (INHCRF) 2020: <http://inhcrf.org/blogs/field-survey-and-documentation-of-the-ancient-port-site-of-nalasopara/>.

<sup>31</sup> Tatelman 2000: 56.

be offered for sale on the market at double its original cost. Finally, the text also mentions «customs, duties, escort-charges and freight fees» paid by merchant vessels undertaking a transoceanic trip. The reference to “escort charges” becomes especially relevant as it points to the fact that in addition to the usual freight customs charged on cargoes, a “parking” fee was charged to all transoceanic ships entering the ports. This tax covered services provided by pilot vessels guiding ships in and out of the docking areas through the dangerous waters of the river estuary, a service offered by the local administration of the port.

Management of coastal water and access to ports seem to have been key to the flourishing of Indian maritime emporia on the west coast of India. While archaeological work on Indian ports has been scarce due to the difficulty of operating in a landscape heavily transformed by natural and anthropic phenomena, the modest archaeological remains from the West coast of India, when examined in combination with textual references, can shed some light on coastal waters management practices that have been generally overlooked. Scholars until now have mostly relied on the Greek *Periplus* to address the dynamics of transoceanic trade. References gathered from Indian texts like the normative *Arthaśāstra* and the Buddhist parable of *Pūrṇa* reflecting in different ways the cultural horizon of the beginning of the Common Era, may prove helpful to understand how Indian ports functioned. The practices of access, management and control of coastal water and harbors described in these sources, when combined with archaeological data and evidence from the *Periplus*, offer a clearer picture of the role played by Indian maritime emporia within the framework of Indo-Roman trade, and their distinctiveness when compared with ports of the ancient Mediterranean.

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