

Chapter IV

India, Indian Ocean Lands and the Mediterranean: Archaeology of Sea Routes, Harbours and Long Distance Contact

The major routes of early maritime trade in the Red Sea-northern Indian Ocean were “distinctive” in the sense of their being associated with long-term movement of certain exchange-commodities and being linked to particular market-towns, ports, maritime conditions, tribes and peoples. We have clear indications, largely from the evidence of the *Periplus*, that the trade zones of the Indian Ocean were sufficiently ‘delinked’ in terms of distance and resources (types of export-commodities) for them to act as separate interacting exchange-regions. The ‘separateness’ of, and ‘interactivity’ between trade zones is manifested in the existence of *established* maritime routes in the northern Indian Ocean along which moved *specific* trade goods. Salles (1993:506-513) thinks of these old sea routes as ‘segments’ or ‘trade-units’, the use and control of which depended upon exigencies of market forces, shifts in political authority and knowledge of sailing conditions. The longest ‘segment’ was undoubtedly the route of direct voyaging from the Egyptian Red Sea coast to India.

As the wide spread distribution of Mediterranean artefacts delineated in Chapter II indicates, Roman sea borne commerce had touched every major trading zone of the northern Indian Ocean. However, concomitant with the beginning of direct Roman commercial activity in the *Erythraean* Sea, deposition of Indian artefacts is found to be as much wide spread in the littoral regions of the northern Indian Ocean (**Fig. 20**). The pan-oceanic reach of Roman and Indian commodities saw Indo-Roman commercial exchange assuming an ‘extra-territorial’ character, i.e., spreading beyond the confines of the Egypt-India corridor. This aspect is explored in the discussions below, particularly those relating to the Persian Gulf and Southeast Asia, the two trade zones not directly associated with the Egypt-India segment.

Fig. 21 shows the major ‘segments of trade’ of the ancient Red Sea-Indian Ocean in relation to the trade zones of the Indian Ocean. The existence of the segments as *enduring* routes of seaborne commerce is recorded in literary sources such as the *Periplus* and *Jatakas* (**Fig. 21**). The trade zones, specified in Chapter I, are restated: 1. Red Sea Littoral 2. Gulf of Aden Littoral 3. Oman Peninsula and Persian Gulf Region 4. Lower Indus and Western India 5. Southern India-Sri Lanka 6. Eastern India 7. Southeast Asia.

The discussion on each trade zone begins with a short geographical description of the zone and its early (pre-Roman) linkages with other regions of the Indian Ocean

This is followed by an update and review of the archaeological evidence of harbours and coastal settlements which were located in the trade zones and along maritime routes. The review incorporates fresh data from coastal fieldwork in India and Indian Ocean lands.

The final sub-theme focuses on archaeological evidence of interaction between India and the Mediterranean World in context of specific trade zones. New material evidence of trans-oceanic contact, based on typological comparisons and clay analysis of transported pottery, is presented for the Gulf of Aden and Persian Gulf regions. It may be noted that for Western, Southern and Eastern India the sub-theme on material evidence of long distance contact and interaction is incorporated in Chapter V. It may also be noted that for the section on Red Sea region, the chronological categories of pre-Roman and Roman period contact are not strictly applied. In particular, the history of the early Jewish diaspora into India is explored in the context of direct maritime contact between the northern Red Sea littoral and peninsular India.

1. Red Sea Littoral

1.1. Background of Maritime Contacts

Geomorphologically the Red Sea has been described as a 'long, narrow central trench with a v-shape profile, more than 2000m deep, bordered by extensive coastal shelves more than 50m deep. Extending from Bab el-Mandeb for 2000 km, it terminates in the north in two diverticula, the Gulf of Suez and the Gulf of Aqaba' (Sidebotham *et al.* 1989:161). The modern nation-states enclosing the Red Sea are Egypt, Israel and Jordan to the north and Sudan, Ethiopia, Saudi Arabia and Yemen to the south (Fig. 22).

Maritime commerce in the Red Sea littoral goes back to the 3rd millennium B.C. Inscriptions of Pharaohs refer to the use of desert routes connecting emporia on the Nile with the Red Sea coast (Schoff 1912/74: 120-121). In the early half of the 1st millennium B.C. the Kingdom of Meroe to the south of Egypt carried on trade with the coastal tracts of Ethiopia (Schoff 1912/74: 56-57). To the north, the head of the Gulf of Eilat/Aqaba was the staging area of Hebrew sea trade with south Arabia and perhaps India. In the 10th century B.C., the merchant ships of King Solomon set out from the port of *Ezion-Geber* to bring back exotic commodities such as gold, ivory, sandalwood and cotton from the famed port of *Ophir*. Archaeological corroboration for the Biblical reference to *Ophir* and its goods is provided in an inscribed potsherd (dated to 8th century B.C.) found at the old southern Palestinian port-site of Tell

Qasile. The ostrakon informs: 'Gold of Ophir for Beth Horon, shekels III' (Puskas 1988:21). *Ophir*, the legendary port to which King Solomon's ships voyaged in search of exotic commodities, has been sought to be linked to Early Historic harbours of western India - in particular *Surparaka* of the *Jatakas* (Puskas 1988:21, this identification has been disputed, most recently by Karttunen 1989:15-19).

The advent of Ptolemaic rule in Egypt in the 4th century B.C. saw vigorous efforts to dominate commerce in the Red Sea. The Ptolemaic initiative included establishment of harbours on the Egyptian Red Sea coast, setting up of an elephant hunting station on the Sudanese coast (*PME* 2) and a string of 'forward' trade-ports on the Ethiopian coast near the opening of Bab-el-Mandeb probably to facilitate acquisition of south Arabian incense and Indian commodities reaching the Gulf of Aden (Sidebotham 1986a). Also it was during the time of the Ptolemies that the first Hellenic voyages into the Indian Ocean drew out the secret of the *hippalus* from the Arabs.

The beginning of the Christian Era saw the Romans expanding direct sea trade beyond the Bab-el-Mandeb to the Gulf of Aden and the Indian subcontinent. We also have evidence of Nabataean sea trade in this period. The *Periplus* (19) informs of the movement of commodities between Arabia and the Nabataean port of *Lueke Kome* on the Jordanian coast. The Auxumites, controlling coastal Ethiopia, were involved in the Red Sea trade through their main harbour of *Adulis* (*PME* 4-6). Located opposite of *Adulis*, *Muza* was the main entrepot of the Arabs in the southern Red Sea, engaged in direct trade with the Red Sea lands, East Africa and western India (*PME* 24).

It was only with the beginning of Roman initiative for commerce with the Orient that direct maritime trade moved out of the Red Sea into the Indian Ocean proper. Before that, notwithstanding the possibility of early Egyptian, Jewish and Ptolemaic contact with India, the Red Sea had remained largely exclusive of the the Indian Ocean proper. The integration of the Red Sea with the exchange-networks of the Indian Ocean in the beginning of the Christian Era initiated regular maritime traffic along the Egypt-India route - probably the longest seaway of the ancient world. The Roman initiative to trade with Indian Ocean lands seemed to have been concomitant with a strong political and mercantile will to secure feeder routes across the Eastern Desert of Egypt and expand/or build harbour facilities on the Egyptian Red Sea coast (for Roman 'trade' policy see Sidebotham 1986a). Recent fieldwork in eastern Egypt has revealed that the major harbours on the Red Sea coast - *Berenice* and *Quseir* - flourished to their full in the Imperial Roman period (1st-3rd century A.D.). A high frequency of traffic on the desert routes connecting the Red Sea harbours with emporia

on the Nile is also attested for this period (Zitterkopf and Sidebotham 1989:155-189; Sidebotham 1992:12-38).

The emergence of regular maritime channels of Mediterranean trade with India and Indian Ocean lands at the beginning of the Christian Era is reflected in copious information on harbours, sea conditions, sailing schedules and trade-goods of Indian Ocean lands in the literature of that period. In this regard, the most detailed account of Indo-Arabian-Roman sea commerce comes from the *Periplus Maris Erythraei*. Also, as we have observed in the last chapter, the commencement of Roman commerce in the Indian Ocean is reflected in widespread deposition of Mediterranean artefacts of the Imperial Roman period (1st-3rd cent. A.D.) across Indian Ocean lands.

1.2. Harbours and Coastal Settlements

The Roman authority in Egypt vigorously developed direct maritime commerce with South Arabia, East Africa and India. Some of the old Ptolemaic ports on the Egyptian Red Sea coast were infrastructurally reinforced and facilities provided for regular long-distance trade with the western Indian Ocean littoral. The major Roman ports on the Red Sea were *Myos Hormos*, *Luekos Limen* and *Berenice*. A Ptolemaic-Roman port at the northern extremity of the Gulf of Suez, *Clysma*, was also active in the trade (Raschke 1978:649; Sidebotham 1986a:57).

The harbour of *Myos Hormos* finds mention, *inter alia*, in the writings of Strabo (Geog. 2.5.12; 16.4.24; 17.1.45), Pliny (N.H. 6.26.102-103; 6.33.168) and in the *Periplus* (1,19). The location of *Myos Hormos* is disputed. According to Sidebotham^{et al.} (1989:131) the lagoon at Abu Shah'r (Fig. 22), best fits the description of Siculus and Strabo for the ancient port. However Sidebotham's excavations at Abu Shah'r revealed a Late Roman\Byzantine fort and not the expected Ptolemaic\Imperial Roman foundations (Sidebotham *et al.* 1989: 127-166). This led him to discount the possibility of Abu Shah'r being *Myos Hormos*. Sidebotham *et al.* (1989:131) surmise that the port-site may have been situated a little north of Abu Shah'r at Zeit Bay (Fig. 22).

Other scholars are of the opinion that the site of *Myos Hormos* should be located south of Abu Shah'r, specifically at Quseir al-Qadim (Fig. 22), where excavations have revealed foundations of a Roman port dated to the 1st-2nd century A.D. (Sidebotham 1986a). Dr. J.Y. Empereur of C.N.R.S. (Alexandria), who is among the current proponents of Quseir as ancient *Myos Hormos* informs me that one primary reason for his choice is that the distance between Quseir and the old port-site of *Berenice* (Fig. 22) is 1800 stadia or 90 miles. This is exactly the

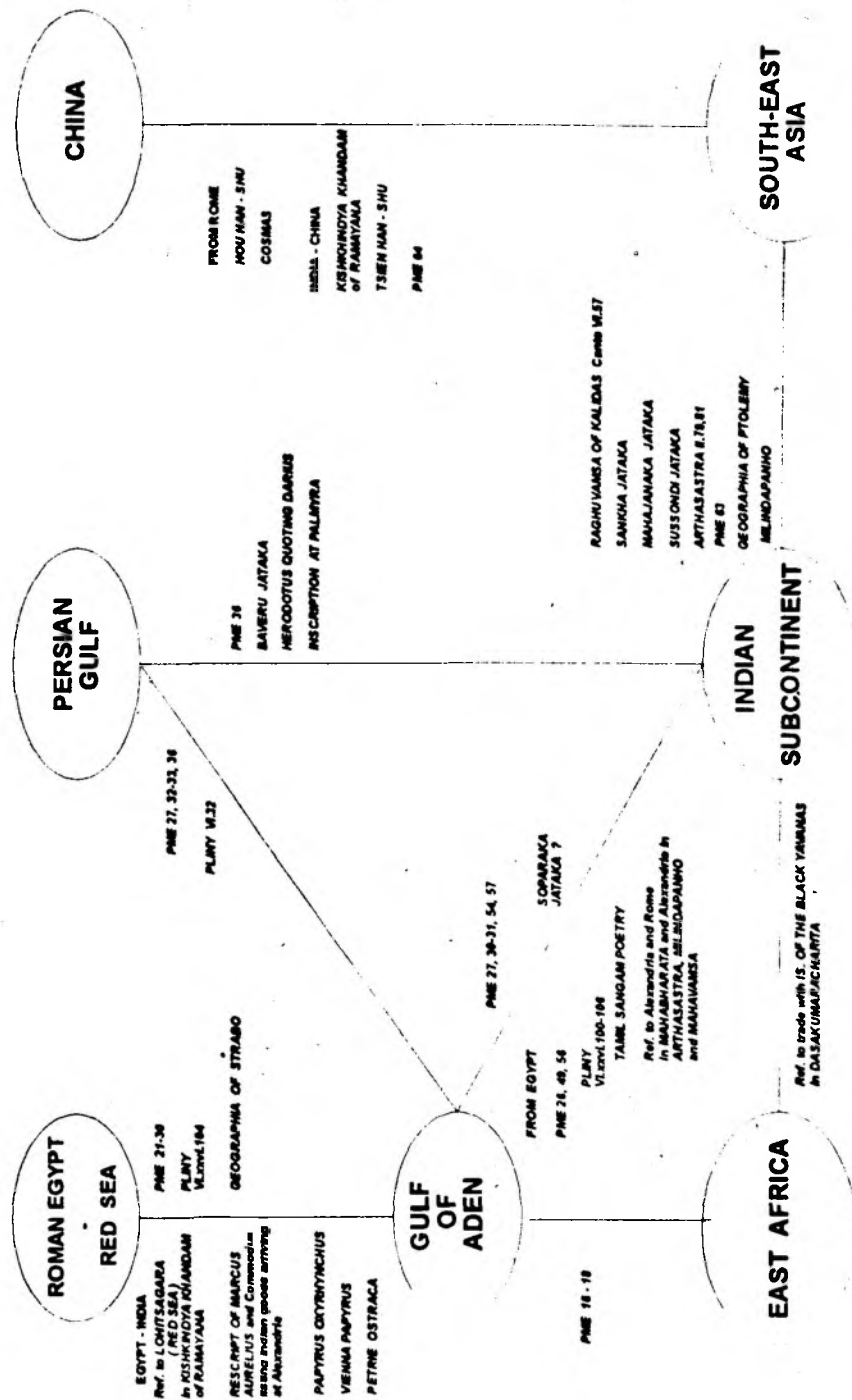


Fig. 21 Literary References to Major Trade Segments of the Indian Ocean in Early Historic/Historic times

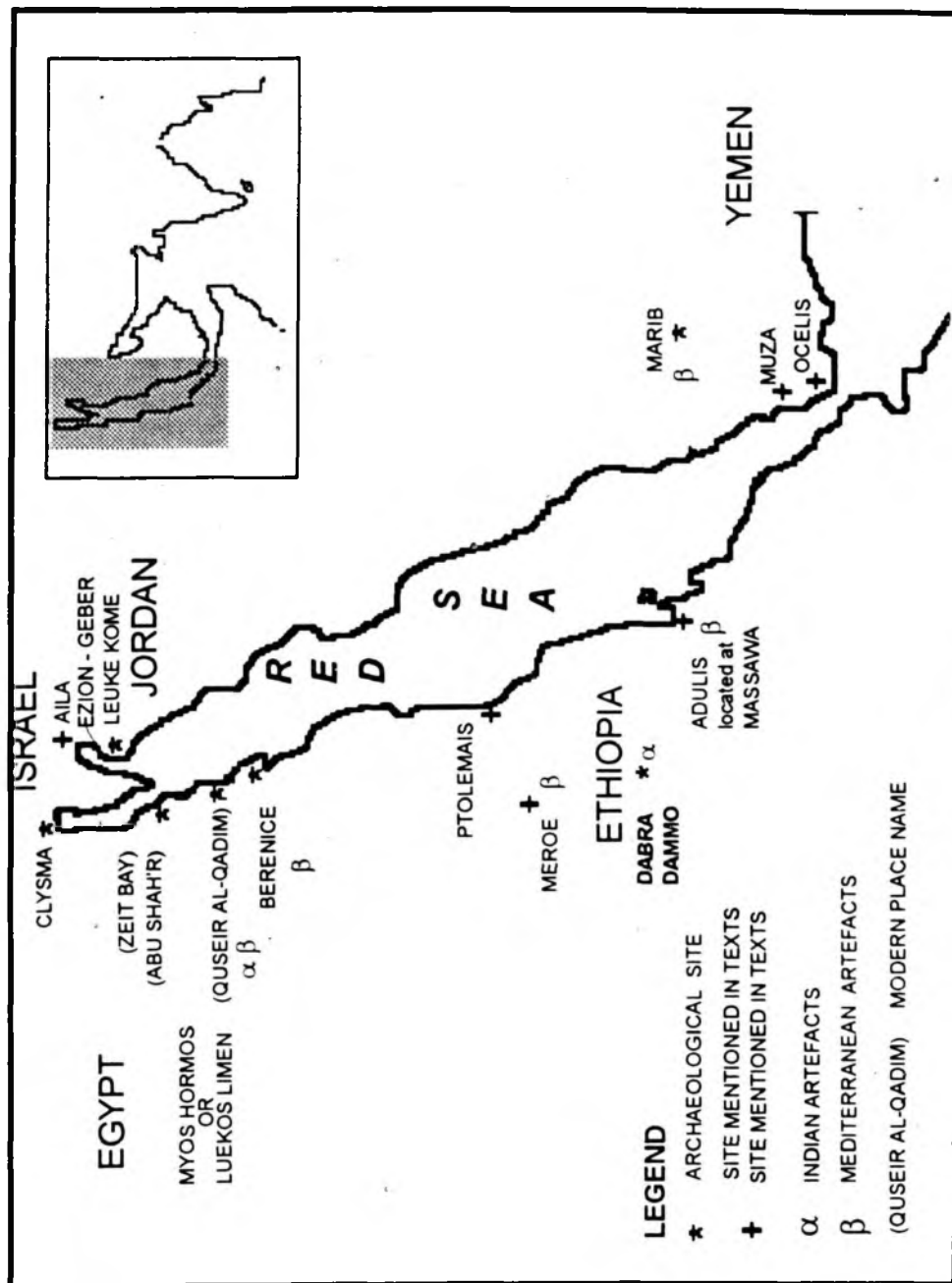


Fig. 22. Important Ports and Market-Towns on the Red Sea in Early Historic Period

distance for *Myos Hormos* - *Berenice* given in the *Periplus*. This criterion serves to make Sidebotham's location for *Myos Hormos* too far north.

However, there is one major problem with the identification of Quseir with *Myos Hormos*: the excavations have failed to yield any Ptolemaic foundations. *Myos Hormos* was obviously functional from pre-Roman times for Strabo hears of this harbour in 25 B.C. (*Geog.* 2.5.12), merely six years after the Roman conquest of Egypt. According to Empereur, the only Ptolemaic remains so far at Quseir are a few artefacts found in the modern township near the site. Sidebotham (1992: 12-38) also points to the absence of Ptolemaic presence at Quseir.

The American expedition that excavated at Quseir in 1978, '80 and '82 claimed that the site could be identified with the Roman harbour of *Luekos Limen*. The *Luekos Limen*-Quseir identification has been primarily inspired by the letter LUEK... (suggesting *Luekos Limen*) found inscribed on a pottery sherd excavated from the site (Sidebotham 1986a: 53-54).

The third major port Roman port on the Red Sea, *Berenice* (same as modern Berenice), is located in the extreme south of Egypt (**Fig. 22**). The ruins of *Berenice* harbour comprise a Ptolemaic/Roman township, two Roman forts and a temple bearing inscriptions of Roman emperors, especially Tiberius (Meredith 1957: 56-70). Sidebotham (1986a: 52) is of the opinion that *Berenice* was refurbished as a port to handle long-distance maritime trade in the time of Tiberius. The southerly location of *Berenice* and its well-developed link with the inland market-town of Coptos-on-Nile (Meredith 1957: 58) must have made the port best situated to play an important role in Rome's eastern trade. In this connection it may be noted that the author of the *Periplus* makes the port of *Berenice* the main point of reference for Roman voyagers in the *Erythraean Sea* (*PME* 1, 19, 21). Scattered artefacts gathered in course of an exploration by Meredith (1957: 58) indicate the port's involvement in ancient seatriade. Among the artefacts found were a large number of emeralds, glass of various colours, glass beads, pieces of agate, fine and coarse pieces of textile. Recently, Riley (in Sidebotham *et al.* 1989: 127-166) who surveyed the site for pottery found amphorae of 5th-6th cent. A.D. on the surface, indicating that the port continued to be active in Late Roman-Byzantine Period.

North of the Straits of Tiran the littoral-region abutting the northern extremity of the Gulf of Aqaba/Eilat also served as a staging area for Nabataeans, Jews and Romans to reach exchange centres in the Red Sea and beyond. The maritime traditions of the Gulf of Aqaba/Eilat go back to the 10th century B.C., during the reign of the Isrealite King Solomon who controlled the vital harbour of

Ezion-Geber together with the coastal settlement of *Eloth* on the northern coast of the Gulf. According to the Bible joint Tyrranean-Israeli merchant-vessels set sail from the famed port of *Ezion-Geber* for the legendary city of *Ophir* to bring back gold and other exotic goods (1 Kings 9:26-28; 2 Chronicles 8: 17-18). A body of scholastic opinion considers *Ophir* to be the western Indian port of *Sopara*. The Indian connection of *Ezion-Geber*, as we shall discuss, is not only limited to the issue of situating *Ophir* in India. *Ezion-Geber* may also have been the port which saw the migration of members of an Israeli tribe to India in the first half of the 1st millennium B.C. This episode is strongly suggested by the historical tradition of the ethnic Jewish community - the Bene Israelis - living in western India.

The search for *Ezion-Geber* has been going on for the last 50 years. In the thirties, the expedition of the American School for Oriental Research, while surveying the Wadi Arabah (the long and narrow cleft that comes down south of Jerusalem and opens onto the Gulf of Aqaba) discovered a mound some 500 m from the shoreline of the Gulf. Tell Khaleifeh, as the site is known, was identified by the American expedition as the Biblical port of *Ezion-Geber* (Harding 1959:125-127; Kenyon 1965:251-258; Flinder 1996b:271-274). Excavated between 1938-40 by the American School, the lowest levels of Tell Khaleifeh came to be dated to the 10th century B.C. on the basis of ceramic finds (Kenyon 1965:256-258). However, a recent re-evaluation of the pottery has brought the date closer to 8th century B.C. (Rothenberg in Flinder 1996b:274). The site saw three rebuildings and flourished upto the 5th century B.C. and may have continued to be inhabited for a few centuries more as indicated by an "uncertain postscript" (Pratico 1993).

Recently, the identification of Tell Khaleifeh with *Ezion-Geber* has been refuted by Flinder (1977:127-139; 1986-87:43-45; 1989:32-43; 1996a: 219-230; 1996b:271-274) on the ground that the coastline at Tell Khaleifeh 'comprises a sandy beach with shallow water, totally unsuitable for the safety of small craft, let alone a substantial merchant fleet...' (Flinder 1996b:272). Instead, Flinder proposes the island of Jezirat Fara'un, located just off the Sinai mainland 10 miles south of modern city of Eilat, to be the ancient harbour of *Ezion-Geber*. The main reasons put forward by Flinder in support of his identification are (a) Tell Kheleifeh does not have facilities for berthing sea-going vessels (b) Jezirat Fara'un, on the other hand has the best sheltered anchorage in the Gulf of Aqaba. The island possesses a sheltered bay and calm water between the island and the mainland.

Flinder has not yet come upon archaeological remains dating back to the time of Solomon at Jezirat Fara'un. Underwater prospections in the sheltered

anchorage area (between mainland and the island) have brought to notice only Late Roman-Byzantine pottery in the form of pilgrim flasks and amphoras with grooved bodies (Flinder 1977:127-139; 1996a:219-230).

Besides *Ezion-Geber*, another 'lost' port on the Gulf of Aqaba/Eilat is *Aila*. *Aila* flourished at the beginning of the Christian Era as an important harbour of the Nabataean Kingdom and later of the Romans when they annexed Nabataea in 106 A.D. Sidebotham (1991) identifies *Aila* with the modern Jordanian port of Aqaba. Inscribed milestones of an ancient Roman highway built by the Emperor Trajan leading to *Aila* have been found north of Aqaba (Sidebotham 1986a:74,154). Flinder (1989:42; 1996b:271-274) chooses modern Eilat in Israel to be the site of ancient *Aila*. Flinder also associates *Eloth* of the Bible with Eilat. Flinder's logic points to the place-name transformation *Eloth-Aila-Eilat*. Harding (1959:125-130), while taking the view that *Eloth* of the Bible became *Aila*, is however, not sure of its present location. Describing the archaeological landscape at the head of the Gulf of Aqaba that exists over the likely site of *Aila*, Harding says: 'Of the later towns (after *Ezion-Geber*) there are now no visible remains: they are hidden under the sand dunes and mounds and covered by the various military camps (Israeli and Jordanian). Occasionally, some piece of evidence comes to light in the form of sherds or carved stones.' (brackets mine).

Perhaps the most prominent Nabataean port on the Red Sea was *Lueke Kome*. The *Periplus* (19) locates it to the left of (east) *Berenice* and refers to it as holding 'the position of a market-town for the small vessels sent there from Arabia.' *Lueke Kome* has been identified with the site of Kuraybah-Aynunah near the Straits of Tiran by Sidebotham (1986b:596-598) though some scholars prefer a more southerly location (Huntingford 1980:100; see Burton, Ingraham in Sidebotham 1986b:596).

The coast south of *Berenice* right upto the Bab el-Mandeb was sparsely populated, inhabited by small groups (the Fish-Eaters or *Troglodytes*) 'living in scattered caves in narrow valleys' (*PME* 2). Four thousand stadia (200 miles) south of *Berenice* was an elephant hunting station called *Ptolemais of the Hunts* (*PME* 2). This was a principal trading station for African elephants acquired by the Ptolemies to be trained and deployed in their army (Schoff 1912/74: 60).

Another three thousand stadia (150 miles) south of *Ptolemais* was the important port and market-town of *Adulis* controlled by the Auxumites who ruled over much of present-day Ethiopia (*PME* 4,5). *Adulis* has been identified by Casson (1984:199-210) with the island of Massawa on the Ethiopian coast (Fig. 22).

1.3 Contacts between the Red Sea Littoral and India

Material remains of Indian exports to Roman Egypt have been found at Quseir. The excavations have yielded a few pepper-corns which undoubtedly must have formed part of the large Roman pepper imports from south India (Sidebotham 1986a:100). Also found at Quseir are potsherds inscribed in Prakrit and Tamil-Brahmi. The ostrakon bearing the Prakrit inscription reads as a record of a list of goods (oil, wine, meat...) belonging to three Indian traders named Halaka, Vinhudata/Vishnudutta and Nakada (ostrakon in Cairo Museum gallery 29, cabinet 39; Salomon 1991:731-734). Two other ostraca (Sidebotham 1986a:22,100) carry Tamil-Brahmi inscriptions recording the names of the owners of the vessels. The Tamil-Brahmi inscribed pottery is similar to the pottery found in Early Historic sites of south India such as Arikamedu (Wheeler *et al.* 1946:109-114; Mahadevan 1973:60-64; for more discussion on Tamil inscribed pottery see Chp.V). A dedication from one Sophon to the Greek god Pan has been found on a temple on the Edfu-Berenice road. The name Sophon has been associated with the Sanskrit Subhanu (Salomon 1991:735-736). While discussing material indicators of Egyptian contact and trade with India, we also need to take into account the evidence of papyrus records. We have detailed in the last chapter the papyri found in Egypt containing important references to the Roman Egypt's India trade.

The presence of large number of emeralds together with repeated reference to 'green stone' in the cartouches of the temple at *Berenice* is interesting. Meredith (1957:58) argues that the emeralds probably came from mines in the Sinai and suggests that they may have been exported to India. However, the emeralds at *Berenice* may have also come from India. We know from the testimony of Pliny (N.H. 37.20.76, 79) that some of the best beryl (the group which includes emeralds; O'Donoghue 1983:244) came from India. Archaeological evidence of beryl mining/working with associated Roman coin finds in south India corroborate Pliny's statement (Gupta 1969:169-180; Rajan 1991a: 111-112). Pieces of agate observed on the surface of the site of *Berenice* by Meredith (1957:58) may thus have an Indian provenance.

With regard to the search for evidence for direct Solomonic maritime missions to India, a significant ethnographic record exists in the form of traditional history of the Jews of western India - the Bene Israelis.

The Bene Israelis of western India trace their origin to members of a Hebrew tribe that fleeing persecution in their native land, arrived by sea at the Konkan coast where their ship got wrecked. The Bene Israelis (this community name is a recent

adoption) consider themselves to be the descendants of the survivors of the shipwreck. A twin tumuli at the village of Navgaon near Alibag township on the Konkan is revered by the Bene Israelis as the burial-site of the dead from the shipwreck (Samson 1917 / reprint 1984: 51-54)

The Bene Israelis consider themselves to be members of one of the ten tribes of Israel which formed the Kingdom of Israel after the death of King Solomon in 950 B.C. Bene Israeli historians have put forth a number of reasons why they are essentially of the nation of Israel and the causes that made them to flee by sea to India. In this regard, a authoritative journal of the community "Vellimadthem Otham" (Vol. 1, No. 7, Sept-Oct 1959:5) informs: 'According to one theory which has been to some extent substantiated by many unique rituals and customs observed by us even this day, our forefathers belonged to the period of King Ahab (875-854 B.C.) and were staunch supporters of Prophet Elijah. It is probable, they left the country as a result of Queen Jezebel's (Ahab's wife) persecution of Prophet Elijah and his disciples. ' Another body of opinion among the Bene Israelis holds that the Israeli diaspora to western India took place in the immediate aftermath of the disastrous invasion of Shalmanesar, the King of Assyria, upon Israel and his taking into captivity all the tribes of Israel. This event is put at 740 B.C. or 721 B.C. in the Biblical chronology (Samson 1917 / reprint 1984:51-54). The "Vellimadthem Otham" (ref. above) posits a third probable date for the Israeli migration around 586 B.C., when the First Temple at Jerusalem was destroyed by the Babylonians. However, some Bene Israelis believe their arrival in India to be as late as 2nd century A.D. (Ezekiel 1981:29-30)

If we are to go by the religious beliefs and rituals of the Bene Israelis, the identity of the community seems to be derived from Hebrew traditions which had yet not been influenced by Jewish customs that gained ascendancy after the rebuilding of the Temple in 576 B.C. The Bene Israelis, for instance, are ignorant of the Festival of Hannuccah that was introduced after the rebuilding of the Temple as also the fast of Tish-a-be-Ab which commemorates the *two* destructions of the Temple, the later by the Romans in 70 A.D. The link of the Bene Israelis to one of the tribes of Israel is also suggested by their reverence for the Israeli prophet Elijah (Samson 1917/reprint 1984: 51-54). Furthermore, according to Samson (1917 / reprint 1984: 51-54) the preponderance of the common name Rueben among the Bene Israelis suggests that their forefathers were Ruebenites, one of the Israeli tribes that inhabited the shores of the Dead Sea. Samson further contends that the Ruebenites, seeking to flee from the Assyrians to the north, must have made their way to the ports of *Eloth* and *Ezion-Geber* and sailed for India along the sea route opened earlier by Solomon. As we have

discussed, the long passage offered by the Wadi Arabah could have facilitated direct movement of this tribe from the Dead Sea region to the head of the Gulf of Eilat / Aqaba

The historical tradition of the Bene Israeli community points to the existence of sea passage to India from the northern Red Sea in the early-mid 1st millennium B C. Can we take this ethnographic record as giving credence to the theory that King Solomon's merchant-vessels sailing out of *Ezion-Geber* may have been voyaging as far as India to acquire typically Indian commodities like ivory, sandalwood and peacocks? Was *Ophir* in India? Archaeological indicators of early Hebraic contact discovered in India would turn these hypothetical questions into evidence. A limited excavation of the twin tumuli at Navgaon, as suggested decades ago by Samson (1917/1984: 54), may reveal critical data.

A Jewish migration to the Malabar coast of South India (different from Bene Israeli arrivals in western India) is recorded in the 1st century A.D. According to the traditions of the Malabar Jews, the earliest Jewish settlements were established in and about Kodungallur (*Muziris* of the *Periplus*) in 68 A.D. (Hallegva 1990). In all likelihood, the Malabar Jews used the flourishing Red Sea route to come to India from some port on the Gulf of Eilat/Aqaba. This port may have been the harbour of Jezirat Fara'un (Flinder's *Ezion-Geber* where finding of Late Roman amphorae indicates later activity) or *Aila*, the chief port of the Nabataeans in the 1st century A.D. The same route may have been followed by St. Thomas, the Apostle of Christ, on his visit to south India (Phillips 1903: 1-15; for further discussion on early Christianity in South India see Collins 1875: 153-155).

Opposite Egypt, across the Red Sea, was the territory of the Nabataeans. From the *Periplus'* statement it seems that the Nabataean seatriade was principally with the Arabs of the southern red Sea. Why is there no mention of Nabataean maritime commerce with India in the *Periplus*? Lack of seamanship could not be the possible reason for the Nabataean's skill as seafarers is adequately recorded (Sidebotham 1986a: 73-77). It is possible that Indian merchandise was being imported into the port of *Lueke Kome* from *Muza*, the Arab port at the mouth of the Red Sea which was carrying out direct seatriade with western India. The *Periplus* (sec. 21, 24) refers to watercraft from *Muza* sailing to *Lueke Kome*. The imposition of the high 25% duty on goods entering *Lueke Kome* (PME 19) indicates the import of high-value products which may have included those from India.

However, the Nabataeans may not have had much use for the Red Sea route to India because of their acquisition of oriental commodities overland through routes

connecting south Arabian ports with their capital at *Petra* (Bowersock 1983, van Beek 1958: 144-146). Also, land routes connected the Nabataean (Jordanian) domain with trade-ports on the Persian Gulf (Potts 1990: 95-96). Commodities from India could easily have been transported to Nabataea and further on to Palestine through the ports on the Gulf of Aden and the Persian Gulf. An Indian connection has been perceived in *Petra* by Hultsch (bibliography in Sidebotham 1986a) who identifies a monument in the ruins of the ancient city as a Buddhist shrine.

Nabataean pottery of the 1st-2nd cent. A.D. has been excavated at the ports of Qana (Sedov 1992: 120; 1996: 16) and Khor Rori (Yule and Kervran 1993: 80, 93) in south Arabia. On the Persian Gulf littoral, a single Nabataean potsherd dated to 1st cent. B.C. has been found on the coastal site of Thaj in eastern Saudi Arabia (Potts 1990: 198-199). From Thaj and also from Failaka, Ayn Jawan and Ed-Dur have been excavated numerous bowls possibly made in imitation of Nabataean fine red wares (Potts 1990: 202-203; for contradiction of Nabataean influence for bowls see Salles 1990: 324-327). The ceramic evidence for transported Nabataean ceramics is widespread enough to indicate involvement of Nabataeans in the Indian Ocean trade. However we have yet to find Nabataean ceramics or any other artefacts of Nabataean origin in India. Could the complete absence of Nabataean material in India suggest that Nabataean traders based in south Arabian or Persian Gulf ports depended on Arab/Indian shippers for acquiring Indian goods?

The Auxumites, occupying the coastal region of Ethiopia, mainly exported ivory, rhinoceros horn and tortoise shell through their main port of trade of *Adulis* (PME 5). The Auxumites imported through *Adulis* a number of commodities from the Mediterranean and India. The Indian goods specifically came from western India (*Ariaca*/Gujarat) comprising iron and steel, cotton cloth, 'mallow coloured cloth', girdles, coats of skin, muslins and coloured lac (PME 6). The range of Indian products imported into this African port suggests their acquisition through a well-established network. One of the traditional suppliers of Indian goods to the Auxumites must have been the Arabs, in all likelihood the traders of Muza who were actually bringing back consignments from western India in their own ships (PME 21). Of course Indian seatriade with *Adulis* should not be discounted, particularly in the context of strong circumstantial evidence of Indian food exports to nearby Somalia and the presence of Indian merchants at Socotra (PME 30). Indian contact is indicated by the discovery of a hoard of 103 Kushan gold coins, containing issues of Wima Khadphises, Kanishka, Huvishka and Vasudeva, near the Ethiopian coast at Dabra Dammo not far from *Adulis* (Mordini 1967: 19-25). The hoard has been dated

between 220-245 A.D., the period of Vasudeva's reign. At *Adulis* itself, a carnelian ring inscribed with 'an Indian script' was excavated by an Italian mission together with Arretine wares of the early centuries A.D. (Mordini 1967:20-21). Also archaeological evidence of *Axum-Ariaca* iron trade comes from western India from where, as the *Periplus* informs, iron came to *Adulis* (see section on *Kammoni* under Western India).

The role of the Arabs in the southern Red Sea, *vis. a. vis.*, the India trade was a conspicuous one. Most significant was their involvement in Indo-Mediterranean seatriade as middlemen. The Arab control over the flow of goods along the India-Mediterranean route, almost total in pre-Roman times, was never fully relinquished (van Beek 1958:146-147). Besides, the approaches to the narrow straits of the Bab el-Mandeb were under effective Arab control and it can be presumed that the Romans had reached some understanding with the former for safe movement of their ships through the straits. For instance the small anchorage of *Ocelis* on a promontory overlooking the Bab el-Mandeb served as halting point for Roman vessels moving out into the Gulf of Aden\Arabian Sea (*PME* 25). Obviously the Arabs must have provided berthing facilities as part of some agreement, either in the form of toll or perhaps for security guarantees from the Romans not to invade them. In the southern Red Sea the Arab port of *Muza* seemed to have served as an important export as well as transshipment point for goods in the *Erythraean* Sea trade. As pointed out above, *Muza* may have been the traditional supplier of Indian commodities to *Adulis*. The *Periplus* mentions that this port exported a great deal of wine. Since *Muza* had direct trade with western India, then in all likelihood a good part of the 'Arabian Wine' imported into *Barygaza* (*PME* 49) must have come from this port. The *Periplus* also lists purple cloth, saffron, muslin and wheat among the items imported into *Muza*. These commodities were traditional Indian exports. Additionally, *Muza* exported iron implements to East Africa (*PME* 17).

2. Gulf of Aden Littoral

2.1. Background of Maritime Contacts

On its western side, the Gulf of Aden narrows near the opening of the Bab el-Mandeb into the Red Sea. This narrow stretch of the Gulf of Aden is called the Gulf of *Avalites* in the *Periplus* (7), named after the anchorage of *Avalites* situated on the African shore overlooking the Bab el-Mandeb. On the wide eastern side, the island of Socotra (*Dioscorida* of the *Periplus*, 30) marks off the Gulf of Aden from the Arabian Sea (Fig. 23).

The Gulf of Aden, enclosed by the Yemeni\South Arabian coast on the north and the Somali\East African coast on its south, constitutes the traditional 'middle

ground' of contact and trade between the Mediterranean and India. Evidence of early contact between the Gulf of Aden littoral and Egypt/northern Red Sea region is indicated since the beginning of the 2nd millennium B.C. Pharaonic records refer to Egyptian maritime expeditions reaching the land of *Punt* in search of incense (Schoff 1912/74: 245). Most scholars identify *Punt* with the myrrh and frankincense producing region of Somaliland and South Arabia (van Beek 1958: 145-146, Bibby 1962: 48-49). Also, the legendary market-town of *Ophir* frequented by Solomon's trade ships sailing out of *Ezion-Geber* is held by some scholars to be in Yemen or Somalia (van Beek 1958: 146). However, as we have discussed above, the traditional history of the Bene Israeli community of western India points to Jewish migration by sea to India as early as 8th cent. B.C. and therefore does not preclude the possibility of Solomon's ships sailing, through the Gulf of Aden, to an *Ophir* in India.

Another indication of early Mediterranean - south Arabia - south India connection has been seen in the emergence of a 'common' megalithic culture in Palestine, Yemen-Socotra and south India at the beginning of the 1st millennium B.C. Gupta (1970-71: 4-16) postulates a transmission theory on the basis of similar megalithic rock-cut chambers existing in the three separate regions. Ramachandran (1972-73: 25-26), focusing mainly on the Yemen-south India connection, details four types of megalithic funerary architecture common between the two regions: cists, cairns/cairn circles, menhirs and rock-cut caves. On the strength of his comparisons Ramachandran asserts that megalithism was transmitted from south Arabia to south India across the Arabian Sea. In their recent survey of Socotra Island, Naumkin and Sedov (1993: 581-582) report dolmen-shaped megaliths similar to those found in south India. Ghosh (1974: 81-82), while specifying the various types of megalithic monuments he came upon in course of fieldwork in Yemen (orthostats, uprights, cairns), refrains from making a case for cultural diffusion to peninsular India. In any case, the existence of a similar material culture in the 1st millennium B.C. in neighbouring littoral regions raises the possibility of early contact from *either side*. This is precisely the point emphasised by Kirk (1975: 30-33) who, while finding elements of Indian megalithism indicative of maritime contact with Yemen, takes a broad view of possibilities of contact when he says "How much of Arab culture is 'Indian' culture going west?...Corridors are two-way avenues and there is no reason to suppose that the corridors of diffusion of which we have been speaking operated in only one direction."

The chronological context of possible Solomonic voyaging and diffusion of megalithism to India from Gulf of Aden lies in the first half of the 1st millennium B.C.

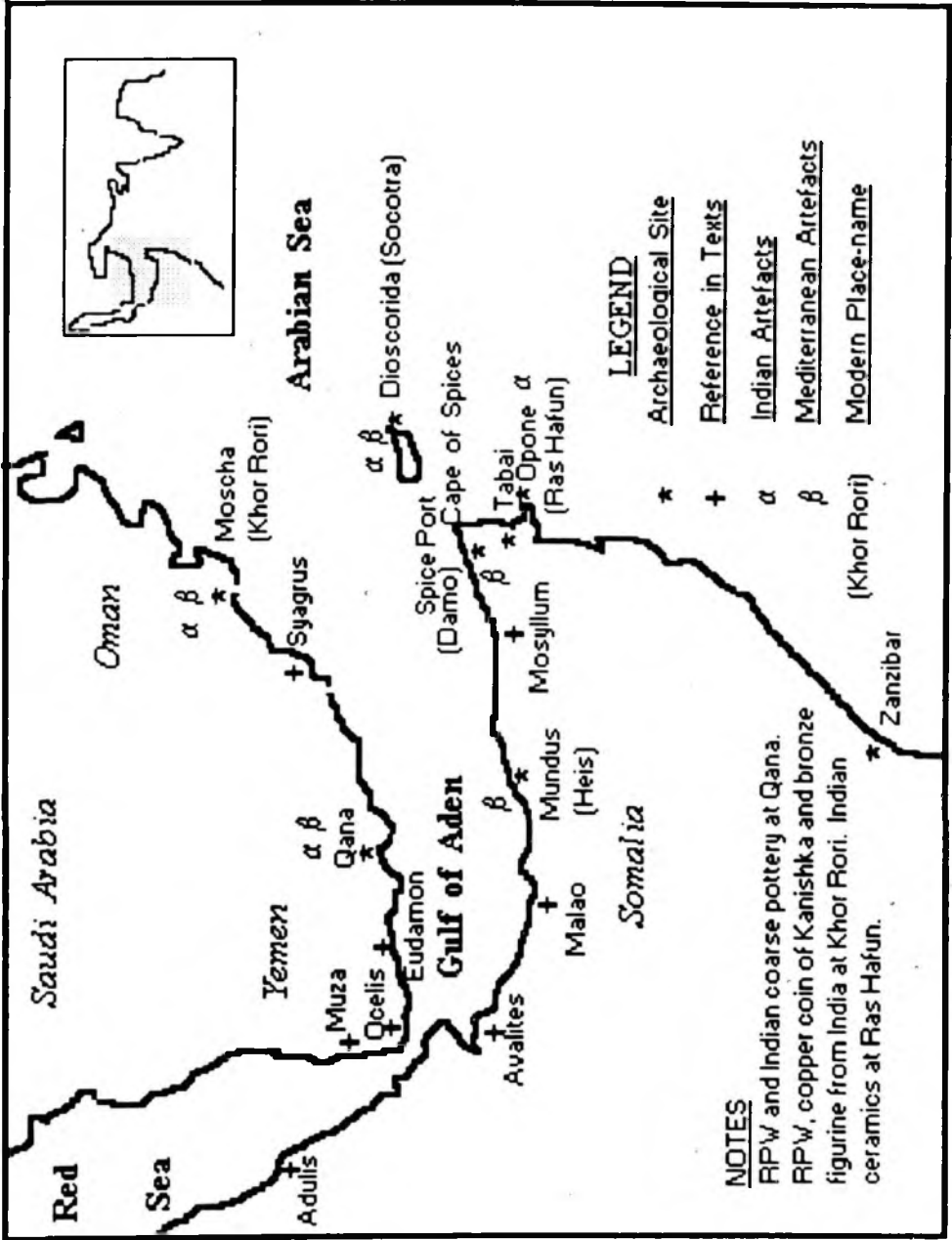


Fig. 23. Archaeological evidence of ports and maritime trade in the Gulf of Aden in the Early Historic period

In the second half of the millennium we have positive evidence to suggest that the south Arabian kingdoms had emerged as powerful trading entities, their outreach extending to the Mediterranean, Persian Gulf, East Africa and India. The *Periplus* (sec 26) informs that *Eudamon* (modern Aden) was the principal port for exchange of Mediterranean and Indian goods before direct voyaging from Egypt enabled Alexandria to supplant the former. The *Periplus* alludes to a situation in 4th-1st century B.C. when *Eudamon* flourished as the prime port of the Sabean and Minean kingdoms before its destruction (Schoff 1912/74: 115). A stretch of East Africa came to be known as the *Ausamitic* coast, presumably as a result of close contacts with *Ausan*, the south Arabian state that rose and fell in the 5th century B.C. (van Beek 1958:146).

In our period of study (1st century B.C. - 3rd century A.D.) the Gulf of Aden, though no longer the 'exclusive arbitrator' of Indo-Mediterranean commerce, remained critical to the operation of long distance commerce from the northern Red Sea. The ports of trade on the Yemen, Dhofar (south Oman) and Somali coasts acted as market-towns for traditional produce: primarily frankincense, myrrh, aloe and tortoise shell. The major harbours - *Kane Emporium*, *Moscha Limen* - offered berthing facilities to Roman merchant vessels plying the Egypt-India route.

2.2. Harbours & Coastal Settlements

Roman vessels choosing to sail along the northern shore of the Gulf of Aden, i.e., the south Arabian coast berthed at the promontory of *Ocelis* (modern Sheikh Sa'id) which the *Periplus* refers to as 'an anchorage and water-place and the first landing for those sailing into the Gulf' (*PME* 25). Opposite *Ocelis* on the East African coast was situated the 'small market-town' of *Avalites* (*PME* 7, Fig. 23). *Avalites* does not find mention as a trading station. Like *Ocelis* it must have also served as a temporary halting point for ships emerging from the Bab el-Mandeb and choosing to sail along the Somali coast for eventual journeys to south India or along the East African coast upto Mozambique.

2.2.1. South Arabian Coast

On the south Arabian coastal route the next halting point after *Ocelis* was the port of *Eudamon Arabia* (modern Aden) situated 1200 stadia (60 nautical miles) to the east of the former (*PME* 26). In the Ptolemaic period and before, when there was no regular sailing from Egypt to India, *Eudamon* functioned as a pivotal transshipment centre for goods from east and west (*PME* 26). However it seems that in the time of the *Periplus* (late 1st cent. A.D.) *Eudamon* was no more than a watering station for passing ships. The *Periplus* does not mention any commodity exchange

taking place here. The downfall of *Eudamon* as an exchange centre must have been due to the invasion of the south Arabian King Charibael who destroyed the city (*PME* 26).

There is no mention of material remains of *Eudamon* in archaeological reports (the crucial report on the survey of South Yemen by Z. A. Hawass from Dec 1976 to March 1977 is to be published; information from S. E. Sidebotham, similar is the case of a lengthy report submitted by A. Ghosh to the Govt of South Yemen; information from S. P. Gupta, ex-Director, Allahabad Museum). However, the connection of *Eudamon* \ Aden with inland cities is indicated by ancient ruins along old feeder routes leading to the port (van Beek 1958: 145). Excavations at the site of Timna, the capital of the ancient Kingdom of Qataban, have yielded marine shells which were probably brought from *Eudamon* (Cleveland 1965: 129). There has been no review of the artefacts found at Timna from the point of view of finding Indian material.

After *Eudamon* the *Periplus* describes a 'continuous length of coast and a bay extending two thousand stadia or more' (*PME* 27). Located on a cape projecting from this bay was the port of *Kana*, of the Kingdom of Hadramaut (Schoff 1974: 117-119). *Kana* was a major outlet for the frankincense produced in the Hadramaut (*PME* 27, 28). Apart from commercial contact with the Roman Empire, ancient *Kana* had trading links with all trade zones in the western Indian Ocean. The *Periplus* (27) informs that this port traded 'also with the far-side (Somali) ports, with *Barygaza* and Scythia and Omana and the neighbouring coast of Persia.'

The *Kana* of the *Periplus* and other ancient texts (see Schoff 1912/1974: 116-117) has been identified with a coastal site of the same name on the coast of south Yemen. The site, comprising of structural remains at the foot and top of a hill known as Husn al-Gurab, faces the shores of a bay (Sedov 1992: 110). Excavations at modern Qana, conducted since 1985 by a joint Russian-Yemeni expedition, authenticate the *Periplus*' information regarding large-scale frankincense exports from the harbour and the trading links of this Hadramauti port with the Mediterranean, Persia and India.

The diggings have brought to light a large storage area (90 square metres) where large amounts of burnt frankincense were discovered in baskets made of palm (Sedov 1992: 116). Testifying to the foreign contacts of Qana are ceramics from the Mediterranean (amphora and *terra sigillata*), fine Nabataean red ware, Parthian green glazed ware, the Indian Red Polished Ware and coarse pottery from the Indian subcontinent (Sedov 1992: 116-124, 128).

Stratigraphically, Qana is divided into three periods: Lower (1st-2nd century A.D.), Middle (2nd-4th century A.D.) and Upper (5th-7th century A.D.). The frankincense remains and most of the Indian pottery have been recovered from the Lower Period at Qana. The Lower Period is chronologically consonant with the sequence of the excavated Roman-Egyptian port-sites such as Quseir and Clysma and 'Roman-contact' sites in India such as Arikamedu and Nevasa Pd V.

As pointed out earlier, an important artefactual link between sites along the Egypt-Arabia-India sea route can be observed in the occurrence of Mediterranean amphorae remains. At Qana imported amphorae make up most of the pottery finds in all three periods and in the Lower Period amphorae constitute 56% of the total pottery recovered (Sedov 1992:112,116). In fact 60% of the amphorae-finds in the Lower Period are of Dressel 2-4 amphora (Sedov: personal communication).

Moving east of Qana, the *Periplus* informs of the existence of a large bay called the *Sachalites* along which stretched the 'frankincense country' (*PME* 29). Projecting from the *Bay of Sachalites* was a promontory known as *Syagrus* (modern Ras Fartak) (*PME* 30). Contrary to the *Periplus* position, Ptolemy places the *Bay of Sachalites* after *Syagrus* (van Beek 1958:142). However an inscription reading *s'kl* found in the excavations at the ancient harbour of Khor Rori in southern Oman indicates that the Sachalitic territory encompassed *both* the areas identified by the *Periplus* and Ptolemy (van Beek 1958:142). The promontory of *Syagrus* is also mentioned by Pliny (in Schoff 1974:232) as a embarking point for ships bound for India.

The ancient harbour of *Moscha Limen* (*PME* 32) has been identified with the coastal site of Khor Rori\Sumhura in the Dhofar region of southern Oman (Schoff 1912/74:140-143; **Fig. 23**). *Moscha* was the other important Hadhramauti port besides Qana exporting frankincense (*PME* 32; van Beek 1958:142), though Avazini (1994:55) is of the opinion that it was dependent upon Qana. This suggests that the harbour of *Moscha* was established to handle increased demand for frankincense in the Mediterranean and was a port-of-trade in its own right. *Moscha* seems to have been a regular port of call for Roman ships plying the India route. At this port, Mediterranean merchants traded foodstuff (wheat, rice, sesame oil, clarified butter) and cloth brought from India in return for Sachalitic frankincense (*PME* 32).

Excavations were conducted at Khor Rori\Sumhura by the American Foundation for the Study of Man in 1952 followed by another expedition in 1960 (Yule and Kervran 1993:69-106). That *Moscha*\Khor Rori was in commercial contact with the Mediterranean and the Indian subcontinent at the beginning of the Christian

Era is indicated by the finds of Roman and Indian ceramics at the site (discussed below).

2.2.2. Socotra

The *Periplus* informs of Indian, Greek and Arab *emigre* traders resident at the Island of *Dioscorides* (*PME* 30) which can be identified with Socotra Island (Huntingford 1980:103, Fig. 23). A comprehensive archaeological survey of Socotra was carried out by a joint Russian-Yemeni expedition between 1983-89 (Naumkin and Sedov 1993:569-623). The Russian-Yemeni survey, covering the eastern, western and central tracts of Socotra Island, found extensive remains of stone burials dating from the early centuries of the Christian Era to 12-13th century. Grave goods from the earliest burials in the Hajrya area include fragments of amphora and fine red ware of likely Mediterranean origin and grey/black ware of probable Indian origin (Naumkin and Sedov 1993:605).

2.2.3. Somali Coast / East Africa

It must have been convenient for Roman trading vessels sailing for the Kanara or Malabar coast (especially the entrepot of *Muziris*) to coast along the Somali/African side of the Gulf of Aden till they reached the embarkation point nearest to south India - Cape Guardafui. The *Periplus* (57) mentions the cape as an embarkation point for merchant ships heading for *Damirica* (the Malabar region). The sea guide says that ships also started for *Damirica*/Malabar direct from Qana (*PME* 57) revealing that the run to south India was also made from the south Arabian side of the Gulf of Aden.

After *Avalites* (the first landing on the Somali coast for ships emerging from the Bab el-Mandeb) a number of trading stations are mentioned by the *Periplus*. The side refers to them as 'far-side ports, lying at intervals one after the other, without harbours but having good roadsteads where ships can anchor.' (*PME* 7; Fig. 23).

Prospections along the Somali coast have yielded Early Historic pottery and artefacts from the Mediterranean, India and the Persian Gulf. These discoveries corroborate the references to Roman/Arab/Indian trading activity in this region. Roman glass has been recovered at Heis, the coastal site in north Somalia identified with the Far-Side port of *Mundus* (*PME* 9; van Beek 1958:144; Stern 1992:113). Roman ceramics have been reported from Damo, the probable location of the *Spice Port* (Casson 1986:181) and also from the peninsula of Ras Hafun south of Cape Gaurdafui (Fig. 23).

Casson (1986:179-182) associates the modern place-name Ras Hafun with *Opone* of the *Periplus* (13). He locates the port of *Opone* at an ancient site on the south side of the Ras Hafun peninsula which has yielded pottery dating to the beginning of the Christian Era (Casson 1986:179-182). On the north side of the peninsula, Casson (1986:179-182) identifies Early Historic occupational deposits at Chori Hordio with the harbour of *Tabai*. *Tabai* is mentioned in the *Periplus* (12-13) as situated between *Spice Port* and *Opone*. According to (Stiles 1992:31;1994:59) Ras Hafun has yielded Mediterranean amphorae and Indian pottery similar to the Early Historic wares from Dwarka. The Indian pottery remains at Ras Hafun may be associated with export of basic commodities from western India to the Far Side ports mentioned in the *Periplus* (14). However, Stiles does not clarify from which of the two Early Historic sites on the Ras Hafun peninsula - *Opone* or *Tabai* - the imported wares were found.

Further south of *Opone*/Ras Hafun, the *Periplus* (sec.15) refers to a stretch of coast called *Azania*. Thereafter it mentions the island of *Menouthias* and then, lastly, the market-town of *Rhapta*. Recent excavations along the Swahili coast from beyond Ras Hafun upto southern Mozambique have revealed occupational deposit of the time of the *Periplus*, i.e., 1st century A.D. (Stiles 1994:58-59). Indications of *Azania*'s early trade with the west comes from the finding of Ptolemaic, Imperial and Late Roman coins and a Mediterranean amphora near the Puralaon Islands (Huntingford 1980:95-97). Recently Late Roman pottery has been recovered near Zanzibar, the possible site of *Menouthias Island* of the *Periplus* (information from Prof. Paul Sinclair, Uppsala University). South of Zanzibar, ongoing excavations at the coastal site of Chibuene (Vilanculos Bay, southern Mozambique) has revealed occupation from 5th-10th century A.D. In the earliest levels, a green-glazed pottery of likely Persian Gulf origin has come to light (personal communication: Prof. Paul Sinclair), indicating Chibuene's early connections with the northern Indian Ocean lands. Though no deposits of the period of *Periplus* have been found at Chibuene, the emergence of the settlement may have been preceded by coastal trading activity about Vilanculos Bay. In this regard it would not be far-fetched to consider this area as a likely location for *Rhapta*. The *Periplus* (18) mentions *Rhapta* as the last mart on the coast of *Azania* after which 'the land curves around to the west.' This reference indicates that Chibuene, located not far from the South African peninsula, approximates to the location of *Rhapta* mentioned in the *Periplus*.

2.3. Contacts between the Gulf of Aden Littoral and India

From a close study of the sea-routes and halting stations mentioned in the *Periplus* (7-32) it is clear that the various points of embarkment were linked to particular sailing directions. Broadly, the ships sailing along the south Arabian coast mainly set a northerly course, heading for the Indian coast in the arc from the Indus to the Konkan coast. The trading vessels bound for south India (especially the great entrepot of *Muziris*) mostly started out from Cape Guardafui/*Cape of Spices* on the outer edge of the Somali coast (Fig. 23).

Widespread occurrence of Indian ceramics of the 1st-3rd century A.D., together with Mediterranean pottery/artefacts on both sides of the Gulf of Aden offer archaeological corroboration for Indian and Roman trading activity in this region. The Indian and Mediterranean ceramic/artefact finds in the Gulf of Aden littoral indicate a complex commercial relationship involving interlinkages between the local/regional exchange networks and the main maritime highway of trade passing through this area. A substantial body of ceramic evidence awaits detailed study. Among these may be mentioned the suspected Indian pottery from the Somali coastal site of Ras Hafun associated with the port of *Opone* in the *Periplus*. The suspected Indian ceramics from Ras Hafun have been related to utility red wares from Dwarka Pd. I and II (Stiles 1992: 31). Also needing scrutiny is the claim of imitation Red Polished Ware found in an Early Historic Arabian context in the old port-site of Khor Rori (Yule and Kervran 1993: 80-81, 93). In this study, a sample of suspected Indian (and imitation Roman) pottery recently excavated at Qana is analysed (observations below).

Ancient south Arabia's contacts with India are also testified by discoveries of a number of artefacts other than pottery. A bronze statuette of a dancing girl of Indian origin and dated to the 2nd century A.D. was found at Khor Rori (Cimino 1994: 57-58). So also was a bronze coin of Kanishka I (Sedov 1992: 126). From the ancient Hadhramauti capital of Shabwa the Soviet archaeological expedition in Yemen found an Indian ivory figurine dated to the early centuries A.D. (Prof. M. Tosi, IsMEO: personal communication). A marble plaque of the 2nd century A.D. found in Yemen shows Indian influence in the composition (Cimino 1994: 57). A bronze relief discovered in northern Yemen recalls ancient Indian iconography (Cimino 1994: 57). A rock inscription of 2nd-3rd century A.D. outside Shabwa records the presence of Indian (ambassadors?) at the investiture of an Hadhrami king (Cimino 1994: 58-59). In 1910, the British Political Agent picked up three inscribed stones from the town of Bhuj (Kutch, Gujarat). Two of the stones were found to carry Sabeen inscriptions,

one of which could be dated to around 115 B.C. However, the translators have expressed the possibility of the Sabea inscriptions being brought to Gujarat in later times (Cowley *et al.* 1927-28 / reprint 1993: 300-302).

As far as the trade indicators of Mediterranean origin are concerned, the predominance of Dr 2-4 amphorae in Qana Lower Period has important implications for studying Roman maritime trade with India. The substantial quantity of Dr 2-4 amphorae fragments at Qana (3000 out of 7000 sherds, 'A. Sedov personal communication') strongly delineate, in archaeological terms, the Egypt-Arabia-India maritime link detailed in the *Periplus*. We have pointed out the profuse occurrence of the Egyptian and Italian varieties of the Dr 2-4 amphora on the Egyptian Red Sea coast. We also observe the Dr 2-4 type as a widespread amphora type in India (Chapter II for details).

Apart from amphorae finds which are so far concentrated at Qana (in fact the biggest concentration of amphorae at a site east of Egypt), there is widespread evidence of Mediterranean glass. Much of the glass (especially from Heis and Shabwa) seems to be of the decorative mosaic/millefiori make, indicating direct connection with production centres in the eastern Mediterranean (Chapter II for details of glass finds).

A mingling of Roman and Indian ceramic styles with the local pottery tradition is observed at Qana and Khor Rori. At both settlements we find ceramics inspired by the Mediterranean *terra sigillata* tradition (Yule and Kervran 1993: 80-93). The appearance of the South Arabian *pseudo-terra sigillata* is contemporaneous with the emergence of the Red Polished Ware in Western India. We have discussed in the previous chapter the reasons for considering the RPW as inspired by the *sigillata* style and technique. A comparison of samples of the South Arabian *pseudo-terra sigillata* and the Indian RPW show similarity of surface texture and form (discussion below, **Pls. XVI.a, XIX.d**). The fine red 'deluxe' surface finish of some sherds excavated from Lower Period Qana has made it difficult for the excavators to distinguish the examples from genuine *sigillata*, *pseudo-terra sigillata* and the RPW. This was the impression gained by me while examining, on the occasion of a seminar at Delhi, some red polished sherds from Qana with the excavator of the site, Prof. Alexander Sedov (Oriental Institute, Moscow). Sedov's uncertainty regarding some specimens is also revealed by his illustrating a particular fragment, under the bracket of *terra sigillata*, as 'Indian RPW (?)' (Sedov 1996: Fig. 4, no. 19, **Pl. XIX.d**). Such 'co-mingling' of perspectives is also apparent in the identification by Yule and Kervran (1993: 80-81, 93) of a red ware vessel from Khor Rori as an Arabian imitation of the Indian Red

Polished Ware. A analysis of pottery samples from the recent Qana excavation presented below has been undertaken in the context of the debate explicated here.

2.4. Indian (and Indo-Roman) ceramics in the Gulf of Aden region

The identification, dating and provenancing of Indian ceramics found in coastal Somalia, Arabia and the Persian Gulf constitute the necessary first steps to tracing precise space/time connections in the ancient trading networks in the western Indian Ocean. Also, expectations from such studies are linked to specifying particular regions within the Indian subcontinent engaged in maritime trade with different areas of coastal West Asia/East Africa. The refining of ceramic analysis by close comparison with similar pottery found in India may enable us to even pin-point specific port-sites in the subcontinent in contact with the market-towns across the Arabian sea.

It is only recently that Indian pottery finds in West Asia and East Africa are drawing the attentions of archaeologists, leading to broadening of perspectives and awareness of the essential economic interdependence of littoral regions of the western Indian Ocean. The relatively contemporary beginnings of the study of exported Indian pottery and also the present nascent stage in the sharing of expertise among archaeologists working in West Asia and India have kept much of the interpretations tentative and open-ended. Of course it is only logical that investigations should proceed from tenuous probings to certainty. Observations offered in the present study on Indian pottery from Qana, Khor Rori and (in the next section) on Indian storage jars from Oman\Persian Gulf may be thus regarded as part of the collective effort to reach 'stable' conclusions.

The first principle applied by archaeologists working in coastal West Asia to isolate suspected Indian pottery is the contrasting shape and fabric of the ceramics in question *vis.à.vis* the local wares. This principle is illustrated by Kervran (1996:40) who formalises her response to suspected Indian pottery found at the Omani port-site of Sohar:-

'I should say that during this excavation, as most of the archaeologists of the Near East, I was not able to identify the Indian ceramics. I just noticed a group of vessels very characteristic in fabric, shapes and surface treatment, different from the locally made pottery. Later on, while visiting the Indus delta and western India, I convinced myself that this ceramic originated in these regions.'

At Qana, the site specially focused upon here, two categories of suspected Indian sherds have been presented in the preliminary reports. Of the first type the

report of the Qana excavations says 'fragments of grey and black pottery. Similar wares are known from first and second century A.D. sites in the Persian Gulf such as the necropolis of Janussan in Bahrain and the settlement of Ed-Dur in the U.A.E. We have also found this sort of pottery on the surface of the site of Hajra on the island of Socotra. This type of ware has close parallels on contemporary sites in central and south India.' (Sedov 1992:126, for Socotra finds see Naumkin and Sedov 1993:605). This grey/black ware described by Sedov was first studied in detail by Prof. J.F. Salles (Head of the French Archaeological Mission at Failaka and Bahrain) who suspected the pottery to be from India. He compared sherds collected from Ed-Dur with grey/black coarse ware reported from the Early Historic levels of the site of Nevasa in western India (Salles 1984:246-247). Detailed discussion on the Black Ware is taken up in the next section on the Persian Gulf.

The second category of Indian pottery found in Lower Period at Qana is the Red Polished Ware (Sedov 1996:16). Prof. A. Sedov allowed me to photograph, on of his visit to Delhi in Feb-March 1994, a collection of suspected RPW pottery from Qana (Pls. XVI.a, XIX.a.b.c.d). I was given two of the sherds as study samples. My observations on the sample of probable Indian pottery from Qana are given below:-

Plate. XVI.a: Rim fragment, most probably of a small bowl. Found in the Lower-Middle overlap layers. Slightly out-turned beaded rim. Thin groovings at interior of rim. The sherd possess brick-red polished slip on both sides. Prof. Sedov thinks that the sherd might have 'come up' from the Lower Period layers.

I find this sample strikingly similar to some of the fine Red Polished Ware pieces from Nevasa (Pl. XVI.a). The similarity with the Nevasa sherds is observed in terms of shape, surface treatment and internal dimension (thickness of rim and body). The sherd from Qana shows a thin ledge at its broken lower portion. This ledge, in all likelihood, is the upper border of a decorative band around the bowl. The Nevasa RPW, coming from Pd.V have a 1st-2nd century A.D. date which is consonant with the Qana Lower-Middle period overlap.

It may be mentioned that in the opinion of Prof. A. Tchernia (C.N.R.S., France), the piece in question is probably part of an Arretine vessel. This opinion is important. Since the Qana sherd is close to the Nevasan RPW then the inference would be that the latter pottery may have also derived from the *terra sigillata* tradition. Such an inference tends to support the theory that the Red Polished Ware emerged as a result of the Mediterranean ceramic techniques brought to India along the route of sea trade.

Plate XIX.a Rim portion of a jar. Sherd comes from the Lower-Middle overlap strata and can be dated to 1st-2nd century A.D. The sherd has an out-turned grooved rim with inner ridge. The fabric is light-red at the core, uniformly fired and the clay, of micaceous quality, is well levigated. The surface has light-red slip matching the colour of the fired clay. There are three thin black-painted lines on the interior of rim and one black-painted line on the outer groove.

The redware sherd from Qana is too coarse to be placed in the Red Polished Ware repertoire. However the sample is seen to closely match in terms of rim shape (outward, grooved, inner ridge), size (diameter of rim, thickness of body wall) and quality of clay an ubiquitous RPW type reported by Orton (1992:46-81) in her catalogue of RPW from 12 sites. In my opinion the sherd from Qana is Indian and can be placed among the 'coarser associated wares of RPW' which Orton (1992:48) speaks of. In fact, grooved-rim red ware sherds similar to the Qana specimen can be traced to samples reported from Nagara (Mehta 1968 Fig 37:351-354, pp 68) and Bhokardan (Deo and Gupte 1974:Fig 5:7c, pp 84). In particular the rim-fragment from Nagara seems close to the Qana specimen. The Nagara sherd has been described as having 'three incised lines on the inner side'. As we have observed, the Qana specimen has instead three black-painted lines. However, the two types of decorations were current in India as Orton (1992:48) points out that both black-painted lines and incisions are commonly observed decorations on RPW.

Plate. XIX.b: Rim portion. Straight rim with thin groove on the exterior of rim. Probably part of a cup or dish. The fabric constitutes of extremely well-levigated and evenly fired clay. The sherd is red-slipped on both sides. The slip is not burnished and is well bonded to the body of the sherd. The slip actually seems indistinguishable from the fabric. The sherd has been recovered in the Middle layers at Qana and falls within the 2nd-4th century A.D.

On initial examination I discounted the possibility of the sherd having its origin in the Indian red wares of the historical period. Later, going through the pottery collected by me from the surface of the Early Historic site of Kamrej (Dist. Surat, Gujarat) I came upon a similar sherd. The Kamrej specimen - a body sherd - also has a very fine and evenly fired light-red fabric. The thickness of this sherd approximates to the dimensions of the Qana specimen. There is an orange-red slip on the Kamrej sherd and like the Qana specimen the slip is thin and well bonded to the clay.

Plate XIX.c: Rim portion. Straight rim with two grooves on exterior of rim. There is a light-red slip on both sides showing slight burnish. The sherd comes from the Lower-Middle overlap layers and may be dated about the end of 2nd century A.D. Convincing parallels cannot be identified in the Indian pottery corpus.

Plate XIX.d: Fragment of a dish or flat bowl. From the Lower Period? layers. Fine dark red polished slip on both exterior and interior surfaces as well as on the base. The polished slip on the vessel-fragment is similar to the slip on a number of Red Polished Ware sherds from Early Historic Nevasa (Pl. XVI.a, XVII.a.c). A similar fragment published from Qana has been tentatively recorded by Sedov (1996 Fig 4.19) as Red Polished Ware. However, the dish-fragment could be part of imitation *terra sigillata* made locally at Qana. Such pseudo *terra sigillata* ware also occurs at the coastal site of Khor Rori (Yule and Kervran 1993:91-93). The difficulty in attributing a clear provenance to this fragment indirectly indicates the similarity of the *terra sigillata* and the fine RPW.

The review of the material indicators of contact points to the complex inter-relationship of Roman, Indian and Arab elements in the western Indian Ocean trade. The constant interaction of traders from east and west had its various syncretic manifestations, not least among them being the minglings reflected in the ceramic traditions.

3. Oman Peninsula\Persian Gulf Region

3.1. Background of Maritime Contacts

The Persian Gulf civilizations can be broadly demarcated into the northern 'States' constituting the powerful Mesopotamian and Elamite polities and the southern societies manifested in the less urban but sophisticated 'oasis' cultures of northern Oman and Bahrain and eastern Saudi Arabia. The earliest record of contact between the Persian Gulf region and India goes back to the mid-3rd millennium B.C., indicated by findings of Harappan pottery, etched carnelian beads, seals, ivory comb and Indus 'inspired' material (pottery, seals and weights) around the Persian Gulf rim and on the island of Bahrain (for comprehensive review of artefactual finds see Ratnagar 1981; for recent update on finds in Oman and east Arabia see Cleuziou and Tosi 1985:15-47; Newsletter of the Joint Hadd Project 1986-87; Tosi 1989:134-161; Cleuziou 1992:93-103, Shahani 1996). A few artefacts of Gulf provenance have come to light in Harappan sites. In this context we may mention a Persian Gulf seal discovered at Lothal (Rao 1985, a steatite *serie recente* bowl of the lower Gulf at Mohenjodaro (Cleuziou and Tosi 1985:41), some Mesopotamian weights at Mohenjodaro (Ratnagar

1981:186) and some Mesopotamian 'inspired' cylinder seals at Mohenjodaro, Harappa and Kalibangan (Ratnagar 1981:193-194; Lahiri 1990:436-437).

Export of western Indian cereals and other foods may be one of the chief causes of deep Harappan diffusion into Oman (Cleuziou 1992:100). In Early Historic times, the *Periplus* (32) mentions Roman shippers ferrying western Indian wheat, rice, oil and milk-products into Arabia. The trend seems to continue in present times, with dhows regularly sailing out of Gujarat to the Emirates with consignments of flour and onions and returning with dates (Shahani 1996). In the upper Gulf, the area of *Dilmun* (Bahrain) mediated seaborne transportation of Gujarati semi-precious stones and timber to Mesopotamia (Ratnagar 1981). For the period of our study, the *Periplus* (36) mentions the export of similar items from the port of *Barygaza* (Bharuch) to the lower Gulf (port of *Omana*) and the upper Gulf (port of *Apologus*).

Archaeologically, the Bronze Age-Early Historic parallels for western India-Persian Gulf interaction are also indicated by the remains of Early Historic ports appearing near or overlying important Bronze Age harbours in both regions. For example the proto-historic entrepot of Umm An-Nar lies close to Early Historic harbour of Umm Al-Qaiwayn/Ed-Dur, the latter identified as the market-town of *Omana* of the *Periplus* (Potts 1990:306-310). Both sites have been discussed as critical mediators for the Gulf's maritime trade with India in their respective periods (Ratnagar 1981; Salles 1993:501-502). The Early Historic (Seleucid-Parthian) horizons at Bahrain and Failaka show the islands to be playing the same traditional role of interconnecting the upper and lower Gulf and facilitating the sea trade with India as *Dilmun* had earlier done (for detailed discussion on the issue see Salles 1996:291-309). In Gujarat, after the decline of Harappan harbours, ports of trade emerge once again more than a millennium later near the old ones (Dwarka near Nageshwar, Nagara near Lothal, Kamrej near Malvan) or overlying them as at Prabhas Patan and Padri.

In the period of Achaemenid rule in West Asia (early-mid 1st millennium B.C.) the maritime connections between the Gulf and India are indicated by a reference to Darius forcing Indians to give passage to his ships (Herodotus quoted by Salles 1996:299-300). In this context, we may also recall the mention of Indian ivory and timber in Darius' placa at Susa (Ratnagar 1981:104). In the subsequent period of Seleucid rule (4th-2nd century B.C.) the island of Failaka came to be garrisoned, a situation which continued to Parthian-Characenean times. Taken together the stratigraphic profile of Bahrain-Failaka shows Iron Age occupation from 6th-1st century A.D. (Potts 1990). The excavated material at these sites holds good promise of defining sharper connections with India (**Fig. 24**; discussion below).

3.2. Harbours and Coastal Settlements

A number of Early Historic coastal settlements have been excavated in the Gulf region since the fifties. The numerous excavations have uncovered evidence of trade contact with India and the Mediterranean World during the Seleucid, Parthian and Sassanian periods (4th century B.C. to 7th century A.D.). The prospects of historical archaeology in this region commenced with the excavations of the Danish mission at Failaka (from 1953 to 1963) and Bahrain (between 1955-65). Subsequently excavations at both the islands were extended by the French mission which dug Parthian remains at Bahrain between 1979-81 and Hellenistic ruins at Failaka between 1983-89 (for complete review of Failaka/Bahrain excavations see Potts 1990: 103-196; for recent documentation of excavated pottery from these sites see Lombard and Salles 1984; Salles 1990:303-334; Bernard, Gachet and Salles 1990:241-284; Herling and Salles 1993:161-182; Gachet and Salles 1993:59-85). In eastern Arabia, the important site of Thaj (ancient *Gerrha*) was excavated by a Danish team in 1982-83 (Potts 1990:23-51). Further south, at the mouth of the Gulf, the port-site of Ed-Dur (*Omana* of the *Periplus*) was excavated by an Iraqi expedition in 1973. Thereafter a surface survey of the site resulted in publication of a comprehensive catalogue of collected pottery (Salles 1984: 241-270) and coins (Potts 1990:288-291). Since 1988-89 a multinational European mission has excavating at this site (bibliography in Haerinck *et al.* 1993:193). Another important Early Historic port to be excavated is Suhar. Soundings were first taken at Suhar by an American team in 1958 (information from Yule and Kervran 1993:69). In 1980 a French Mission started excavations at the site (Kervran 1996:37-58). Other excavated sites yielding evidence of Mediterranean and/or Indian contact are Mleiha, Bidya, Dhahran, and Ayn Jawan (Figs. 3, 24)

3.3. Contacts between the Persian Gulf region and India

Scholars have been uncertain about Egypto-Roman maritime trade contact with the long coastal tracts of Oman north of the Kuria Muria islands and with the thriving market-towns inside the Arabian-Persian Gulf (Casson 1989:281; Potts 1990:313,317; Salles 1993:493-523). Of course, as far as the land routes are concerned there were well established connections between the eastern Mediterranean and the old Arabian-Seleucid/Parthian trading centres about the Gulf such as *Gerrha*, *Apologos*, and *Charax Spasinou* (Raschke 1978:643-644; Sidebotham 1986a:171-172). Prolific inscriptions from Palmyra refer to merchants and caravan leaders from this trading centre active in the Gulf region in Imperial Roman times (Raschke 1978:643). Beyond the Gulf they must have sought contacts with India

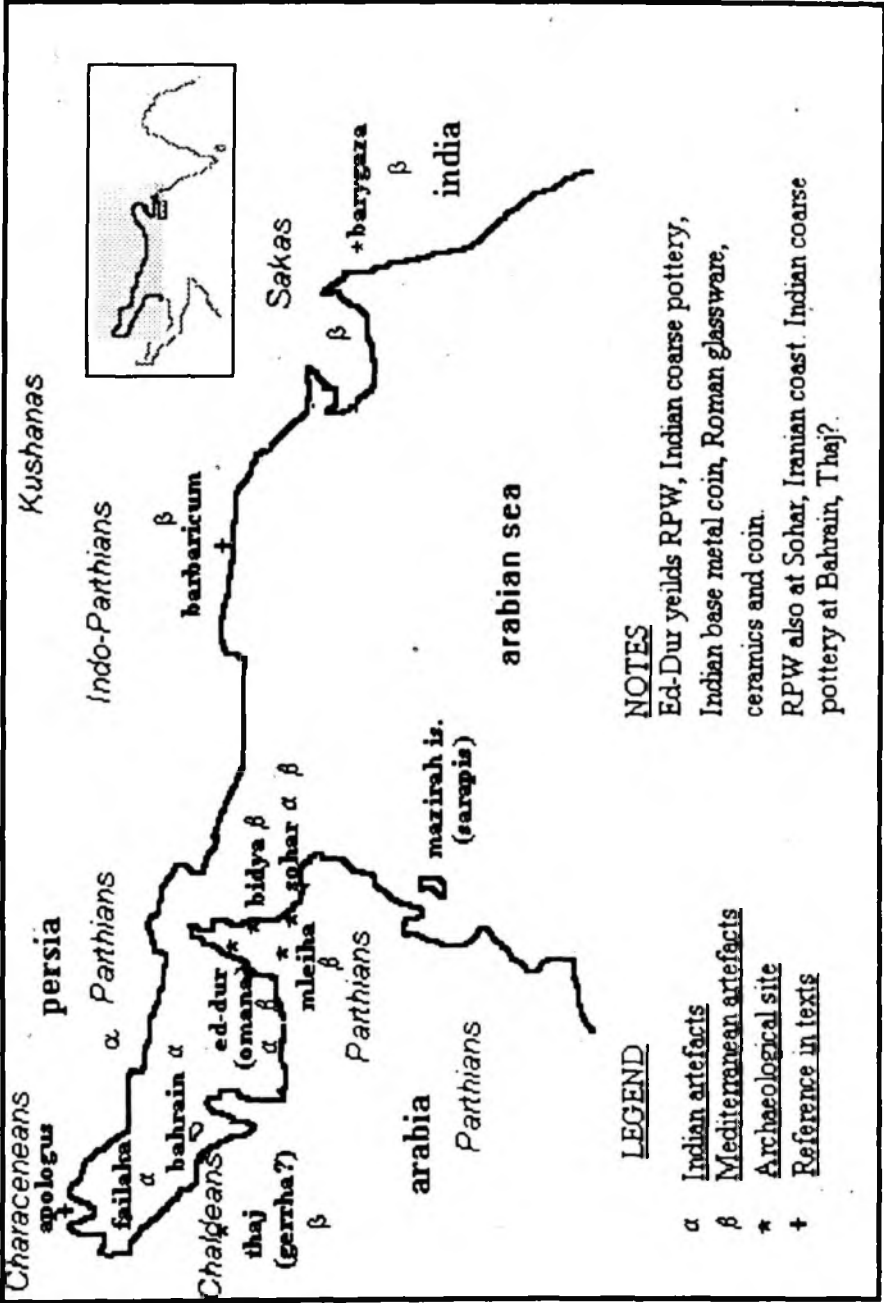


Fig. 24. Early Historic Ports and Settlements in the Persian Gulf Region

along the old maritime highway whose functioning preceded the use of the Egypt-India searoute. Positive evidence for the Palmyra-India connection in the early centuries A.D. comes from epigraphical sources which record Palmyrenes sailing from the Gulf to the mouth of the Indus in the 2nd century A.D. (Salles 1993:512,516). Emperor Trajan's wish to consolidate his conquest of Parthia and reach India shows that this area continued to be important for the Romans even after the initiation of the Egypt-India searoute (Sidebotham 1986a:147,155-158).

Excavations at the islands of Failaka and Bahrain and the coastal sites of Thaj, Ed-Dur, Mleiha and Sohar have yielded Roman artefacts such as the *terra sigillata*, pillar moulded glass bowl fragments and Imperial Roman coins (Fig. 3, 24). Was this material repositied as a consequence of overland trade with the Mediterranean or did the goods arrive by sea?

The overland Mediterranean-Persian Gulf connection is interlinked with the issue of Roman maritime trade with this region. In a seminal paper on the evidence (or non-evidence) in the *Periplus* relating to Roman trade with the Oman\Arabian-Persian Gulf, Salles (1993:493-523) offers a fresh view on this question. He takes the cue from the *Periplus*, which apparently ignores the Persian Gulf as an area of Roman searoute. Salles finds the scant attention given to the Persian Gulf at sharp variance with the detailed description of harbours, sailing distances and maritime conditions provided for adjacent regions (e.g., the Gujarat coast) by the *Periplus* author. In contrast to the meagre evidence in the *Periplus* for Roman trade with the Persian Gulf, Salles (1993:499-503) points to the widespread occurrence of a range of Roman export-commodity remains on the Oman\Persian Gulf coast. He proposes that much of the Mediterranean artefacts were re-exported to the Gulf after they had reached western India along the searoute from Egypt. In the words of Salles (1993:516) :-

‘I would suggest that the western goods which were found in the archaeological sites of the Gulf had been carried along the non-Roman segment *Apologos-Barygaza* of the Indian Ocean trading routes; they had first reached the north India harbours on Roman ships and were then cargoed from *Barygaza* and *Barbaricum* to the Gulf by Arabo-Persian merchants and sailors’

The probable routes of arrival of Roman goods in the Persian Gulf/Oman thus resolves into three possibilities: (1) Overland from Palmyra\eastern Mediterranean (2) Goods originating from Egypt brought north along the coast of Oman through the Gulf of Aden (3) Re-export from western Indian harbours.

The second probability, i.e., the circumnavigation of Arabia by Roman ships to reach the Persian Gulf ports is viewed with extreme doubt by Salles (1993:515). But then the *Periplus* (section 36), does mention the sea run from *Kane* to *Omana*, the later a port-site placed by the *Periplus* inside the Persian Gulf. This suggests that the Oman peninsula was being circumnavigated regularly and the option of this route may have been used by Mediterranean sailors to enter the Persian Gulf (see also Heyerdahl 1982 for emulation of Bronze Age navigation about the Gulf).

Furthermore, to study the pronouncements of the *Periplus* closely, we find that inspite of unclear information on the geomorphic features about the Straits of Hormuz (which Salles emphasises as a point in his argument) the sea guide does provide reliable nautical bearings upto *Omana*: 'Sailing through the mouth of the Gulf, after a six days course there is another market-town of Persia called *Omana*' (*PME* 36). It is this crucial bit of information on sailing distance which Potts (1990:306-310) uses to demonstrate the identification of the historical site of Ed-Dur located 120 km inside the Straits of Hormuz with *Omana*. Potts' identification is supported by Salles (1993:511; see also Haerinck *et al.* 1993:183). It is beyond *Omana* that the *Periplus* becomes vague, referring only to the far port of *Apologus* and expressing ignorance of the busy commerce on the islands of Bahrain and Failaka where Salles and his team have found ample archaeological evidence of Mediterranean contact (Salles 1993:493-523).

The point sought to be made here is that there was nothing to stop *Omana*\Ed-Dur receiving direct Roman maritime commerce from Egypt/Red Sea. The traditional exports of this port and indeed of the Persian Gulf - pearls and dates - were commodities lucrative enough to draw merchants by sea from the Mediterranean. Western demand for the commodities of this region is indicated by the copious evidence of brisk overland trade with Palmyra/eastern Mediterranean which continued to flourish even after the initiation of Rome's oriental seatriade from the Red Sea.

What role did *Omana*\Ed-Dur play in the context of Roman and Indian sea trade with the Persian Gulf region? The substantial area of the site of Ed-Dur (4 km along the lagoon of Umm al-Qaiwain with 1 km inland spread), together with ceramics and other artefacts of Roman, Indian, Characenian, south Arabian and Parthian origin found at the site indicate that Ed-Dur/*Omana* was a central emporium of the Persian Gulf (Haerinck *et al.* 1993:183-193). Now we are sure, drawing upon the *Periplus*, that the port of *Omana* had principal commercial connections with western

India, being engaged in the import of metals, timber and foodstuff (*PME* 36). At Ed-Dur contacts with India are indicated by the discovery of decorated coarse storage-jar fragments (Salles 1984: 246-247). Possibly these jars were used to carry Indian foodstuff to the arid Arabian region (Salles 1993: 513, discussion below). Other finds are the Red Polished Ware and an Indian base metal coin (Haerinck *et al.* 1993: 186-187, Salles 1993: 501-502).

It is in the ships coming from *Barygaza* where Salles sees the possibility of Roman goods (presumably the bulk of them) arriving at the Gulf ports. Kervran (1996: 42) in her delineation of Indian connections with the port of Sohar also subscribes to Salles' 're-export' theory, surmising with regard to the find of a Tiberian aurei hoard at Sohar that 'if no direct contact existed between Rome and the Persian Gulf, it is very possible to imagine this hoard was brought back from India to Sohar...'

The hypothesis for indirect Roman seatriade with the Persian Gulf has to be examined within the broader archaeological context of the northern Arabian Sea. Maritime commerce in the *Erythraean* Sea was a complex affair and especially within the closed and integrated trading arena of the northern Arabian Sea, any number of ports may have dealt in any number of commodities. However, essentially in terms of the available data, doubts can be raised about any significant re-exports of Mediterranean goods to the Persian Gulf from western India.

For instance, it has been noticed that the Gulf sites barely yield Mediterranean amphora of the Imperial Roman period. In particular there is an absence of the Dressel 2-4 variety, which as we have noticed, is found in good numbers along the main route of seatriade between Egypt and India. The amphorae largely found on the Gulf sites are a few Rhodian amphorae of the 3rd-1st century B.C. (Potts 1990: 266, 270; Salles 1993: 502). The following opinion of the excavators of Bahrain can be applied to the scanty Mediterranean amphorae finds about the Gulf:-

'No ... vessels (amphora) are mentioned in Bahrain or in Eastern Arabia and very few complete amphoras are published on the other sites of the Gulf and even in southern Mesopotamia.' (Lombard and Salles 1984: 117, bracket mine).'

This situation is in direct contrast to India where Mediterranean amphorae finds are widespread (Chapter II). Roman glassware finds also provide a point of contrast. Glassware remains seem to be occurring in greater numbers in the Gulf sites than in western India. In the latter region, confirmed Mediterranean glass findings are relatively meagre, being confined to scattered fragments from Ter,

Paithan, Nevasa, Paunary, Adam and Amreli (Chapter II). On the other hand, at the coastal site of Ed-Dur, pieces of broken Mediterranean glass are 'quite common surface finds' (Haerinck *et al* 1993:186). Furthermore, Ed-Dur has yielded a rich variety of complete glassware such as the pillar-moulded bowls, pear-shaped flasks, small jugs and beakers (Potts 1990:286; Haerinck *et al.* 1993:186). Roman glassware has also been excavated at Bahrain (Herling and Salles 1993:175-177), Mleiha (Potts 1990:266), Bidya (Salles 1993:501) and Dhahran (Potts 1990:217). The greater density of Roman glasswares in the lower Gulf sites (especially at Ed-Dur) suggests their transportation overland down the old Tigris-Euphrates route, south to Gulf and then to India along the *Apologos-Omana-Barygaza* sea route so prominently mentioned in the *Periplus* (35-36).

Roman glassware seems to have been an important commodity on the Silk routes reaching Central Asia from the eastern Mediterranean. Roman glassware is found at Taxila (Marshall 1975: vol II, 685), Begram (Hackin 1939; Taddei in Cimino 1994:214-217) and further beyond on the Central Asian sites (Warmington 1928/1995:271-72; Raschke 1978:627). In all likelihood, the Roman glassware reaching Central Asia was sourced either from the Persian Gulf (via the Indus port of *Barbarikon*) or sought overland from the eastern Mediterranean.

3.4. Ceramic Indicators of Trans-oceanic Contacts

In this section, evidence of Early Historic contact between the Persian Gulf and India is presented through study of pottery. We have discussed the Persian Gulf - western India route as an important adjunct of Mediterranean maritime commerce in the northern Indian Ocean. The *Periplus* (36) details commodities sent out from India to trade-ports in the Persian Gulf. The recording of ceramic indicators of Early Historic contact between the Gulf and India is vital to reconstructing specific patterns of trade alluded in Roman and Indian literary sources.

3.4.1. Coarse Black Ware

In his report on Early Historic / Late Iron Age pottery sampled from surface exploration of the site of Ed-Dur, Salles (1984: 241-270) comments upon a batch of thick grey-black to black coarse pottery often decorated with applique and incised designs and finger-tip impressions. Salles (1993:513) terms it the Black Ware. This ware has been compared by Salles with similar pottery excavated from the site of Nevasa in western India (Salles 1984: 246-247). In course of fieldwork in Bahrain, Salles and his colleagues recovered more of the Black Ware from the cemetery-complex of Janussan. The report on the Janussan excavation informs: 'This pottery was abundantly found in Bahrain and at ed-Dour. It can be dated from the 1st century

B.C. / 1st century A.D. and may come from the Indian subcontinent' (Lombard and Salles 1984:116). Further discoveries of the Black Ware have been made from the port-site of Qana and Socotra Island in the Gulf of Aden area (Sedov 1992:126-127).

In another discussion, Salles (1993: 513) suggests that the Black Ware represented 'Indian containers' that were used to carry essential commodities (wheat, rice, clarified butter) to West Asia / East Africa as mentioned in the *Periplus* (sec. 31 & 32). We also know that Egypto-Roman shippers were active in ferrying western Indian foodstuffs to Arabia. The correlation of the Black Ware with Indo-Roman commercial dynamics in the Arabian Sea demands an archaeological explanation.

Since 1993, I have been engaged in a dialogue with Prof. Salles on the Black Ware. Our discussions center around the need to locate similar pottery from sites in India and to identify the production-area. Prof. Salles has provided me photographs as well as a sample of fragments of the Black Ware from Ed-Dur to help develop a study programme on the Black Ware in India (see in this regard Salles 1996: footnote on p.295).

The photographic and material data of the Black Ware from the Persian Gulf has enabled me to carry out a search for parallels amongst published records of Early Historic pottery from Indian sites. I have also examined excavated pottery in institutional collections (Deccan College, Pune; M.S. University, Baroda; Allahabad University Museum) and ceramics prospected by my colleagues and me from Early Historic sites on the western coast of India.

Besides visual comparison of motifs, form and fabric of the Black Ware from Persian Gulf and India, a sample of the ware was subjected to petrological analysis. A selection of 9 sherds of the Black Ware from Ed-Dur and 1 similar pottery fragment prospected from Early Historic occupational deposits at the island of Elephanta (Mumbai, Maharashtra) were thin-sectioned at the Advanced Centre for Experimental Mineralogy and Petrology, Department of Earth Sciences, Allahabad University. The textural analysis of the 10 thin-sections was undertaken under the guidance of Prof. Alok Gupta, Head of the Department (see **Appendix-II** for petrological report on the thin-sections). The photomicrographs were prepared at the Department of Geology, Banaras Hindu University.

The results of my study of the Black Ware as an indicator of Early Historic Persian Gulf-India maritime contact are presented below.

Fabric: A review of the published descriptions of the Black Ware from the Gulf shows internal differentiation in surface colour within the ceramic corpus. Strictly






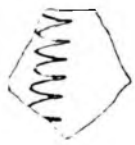
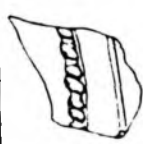















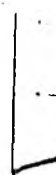

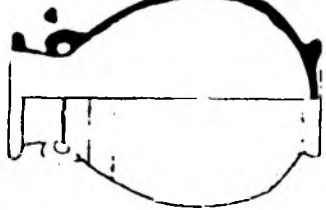
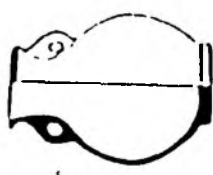
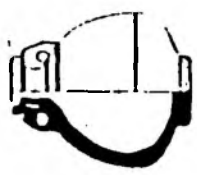

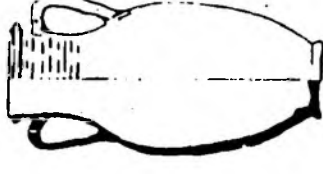






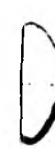


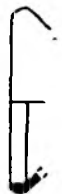
COMMON MOTIFS ON BLACK WARE FROM PERSIAN GULF REGION		COMMON MOTIF/MOTIF COMBINATIONS ON EARLY HISTORIC BLACK WARE OF WESTERN INDIA									
1			1.1		1.2		1.3		1.4		1.5
	2			2.1		2.2		2.3		2.4	
		3			3.1		3.2				
			4			4.1		4.2			
				5			5.1		5.2		

Fig. 25. Similar surface decorations on Early Historic Black Ware from Persian Gulf

GLAZED WARE FROM AMRELI PERIOD II		GLAZED WARE EXCAVATED FROM EARLY HISTORIC SITES IN THE PERSIAN GULF REGION															
1			1.1 (F)		1.2 (F)		1.3 (B)			2.2 (B)		2.3 (B)		2.4 (EDR)		2.5 (EDR)	
2																	
3			3.1 (F)		3.1 (B)		4.1 (F)		4.2 (F)		4.3 (F)		4.4 (F)		4.5 (F)		
4																	

F = Fellaha
B = Bahrain
EDR = Eg-Dur

F = Fakhra B = Bahrain EDR = Ed-Dur

Fig. 26. Typological parallels for Glazed Ware from Amreli Pd. II in Early Historic Glazed Ware from Persian Gulf sites.
(Pottery Drawings not to scale)













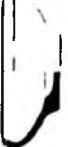






MINIATURE RED POLISHED WARE VESSELS FROM AMRELI PD. II							
							
							

Fig. 27. Typological parallels of miniature RPW vessels from Amreli ,
in the BI Ware types from the Persian Gulf region.

speaking, the Black Ware as described by Salles (1984:264) has surfaces that are black, grey and black-and-red.

In contemporaneous pottery of the western Indian horizon we find the same degree of disparity in the surface colour of coarse black ware. For instance, to quote from the report on 'Plain and Burnished Black Wares' from the excavation at the coastal site of Nagara in Gujarat: 'This wheel-turned pottery is characterised by tones of grey and black, and smoky gritty core. It is plain or burnished. It occurred mainly in deposits of period III and IV. In period I and II black sherds were found but they seem to form a variety in the Black-and-Red Ware.' (Mehta 1968:36). Again, the description for 'Black Ware' in Early Historic levels of Dwarka is recorded thus: 'This ware is dark-grey to black in appearance, the surface being coarse, smooth or burnished.' (Ansari and Mate 1966:67).

Our petrological analysis of thin-sections of 10 selected sherds from the Ed-Dur-Elephanta sample also shows variation in composition of clay of the Black Ware. The analysis shows that out of the 10 thin-sectioned sherds, three similar specimens (EDR 5, EDR 6 and Elephanta Sherd) can be contrasted from the other seven (samples EDR A, EDR 2, EDR 4, EDR 7, EDR 10, EDR 13 and EDR 14) in terms of surface colour and petrology (**Appendix-II**). The examination of the three samples (EDR 5, EDR 6 and Elephanta sherd) under a polarising microscope revealed presence of ferruginous clay having a high haematite content (**Pls. XXIV.a.b.c**). Though the rest of the 7 thin-sections also show a ferruginous clay base the haematite content is not as high as in the 3 sherds isolated above. Secondly, the samples EDR 5, 6 and Elephanta Sherd contain negligible amounts of carbonate while carbonate congregates are conspicuous in the clay-matrix of other samples (**Pl. XXIV.d**). Thirdly, the aplastic inclusions in the samples EDR 5,6 and Elephanta Sherd show a striking similarity. The shape, size and volume percentage of quartz and feldspar inclusions in these samples are found to closely match with each other. Though quartz and feldspars are also the main aplastic inclusions in the rest of the samples, these perceptibly vary in shape/size/volume percentage from samples EDR 5,6 and Elephanta sherd. (see details of petrological analysis in **Appendix-II**).

However, it is not necessary that the differentiation in the petrology of the thin-sectioned sherds indicates separate clay sources. A high haematite content and negligible presence of carbonates, the two main criteria for distinguishing between samples EDR 5,6 and Elephanta sherd from the rest of the thin-sections, may have been due to higher heating of the clay in the former. Heating at higher temperature would have resulted in lessening of carbonate content and augmenting of the haematite

content in the clay by the iron released by the carbonates (Prof. Alok Gupta personal communication). In this regard the petrological variation between the samples EDR 5,6 and Elephanta sherd and the rest of the Black Ware samples is, in most likelihood, indicative of different firing regimes rather than different clay sources of the pottery.

Specific indications of a trans-oceanic connection for the Black Ware is revealed in the visual and petrological similarity found between the single Black Ware sherd from Elephanta and two fragments from Ed-Dur (Pl. XXII.c). A similarity in surface decoration and fabric is also observed between the Ed-Dur pottery fragment EDR 6 and a Black Ware fragment from Historic (Pd III) levels of Dwarka (Pl. XXIII.b). Again, in Pl. XXIII.a two similar rim-portions of the Black Ware from Ed-Dur and Dwarka are compared. On the rim-fragment from Dwarka is noticed whitish encrustation which may be carbonate deposition. The Ed-Dur Black Ware rim also has a whitish colouration though not as conspicuous as the Dwarka sherd.

Motifs/Motif-combinations: A study of surface decorations on the Black Ware from Persian Gulf and India reveals a set of designs common to the pottery corpus on both sides of the Arabian Sea. The shared tradition of decorations are represented by the following motifs: (a) finger-tip or 'rope' impressions (b) oblique grooves (c) incised oblique or wavy lines. More significant as indicators of trans-oceanic connections are the *combinations* in which the motifs are also seen to appear. In particular, the combination of oblique grooves with fingertip impressions is to be found on Early Historic coarse black and coarse red storage pottery all over western and northern India. The decorations are either made directly upon the body of the vessel or using appliques. Fig. 25 compares the motifs/motif-combinations appearing on the Black Ware from Ed-Dur and those on the Black Ware from sites in western/northern India. In Plates XXII.a,b, XXIII.b photographic evidence is presented for similarity of surface decorations on coarse Black Ware from the Persian Gulf region and India. This common pool of motifs/motif-combinations on Early Historic/Historic period Black Ware on both sides of the Arabian Sea is strongly suggestive of contact and interchange.

Forms: There are no complete vessels of the Black Ware excavated in the Persian Gulf region. This limits the scope for searching for typological parallels amongst the Black Ware corpus in India. A few rim-shapes of the Black Ware from the site of Ed-Dur have been published by Haerinck *et al.* (1993: Fig 3.1-6). Parallels for some of the published rims are available in the Indian repertoire, though not very convincing. Clearly, we need more descriptive fragments to typologically relate the Black Wares on both sides of the Arabian Sea.

To recapitulate, the existence of a rich and varied corpus of the Black Ware in consonant horizons on both sides of the Sea of Oman offers the scope to search for ceramic connections and common sources for the pottery. Comparison of fabric and surface decorations of some samples of the Black Ware from both regions show strong trans-oceanic affinity, indicating contact and interchange. In this context the assertion of Salles, that the coarse Black Ware storage vessels were the likely containers for export of western Indian cereals to the Arabian peninsula, holds credence. However, beyond detecting indicators of contact it is difficult at the present state of knowledge to answer further questions. Was the Black Ware wholly exported from India to Persian Gulf as Salles postulates or was some of the Black Ware also produced in the Gulf? The Sea of Oman was a closed area of maritime interaction and it is possible that the Black Ware decorations and manufacturing techniques may have been shared. Analysis of many more samples of the Black Ware and survey of soils in the Persian Gulf region and western India are needed before we are able to specify one or more manufacturing centres of the pottery.

3.4.2. Northern Black Polished Ware

Besides the coarse grey-black pottery, Salles reported from his excavation at Failaka 'a fragment of definitely Indian black ware (but not Northern Black Polished Ware) in the deepest levels of the Hellenistic fortress F5 (300 B.C.)' (Salles 1993:506). However, in a recent article Salles (1996: footnote no.17 on p.296) has reconsidered the sherd to have been 'probably a fragment of genuine Northern Black Polished Ware.'

3.4.3. Black-and-Red Ware

Examining a selection of Early Historic pottery prospected by me from the coastal site of Kamrej, Prof. Salles recognised a few polished black sherds in the collection which he found to be similar to some pottery he had excavated at Failaka. I could recognise these fragments as the Early Historic Black-and-Red Ware. The BRW happened to be in abundant use in Early Historic times in Western India (see Chapter V). It is very likely that this pottery was reaching the Persian Gulf.

3.4.4. Glazed Wares of Parthian Period or Ed-Dur Horizon

Small quantities of green glazed pottery fragments excavated in western India may have arrived from the Persian Gulf. Of particular interest in this regard is a batch of green-glaze sherds found in the Early Historic levels of the sites of Amreli and Baroda in Gujarat.

In the Amreli excavation report the 'Glazed Ware' surface is described as 'a hard brownish green glaze, most of which has decayed to an opaque brownish cream

colour' (Rao 1966:73). A fragmentary bowl possessing golden-yellow glaze excavated earlier from Pd.II (Kshatrapa) levels from Baroda (Subbarao 1953:102-103) has been compared with the 'Glazed Ware' from Amreli (Rao 1966: 73). While the glazed pottery from Amreli has been attributed a Chinese origin by Rao (1966: 73-74), Subbarao (1953:102) postulates a Roman or Parthian origin for the glazed ware from Baroda.

It is possible that the glazed ware excavated at Amreli and Baroda belong to the BI Ware group, a corpus of glazed ceramics found in consonant levels of coastal sites of the Persian Gulf. The BI Ware has been described by Hannestad (in Salles 1990: 303) as 'a special group, characterised by a pale yellow clay and a heavy dark green glaze which decays into a dark brownish-yellow.' The description for the glazed ware from Amreli quoted above is strikingly similar to the BI Ware detailed by Hannestad. The 'golden-yellow' glazed bowl from Baroda may also belong to the BI Ware group because among various surface-colours for the latter listed by Hannestad (in Salles 1990: 311-313), the variant 'pale yellow undercoating' is defined as one characteristic colour of the BI Ware.

The glazed ware from Amreli and Baroda come from Pd. II levels dated to the 1st-6th century A.D. at Baroda (Subbarao 1953: 14) and 1st century B.C. - 4th century A.D. at Amreli (Rao 1966:15-17). This is broadly consonant with the period of the BI Ware which has been placed between 2nd century B.C. to 1st century A.D. (for dates see Salles 1990: 327-329).

In **Fig. 26** the shapes of the glazed ware from Amreli Pd.II published by the Rao (1966:Fig 21) have been compared with BI Ware potteries from Persian Gulf sites of Failaka, Bahrain and Ed-Dur. In **Pl. XXV.a**, a neck and loop handle fragment of a glazed ware vessel from Amreli Pd.II approximate to similar loop handled vessels ubiquitous to the BI Ware group (**Fig. 26**). The typological parallels and the similarity of surface glaze on the glazed pottery from Amreli and Persian Gulf suggest that the glazed wares found in Amreli are imported BI Ware vessels from the Persian Gulf. In **Fig. 26** the references for the BI Ware from Ed-Dur has been drawn from Haerlinck *et al.* (1993:Fig 3); for Bahrain from Lombard and Salles (1984) and Herling and Salles (1993:161-182); for Failaka from Salles (1990:303-334), Bernard, Gachet and Salles (1990:241-284); and Gachet and Salles (1993:59-85).

In **Pls. XXV.b.c.** is shown a green-glazed rim-fragment of a dish recovered from the surface of the Early Historic site of Bhalar (Dist. Bhavnagar, Gujarat) by Dr. Vasant Shinde of the Deccan College. The dish fragment is glazed on its interior (**Pl. XXV.b**) while the exterior shows a reddish brown unslipped surface of the clay (**Pl.**

XXV.c) The glaze inside the dish is thick and grainy. The core is fine, levigated and reddish brown. The green glazed dish from Bhalar approximates in terms of surface treatment (green glaze), fabric (reddish clay) and shape (everted, projecting rim and flaring sides) to some BI Ware types from the Persian Gulf region. I found parallels for the Bhalar dish in some BI Ware dishes from Failaka published by Bernard, Gachet and Salles (1990: Fig 4, types 109-120). The relevant drawings from the publication have been reproduced in **Pl. XXV.d**. In particular, the green glazed dish from Bhalar approximates to the BI Ware types 109, 117 and 120 in the above report. The site of Bhalar is located on the Saurashtra coast in proximity of the Gulf of Khambhat. The deposition of the green glazed sherd at Bhalar must have taken place in context of Early Historic sea borne exchanges between Saurashtra and the Persian Gulf region.

In the section on the Red Polished Ware below is presented new data on the appearance of some BI Ware types in the Red Polished Ware corpus.

3.4.5. Green Glazed Pottery of the Sassanian Period

A non-descriptive pottery fragment (body sherd) possessing a thick dark green glaze on its surface and having a creamy sandy core was received by me along with the pottery samples sent by Prof. Salles. The thick surface glaze on the pottery shows a 'cracked' texture. This sherd was picked up from the surface of the site of Ed-Dur and Salles (personal communication) places it in the Sassanian Period (4th-6th century A.D.).

Pottery fragments very similar to the thick green glazed sherd from Ed-Dur were recently recovered from a Early Historic/Historic period pottery scatter on the island of Elephanta by Alok Tripathi (Asst. Archaeologist, ASI). The Ed-Dur and Elephanta sherds are illustrated in **Pl. XXVI.a.b**. A similar thick green-glazed sherd excavated from Qana (Yemen) was shown to me by Prof. A.V. Sedov. The thick green-glazed ware of Sassanian period has a widespread distribution, having been excavated at the port-site of Chibuene in southern Mozambique (Prof. P. Sinclair: personal communication).

3.4.6. Red Polished Ware

In the Persian Gulf region the Red Polished Ware has been reported from the sites of Suhar (Yule and Kervran 1993: 69-106; Kervran 1996: 37-58), Ed-Dur (Haerinck *et al.* 1993: 187; Salles 1993: 502) and from the Iranian coast (Whitehouse and Williamson 1973: 29-51).

XRD analysis of some of the Suhar samples carried out at the Deccan College indicate a production-area near the Harappan port-site of Lothal at the head of the Gulf of Khambhat (Kervran 1996: 43).

Interestingly, a number of miniature vessels of the RPW repertoire excavated from Amreli Pd II are strikingly similar in form to Early Historic glazed ceramics of the Persian Gulf (Rao 1966 Fig 12, types 55-63). The typological parallels for the Amreli RPW vessels in the Persian Gulf pottery are presented in **Fig. 27**. The parallels indicate that ceramic styles transmitted from the Persian Gulf got absorbed into the Red Polished Ware tradition in western India. Vessel no 1 in **Fig. 27** can be compared to handleless craters of BI Ware found in consonant levels at Failaka and Bahrain (**Fig. 27:no.1.1** = Salles 1990 Fig 7, type a). Vessel no 2 recalls pedestalled vessels of glazed ware from Failaka (**Fig. 27:no.2.1, 2.2** = Bernard, Gachet and Salles 1990 Fig 5, types 128-129). Vessels nos 3 and 4 are comparable to fluted bowls of BI ware excavated from Failaka and Bahrain (**Fig. 27:nos. 3.1, 4.1** = Salles 1990 Fig 6, types i and j). The two vessels illustrated as no.5 have their parallels in the pyriform type small bottles excavated from 1st B.C - 1st A.D. levels at Bahrain (**Fig. 27:no. 5.1, 5.2** = Herling and Salles 1993 Fig 6: 40-41). Vessel no.6 is typical of a glazed ware bowl common in Early Historic levels of Failaka and Bahrain. A similar glazed ware vessel was also excavated from Amreli Pd II (**Fig. 27: 6.1,6.2**; see also **Fig. 26: 4** for parallels). Vessel no. 7 of **Fig. 27** can be compared to certain types of BI Ware bowls from Bahrain. The bowls are dated to the 2nd century B.C. in Bahrain but they are also found in the later 1st B.C -1st A.D. 'Ed-Dur' horizon (**Fig. 27:7.1,7.2** = Herling and Salles 1993: Fig 4: 21,23, pp. 170).

Two facts stand out in our comparisons. Firstly, all the RPW vessels presented in **Fig. 27** have parallels specifically in the BI Ware glazed ware group of the lower Gulf. Secondly, the RPW vessels seem to be *miniature models* of popular glazed ware types from Failaka and Bahrain. The measurements derived from the Amreli report (Rao 1966: Fig.12) show that the rim-diameter of the vessels ranges from 2-8 cm. This is far smaller than similar pottery of the Gulf. How can we explain the miniature RPW vessels from Amreli Pd. II imitating BI Ware shapes? The miniature vessels may have been made as working models by potters in India who sought to imitate BI Ware vessels. On the other hand, the miniature models could have also been created as decorative showpieces for an expatriate merchant from Failaka or Bahrain settled in western India.

3.4.7. Bichrome Ware from the Iranian Coast?

A category of bichrome pottery of probable Iranian origin has been excavated in the Pd.I levels of Dwarka. The Dwarka excavation report of Ansari and Mate (1966: 66) describes the pottery as 'Painted Red Ware' where the 'painting appears on matt red surface but the sherds with paintings executed on the burnished surface are

not lacking.' Two examples of the Painted Red Ware from Dwarka Pd I are presented in **Pl. XXVI.c**. These sherds are comparable to similar pottery recovered from the site of Ed-Dur (Salles 1984: 247-248, esp. no. 123).

To recapitulate, the evidence of 'transport' ceramics corroborates the notices of the *Periplus* for maritime trade contact between the Lower Gulf and western India in the early centuries of the Christian Era. In particular we find similarities in the Indian corpus for a range of ceramics recovered from Ed-Dur, the coastal settlement identified as *Omana* of the *Periplus*. The common element in terms of fabric and surface decorations appearing in the Black Ware from Persian Gulf and western Indian sites gives credibility to Salles hypothesis that this coarse pottery signifies the food shipments from western India to the Arabian peninsula mentioned in the *Periplus*.

At another level, the dissimilar range and quantity of Roman artefacts in the Persian Gulf littoral and western India makes it difficult to view the Gulf region in the perspective of Salles as *wholly dependent* on India for Roman products. In particular, the evidence indicates the Lower Gulf as the source for Roman glassware to India rather than *vice versa*. The Persian Gulf and the northern Arabian Sea can be properly perceived as a closed and integrated trading arena, a sort of "crossroad" for multiple "segments" of commerce. In this arena of reciprocal exchange, where myriad interests motivated large-scale commercial ventures, it is only logical that the major coastal market-towns of the region like *Omana* Ed-Dur, *Barbaricum* Banbhore and *Barygaza*/Bharuch would not have been restricted to serving their immediate hinterland. These inter-linked trade ports must have surely played a larger role, dealing in commodities of all sorts so that a Persian merchant may chance to pick up goods from India to sell the Romans and the Indians likewise would have dealt freely in promoting sales of imported Mediterranean commodities to the Gulf.

4. Indian Subcontinent

The following three sections (IV, V, VI) are concerned with the Indian Subcontinent. Specifically, the discussions are grouped under the headings Lower Indus/Western India, Southern India-Sri Lanka and Eastern India. In these sections the emphasis is upon archaeological review of harbours and coastal settlements on the Indian seaboard mentioned in the ancient Greek texts, especially the *Periplus* and the *Geographia* of Ptolemy. The 'patterns of contact' aspect, which forms the third important sub-theme in the sections on Red Sea, Gulf of Aden, Persian Gulf and S E Asia, is elaborated separately for the Indian sections in Chapter V.

4.1 Lower Indus and Western India

In geographical extent this region stretches from the Baluchistan coast to the Konkan coastlands and upto the Karwar peninsula. The region includes the littoral-areas of Makran, Sind, Gujarat and Maharashtra (Fig. 28)

4.1.1. Background of Maritime Contacts

In the previous section we had touched upon the strong maritime connections between Lower Indus-western India and the Persian Gulf in Bronze Age and Early Historic times. Artefactual indicators of contact with other trans-oceanic regions in the 'pre-*Periplus*' period are few. In this regard, contact between western India and the Gulf of Aden region is indicated by two Sabeian inscriptions on stone found in Bhuj (Kutch) and dated to 115 B.C. (Cowley *et al.* 1927/28:300-302). Towards the east, the north Indian Painted Grey Ware (PGW, dated 1000-300 B.C.) found at Anuradhapura in Sri Lanka (Bopearachchi 1996:65), may have a western Indian provenance. This possibility is suggested by the PGW distribution upto Ujjain, the ancient settlement close to the Gujarati port of Bharuch mentioned in the *Jatakas* as the embarkation point for voyages to far lands.

4.1.2. Reconstruction of Sailing Conditions as Described in the *Periplus* (sec. 38-47) on the Basis of Geomorphic and Oceanographic data

The lower Indus-western India region presented formidable challenges for the sailors who voyaged here from across the Indian Ocean. The *Periplus* mentions two major sources of danger to ships in this region: high tides and shoals. The sea guide specifically refers to the inordinately high tides in the Gulf of *Barace* (Gulf of Kutch) and the Gulf of *Barygaza* (Gulf of Khambhat) (*PMI* 40,45,46). It also warns of the existence of shoals at the mouth of the Indus, along the coast of Kutch, at the entrance to the Gulf of Khambhat and on the mouth of the river Narmada upstream of which was situated the harbour of *Barygaza* (*PMI* 40,43,44).

Interestingly, studies on the contemporary maritime environment and geomorphology of the Lower Indus - western India littoral sharply authenticate the graphic descriptions of tides and shoals provided by the *Periplus*. A reconstruction of ancient sailing conditions follows. The quotes from the *Periplus* are drawn from the edition of Schoff (1912/74).

We know from the *Periplus* that trading vessels set sail for the entrepot of *Barygaza* from the port of *Barbaricum* at the mouth of the Indus. Describing the Indus as the 'greatest of all rivers that flow into the *Erythraean* Sea' the *Periplus* informs that the river brings down 'an enormous volume of water, so that a long way

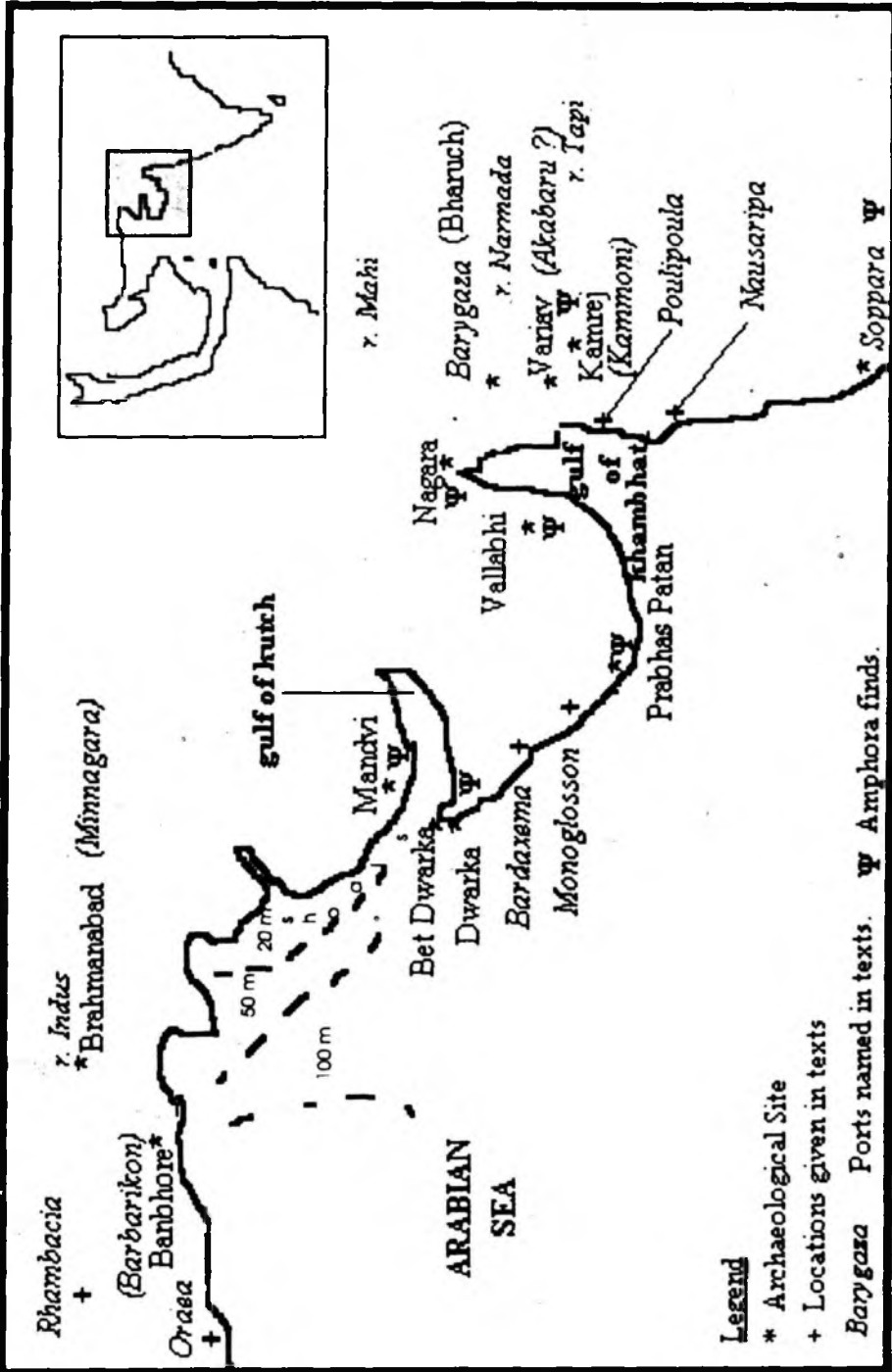


Fig. 28. Early Historic ports and market-towns in Lower Indus / Coastal Gujarat region

out at sea, before reaching this country, the water of the ocean is fresh from it' (PME 38).

And then, further detailing the first leg of the voyage to *Barygaza* 'Beyond the river Sinthus (*Indus*) there is another gulf, not navigable, running in toward the north; it is called Eirion; its parts are called separately the small gulf and the great; in both parts the water is shallow, with shifting sandbanks occurring continually and a great way from shore, so that very often when the shore is not even in sight, ships run aground...' (PME 40).

Recent studies corroborate the reference to the 'great volume of water' discharged by the Indus. It has been estimated that the Indus releases over 200 cubic kilometres of water with 450 million tonnes of suspended load annually. That this discharge goes 'a long way out at sea' is proved by the fact that the suspended particles from the Indus are carried all the way to the mouth of the Gulf of Kutch before getting deflected by strong currents from the latter to the continental shelf along the Kutch coast (Hashimi and Nair 1988: 56-57).

The Gulf of *Eirion* is none other than the Rann of Kutch (Schoff 1974: 173-174). Going by the details of the *Periplus* the Rann was full of water - albeit of little depth - at the beginning of the Christian Era, unlike the dry salt plain that it has become today. The information about a vast and shallow lake provided to Alexander when he was exploring the mouths of the Indus could only refer to the watery *Eirion*. In fact the remains of Harappan sites like Desalpur, Surkotada and Dholavira at the edge of the Rann indicates that the salt-plain was actually navigable in the 3rd-2nd millennium B.C.

The *Periplus* also refers to the sea off the coast of Kutch as shallow 'with shifting sandbanks occurring continually and a great way from shore.' As we have pointed out above, recent research reveals that large-scale deposition on the continental shelf off Kutch is primarily caused by fluvial discharge from the Indus (Hashimi and Nair 1988: 56-57). Much of the Indus silt travelling south along the Gujarat coast gets deflected onto the Kutch coast by the strong currents of the Gulf of Kutch. The map in Fig. 28 shows the average sea-depths along the Kutch-Saurashtra coast caused by the Indus silt. A broad area of 20 metres depth is observed along the Kutch coast. This must have been the shallow seas where, as the *Periplus* warns, 'ships run aground...' Interestingly, we find the location of the Early Historic port-site of Mandvi at a point where the Kutch coast was relatively free of shallows (Fig. 28). Mandvi has yielded Mediterranean amphorae (personal communication: Dr.K.K. Bhan, Dept. of Archaeology, Baroda University), indicating

that this coastal site was a halting point for Roman vessels sailing from *Barbaricum* to *Barygaza*.

Beyond Kutch, the ships bound for *Barygaza* passed across the mouth of the Gulf of Kutch. The *Periplus* informs that the ships crossing this gulf sailed 'further out to sea' (*PME* 40) to avoid the sharp reefs and high tides inside. This is true, for recent satellite imagery of the Gulf of Kutch shows the presence of numerous sharp coral reefs in its waters (Nayak *et al.* 1989:105-138, Sahai 1992). Also current oceanographic studies classify the Gulf of Kutch as macro-tidal because of the very strong tides and currents in it. The present tidal range here has been estimated between 4-6 metres and prevailing current strength at 4-5 knots (Rao 1987:26-27).

The *Periplus* does not inform of ports or maritime conditions off Saurashtra. This is inexplicable for this part of the Gujarat coast possess many creeks and bays which serve as good natural harbours. In fact other ancient texts such as the *Puranas* and the *Geographia* refer to the existence of harbours such as *Dwarka*, *Bardaxema*, *Monoglosson* and *Prabhasa* on the Saurashtra coast (see below).

However, compared to the inadequate information on Saurashtra coast, the situation inside the Gulf of Khambhat is thoroughly detailed in the *Periplus*. Nowhere else in the *Periplus* are the descriptions of landforms, currents, tides, shoals and sailing directions as vivid as they are for this gulf. Five whole sections are devoted to informing mariners about the dangers of navigating in the Gulf of Khambhat (*PME* 42-46).

Again, high tides and shoals seem to have posed an endemic problem for Mediterranean and Arab mariners traversing the Gulf towards *Barygaza*. The first of the big shallows occur, according to the *Periplus*, 'right at the mouth of the gulf'. The sea guide calls this shoal by the name of *Herone* and describes it as being 'long and narrow and full of rocks' (*PME* 43; Schoff 1912/74: 182). The *Herone* shoal can be identified today as the Malacca Banks, the sub-tidal sedimentary deposits at the mouth of the Gulf (Fig. 30). The *Periplus* (sec 44) informs that pilot-vessels called *trappaka*, operated by 'native fishermen in the King's service', were employed to guide merchant ships through the dangerous, shoal-ridden waters at the mouth of the Gulf of Khambhat to the safety of the great harbour of *Barygaza*. Interestingly, two terracotta models of sail boats excavated from 1st-2nd A.D. levels at the site of Padri (Dist. Bhavnagar, Gujarat) may be those of the pilot-vessels called *trappaka* (Pl. XXVII, Shinde 1992:79-86). In this context, it may be noted that the Early Historic settlement of Padri lies approx. 4-5 Km from the Gulf of Khambhat.

High tides constituted the other major danger for sailors in the Gulf of Khambhat. Sections 43,45 and 46 of the *Periplus* give a graphic account of the high tides in the Gulf. In section 45, the *Periplus* informs that the 'whole country of India has very many rivers, and very great ebb and flow of tides.' Then again in section 46 the sea guide warns of the dangers of sailing in the Narmada estuary which formed the entrance to the great harbour of *Barygaza*:

'For this reason entrance and departure of vessels is very dangerous to those who are inexperienced or who come to the market-town for the first time. For the rush of waters at the incoming tide is so irresistible, and the anchors cannot hold against it; so that large ships are caught by the force of it, turned broadside on through the speed of the current, and so driven on the shoals and wrecked...'

Recent mapping of coastal and marine landforms in the Gulf of Khambhat substantiates, sharply, the descriptions of the *Periplus* above. In particular, the studies reveal heavy and unpredictable shoal formation coupled with strong tidal activity about the estuaries of the Mahi (*Mais* of the *Periplus*), Narmada and the Tapi (Nayak and Sahai 1983: 152-154; Shaikh *et al.* 1989:41-48). The *Periplus*' reference to high tides in the Gulf is supported by the fact that that this maritime zone experiences one of the highest tidal ranges in the world (Nayak and Sahai 1983: 152). The Imperial Gazetteer of India IX records spring tides as high as 33 feet prevailing in the Gulf of Khambhat (Schoff 1912/74: 183). As the tidal range tends to increase on the estuaries (Shaikh *et al.* 1989: 94-95) we can understand the reason for the *Periplus* terming the tides about *Barygaza* as 'much greater' (PMF 45).

It is exactly this combination of high tides and heavy siltation at the mouth of the Narmada which must have created a dangerous situation for merchant ships seeking access to the harbour of *Barygaza* situated approx. 40 km upstream on the river. Describing the play of tides in the Narmada estuary the *Periplus* (45) says

'Now the whole country of India has very many rivers, and very great ebb and flow of the tides; increasing at the new moon and at the full moon for three days... But about *Barygaza* it is much greater, so that the bottom is suddenly seen, and now parts of the dry land are sea, and now it is dry where ships were sailing just before...'

A close scrutiny of landforms at the mouth of the Narmada dispels the notion that the above account is a figment of imagination. Satellite imagery shows the presence of all three types of mudflats - high tidal, inter-tidal and sub-tidal - on the Narmada estuary (Fig. 29). In particular, we notice the large size of the inter-tidal

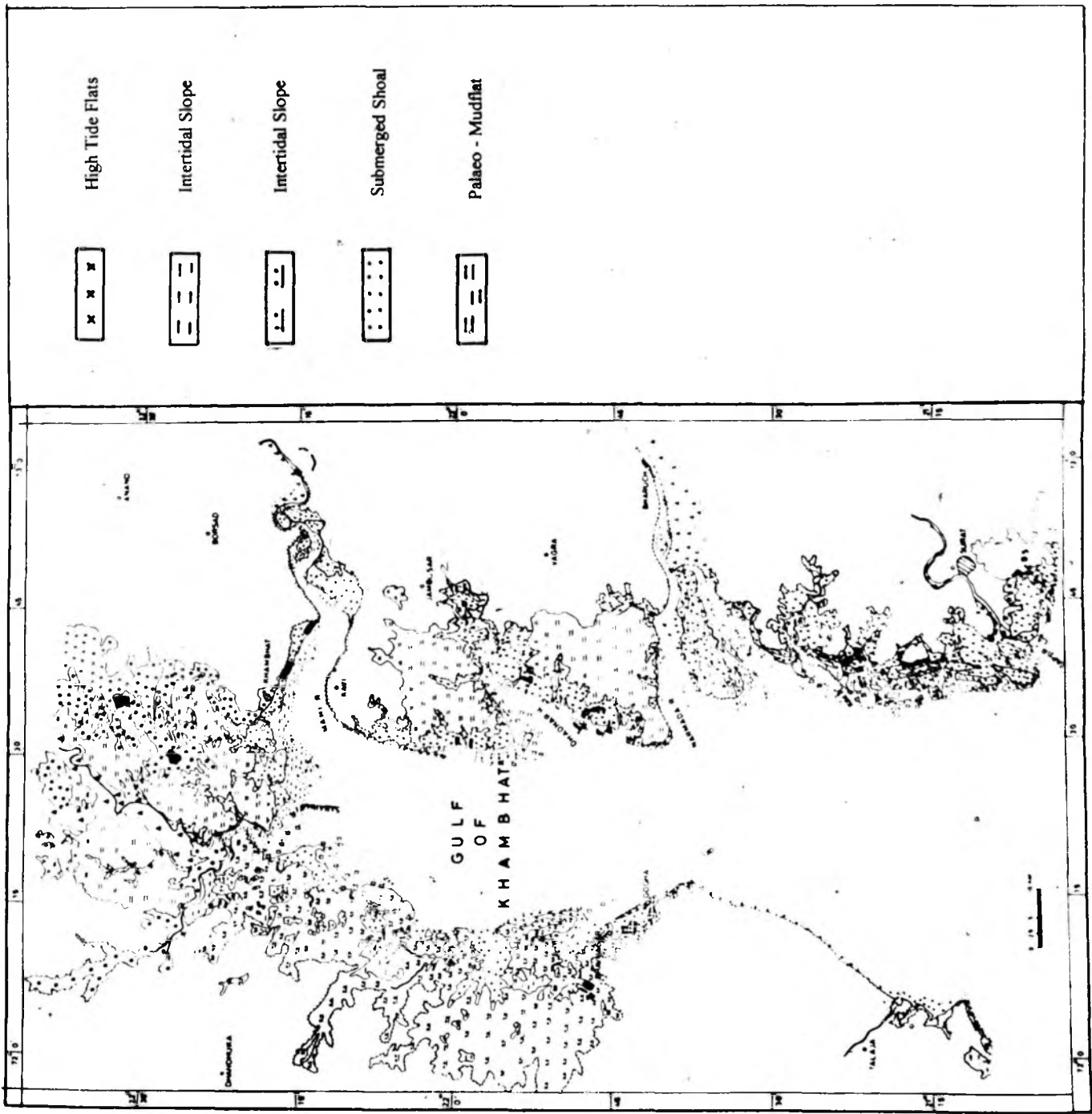


Fig. 29 Geomorphic map around the Gulf of Kambhat
(after Shaikh *et al* 1989)

mudflats. The rhythmic waxing and waning of the tides, acting on the inter-tidal flats leads to continuous disappearance and appearance of landforms. That the *Periplus*' dramatic detailing of the vigorous marine environment on the Narmada estuary is true is also authenticated by the fact that the estuary is given to unpredictable and rapid shoal formation. This is demonstrated, for instance, by the rapid expansion of the large sandbar of Aliabet at the Narmada mouth which actually has grown, in a few years, to close the channel of the river (Nayak *et al.* 1989: 123-125).

Significantly, the menacing high tides were actually indispensable for making the crossing to *Barygaza* as they provided the good depth of water necessary for ships to 'tide over' the impediment of mudflats and shoals at the mouth of the Narmada. Once having crossed the shallows, the ships navigated upstream along the Narmada to *Barygaza* and anchored in 'deep basins' in the river. Howell (1994) believes that these deep-water berthing points are marked out today by Early Historic occupational deposits on the banks of the Narmada between Bharuch (*Barygaza*) and the sea.

To recapitulate, we find that the Lower Indus/Gujarat coastal zone provided difficult sailing conditions for merchant shippers. The high rate of fluvial deposition from the Indus created a vast shallow tract off the Kutch coast making this region virtually unapproachable by merchant-vessels except to the south where the Early Historic port-site of Mandvi is located. The hazards posed to ships in the Gulf of Kutch were high tides and sharp reefs while the main dangers in the Gulf of Khambhat was due to high tides and shoals.

4.1.3. Harbours and Coastal Settlements

The appearance of harbours in the Indus delta and the Gujarat coast in mid-late 1st millennium B.C. was a direct manifestation of the revival of the vigorous maritime tradition of the Harappans which vanished in the mid-2nd millennium B.C. Archaeologically, the Harappan-Early Historic succession of maritime tradition is observed in the Early Historic deposits directly overlying coastal Harappan settlements such as Prabhas Patan (Nanavati *et al.* 1971; Dhavalikar and Poeschl 1992: 72-78) and Padri (Shinde 1992: 79-86). At other places on the coast the Harappan-Early Historic coastal sites are situated in proximity such as Allahdino-Banbore, Nageshwar-Dwarka, Lothal-Nagara and Malvan-Kamrej.

4.1.3.a. Makran and Lower Indus

Our survey begins from the Makran coast of Baluchistan where the *Periplus* locates a single coastal trading-station called *Oraea* and connected to it, the inland city of *Rhambacia* (PME 37; Fig. 28). In all likelihood, *Oraea* must have served as halting

point for maritime traffic between the Persian Gulf and the Indus Valley. In addition, the port must have been an outlet to the sea for the secluded valleys of Baluchistan. The existence of 3rd millennium B.C. Harappan citadels of Suktagendor and Sukta-Koh astride crucial passes connecting Makran with Baluchistan point to the importance of the Makran for Indus Valley people in the Bronze Age. Similarly, in Early Historic times, the continuation of the coastal-hinterland relationship is suggested by the *Oraea-Rhambacia* connection. Virtually no confirmed discovery of artefactual indicators of Mediterranean contact have been made on the Makran, unless we take into account Stein's finding 'coarse 'ribbed' pottery resembling wares 'well known in Egypt from the Roman and Byzantine periods' (Stein 1931/82: 28).

Schoff (1912/74: 161-162) situates *Oraea* at Ormara Bay. A navigational survey carried out by the explorer Heyerdahl (1982:270-276) in his reed ship *Tigris* shows Ormara Bay to be a protected anchorage on the Makran sheltered from the open sea by a precipitous promontory. The modern name Ormara recalls *Oraea*. No archaeological evidence of Early Historic occupation has been found about Ormara Bay so far though the explorer Stein (1931/82: 111) noticed a mound on the pass connecting Ormara Bay with the interior of Baluchistan. However, the date of the deposition was not suggested.

The location of *Rhambacia* is yet to be established. A number of Early Historic mounds located by Stein (1931/82) in southern Baluchistan probably have amongst them the remains of ancient *Rhambacia*.

Immediately to the east of Makran, on the estuary of the Indus, the *Periplus* locates the trade-port of *Barbarikon* and upstream on the Indus, the Indo-Parthian city of *Minnagara* (PME 39). The *Periplus* (39) further informs that Mediterranean commodities imported into *Barbarikon* were taken upstream along the Indus to the city of *Minnagara*, the capital of the 'Scythian' princes. Another important trade-port called *Patala* is mentioned in by Greek authors (Arrian, Ptolemy) as existing in the Indus estuarine area (McCrindle in Shastri 1927:147-148).

The estuarine site of Banbhore (Fig. 28) has been associated with associated with the port of *Barbarikon* by Cunningham (1963:247-256). Excavations at the site of Banbhore by the Department of Archaeology of Pakistan revealed earliest foundations of Banbhore going back to the 1st century B.C.-2nd century A.D. (Khan 1976). Khan dates the Early Historic levels at Banbhore on the basis of diagnostic pottery types, particularly the Red Polished Ware 'sprinkler.' Recently, Kervran (1996:39) has related the pottery finds from Banbhore with Indian wares imported into the Persian Gulf region. The early levels at Banbhore were found to be water-logged

and Khan (1976:11) estimates that the deposits may go down 'much earlier.' The place-name Banbhore recalling *Barbarikon* and the deposits of the *Periplus*' period suggest this to be the ancient site of *Barbarikon*. Khan (1976:12) projects that Banbhore may have been also the port where Alexander docked his ships. This connection also associates Banbhore with *Patala* where Alexander berthed his ships.

A likely location for *Minnagara* is the historical period site of Brahmanabad in Sind. The discovery of a pillar-moulded glass bottle of eastern Mediterranean origin dated to the early centuries A.D. in the excavation of Brahmanabad by the Archaeological Survey of undivided India (Cousens, H. in ASI Annual Report 1908-9 Plate XXIII, pp 82) indicates the *Periplus*' reference to the import of Roman glassware at *Minnagara*.

4.1.3.b. Gujarat

Mandvi: Immediately south-east of the deltaic tracts of the Indus is the vast arid region of Kutch. As has been pointed out, the Kutch coast was inhospitable to trading vessels because of the vast offshore shallows created by silt deposition from the Indus. However at the south-west coast of Kutch where the shoal formations are considerably narrow, there is located the Early Historic coastal site of Mandvi (Fig. 28).

Mandvi was explored by Dr. K.K.Bhan (Baroda University) in 1992 and thereafter by Ms. Atusha Bharucha (research scholar at Deccan College). Bhan and Bharucha (personal communication) report a large site of an extent more than a kilometre situated approx. 3-4 km from the open sea on the banks of a rivulet. From a localised area of the site Bhan recovered 7-8 amphora fragments. From Bhan's preliminary prospections it appears that Mandvi was integral to the Indo-Mediterranean exchange network. Considering the fact that Mandvi lay on the *Barbarikon-Barygaza* searoute, it is conceivable that Mediterranean merchant vessels using this route halted at this port. The occurrence of Mediterranean amphorae at the site suggests this. However, we have to await more intensive prospections at Mandvi to be sure whether it served as a mere watering station for ships en route to *Barbarikon* or *Barygaza* or it was a trading port in its own right. We have no help in tracing the antiquity or function of Early Historic Mandvi from old texts. Both the *Periplus* or the *Geographia* fail to mention this port. This omission is surprising because as the explorations of Bhan and Bharucha have revealed, Early Historic Mandvi seems to have been a settlement of considerable size.

Mandvi is still a flourishing 'dhow' port. Indian dhows regularly visit Dubai with consignments of flour and onion and return with dates (Sahani 1996).

Dwarka\Bet Dwarka: Roughly opposite Mandvi, on the north-west extremity of Saurashtra, lies the area of Okhamandala where evidence of Harappan, Late Harappan and Early Historic occupation have come to light (Fig. 28). Relevant from our point of view are the excavated Early Historic remains of the legendary port-city of Dwarka eulogised as the capital of the god-king Krishna

Excavations at Dwarka (in and about the modern township) were first undertaken by the Deccan College (Ansari and Mate 1966) and later by the ASI in (Rao 1987:19-25). Marine archaeological prospections have been undertaken both around Dwarka township and about the island of Bet Dwarka further north (Rao 1987:26-58). The Deccan College excavations revealed evidence of Roman contact in the form of Mediterranean amphorae fragments (Ansari and Mate 1966:29,72-73). Mr. Alok Tripathi (personal communication) has informed me that he has seen a few amphorae fragments in the pottery collected from the Dwarka excavations of the ASI.

A major commercial attraction for Dwarka as a trade-port may have been due to the area being a rich source of *chank* or columella. Dwarka possessed a flourishing chank banglemaking industry since Harappan times. This is evident in the discovery of the Harappan coastal settlement of Nageshwar in Okhamandala district exclusively engaged in the manufacture of chank bangles (Bhan and Kenoyer 1980-81:115-120). Remains of columellae with cuts and incisions have been recovered from Late Harappan contexts in offshore prospections at Bet Dwarka (Rao 1987). Material remains of chank working in Early Historic times are yet to be found in the Dwarka area. However the widespread Early Historic chank industry of Gujarat evidenced in numerous sites (Amreli, Vadnagar, Nagara) must have received raw material supplies from the Dwarka area. As the Nagara report informs: 'Chank is not a local product of the Gulf of Cambay. The nearest source of it is near Dwarka, from where it must have been imported by the local workers...' (Mehta 1968:127).

We have referred earlier to the similarities noticed between imported Indian pottery found at the Early Historic Somali port-site of Ras Hafun and the utility wares of Dwarka Pd I and II (Stiles 1992: 27-36). The most likely context for the movement of utility wares from western India to Somalia is provided by *Periplus*' information about Indian foodstuffs reaching the Far-Side ports (PME 14, 31-32). Dwarka may have been an important centre for export trade in essentials to West Asia\East Africa in the early centuries A.D.

Bardaxema and Monoglosson: These two coastal market-towns have been listed in the *Geographia* of Ptolemy as situated in the region of *Syrastrene* or

modern Saurashtra (McCrindle 1884:323). *Bardaxema* has been associated with the modern village of Bardiya by McCrindle (1884:324). However Yule (in McCrindle 1884:324) locates it at Porbandar. No archaeological remains associated with *Bardaxema* have been found.

Monoglosson has been identified with the present-day harbour of Mangrol on the west coast of Saurashtra (McCrindle 1884:325; Fig. 28). Today this is a very important port for modern dhows carrying onion and flour to the Oman peninsula (Sahani 1996). This contemporary practice indicates that Mangrol may have served as an outlet for Saurashtran food shipments to West Asia in the period of the *Periplus*.

Prabhas Patan (Somnath): The ancient Saurashtran coastal site of Prabhas Patan finds mention in Puranic records as *Prabhasa*. The *Mahabharata* recounts the visits of the Pandava brothers to *Prabhasa* (Rao 1987:19,73).

Excavations at Prabhas Patan in 1956 by the Baroda University (Nanavati *et al.* 1971) and by the Gujarat State Archaeology Dept. in 1965 (Rao 1987) brought to light a Late Harappan\Chalcolithic phase followed by an Early Historic phase. The Early Historic phase at Prabhas Patan comprised Pd.III to V. Pd.V yielded Mediterranean amphorae (JAR 1956-57:16-17; Fig. 28).

The port of Prabhas Patan lay directly on the *Barbarikon-Barygaza* searoute. The port was in proximity to important Early Historic settlements like Amreli and Junagadh in the interior of Saurashtra. The *Periplus* refers to Saurashtra as a region rich in foodstuffs and cotton cloth (PME 41). We know that these essentials were exported from western India to West Asia\East Africa\Red Sea littoral. In this context, the port of Prabhas Patan, together with Dwarka must have been involved in the export of Saurashtran commodities. In this regard, I may mention here the rims of large storage vessels, excavated from Early Historic levels of Prabhas, I studied in the reserves of the Dept. of Archaeology, M.S. University of Baroda. Undoubtedly, these large storage jars must have been used to transport grain and other foods to arid West Asia from the harbour of Prabhas Patan.

Nagara: Situated on the northern extremity of the Gulf of Khambhat, the Early Historic port of Nagara seems to have been a major trading\manufacturing centre. The site has also revealed evidence of commercial linkages with the Mediterranean World. Excavations conducted at Nagara by the Baroda University yielded amphora sherds in Pd.III contexts (Mehta 1968: 17-19). This period, besides revealing evidence of a flourishing chank and glass working, also witnessed a rapid expansion in size (Mehta 1968: 9).

Nagara must have been important as a trade-port because of the export-commodities manufactured there as well as its commercially strategic location. Nagara's location favoured it with a large hinterland comprising northern Gujarat and southern Rajasthan. There were well-defined trade routes connecting Nagara with inland settlements such as Vadnagar and Shamalaji in Gujarat and Balathal, Gilund, Nagari and Rairh in Rajasthan (Fig. 39, discussion in Chapter V).

Nagara has yielded decorated coarse storage vessels remains similar to the suspected Indian utility wares found in the Persian Gulf (Fig. 25). All the three designs basic to the decorated coarse ware - finger-tipped, slanting incised lines, incised wavy lines - have been found on the decorated coarse ware at Nagara (Mehta 1968:34-85).

The end of Pd III at Nagara saw the gradual silting up of the creek that connected it to the sea (Mehta 1968:168). The gradual decline of Nagara is reflected in the deterioration in the quality of structures in the upper levels of Pd III (Mehta 1968:9).

Barygaza/Brgukaccha/Bharuch: We have discussed, with the help of geomorphological and hydrological data generated by satellite survey, the difficulties faced by ancient mariners seeking to enter the Narmada from the open sea in order to reach the great harbour at *Brgukaccha/Barygaza*. The site of the ancient harbour, situated 40 km upstream on the north bank of the Narmada, is today buried below the modern town of Bharuch.

The earliest reference to Brgukaccha is to be found in the old Buddhist texts (*Pitakas, Jatakas*) originating in the mid-first millennium B.C. (Mehta 1939:227-228, Sarao 1990:56). This port was known to the Hellenistic world as *Barygaza*. Both the *Periplus* (43-49) and the *Geographia* (Book 7, Chp. 14-6) refer to the harbour by this name.

Barygaza was obviously a premier port of trade in the *Erythraean* Sea exchange system. The *Periplus* mentions *Barygaza's* trade links with the Red Sea littoral (*Myos Hormos, Berenice, Muza, PME* 26, 49), the Gulf of Aden (Far-Side ports, *Qana, Moscha, PME* 57), the Persian Gulf (*Omana, Apologus, PME* 36, 49) and the Malabar coast (*PME* 56). In effect, we find that *Barygaza* had direct interaction with all trade zones in the western Indian Ocean. *Barygaza's* connections with Sri Lanka and South-East Asia are alluded in the *Mahajanaka Jataka* (Mehta 1939:227).

Brgukaccha/Barygaza was the terminus of major land routes from the Gangetic zone, Bactria-Gandhara and peninsular India (*PME* 48). The harbour was in

the territory of the Sakas. The *Periplus* specifically mentions it as being part of the Kingdom of Mambanus, i.e., the Kshatrapa monarch Nahapana. According to the *Periplus* the 'King' (obviously Nahapana) offered the services of pilot boats to guide incoming ships through the shoals to *Barygaza*. In fact the Saka authority was so zealous of maintaining the commercial superiority of *Barygaza* that Greek vessels sailing into the rival Satavahana port of Sopara were intercepted and taken 'under gaurd' to *Barygaza* (PME 52; see Casson 1984: 211-224 for a different view on this issue).

Excavations at the ancient site of Bharuch (Fig. 28) are not feasible on a large scale because of the situation of a part of modern Bharuch town directly on the ancient occupational deposit. This difficulty has been explained in detail by Howell (1994) who made an intensive survey of the mound in 1993. Howell's survey recorded intermittent remains of brick-revetted fortification walls and probably the outlines of a surrounding moat. Howell also examined the Early Historic deposits at Chavaneshwar and Barbut on the northern bank of the Narmada some 15 km downstream of Bharuch. He located a new Early Historic site on the southern bank of the Narmada directly opposite Bharuch. Howell is of the opinion that these smaller sites on the Narmada indicate the 'deep spots along the river upto *Barygaza*' where the incoming ships berthed.

The ceramic assemblage of the Early Historic period comprises the ubiquitous Black-and-Red and the Red Polished Ware. No Mediterranean ceramics have been found from Bharuch proper though Dr. Osmund Bopearachchi (C.N.R.S., France) showed me photographs of Roman copper coins of the 4th century A.D. found in a hoard near Bharuch. Interestingly, pottery fragments carrying stamped and moulded rosette motifs were recovered in the only excavations to be carried out at Bharuch by K.V. Soundara Rajan of the ASI (JAR 1959-60: 19). The ceramics were found in Period I deposits, the phase anterior to Period II which yielded the Red Polished Ware. These ceramics may have a Hellenistic origin in the Persian Gulf area because wares with rosette motifs proliferate in that region (J.F. Salles: personal communication).

Akabaru : South of *Barygaza* the *Periplus* lists the market-towns in order of *Akabaru*, *Sopara* and *Kalliena* (Kalyana). Howell (1994) associates the Early Historic mound of Kamrej, located on the south bank of the river Tapi about 40 km from the sea (Figs. 28, 30), with the ancient settlement of *Akabaru*. I have reasons to disagree with his view. The present study identifies the site of Kamrej with the

'village of *Kammoni*' mentioned in the *Periplus*. The reasons for the *Kammoni*-*Kamrej* correlation are detailed (see also Gupta 1993: 119-127).

*Kammoni**Kamrej*: The reference to *Kammoni* comes in section 43 of the *Periplus* which describes sailing conditions (presumably for Mediterranean sailors) at the entrance of the Gulf:

'This gulf is very narrow to *Barygaza* and very hard to navigate for those coming from the ocean; this is the case with both the right and left passages, but there is better passage through the left. For on the right at the very mouth of the gulf there lies a shoal, long and narrow, and full of rocks, called *Herone*, facing the village of *Kammoni*, and opposite this on the left projects the promontory that lies before *Astracampsa*, which is called *Papica*...' (Schoff 1912/74:39-40; emphasis mine).

From the extract it is clear that the author of the *Periplus* 'positions' the village of *Kammoni* and the promontory of *Papica* with respect to *Herone*, the shoal 'at the very mouth of the gulf.' The 'long and narrow' *Herone* can be easily identified with the present Malacca Banks, the sub-tidal sedimentary deposits (range of depth 0-10 m; Schoff 1974:181) splayed out at the entrance of the Gulf (Fig. 30). These shallows serve to effectively reduce the available passage from the Arabian Sea into the Gulf of Khambhat to a series of north-south oriented deepwater channels. The relatively wide opening along the Saurashtra coast is obviously the 'left passage' preferred by the author of the sea guide.

Following the internal evidence of the *Periplus* we can safely place *Kammoni* on the eastern side of the mouth of the Gulf since the promontory of *Papica* is described as lying to the left, i.e., west of *Herone* from the point of view of 'those coming from the ocean.' *Papica* has been identified with Gopinath Point, the promontory on the Saurashtra coast overlooking *Herone*\Malacca Banks (Schoff 1912/74:181). The locations of *Kammoni* and *Papica* on either side of *Herone* suggest that they were situated opposite each other. Unlike *Papica* and *Herone*, which can be observed today as distinctly recognizable geomorphic features at the mouth of the Gulf, the search for the exact location of *Kammoni* has to be conducted with the aid of extant historical and archaeological records.

Besides the *Periplus*, the other western classical source which refers to the village is the *Geographia* of Ptolemy. Ptolemy situates the settlement, which he calls *Kammanes* (McCrindle in Shastri 1927:33), slightly north of the river Narmada (Fig. 30). This is a major deviation from the *Periplus* which places *Kammoni**Kammanes* at

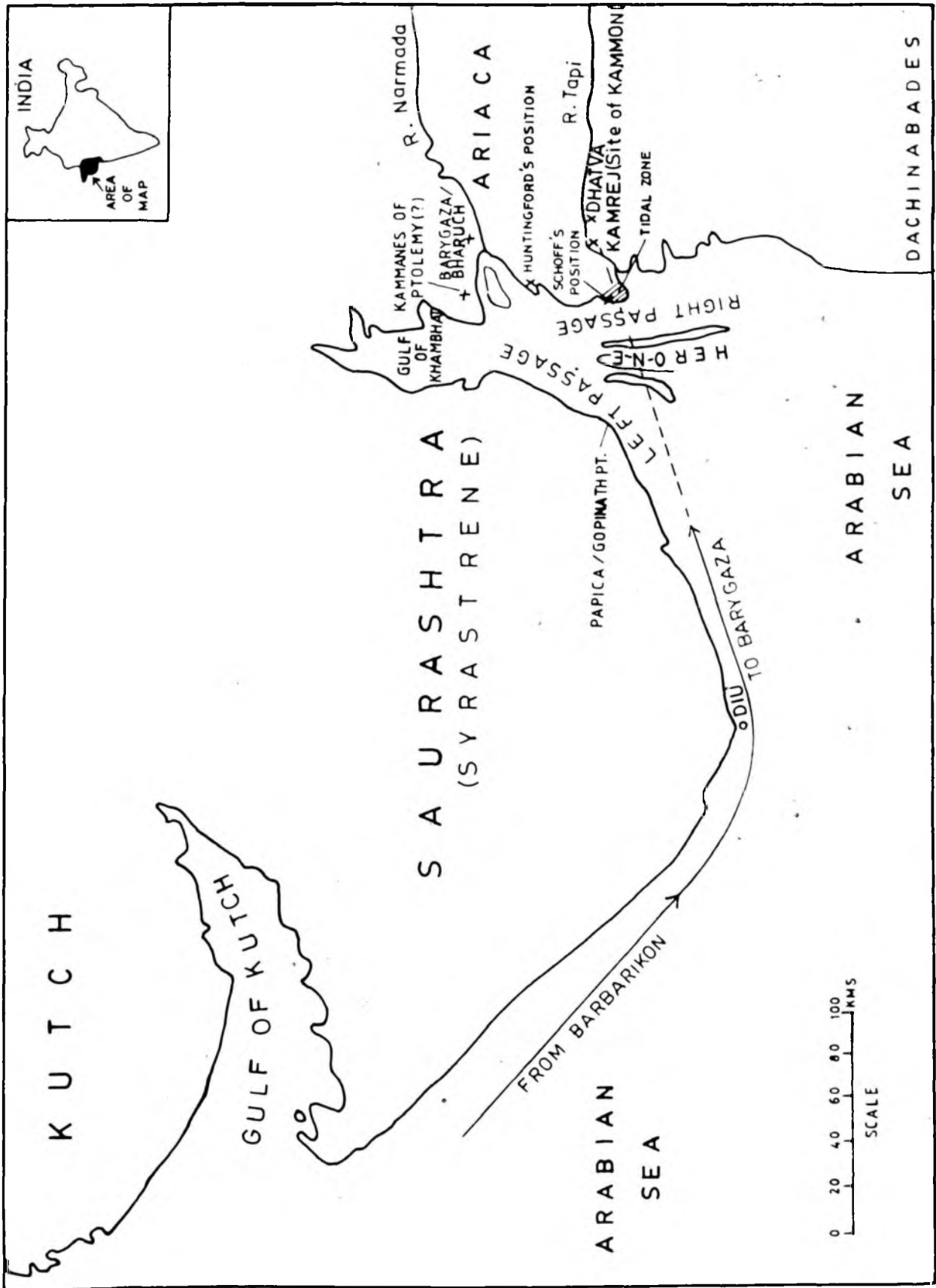


Fig. 30 The geographical context of Kamrej - Kammoni as given in the *Periplus*

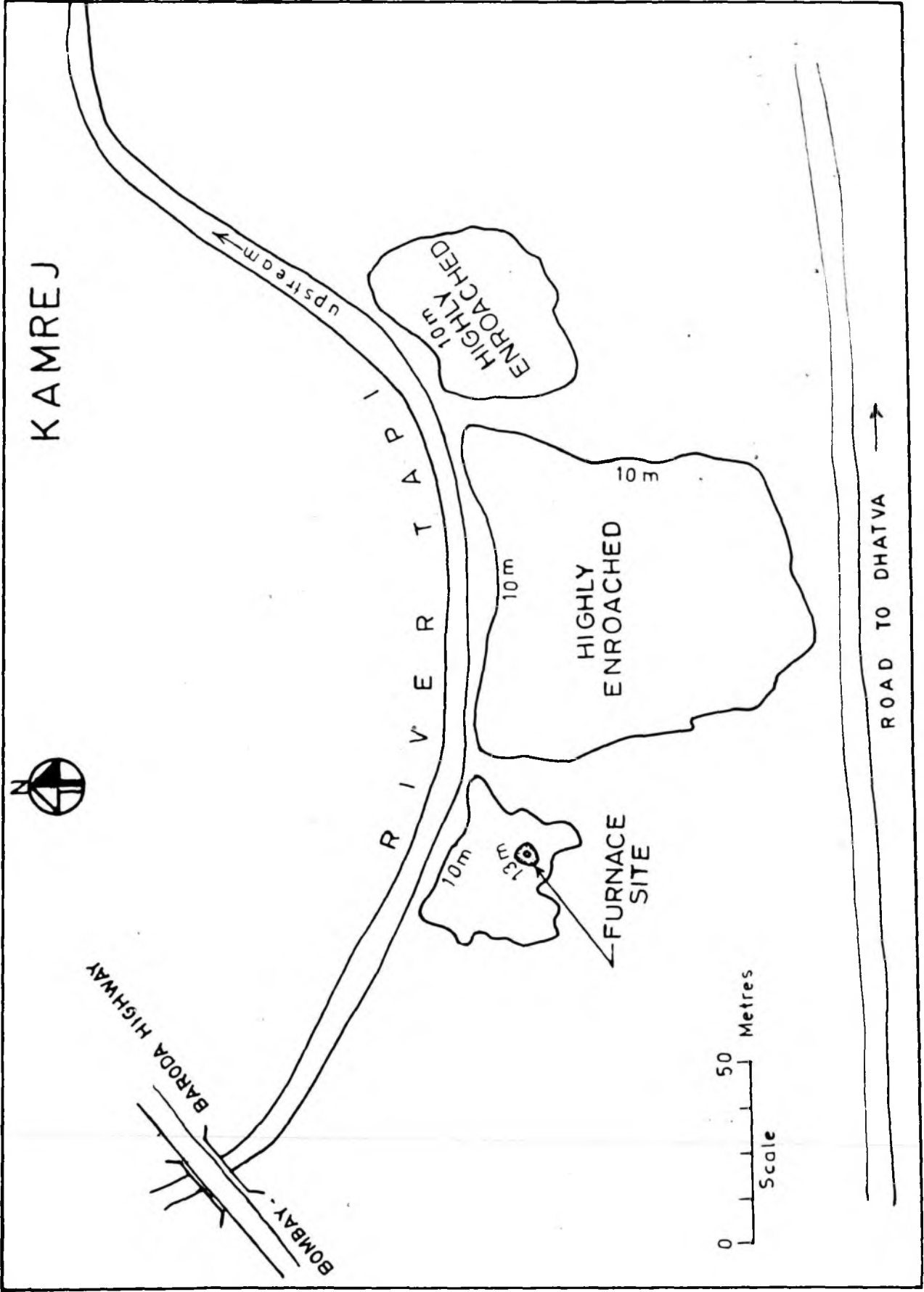


Fig. 31 Contours of Kamrej Mound

the entrance of the Gulf and thus south of the above river. Of the two the evidence of the *Periplus* is evidently stronger. Compared to Ptolemy's solitary mention of *Kammanes* in his list of west Indian port-sites (McCrindle in Shastri 1927:33), the *Periplus* 'fixes' the settlement in a more specific context by linking it to 'secure' points of reference - *Papica* and *Herone*. Furthermore, the graphic and detailed description of tides and shoals and landmarks in and around the Gulf of Khambhat given in the *Periplus* (sections 41-46) suggests that the author of the maritime guide had actually voyaged to the area. In this context, the location of *Kammoni*, as indicated in the *Periplus*, must have been directly reported. Thus, for reasons just cited, a south-of-the-Narmada location for *Kammoni* becomes the credible option. McCrindle (in Shastri 1927:38-39), in his commentary on Indian place-names compiled by Ptolemy, says as much: '*Kammane* is mentioned as *Kammone* in the *Periplus* where it is located south of the Narmada estuary. Ptolemy probably errs in placing it northward of it.'

To recapitulate, the geographical parameters for the location of *Kammoni* emerging from the discussions so far are:-

- (1) Location south of the Narmada
- (2) Somewhere near the mouth of the Gulf in proximity of *Herone* \ Malacca Banks
- (3) Opposite Gopinath Point

Taken together, these parameters point to the estuary of the river Tapi, lying south of the Narmada, as the provenance-zone for *Kammoni*. The river Tapi debouches at the very mouth of the Gulf of Khambhat. Furthermore, the Tapi delta and Gopinath Point lie directly opposite each other on the eastern and western littoral of the Gulf respectively. In his study of the *Periplus* port-sites Schoff (1912/74:182) places *Kammoni* squarely in the Tapi's estuarine zone, stating specifically that the settlement 'would be (situated) at the end of the promontory that lies to the N.W. of the mouth of the Tapti river.'

Before discussing the implications of Schoff's assertion, the view of Huntingford (1980:111-112) on the location of *Kammoni* needs to be taken into account. He situates the village between the Narmada and the Tapi, identifying it with the modern village of Kim at the mouth of the river of the same name (Fig. 30). Also, the shoals of *Herone* are shown by him as lying opposite the river Kim. The main weakness in Huntingford's identification is his exclusion of the geographical context for *Kammoni*'s location as given in the *Periplus*. Take for instance his placing of *Herone* - the critical reference for *Kammoni* - opposite the mouth of the

river Kim. Though shoals do exist in these parts (Shaikh *et al.* 1989:42), the *Herone* shoal, as the *Periplus* emphatically states, occurs 'right at the very mouth of the gulf.' Besides, the other geographical 'marker' for *Kammoni* - Gopinath Point - is situated discernably south of the Kim. Thus Huntingford's projected location of *Kammoni* is too far inside the Gulf of Khambhat with respect to the parameters given in the *Periplus*. The only plausible reason for Huntingford's identification of *Kammoni* with the modern settlement of Kim seems to be the similarity between the two place-names.

Now, to return to Schoff's position. His contention that *Kammoni* was situated 'at the end of the promontory that lies to the N.W. of the mouth of the Tapi river' seems to have been directly inferred from the statement in the *Periplus*: '*Herone*, facing the village of *Kammoni*...' Schoff's comprehension of 'facing' is in the sense of 'closeness'. This line of thinking made him situate *Kammoni* 'at the end of the promontory', i.e., on the seashore (Fig. 30).

However, a close scrutiny of the area lying to the north-west of the mouth of the Tapi reveals that the possibility of the ancient settlement existing on the shore of the promontory was extremely remote. Recent satellite surveys conducted by the Indian Space Applications Centre (Shaikh *et al.* 1989:42-43) show that the promontory, presented as part of the mainland on the map referred by Schoff (1912/74:181) is actually a potentially submergible zone covered with mudflats and scrubby terrain. The danger of submergence of large parts of the promontory is enhanced by the fact that the Gulf of Khambhat experiences one of the highest tidal ranges in the world (Nayak and Sahai 1983: 152-154). Even the high-tide mudflats which normally do not get inundated are therefore constantly threatened with such an eventuality. In this regard, it is highly improbable that *Kammoni* would have been situated on the edge of the promontory where submergible inter-tidal flats slope into the sea (Fig. 30).

Thus, a fresh assessment of *Kammoni*'s likely location on the Tapi delta suggests that the village lay some distance inland at a 'safe' point on the estuarine zone. But here a question arises. How do we reconcile an inland location for *Kammoni* with the *Periplus*' statement that the settlement faced *Herone*? The crux of the problem lies in the way the phrase '*Herone*, facing the village of *Kammoni*' is interpreted. Obviously Schoff perceived it purely in the 'spatial' sense where the word 'facing' connoted the shortest possible distance between *Herone* and *Kammoni*. This made him erroneously place *Kammoni* 'at the end of the promontory'. However a different perspective emerges if we treat the word 'facing' as connoting 'direction'

instead of 'distance.' The imputation of such a connotation to the above phrase serves to broaden its scope, the implication now being that the location of *Kammoni* was generally speaking *in proximity* of *Herone* and not necessarily on the shore opposite it.

In the above context it is important to note that the link between *Herone* and *Kammoni* was projected by the author of the *Periplus* when he was at sea. The phrase '*Herone*, facing the village of *Kammoni*' is part of the detailed account of the sea voyage from the port of *Barbarikon* on the Indus estuary to the port of *Barygaza* on the Narmada estuary (*PME* 40-46). Following the progress of this voyage we can see that the course charted by Roman vessels after they had rounded the Saurashtra coast near the island of Diu would have taken them straight towards *Herone* the Malacca Banks (**Fig. 30**). It is precisely during this part of the run, when Roman mariners must have been on guard against the hidden menace of shoals at the mouth of the Gulf, that the author of the maritime guide chooses to inform us of *Kammoni*. Keeping in mind that *Herone* lay squarely in the line of approach of Roman ships it can be inferred that *Kammoni*, which was 'facing' *Herone*, was also aligned in this sailing direction. Thus, from the point of view of Roman sailors nearing *Herone*, the settlement of *Kammoni* would have been situated *straight ahead* on the mainland which lay just behind the shoals.

Why did the anonymous author of the *Periplus* place *Kammoni* in such sharp nautical perspective? It is unlikely that the reason could have been the settlement's prominence as a coastal landmark for passing ships because, as we know, the edge of the Tapi estuary was potentially submergible. This means that *Kammoni* was considered significant for some other reason by the author of the *Periplus* and Roman mariners regularly plying the Egypt - India route. That the settlement was well-known to westerners from the Mediterranean is suggested by the second reference to it in Ptolemy's *Geographia*. The issue of *Kammoni*'s importance for the Romans will be examined in the light of historical and archaeological evidence.

At this stage of the discussion, 'sharper' parameters emerging for the location of *Kammoni* are:

1. The settlement was situated in the non-submergible zone of the Tapi estuary.
2. It was in proximity of *Herone* Malacca Banks.
3. The *Herone-Kammoni* axis was in alignment with the course of Roman ships approaching *Herone*.

4 The settlement was well known to Mediterranean sailors

Shifting the focus onto the mainland we can see that the area covered by the present day Surat District of Gujarat State is roughly congruent with the Tapi estuarine zone. Specifically, the area under focus comprises the territory in the immediate vicinity of Surat - a flourishing port in medieval times - situated 30 Km from the mouth of the river Tapi.

Within this deltaic tract a likely location for the ancient village of *Kammoni* suggests itself in the Early Historic mound of Kamrej situated about 15 Km upstream of Surat on the south bank of the Tapi (Fig. 30, 31). As will be discussed below, there are numerous grounds for identifying Kamrej with *Kammoni*. Of particular importance in this regard is the reference to the settlement in ancient inscriptions as *Kammanijja* (Annual Report of the Directorate of Archaeology, Baroda State 1935-36:17-18), a place-name which could have been easily modified to the Hellenistic *Kammoni* or *Kammanes*.

The site of Kamrej was explored by me in March 1992 in the company of Dilip Rathod of the Surat Office of the Gujarat State Archaeology Department. The site is a longitudinal mound (250 x 100 m) curving along a bend of the river Tapi (Fig. 31; Pl.III.a). The average height of the mound was estimated to be about 10 m above the river level. However it was observed that the actual occupational deposit lay 4 m thick over the 6 m high natural mudbank. In fact, similar mudbanks could be seen on both shores of the Tapi.

High mudbanks are characteristic of the Tapi estuary (Shailesh Nayak, S.A.C., Ahmedabad: personal communication) making the lower reaches of the river deep and navigable for long distances upstream from the sea. This fact is most evident in the situation of the old riverine port of Surat a good distance inland from the mouth of the Tapi. Like Surat, the location of Kamrej right on the Tapi's bank suggests that it must have also been a port or anchorage in Early Historic times. Portions of a brick structure exposed on the steep side of the mound facing the river could be the remains of a wharf. Enquiries at Kamrej village revealed that until recently fishermen regularly set sail for the sea from here. In the light of these considerations Kamrej can be viewed as being essentially a 'coastal' settlement and an old base for past maritime activity.

The existence of Kamrej in Early Historic times is attested to by the pottery of the B.C./A.D. changeover period scattered profusely over the site. In course of exploration, I retrieved fragments of crudely fired pots and basins with thick rims which are comparable to the types excavated from Early Historic levels at the site of

Dhatva situated a mere 7 km upstream of Kamrej (Mehta and Chowdhary 1975:37-39; Fig. 30). Other Early Historic indicators comprised a fragment of an unslipped Red Ware bowl with flaring sides (for correlation see Sankalia *et al.* 1960 Fig. 129, type 76; Mehta and Chowdhary 1975:Fig 17, type 130), a terracotta tile fragment similar in shape and fabric to the grooved double-holed tiles that have come to light in the 1st-2nd century A.D. levels of many sites in western India (see Sankalia *et al.* 1960:398) and Red Polished Ware fragments dated to the early centuries A.D. A collection of RPW rim pieces from Kamrej were also examined by me at the Surat Office of the Gujarat State Archaeology Department. In effect, the profuseness and variety of Early Historic pottery on the surface of Kamrej reveals that the settlement flourished in the time of the *Periplus*, i.e., 1st century A.D.

Does Kamrej 'conform' to the parameters for *Kammoni*'s location given above? The condition under (1) is clearly fulfilled as Kamrej is situated in the non-submergible area of the Tapi estuary. The second condition - proximity to *Herone*/the Malacca Banks - is applicable to Kamrej because the site is only 40 km from the Gulf of Khambhat as the crow flies and about the same distance from the Tapi's mouth along the riverine route. Thirdly, it is observed that the course navigated by Roman ships sailing towards the Malacca Banks can be extended *without deviation* up to Kamrej (Fig. 30). The fourth condition, that *Kammoni*/Kamrej must have been well-known to Roman mariners for it to have been mentioned by the *Periplus*' author will be discussed in the light of the contention that the riverine settlement was an Indo-Roman trading station.

To contend that Kamrej was a port of call for Mediterranean trading vessels implies a commercially 'strategic' location for the settlement. In other words, Kamrej must have served as a point of access for Roman traders to the Tapi estuarine area and beyond. In fact, evidence of Roman contact having taken place in the estuarine area has come to light at Kamrej and its vicinity. Amongst the pottery recovered by me from Kamrej are two body sherds recognised as remains of amphora. Mediterranean amphora fragments have been found in the Early Historic levels of the adjacent site of Dhatva (Mehta *et al.* 1975: 9). The evidence of Mediterranean contact with Dhatva becomes crucial to the discussion as the site is situated in close proximity to Kamrej.

Dhatva was excavated by archaeologists from M.S. University, Baroda (Mehta *et al.* 1975). The diggings revealed a two-period cultural sequence: Period I and Period II. During Period I Dhatva was occupied by a copper-using community from 1500 - 1000 B.C. After a gap of 500 years, Period II Dhatva was occupied by a

community of ironmakers sometime in the 5th-4th century B.C. The settlement continued to flourish upto the 3rd century A.D. after which it was finally abandoned. All the three layers making up the Pd II deposit have yielded iron slag in profuse quantities suggesting that Early Historic Dhatva was a specialised craft village engaged in iron manufacture throughout the period of its existence (Mehta *et al.* 1975:48-56; Pl. III.b). The Dhatvan metallurgists exploited the locally available haematite and limonite ores (Mehta *et al.* 1975:49-50). That Dhatva was producing large quantities of the metal is indicated by the fact that the iron slag deposits found were 'of the order of several thousand quintals' (Mehta and Chowdhary 1975:48). The occurrence of Mediterranean amphora in association with evidence of iron manufacture amplifies the classical and archaeological evidence of Roman iron imports from India (see sub-section on iron in Chapter III).

The proximity of Dhatva to Kamrej suggests that sea-borne traders from the Mediterranean first landed at the riverine settlement and then made their way to Dhatva. Or, on the other hand, the Romans may have sailed up the Tapi to Kamrej to pick up Dhatvan iron from there. In either case, the short distance (7 km) separating the two settlements must have considerably reduced the difficulty of transporting the heavy metal from its production centre (Dhatva) to the distribution/exchange centre (Kamrej). The ancillary status of the iron-producing site *vis.a.vis.* the port of Kamrej was observed by the Baroda University excavators who were of the opinion that Dhatva 'might have been a service station to the larger settlement at Kamrej. During the period of existence it had brick buildings and its pottery indicates that the Roman amphorae used to come to Dhatva possibly through Kamrej on the Tapi' (Mehta *et al.* 1975:4).

Interestingly, an archaeological feature on an undisturbed portion of Kamrej mound provides strong ground for viewing Kamrej and Dhatva as 'integral.' The feature observed happens to be a sharp conical projection (3 m high) rising sharply out of the occupational deposit (Fig. 31). Close examination and controlled scraping of the projection revealed vitrified brickbats underlying the topsoil. A few pieces of the material retrieved for study showed traces of iron slag on it, indicating that the structure was a furnace used for either smelting iron from ore or for re-smelting iron to be cast into required shapes (ingots). The latter contention leads to the hypothesis that pure iron for reworking must have come to Kamrej directly from the most convenient source - the smelters of Dhatva.

Significantly, a disclosure about iron imports made in the *Periplus* seems to corroborate the case for Roman acquisition of iron from the Kamrej/Dhatva area. The

reference in the *Periplus*, couched in a passage detailing commodities arriving at the Auxumite port of *Adulis* (on the Ethiopian Red Sea coast) runs thus:

‘Likewise from the district of *Ariaca* across the sea, there are imported Indian iron and steel...’ (*PME* 6).

Important from our point of view is the reference to the source-area of the metal as ‘district of *Ariaca*.’ Now in section 41, the *Periplus* also refers to the larger territorial entity of the ‘country of *Ariaca*.’ This ‘country of *Ariaca*’ is equated with the ‘beginning of the Kingdom of Nambanus’, i.e., the territory of the Kshatrapa monarch Nahapana (Schoff 1912/74:175). We know that Nahapana ruled over the entire area comprising modern Gujarat, the adjoining Malwa highlands and parts of northern Maharashtra. Keeping this in view we can equate the ‘country of *Ariaca*’ with present-day Gujarat, the core area of Nahapana’s kingdom. The question, however, is: was the ‘district of *Ariaca*’ a constituent of the ‘country of *Ariaca*’ or were the terms used in the same general sense, i.e., interchangeably, by the *Periplus*’ author? There is reason to believe the former. Essentially, the two terms denote two different geographical configurations. There was indeed a ‘smaller’ *Ariaca* which did not cover the whole of Gujarat. This is indicated by the fact that the word *Ariaca*, like its equivalent *Larike* used by the geographer Ptolemy, happens to be a Hellenistic corruption of the Prakritic *Latica* (Schoff 1912/74:174-175). The geographical term *Latica* (shortened to *Lar/Lata*) specifically denotes the contiguous estuarine areas of the rivers Mahi, Narmada and Tapi (Sankalia 1941:202). Significantly, the places mentioned by Ptolemy under *Larike* also belong to this coastal tract (McCrindle in Shastri 1927:33). Thus, in effect, the author of the maritime guide seems to have used the term *Ariaca* in two ways: the ‘district of *Ariaca*’ referring to the lower Mahi, Narmada and Tapi area and the ‘country of *Ariaca*’ denoting the extended Gujarat region.

Since the estuary of the Tapi was an integral part of the ‘district of *Ariaca*’, it is extremely likely that the Kamrej-Dhatva area was one of the places whence iron was being exported to *Adulis*. Dhatvan iron must have been taken to *Adulis* by Egypto-Roman and Arab traders and bartered for rhinoceros horn and ivory (*PME* 6; Schoff 1912/74:24). Casson (1989:28) suggests that the Auxumites were acquiring iron from India for elephant hunting because of its ‘finer grades.’ Metallurgical analysis of the iron produced at Dhatva substantiates his point. Tests conducted on two iron samples from Dhatva revealed percentage composition of the metal at 99.76 % and 99.84 % (Mehta *et al.* 1975:51-52). Even the iron composition in the slag from Dhatva was found to be as high as 61 % (Mehta *et al.* 1975:51-52).

Conclusion: The factors deliberated above point to Kamrej being a coastal trading station primarily engaged in export of iron. In all likelihood, iron from Kamrej/Dhatva was reaching the Red Sea littoral and the Mediterranean region. The advantages offered by this small port - a sheltered anchorage and a navigable riverine route up to a few kilometres of the iron-producing centre of Dhatva - must have made Kamrej a familiar halting point for Roman merchant-mariners.

Also, the year-round navigability of the Tapi here must have resulted in busy riverine traffic in commodities between Kamrej and large Early Historic urban centres upstream such as Prakashe and Bahal. In this context there is every reason to believe that, apart from iron, other *Ariacan* commodities (PME 6) were being acquired by Mediterranean traders at Kamrej.

Furthermore, with regard to the *Kammoni*-Kamrej correlation, it should be noted that many ancient settlements mentioned in the *Periplus* have been identified on the basis of similarity of contemporary and ancient place-names. Thus, the great entrepot of *Barygaza* (PME 41-46) is modern Bharuch-on-Narmada, the inland city of *Ozene* (PME 48-49) is modern Ujjain (Schoff 1912/74:187) and the important market-towns of *Dachinabades*, *Paethana* and *Tagara* (PME 51) are the modern townships of Paithan and Ter respectively (Schoff 1912/74:195-196). Similarly, the progression of *Kammoni*/*Kammanes*/*Kammanijja*/Kamrej suggests that all the place-names belong to the same settlement.

Poulipoula : Located by McCrindle (1884: 325) at Sanjan on the western coast south of Surat (Fig. 28). No archaeological remains of Early Historic period found.

Nausaripa : Identified with Nausari on the Gujarat coast (McCrindle 1884:325; Fig. 28). No archaeological remains of Early Historic period found.

4.1.3.c. Konkan Coast (Maharashtra)

The *Periplus* clearly distinguishes between the coastal settlements of *Ariaca/Limarike Lata* (the region of Gujarat) and the rocky sea board of the Konkan-Kanara. The 'market-towns' of the latter are detailed in section. 52 and 53 of the *Periplus*:-

52. The market-towns of this region (*Dachinabades*) are, in order, after *Barygaza*, *Suppara*, and the city of *Calliena*...

53 Beyond *Calliena* there are other market-towns of this region; *Semylla*, *Mandagora*, *Palaepatmae*, *Melizigara*, *Byzantium*, *Togarum*, and *Auramoboas*. Then there are the islands called *Sesecrienae* and that of the *Aegidii*, and that of the *Caenitae*, opposite the place

called *Chersonesus* (and in these places there are pirates), and after this the *White Island*. Then come *Naura* and *Tyndis*, the first markets of *Damirica*, and then *Muziris* and *Nelcynda*, which are now of leading importance.

The *Geographia* of Ptolemy (2nd century A.D.) provides an equally comprehensive list of market-towns/trade-ports on the west coast of India. Of the other western sources, names and locations of Early Historic coastal settlements of western India appear in the *Natural History* of Pliny, the writings of Strabo and Cosmas Indicopleustus. Of the Indian textual sources we may refer to the *Puranas* and *Jatakas*. The epigraphical records presented in the early rock-cut caves of western India also inform about some Early Historic ports of the Konkan.

This study continues the review of location of Early Historic ports on the western Indian seaboard. Specifically, the locations of ports of the *Periplus* and *Geographia* pinpointed by historical geographers are reviewed in the light of archaeological data generated in recent decades by prospections on the Konkan-Kanara coast. The review primarily takes into account the settlements listed in the *Periplus* and *Geographia*, which together hold nearly all that ancient Hellenes knew about early Indian harbours on the west coast. Though the settlements listed in the *Periplus Geographia* have been assumed to have been situated along a 'linear' north-south axis, this study does not strictly subscribe to this view. As we shall try to show, a number of sites may have had a 'circular' locus around inlets and creeks. It is also a moot question whether a number of archaeological sites in close proximity - such as the occupational deposits revealed about Mumbai - are representative of different listed ports or are remains of multiple anchorages within the same harbour complex. Also, in course of the review, we need to try and resolve differences between the sequence of the *Periplus*' and *Geographia*'s listing. The two texts do not often place 'common' sites in the same sequence. *Melizigara*, for instance, appears below (south of?) *Mandagora* in the *Periplus* while the locations are reversed in the *Geographia*.

Suppara/Surparaka /Sopara Sopara is mentioned in the *Periplus* as the first market-town of *Dachinabades* (Sanskrit *Dakshinapath*, modern Deccan). The ancient settlement of Sopara also finds mention in the *Geographia*, the *Jatakas* (especially *Surparaka Jataka*), *Puranas* and other texts (for detailed review of location see Dey 1925/1985:197-198; Burgess 1882:236-237). The name *Surparaka* also appears in early centuries A.D. inscriptions at the Buddhist rock-cut caves of Kanheri (Luders' List nos. 995, 1005). Today, there exists a consensus in the

identification of ancient Sopara with the modern settlement of the same name on the coast some 60 km north of Bombay (Fig. 28). However, as we shall discuss, there may also have been an 'eastern' Sopara in existence on the Kalinga coast in Early Historic times.

A primary archaeological feature at Sopara is made up of a Buddhist stupa dating to the period of Ashoka (3rd century B.C.). Only recently have serious efforts been made to trace the ancient harbour of Sopara. In 1980 a team from the Deccan College led by S.N. Rajguru carried out 'geo-archaeological studies of the early and late historical port-sites around Sopara.' Another prospection carried out by a joint team of the ASI and Society for South Asian Studies (U.K.) in 1993-94 around Sopara identified the ancient harbour on the banks of the dry Sopara Creek (Pl. IV.b). Among the artefacts recovered in limited excavations near Sopara carried out by the ASI/South Asian Society team are fragments of the Early Historic Red Polished Ware, Mediterranean amphorae sherds and objects of glass. The highly disturbed nature of the occupational deposit precludes fixing of a secure chronology of the layers. The disturbed nature of occupational deposits had been pointed out by the Deccan College excavators who observed that 'the alluvial flat a few metres above the present sea level contains redeposited pottery of early to medieval periods...sites (have) been disturbed due to recent flooding in the area.' (IAR 1980-81:43).

Kalliena /Kalyana /Kalyan

The port of *Kalliena* is placed after Sopara in the list of the *Periplus* (sec.52). The *Geographia* does not mention this port. *Kalliena* is most certainly ancient *Kalyana* referred to in the Early Historic Buddhist caves at Kanheri in Mumbai. In fact, references to inhabitants of *Kalyana* predominate among the donative inscriptions at Kanheri (Luders' List nos. 986, 1000, 1001, 1013, 1024, 1032). It has been suggested that the settlement of *Elymaine* plotted in the *Peutinger Table* is a Hellenised corruption of *Kalyana* (Gole 1983:28-29). The traveller Cosmas Indicopleustus records a visit to the port of *Kalliena* in the 6th century A.D. (*Christian Topography* XI.15).

Schoff (1912/74:197) locates the old territory of *Kalliena Kalyana* 'on the eastern shore of the harbour of Bombay' and quotes Lassen to say that the 'name (*Kalliena*) also applied to the strip of coast on either side of the harbour.' Huntingford (1980:114) places *Kalliena* 'on a river which enters the Gulf of Bombay.' The geographical specifications provided by Schoff and Huntingford for the ancient harbour site in modern Kalyan are borne out by the existence of an Early Historic site

on the banks of the River Ulhas very near to its confluence with Thane Creek (Fig. 32). M.N. Deshpande (*IAR* 1957-58:67, personal communication) who first explored the site found it to be located at one of the busy anchorages near the creek. Deshpande collected Early Historic Red Polished Ware sherds and stone beads from the mound which is enclosed by a later (colonial-period ?) fortification. Subsequently, limited diggings at this site by the Maharashtra Archaeological Deptt. revealed a 1st-2nd century A.D. deposit yielding profuse amount of RPW (M.N. Deshpande, personal communication). The site discovered by Deshpande may have served as one of the berthing stations on the Ulhas-Thane Creek waterway which made up the harbour of *Kalliena Kalyana*. This anchorage can be approached by sea craft from the mouth of the Thane Creek near Vasai as well as from the sea-channel to the south and east of Mumbai where the island of Elephanta is situated (Fig. 32).

The scatter of Early Historic habitation centres on the approaches to the sheltered River Ulhas-Thane Creek suggests that the port of *Kalliena* extended to include a number of trading stations in proximity. Situated near the mouth of the Thane Creek is the Early Historic site at Vasai and the concentration of early Buddhist rock-cut caves on Salsette Island, the most important of them being the cave-group of Kanheri. On the southern side, the approach to Kalyana from the sea must have been dominated by Elephanta island where, as we shall discuss, material evidence of overseas trade contact occurs in profusion.

Coming back to Kanheri. The rock-cut monastic complex has been described by Mitra (1980:164) as 'the largest number of rock-cut caves straggling on a single hill' (Pl. IV.a). We have reason to assume that the Buddhist retreat was also a base for maritime and commercial activity in the early centuries A.D. Excavations at Kanheri have brought to light evidence of iron manufacture in the form of furnaces, crucibles, slag and iron ore remains in early centuries A.D. levels (*IAR* 1969-70:21-22). According to the excavator, S.R. Rao, the iron-making complex suggests that 'the large number of Buddhist monks living in the Kanheri caves did not confine themselves only to religious preachings but were also engaged in commercial activity' (*IAR* 1969-70:22). However Lohuizen De Leeuw (1973:258) is of the opinion that the Kanheri furnaces only served to produce iron for the monastery.

A donative inscription at Kanheri containing the word *Sagaravalokana* has led Burgess (reprint 1970:83-84) to interpret the term as meaning 'of the people who protect the Ocean' or 'of the community of traders by sea'. Rao (1987:67) postulates that the word *Sagaravalokana* indicates the existence of a pilot-boat service in the Kanheri area. He further suggests that the caves may have also been

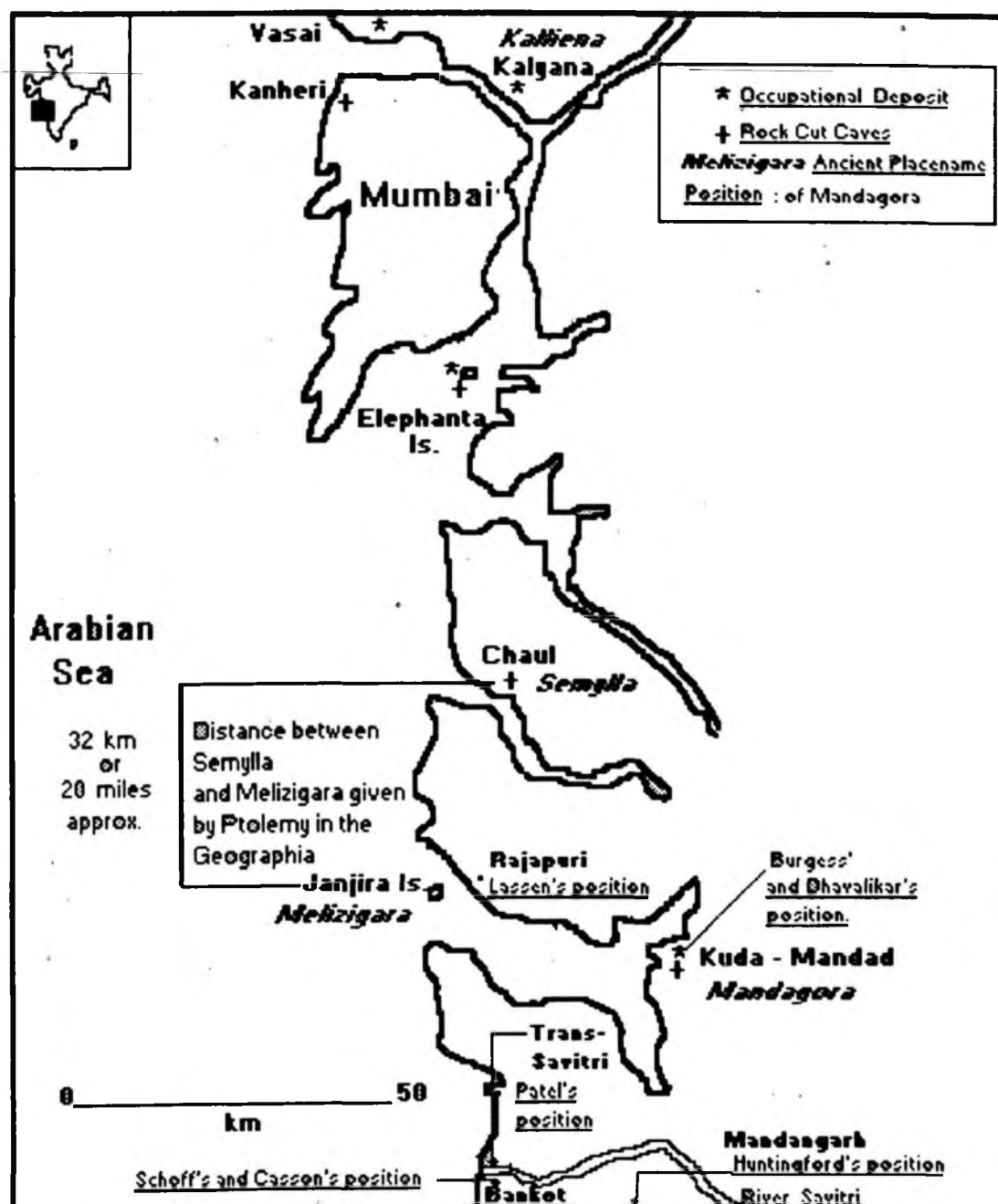


Fig. 32. Important Ports on the Konkan Coast in Early Historic times.

a lighthouse. The Cape of *Perimula* mentioned by Pliny as the place where 'the greatest emporium of trade with India' as been associated by McCrindle (1926:145) with Salsette island on which Kanheri is situated. The fact that the maximum number of donors who have inscribed their names at Kanheri belong to *Kalyana* points to the integrity of ancient Kanheri-*Kalyana Kalliena*.

The island of Elephanta, located south of Mumbai, seems to have been an Early Historic trading station engaged in overseas commerce. Prospections on the island have brought to light structures which may be remains of Early Historic berthing points. The discoveries have mainly centred about two locations at Elephanta, the village of Rajbandar on the south side and Morabandar village on the north-east shore of the island.

At Rajbandar a brick wall uncovered by the Maharashtra Public Health Dept. was further excavated by ASI archaeologists who interpreted the structure as a jetty or wharf. Three habitation levels were found corresponding to phases of raising of the jetty/wharf. The finding of Mediterranean amphorae sherds in the excavations indicates that the site was a trading station (Rao 1987:65-66). At Morabandar also Rao (1987:65-66) reports submerged structures and finds of Roman, Kshatrapa and Gupta coins. Recently, Tripathi (1993:68) found 'the whole slopy area between the high steep hill and the shore (at Morabandar) strewn with remains of brick-made houses, stone walls and other remains and a large number of potsherds.' From this area he recovered, among other Early Historic ceramics such as the Red Polished Ware and Black and Red Ware, substantial quantities of amphora sherds. Also, the variety of amphorae collected by him suggest that Morabandar may have been a transshipment point for Mediterranean wine. As we have discussed above, Elephanta has yielded some fragments of pottery (Black Ware and Green-glazed ware) which were importations from the Persian Gulf region.

To recapitulate, we can say, on the basis of the correlation of textual, epigraphic, archaeological and geographical data that ancient *Kalliena Kalyana* was a port-complex extending from the 'core' Ulhas-Thane Creek area towards Kanheri on its northern approach and Elephanta island to the south.

Semylla/Chemulaka/Chaul: The next major harbour south of *Kalliena Kalyana* was located about the creek at the modern township of Chaul (Fig. 32). This was the ancient *Chemulaka* mentioned in an inscription at Kanheri (Luders' List nos. 996, 1033). The *Periplus* (sec 53) and the *Geographia* call this port *Semylla* (for Chaul-Semylla-Chemulaka association see McCrindle 1884:326-327, Schoff 1912/74:200-201; Warmington 1928/95:110-111). Ptolemy records that he

obtained much information about western India from merchants from Egypt frequently voyaging to *Semylla*/Chaul (McCrindle 1884: 326).

The Early Historic port of Chaul was situated about the large Roha Creek which cuts into the hilly tracts of the modern Chaul township till it reaches the mouth of the Kundalika River. No occupational deposits of the Early Historic period have been yet found at Chaul. However the location of early Buddhist rock-cut caves at the edge of the Roha Creek at Chaul and the geography of the littoral help us reconstruct some functional aspects of ancient *Semylla*.

Fieldwork conducted by me in May 1993 at the mouth of the Roha Creek led to the scrutiny of the Early Historic Buddhist rock-cut caves directly overlooking the Arabian Sea. At present the caves serve as the shrine of Hinglaj Devi, the patron-diety of the local Koli fisherfolk. The early Buddhist rock-cut caves on the Hinglaj Mata Hill offer a direct view of the open sea at the mouth of the creek. The point that, like other strategic seafacing caves like the one at Kuda, the Hinglaj Mata cave-complex also served as a lookout point for the ancient harbour at Chaul could not be escaped when I discovered two extremely small rock-cut caverns (4x4 ft interior) with narrow ledges (2x4 ft) on the side of the Hinglaj Mata Hill approx 25 m above the road-level. The two caverns, located away from the main cave-group, have no steps leading upto them. They are 'suspended' one atop the other. The narrow ledge sticking out of the top cavern has four post-holes carved onto its floor indicating use of an awning as protection from the sun. The caverns afford an excellent view of the mouth of the creek. A scrapping of the surface of the deposit inside the top cavern yielded coarse potsherds of the Early Historic Period. The location and nature of the caverns suggests their use by lookouts.

The evidence as a whole suggests that the Hinglaj Mata Hill marked one of the anchorages of the harbour of *C'hemulaka*/*Semylla*/Chaul. The hill is situated sufficiently inside the mouth of the creek (1 km) for ships to berth safely.

Another berthing station on the creek is indicated by Chinese Celadon Ware sherds of 16-17th century A.D. found by Sali (*JAR* 1977-78: 38-39) in course of prospections nearer the mouth of the creek at Barbara's Tower, Revdanda. However no Early Historic deposit or pottery scatter was noticed from this point.

As we have pointed out, the Roha creek cuts deep into the rocky interior. The modern approach road from Alibag to Chaul crosses a network of deep-water channels which are extensions of the creek itself. I noticed that these inland sea-channels were effected by the rise and ebb of tides and that many fishing boats were operating there. The importance of this waterway network in Early Historic period

can be clearly conceived. Commodities off-loaded by large marine vessels at the mouth of the creek must have been loaded into smaller country craft and taken deep inland through these channels.

The available archaeological, geomorphic and literary evidence points to Early Historic Chaul being an extensively spread maritime commercial zone possibly having multiple trading stations.

South of *Semylla*/Chaul, the *Periplus* locates the market-town of *Mandagora*. The *Geographia*, however, differs, situating the island of Melizigara after *Semylla*. Historical geographers, including commentators on the *Periplus* (McCrindle, Schoff, Casson) have invariably followed strictly a north-south locus in fixing the locations of the coastal settlements on the western Indian seaboard listed in the *PME/Geog.* Though the north-south sequence for the *Periplus* sites generally holds true and modern place names are an useful guide for identification of Early Historic sites, yet the particular geomorphology of the Konkan and the contemporary settlement-pattern on this part of the coast should caution one in blindly following the 'north-south' linearity in attempting locations of ancient settlements.

Fieldwork undertaken by me on the Konkan from the modern town of Alibag-Chaul to Murud-Janjira in May 1993 and November 1996 brought to notice certain geomorphological features which need to be integrated in the review of the locations of Early Historic coastal settlements below *Semylla*.

We have already discussed the geomorphology of the ancient port of Chaul. The distance from Chaul to the town of Murud further down the coast is 35-40 km. A metalled road connects the two coastal townships. From our point of view the principal feature that was noticed on the road from Chaul to Murud - which runs alongside the shore - is the rocky nature of the coast and the absence of any significant deep-water, sheltered anchorages (coves, bays, creeks) on this stretch of the coast. Finally, it is at Murud where the next sheltered body of water after Chaul opens up in the form of the Janjira creek (Fig. 32). Observing the coastline from Chaul to Murud made it clear that, in ancient times, voyagers would have found it highly inconvenient to carry out regular landings on this rocky, open and windy coast. In effect then, the next major coastal settlements below *Semylla*/Chaul must have been located about the Janjira creek. The size of the Janjira creek (approx. 22 km of seawater ingress) and the more than one modern anchorages situated about its shore (Rajapuri, Dighi, Mhasla, Kuda) point towards the existence of more than one sites of the *Periplus/Geographia* about the creek. Fergusson and Burgess (reprint 1969: 205), exploring the Janjira creek during a study tour of Buddhist sites suggest

as much: 'It seems almost certain, however, that from very early times the beautiful creek which still has Murud, Janjira and Rajapuri at its mouth, and the villages like Tamane and Mhasla at its head, must have attracted the population of a considerable town.' There are strong reasons to believe that the settlements immediately south of *Semylla*: *Mandagora*, *Melizigara*, *Palaepatmae* and *Hippokoura* - lay about or near the Janjira creek and were not strung out on a 'linear' direction along the coast.

Mandagora and other market-towns : Let us begin with the 'market-town' of *Mandagora* which in the listing of the *Periplus*, is situated immediately after *Semylla*. The first to attempt an identification of *Mandagora* was Lassen (quoted in Fergusson and Burgess reprint 1969: 205). Lassen locates this settlement at Rajapuri, the modern anchorage at the very mouth of the Janjira creek (Fig. 32). Fergusson and Burgess (reprint 1969: 205) place *Mandagora* in the vicinity of the Early Historic Buddhist caves at Kuda at the head of the same creek where three coastal village sites 'seemed to be named Mandad or Mandar - a name suggestive of Manda(na)gora.' A visit by me to the Kuda caves in 1993 confirmed that the village on the shore immediately below the caves is officially still called Mandad (Gupta 1996: 52-58; Pl. I.a). Schoff (1912/74: 201) locates *Mandagora* south of the Janjira creek, specifically on the mouth of the Savitri river at Bankot. Huntingford (1980: 114) suggests either Bankot or the modern town of Mandangarh a little south of the same river. Casson (1989: 297) follows Schoff and Huntingford in identifying *Mandagora* with Bankot. Recently Patel (1991: 102-112) after conducting a survey of the estuary of the Savitri identified *Mandagora* with Kolmandala village (trans-Savitri) facing Bankot. (Fig. 32 for all positions).

After considered review of the above toponyms, this study takes the position that the identification of *Mandagora* with Kuda-Mandad originally proposed by Fergusson and Burgess is the right one (see also Gupta 1996: 52-58).

Lassen's candidate for *Mandagora*, the anchorage of Rajapuri at the mouth of the Janjira creek, becomes unsafe and unapproachable for ships during the monsoon months. We know that it was with the monsoon winds that maritime traders traversed the Arabian Sea. On a visit to Rajapuri in the non-monsoonal month of May I noticed that the sea here was windy and rough. A natural anchorage for ships in ancient times would have been inside the creek which is sheltered by hills on all sides.

Huntingford identification of *Mandagora* with Mandangarh, a taluk headquarter in Ratnagiri District of Maharashtra located 10 km south of the river Savitri and 22 km from the sea, does not also seem tenable. As Patel (1991: 107)

argues, Mandangarh does not lay claim to any literary or archaeological basis for its existence in Early Historic times. It is neither located on the river Savitri nor the sea for it to be a coastal trading-station.

Now to come to Patel's identification of *Mandagora* with two villages on the Savitri's mouth facing Bankot (Patel 1991:107). In support of his identification Patel reasons that (a) the two villages Bagmandala and Kolmandala are located right on the seashore and (b) these contain the ruins of a village called Mandan. The name of the ruined village - Mandan - is presented as the toponym for *Mandagora*. However, as Fergusson and Burgess have pointed out, there are three villages by the name of Mandad/Mandar near Kuda which are suggestive of *Mandagora*. Patel also does not specify whether the remains of Mandad on the Savitri are of recent date or go back to Early Historic period. In contrast, the village Mandad at the foot of the Buddhist caves of Kuda has an Early Historic mound in its vicinity (discussion below).

The modern anchorage of Kuda-Mandad at the head of the Janjira creek (**Pls. I.a.b**) offers, historically and geographically, a number of important reasons for it to be the trading-station of *Mandagora*. We have pointed out above the likelihood of *Mandagora* being about the Janjira creek, a possibility enhanced by the Mandad-*Mandagora* correlation. More significant, the Mandad-*Mandagora* correlation acquires credibility because of (a) the natural and sheltered anchorage offered in the interior of the creek where Mandad is located (b) the existence of the seafacing early Buddhist caves at this site like at the ports of *Kalyana Kalliena* and *Chemulaka/Semylla* and (c) the existence of an Early Historic occupational deposit on the seashore near Mandad village indicating the functioning of the anchorage in ancient times. M.N. Deshpande (personal communication) exploring the beach between the shore and the Buddhist caves found profuse pottery scatter on this tract. S. Nagaraju of Andhra University exploring 'near village Mandad in Mangaon taluka (found) an ancient site yielding black and red and red polished wares ascribable to the early centuries of the Christian Era.' (*IAR* 1978-79:98-99). In company of Dr. V. Shinde (Deccan College, Pune) I revisited Kuda/Mandad in November 1996. In our prospection of the shore immediately below the caves a disturbed Early Historic deposit was located near Kuda village (**Pl. I.b**). A number of coarse ceramics of the Early Historic period were collected from the ancient occupation. The area of deposit, estimated to be 150x100 m, was only 200m from the shore. It seems a larger occupational area existed but has been ploughed by the villagers from Kuda. It is not clear whether Nagaraju reports the same occupational deposit. In any case, the Early

Historic site so close to the shore and in immediate vicinity of the Kuda caves probably represents the site of an ancient exchange-centre.

This brings us to the evidence of the inscriptions dated to the early centuries A.D. in the Kuda cave group. Many of these epigraphs allude to a family of *Mahabhojas* (fuedatory ruling class) with the title *Mandavas* (Luders List nos 1037-1066; Jacobi 1878:253-257). Among others the inscriptions refer to donations made by people employed by the *Mahabhoja Mandava Khandapalita* (Luders List nos 1037, 1045) and gift of the *Kumara Mandava*, son ? of the chief ? of the *Mandavas* (Luders' List no.1049). There is also mention of a certain *Mandavi*, the daughter of some *Mahabhoja* (Luders' List no. 1052). The Kuda inscriptions also mention donations by *srestins* or bankers and a *sarthavaha* or goods caravan leader (Jacobi 1878: 253-257). The presence of these people points to commercial activity at the head of the creek and land routes from the Deccan touching this ancient port.

The inscriptions clearly reveal that the family or clan called *Mandava* politically controlled the Kuda area. It is entirely possible, keeping in mind the contextual data, that the title *Mandava* of the local ruling family or clan in the early centuries A.D. may have formed the basis of the name of their settlements. The modern village of Mandad (and other villages of the same name come upon by Fergusson and Burgess in its vicinity) below the Kuda caves could very well be recalling the *Mandavas*. In the same vein *Mandagora*, which is a Greek corruption of an Indian place-name and which has been associated by us with the toponym Mandad, may also be alluding to the settlement of the *Mandavas* at the head of the Janjira creek. In this context, the Early Historic occupation at the foot of the Kuda cave complex represents, in all probability, the remains of the settlement of the *Mandavas*. It is this settlement, together with the cave complex, to which the Hellenes must have attributed the name *Mandagora*.

How can we account for the other coastal settlements lying below Chaul: *Hippokoura*, *Baltipatna Palaepatmae* and the *Island of Melizigara*. We have pointed out that there was little likelihood of any regular anchorage or harbour existing on the stretch of coast between Chaul and Janjira. We have also discussed the possibility of more than one Early Historic anchorage being located about the deep, sheltered creek of Janjira.

Let us first focus upon the *Island of Melizigara*, placed by the *Periplus* and by the *Geographia* immediately south of *Semylla*/Chaul. McCrindle (in Shastri 1927:388) identifies *Melizigara* with Jaigarh at the mouth of the Jaigad river 20 miles south of Dabol. Huntingford (1980:114) and Casson (1989:297) follow

McCrindle in suggesting the same identification. Schoff also considers Rajapuri at the mouth of the Janjira creek. Furthermore Schoff (1912/74:201, 232) associates the great western Indian port called *Sigerus* - mentioned by Pliny - with *Melizigara*.

A crucial bit of information contained in the *Geographia* may indicate the location of *Island of Melizigara*. McCrindle (in Shastri 1927:57) informs that Ptolemy 'makes *Miliegyris* to be an island about 20 miles south of *Semylla*'. Interestingly, this happens to be the length of the stretch of coast between Chaul and Janjira. Going by Ptolemy's information, the *Island of Melizigara* would be located somewhere about the Janjira creek. The most important and strategically located island in this area is the fortified medieval harbour of Janjira island located at the very mouth of the creek (Fig. 32). Janjira (a Marathi corruption of the Arabic Zejira or island) was heavily fortified by the Sidis, a group of migrant Abyssinian conquerors in the 16th century and held by them upto 1947 (Chauhan 1994:97-102). The long history of the island's occupation suggests its strategic and commercial importance. Two large fresh-water springs made Janjira island attractive for habitation and contributed to the impregnability of the fortress in medieval times. Janjira island, which may have been *Melizigara* of the *Periplus* and *Geographia*, should be prospected for remains of Early Historic period.

Let us also examine the *Sigerus-Melizigara* connection in the context of the situation of Janjira. Pliny describes *Sigerus* as a port in western India to which ships would regularly voyage from *Syagrus* or the promontory of Ras Fartak (Fig. 23). According to Pliny (in Schoff 1912/74:232-233) the *Syagrus-Sigerus* journey presented a shorter route to India than the *Syagrus-Patala* (Ras Fartak-Indus Mouth) voyage. Subsequently, 'a still shorter cut was discovered by a merchant and the thirst for gain brought India even nearer to us' (Pliny in Schoff 1912/74:232). The nearest coast was obviously the Malabar for Pliny, informing about the port of *Muziris*, calls it 'the nearest mart in India' (Schoff 1912/74:233).

It would seem from Pliny's records that the voyage to the Indian coast got progressively shorter as the Hellenes found ways to utilize the monsoon winds to take straighter routes across the Arabian Sea. If *Patala*/Indus estuary destination was the longest from Ras Fartak and *Muziris*/Kudangallur the shortest, then the median sailing distance represented by the *Syagrus-Sigerus* run would situate *Sigerus* somewhere midway, most likely on the Konkan coast. Schoff (1912/74:201) points out that the anchorage of Rajapuri - which lies right opposite Janjira island on the mainland - is the only port on the Konkan where vessels still come to trade

directly from Arabia. These factors do provide the context for the *Sigerus-Melizigara* equation but are still far from being conclusive.

Beyond *Melizygris* the *Geographia* mentions the coastal settlement of *Hippokoura*. It may be noted that Ptolemy mentions another *Hippokoura* but places it inland, somewhere in the western-southern Deccan (McCrindle in Sastri 1927:44-45).

The various locations suggested for the coastal *Hippokoura* are Ghodabandar or 'Horse-Port' on the Thane Creek (by B. Indrajī following Lassen), Ghoregaon or 'Horse Village' near Chaul creek (by Campbell) and Rajapuri at the mouth of the Janjira creek (by A. Yule; for all ref. see McCrindle in Sastri 1927:44-45)

Lassen, Indrajī and Campbell are obviously influenced by the allusion of the Greek word for horse in *Hippokoura* in choosing Ghodabandar and Ghoregaon respectively. We must be aware that horses were regularly imported from Arabia by the Konkani ports right upto colonial times and the settlement of *Hippokoura* may refer to one such ancient trading-station on the Konkan dealing exclusively in horses. The identification of *Hippokoura* awaits more evidence.

After *Hippokoura*, Ptolemy names the settlement of *Baltipatna* which evidently is *Palaepatmae* of the *Periplus* (McCrindle 1884:327; Schoff 1912/74:201). Following A. Yule, McCrindle (1884:327), Schoff (1912/74:201), Huntingford (1980:114) and Casson (1989:297) situate *Palaepatmae Baltipatna* at Dabhol on the river Anjawel or Vasisthi some 100 miles south of Bombay. Campbell (in McCrindle-Sastri 1927:45) suggests Pali located upstream on the Nagotna river. Recently Patel (1991:105, 107, 108) has suggested two places; the modern port of Dabhol and Pal/Palpattan near Mahad as probable locations of *Palaepatmae*.

Evidently the choice of Dabhol by more than one scholar has been influenced by the premise that the coastal settlements mentioned in the *Periplus Geographia* were necessarily situated one after the other along a north-south axis. Dabhol being an important modern port immediately south of river Savitri aids such an identification. However, as we have discussed, the geography of the Konkan coast facilitated emergence of a number of ports about single creeks and rivers.

From the point of view of place name similarity the candidates for *Palaepatmae* are Pali on the Nagotna river and Palpattan on the Savitri river on the outskirts of Mahad. Of the two places, Palpattan on the Savitri is the toponym preferred in this study. Palpattan, located about a mile from modern Mahad, happens to be the site of a large early Buddhist cave-group inhabited in the early centuries of the Christian Era (Fergusson and Burgess reprint 1988:209). The caves at

Palpattan/Mahad directly overlook the river Savitri (personal observation) According to M.N. Deshpande (personal communication) Palpattan/Mahad was the site of the ancient emporium of *Mahahatti*. The river Savitri is navigable from the sea upto Mahad (steam ferry indicated in Survey of India Maps). A survey along the Savitri in the vicinity of Mahad undertaken by me in the dry month of May 1993 showed the river full of water. *Palaepatmae* may have been the Hellenistic equivalent of Palpattan, a riverine trading station directly accessible from the Arabian Sea in all seasons.

Going by the list offered in the *Periplus*, the rest of the coastal settlements of Dachinabades are *Byzantium*, *Togarum*, *Aurannoboas*, *Island of Sesecriemae*, *Island of Aegidii*, *Is. of Canitae*, *Chersonesus* and *White Island*. Except for *Chersonesus*, the Greek word for 'peninsula' which can be equated geomorphologically with the Karwar Peninsula (see below), it is difficult to search for modern toponyms of the other ports on account of absence of ancient-modern place name similarity. Besides, the littoral tract between the River Savitri and Karwar has not been well explored for archaeological remains.

4.2. Southern India and Sri Lanka

4.2.1. Kanara Coast (Karnataka)

The western coastland called Kanara commences from the Karwar Peninsula and melds into the Malabar coast south of Mangalore (or the river Netravali). The Kanara tract, divided into two by the present Uttara Kannada and Dakshin Kannada districts of the state of Karnataka, stretches 320 km (**Fig. 33**). Recent discoveries of Early Historic sites on the Kanara coast are beginning to throw light upon the early maritime tradition of this important littoral-region.

Surprisingly, the Kanara coast seems to have been largely passed over by the *Periplus* which, after *Chersonesus*, directly refers to the coast of *Damirica* and its first market-towns *Naura* and *Tyndis* (*PME* 53). The commentators on the *Periplus* such as Schoff (1912/74:205), Huntingford (1980:116) and Casson (1989:22-29, 294-299) have all associated *Damirica* with the Malabar (Kerala) coast. It is the identification by certain scholars of *Naura*, the first market-town of *Damirica*, with the modern port of Honnavar in Uttara Kannada which raises the question of the inclusion of Kanara within the domain of *Damirica* (S.R. Rao in *IAR* 1968-69:24). Schoff (1912/74:204), on the other hand, locates *Naura* at Cannanore in northern Kerala. A consensus on this issue is awaited.

Schoff (1912/74:203-204) implies that the 'omission' of the Kanara in the *Periplus* was because the pirates made the region inaccessible. Pliny (*N.H.* VI, 26)

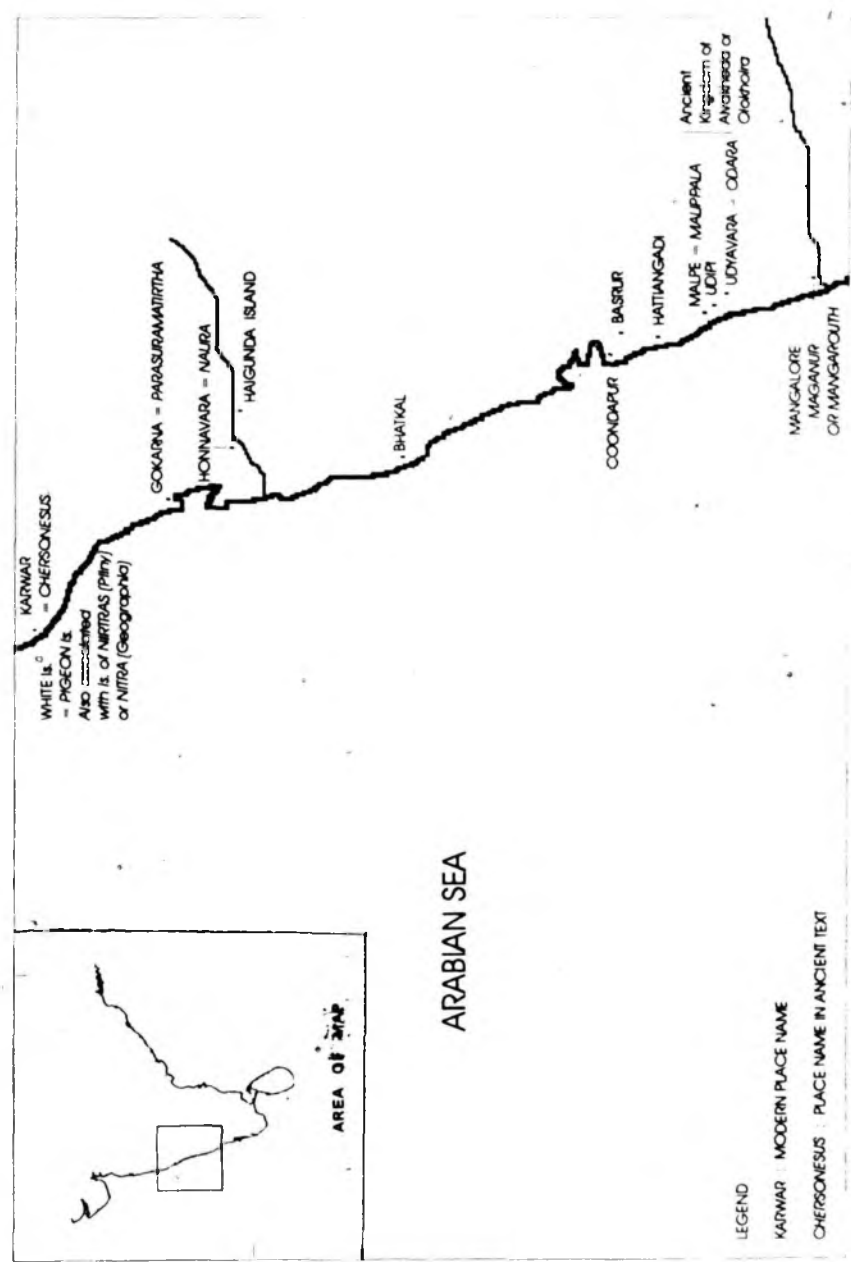


Fig. 33. Location of Early Historic ports on the Kanara coast.

also makes a reference to pirates in this area when he mentions their stronghold on the island of *Nitrias* (present day Nitran near Karwar, Fig. 33). Ptolemy in his *Geographia*, names the whole coast south of Sopara as *Pirate Coast* (McCrindle 1884:327). In a Greek play contained in the *Papyrus Oxyrhynchus*, a document of the 2nd century A.D. found in Egypt, scholars have detected passages in old Kannada language (Tulu) which speak of a Greek lady taken hostage by pirates? on the Indian coast (Hultzsch 1904:399-405; Shivananda 1995:288-293).

Whatever may have been the attendant dangers on the ancient Kanara coast, it does not detract from the fact that good harbours existed here in the Early Historic period. To quote from Poonacha and Visweswara (1991:67) : 'The geo-setting has gifted this (Kanarese) coastal strip with a unique combination of different types of harbours...A chain of conducive gorges, caused due to forested monsoon floods, throughout the coastal strip well-connected with hinterlands rich with up-ghat forest produces helped these places grow as port-towns.'

In the last two decades, explorations along the Karnataka coast have brought to notice a number of Early Historic sites. Though no comprehensive survey of the Kanara coast has been undertaken, nevertheless discoveries of coastal sites reported constitute a substantial body of data.

Below, a review of Early Historic coastal settlements of Kanara is presented. The review consolidates the archaeological data gathered from prospections and interrelates modern place-names with port-sites mentioned in the ancient texts (Fig. 33).

Karwar: Port. Sharply projecting coastal tract. It is this projection which may have influenced the Hellenes to name it (*Chersonesus* or peninsula in Greek (Schoff 1912/74:202; McCrindle in Sastri 1927:47-48). The anchorage at Karwar is a deep-water creek (Poonacha and Visweswara 1991:67). No Early Historic deposits reported yet.

Pigeon Island/Nitran: Schoff (1912/74:203) identifies it with the *White Island* mentioned in the *Periplus* (sec.53). He also associates Pigeon Is/Nitran with the *Island of Nitras* mentioned by Pliny (*N.H.* VI,26) or *Nitra* listed in the *Geographia* (McCrindle 1884:327). No Early Historic deposits reported yet. This island lies approx. 15 km off the coast of Karwar.

Gokarna: Coastal settlement. Traditionally identified as the sacred *Parasuramatirtha* (IAR 1973-74:17). S.R. Rao and A. Sundara (IAR 1973-74:24) discovered Neolithic rock-shelters in the hills in the area. Sundara (IAR 1975-76:21) came upon several *Siva* temples at Gokarna which he has dated to c. 5th century A.D.

Honnagara: Port. Situated at the mouth of the River Sharavati. As discussed above, Honnagara has been associated with *Naura* of the *Periplus*. No Early Historic deposits reported yet.

Haigunda island: Ancient anchorage. This island is situated in the middle of the estuarine channel of the River Sharavati, some 20 km east of Honnagara. Pottery and structures dating to the early centuries of the Christian Era have been observed here. The structures have been tentatively identified by the explorers as remains of a stupa, a lighthouse (?) atop a hill and a probable warehouse complex near the beach (Poonacha and Visweswara 1991: 69; Sundara 1992: 100-101).

Bhatkal: Port. Early Historic site excavated by the Karnataka State Archaeology Dept. A complete amphora of Mediterranean origin has been excavated from this port-site (Alok Tripathi, ASI: personal communication).

Basrur: Port. Located 8 km east of modern Coondapur on the southern bank of the Gangolli river (Gururaja Bhatt 1969:3). Early Historic occupation reported by Poonacha and Visweswara (1991:68).

Hattiangadi: Coastal settlement. Gururaja Bhatt (*JAR* 1973-74:17) discovered 'early historical habitation sites with remains of brick structures.' Subsequently, Sundara (1992:97-101) exploring about the inlet on which Hattiangadi stands also located brick structures dated to 1st-2nd century A.D. at a place called 'Aramane Dibba' or 'Place of Eminence.'

Malpe: Natural port. Located 7 km west of modern Udipi (Fig. 33). The Greek farce contained in the *Papyrus Oxyrhynchus* dated to the 2nd century A.D. has passages in the Kanarese dialect Tulu (discussed above) which make mention of one 'Malpinaik' (Hultsch 1904:399-405; Shivananda 1995:289). Gururaja Bhatt (1969:23) has surmised that 'the Malpi Nayaka mentioned in this play may either be the Alupa ruler himself or his subordinate who must have been incharge of the administration of that area, chiefly the port administration.' Malpe has also being linked to the settlement of *Malippala* mentioned in the *Geographia* (Shivananda 1995:291).

No habitation or archaeological deposit of Early Historic period has been reported at Malpe. This harbour seems to have served the Early Historic settlement at Udyavara, 6 km south-west of Udipi.

Udyavara: Ancient capital of the Alupa dynasty. Early Historic site. The site is situated 6 km south-west of modern Udipi. S.R. Rao and A. Sundara, who were the first to explore the ruins at Udyavara, describe the site as covering an "area of approximately 500 x 100 m... enclosing within its orbit a well-defined citadel

known as Balergudda, with at least three entrance gateways, and a 'lower town' facing the sea. Large quantities of pottery, consisting of the Megalithic Black and Red Ware, black polished, plain red and cream wares were observed from the lower town and sections of the citadel mound" (*IAR* 1968-69:24). The ceramic evidence suggests a 3rd-4th century A.D. date for the site according to Poonacha and Visweswara (1991:69).

Rao and Sundara also report an early Shiva temple at Udyavara (*IAR* 1968-69:24). According to Gururaja Bhatt (1969:23) the 'apsidal structure' of the temple can be dated to the early centuries A.D. Bhatt further suggests that this temple corroborates the mention of the Someshwara diety at *Odara* in the *Papyrus Oxyrhyncus*. The settlement of *Odara* in the Greek farce carrying Tulu passages is easily identified with Udyavara.

Udyavara was, in all likelihood, the capital of the Alupas, the ruling dynasty of South Kanara in the early centuries A.D. (Gururaja Bhatt 1969:23). Alvakheda was the kingdom of the Alupas of which ancient Udyavara was capital. Alvakheda is *Olokhoira* of Ptolemy (Schwartzberg 1992: Plate III C.5, pp.24).

Mangalore : Port. Situated on the north bank of the River Netravali. Mangalore can be associated with the settlement called *Magamur* mentioned in the *Geographia* and *Mangarouth* in the *Christian Topography* of Cosmas Indicopluestes. The river Netravali has been identified by Yule (in McCrindle in Sastri 1927:48), Gururaja Bhatt (1969:12-13) and Schwartzberg (1992:Plate III.C.5, p.24) with the settlement of *Nitrias* in the *Geographia*. We have discussed the association of *Nitrias* with Pigeon island/Nitran.

Immediately south of Mangalore/River Netravali begins the Malabar coast.

4.2.2. Malabar Coast (Kerala)

This section focuses upon the coastal regions of the Indian states of Kerala and Tamil Nadu, together with the littoral-tracts of Sri Lanka.

The Kerala coastland is also known as the Malabar. The Malabar coast demarcates itself from the Kanara coast roughly south of the Netravali river. The *Periplus* perhaps implies this change when it refers to the land of *Damirica* beginning after *Dachinabades*. According to Schoff (1912/74:204) 'The Tamil ports, strictly speaking, lay within the region where the Malyalam language is now spoken... The Tulu, Kanarese and Telegu districts seem to be within our author's (of the *Periplus*) *Dachinabades* rather than his *Damirica*.'

The *Periplus* informs that *Damirica* extended upto the market-town of *Colchi* (present Kolkhoi, Fig. 35) beyond which there was 'another district called the

Coast Country' (PME 59). The extent of the Coast Country laid down in the *Periplus* is roughly that of the Tamil Nadu littoral-area known as the Coromandel. A review of locations of harbours of the *Periplus* and *Geographia* as proposed by historical geographers is presented below. The various location are also consolidated on the map of the Malabar region (Fig. 34).

Tyndis : McCrindle (in Sastri 1927: 50), following Yule, provides two possible locations for *Tyndis*: the modern town of Tanur or the settlement of Kudalundi (Kadal - tundi = raised ground by the sea). According to McCrindle, though the latter is not now a port, it may have been connected to the Malabar backwaters in ancient times. Schoff (1912/74:203-205) and Casson (1989: 297) equate Tyndis with modern Ponnani whose distance from Kodungallur (ancient *Muziris*) is exactly as specified in the *Periplus* (500 stades).

None of the settlements discussed in the context of *Tyndis* have yielded archaeological evidence of Early Historic occupation.

Bramagara: McCrindle (1884:328-329) simply transliterates it as *brahmagara* or abode of brahmins. Place-name remains unidentified.

Kalaikarias : McCrindle (in Sastri 1927: 51) suggests modern Chalacoory as the location. Chalacoory is situated north-east of Kodungallur.

Muziris : This ancient port is described in the *Periplus* (sec 53) as a harbour trading in spices, precious / semi-precious stones and goods from the far Gangetic region. In the poetry of the Tamil Sangam *Muziris* is referred to as a market-town exporting pepper in exchange of gold from the *yavanas* (Cimino 1994: 69). *Muziris* finds mention in the *Geographia* of Ptolemy (McCrindle 1884:328-329) and the *Pentinger Tables* (which refer to a Temple to Augustus in this port). A papyrus of the 2nd century A.D. written in Greek records instructions of a Hellene merchant based at *Muziris* to the agent at a Red Sea port (Casson 1989:32-33).

Padmanabha Menon (1902: 343) equates *Musiri* *Muziris* with *Vanji*, the early capital of the Chera dynasty. However, Rajan (1996: 103) distinguishes between the two settlements and thinks of them as different Chera capitals separated in time.

Much of recent scholarship holds that the harbour of *Muziris* was situated in the vicinity of modern Kodungallur on the estuary of the river Periyar (Casson 1989:296-297; Rajan 1996:103). The location of *Muziris* on the Periyar mouth is indicated by both the *Periplus* (sec. 54) and the Tamil Sangam literature (Cimino 1994: 69). According to the Jews of the Malabar, one of their earliest settlements was established at Kodungallur in 68 A.D. (Hallegva 1990).

An attempt was made to trace the remains of *Muziris* by the ASI in 1969-70. However excavations conducted on the outskirts of Kodungallur and along the estuary of the Periyar revealed a cultural assemblage dated between the 9th-10th cent. A.D. This evidence has been taken to indicate the location of the later Chera capital, Mahodai (*Encycl.Ind.Arch.* Vol.II : 108-109). The only material evidence of *Muziris* of the *Periplus* are square copper coins of the Early Cheras bearing the legend *Makotai / Makokotai* (Rajan 1996: 102). Three major reasons point to the continuing elusiveness of *Muziris*: the constant shifting of the Periyar ; the ingress of the sea and the tectonic upheaval of 1341 which closed up Kodungallur harbour (Gupta 1994 : 171-172 ; Rajan 1996: 103).

Mouth of the River *Pseudostomos* : "False Mouth." Mentioned in the *Geographia* (McCrindle 1884:328-329). In all likelihood, this reference is to a stream which discharges itself into the backwaters of the Malabar. The *Geographia* mentions another *Pseudostomos* as one of the (false) mouths of the River Ganga (McCrindle 1884:335-336).

Podoperoura: According to McCrindle (in Sastri 1927:52) this may be *Poudopatana* (new town) of Indicopleustes. Padmanabha Menon (1902: 339) identifies *Podoperoura* with the modern town of Udayamperur on the eastern coast of the Cochin - Allepey backwater.

Semne: Listed in the *Geographia* (McCrindle 1884:329). Padmanabha Menon(1902: 339) identifies this settlement with modern Chembu on the eastern coast of the Cochin backwater.

Koreroura: Can be identified with Karur, the second capital of the early Chera dynasty. Karur is located on the left bank of the river Amaravati, a tributary of the Kaveri in the Coimbatore district of Tamil Nadu. Karur has yielded a number of Imperial Roman coins and amphora fragments (Turner 1989:59-60; Champakalaksmi 1975-76: 111).

Bacare* and *Nelcynda: Mentioned in the *Periplus* (53, 55) and the *Geographia* (McCrindle 1884:329-330). The *Periplus* situates it on the mouth of the river upstream of which lay the trade-port of *Nelkynda* (or *Melkynda*). McCrindle (1884:329-330), following Yule, locates *Bacare* at Kallada, on the river of the same name entering the backwater. Schoff (1912/74:211-212) identifies *Bacare* with the modern settlement of Pirakkad on the river Pambiyar while identifying *Nelcynda* with Kottayam on the river Minachal. Casson (1989: 298) doubts Schoff's identification of the two ports on two different streams. He identifies *Nelcynda* with the modern

settlement of Niranom on the river Pirakkad and places *Bacare* at the mouth of the same river.

Mouth of the River *Baris*: Listed in the *Geographia* (McCrindle 1884:328). According to Casson (1989: 297-298) it is the estuary on which *Bacare* was situated.

Red Cliffs: Referred in the *Periplus* (58). Laterite cliffs situated south of Quilon. Also called the Warkalle Barrier because these cliffs cut short the backwater navigation (Schoff 1912/74: 234).

***Elangkon*, a mart:** Listed in the *Geographia* (McCrindle 1884: 329-330).

***Kottiarā*, an emporium:** Listed in the *Geographia*. It is the *Cottara* of Pliny and of the *Peutinger Tables* (McCrindle 1884:329-330). Padmanabha Menon (1902:339) identifies *Kottiarā* with the town of Kothur on the eastern side of the Kerala backwaters.

4.2.3. Coromandel Coast (Tamil Nadu)

***Comari*:** Listed in the *Periplus* (58) and *Geographia* (McCrindle 1884:329-330). Can be identified with Cape Comorin (Fig. 35).

***Sosikourai*:** Mentioned in the *Geographia*. McCrindle (1884:330-331) identifies this settlement with Tutucorin (changing the s with t).

***Colchi*:** *Colchi* is mentioned in the *Periplus* as a center of pearl fishing. The sea-guide also informs that the coastal settlement belonged to the Pandya kingdom (PME 59). The *Geographia* also refers to *Colchi* as a center of pearl fishing and as an emporium (McCrindle 1884:330-331). The poets of the Tamil Sangam refer to Korkai as a port of the Pandya kingdom and for sometime the capital of a Pandya king (references in Nagaswamy 1970:51). The settlement called *Coleis Indorum* in the *Peutinger Tables* may allude to ancient Korkai.

Most scholars have located *Colchi* at modern Korkai or Kolkhoi (Fig. 35), a small village in Dist. Thirunelveli (Tamil Nadu) situated at a distance of 3 Km to the north of the River Tamraparni and 6 km from the sea (for location of *Colchi* see Caldwell 1877:284-286, Schoff 1912/74: 237-238, Nagaswamy 1970:50-54, Huntingford 1980:118, Deloche 1985:153-157).

Archaeological prospections in the area of Korkai were first conducted by Bishop Caldwell (1877:284-286) who found evidence of occupation on 'the last formed portion of the Tamraparni delta, lowest and nearest the sea.' Caldwell came upon copious quantity of sea-shells and pottery at a maximum depth of 8 ft in his excavation. However he does not specify the ceramics. In 1968-69, Nagaswamy (IAR 1968-69:32-33; 1970:50-54) excavated in and about Korkai village on behalf of

the Tamil Nadu State Deptt. of Archaeology. A total of 7 trenches (KRK 1-7) were laid. The cultural sequence as observed by the excavators is:-

Pd. I : Megalithic culture characterised by urn burials and associated black and red ware. A sherd the Northern Black Polished Ware was found in an urn in KRK 1. Rouletted Ware (RW) also in the lower levels with burial urns ?

Pd. II: Pandya Period. Marked by occurrence of red slipped ware, black ware, brown ware, sawed conch shells, terracotta beads, spouted pots, amphora handle (?).

Pd. III: Post-Pandya Period. Coarse Wares. Medieval material.

In KRK 4 and 5 potsherds inscribed in Tamil Brahmi were found. The inscriptions were on sherds of black, red slipped and black and red ware. Except for providing the depths at which the inscribed sherds were found, the excavator has not detailed their distribution in the specified periods.

In Nagaswamy's (1970b:Fig. 49a, p.50-54) report, the photograph of 'spouted pots' and large curved clay handle are interesting. The spouted pot seems similar to the fish-shaped clay lamps imitating Mediterranean types recovered from the site of Ter in the western Deccan. The large curved handle is similar to the handle of an amphora.

Mouth of the River *Solen* : Lassen (in McCrindle in Sastri 1927:59) identifies this river with the Syllar, the northern tributary of the Tamraparni.

***Kory*, also called the *Kalligikon* :** Listed in the *Geographia*. McCrindle (1884:331-332) offers a detailed explanation for the location of *Kory*, identifying the settlement (or landmark?) with the 'long spit of land in which the island of Rameshwaram terminates.' According to McCrindle the jutting terminus of Rameshwaram was called *Koli* or *Kodi* by the Tamils. The word signifies 'tip' or 'corner.'

The Early Historic site of Alagankulam (Fig. 35) is located very close to Rameshwaram. It is interesting to note that the mound of Alagankulam, on the river Vaigai, is known locally as *Kottaimedu* or 'fort-mound.' This name according to the excavator of the site may have been inspired by brick walls exposed on the periphery of the mound (Nagaswamy 1991:298). However, considering the fact that *Kottaimedu* / Alagankulam lies on the 'spit of land' traditionally known as *Kodi Koli*, it may not be far-fetched to assume that the name *Kottaimedu* has been inspired by *Kodi*. Excavations at Alagankulam have unearthed a substantial number of Mediterranean amphorae remains and a few Roman coins (Nagaswamy 1991:247-254).

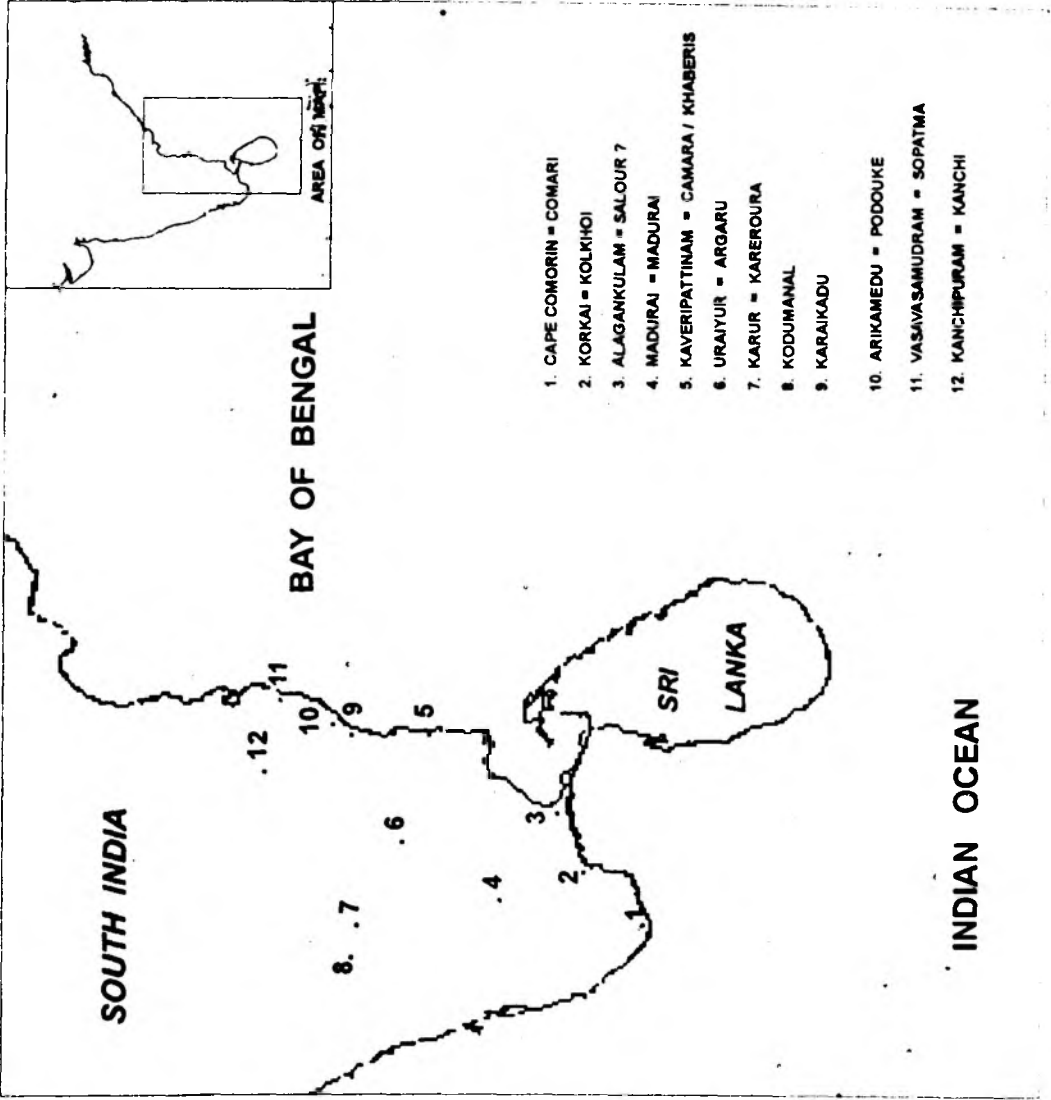


Fig. 35 Early Historic Ports and Market-Towns on the Coromandel Coast

Argeiron, a town : The same as *Argaru* of the *Periplus* (59). It can be associated with modern Uraiyur. Excavations at Uraiyur were conducted by the University of Madras between 1965-69 (Raman 1988; Fig. 35).

Salour : Listed in the *Geographia* (McCrindle 1884:331-332). Nagaswamy (1991:252) identifies *Salour* with the port-site of Alagakulam (Fig. 35). As discussed above, Alagankulam is associated in this study with *Kory Kalligikon*.

Nikama, the metropolis: Mentioned in the *Geographia*. Both McCrindle (1884:332) and Padmanabha Menon (1902:344) situate *Nikama* at Nagapatnam.

Thelkheir : Listed in the *Geographia*. Both McCrindle (1884:332-333) and Padmanabha Menon (1902:344) locate *Thelkheir* at modern Nagur.

Kouroula: Listed in the *Geographia*. Both McCrindle (1884:332-333) and Padmanabha Menon (1902:344) associate this settlement with Karaikal on the Coromandel.

Camara/Khabaris, an emporium. Identified with Kaveripattinam. Excavated by the Archaeological Survey of India and University of Madras (see under Southern India in Chapter V for review of stratigraphy; Fig. 35).

Subouras, an emporium : Listed in the *Geographia*. Yule (in McCrindle 1884:333) associates this settlement with Cuddalore near the mouth of the South Pennar river. Following Yule, this settlement can be more specifically related to the Early Historic site of Karaikadu a few kilometres from Cuddalore (Pl. IIb). A small scale excavation at Karaikadu brought to light evidence of Mediterranean contact in the form of amphorae sherds (Raman 1992: 128-129).

Poduca/Podouke: an emporium. Identified with Pondicherry. Wheeler *et al.* (1946:124) emphatically associates *Podouke* with the site of Arikamedu (Fig. 35). Review of excavations at Arikamedu is provided in Chapter V. (see also Pl. II.a.).

Sopatma: The coastal settlement of *Sopatma* is named in the *Periplus* (sec.60) whose author calls this place a harbour (the northernmost of the three ports of *Camara*, *Podouca* and *Sopatma*). Schoff (1912/74:242) identifies *Sopatma* with Madras. Schoff's position does not find favour with others who have searched for a site south of Madras: at Mamallapuram, Sadras, on the estuary of the River Palar and at Markanam (Ramaswami 1986:355-358).

In a perceptive article on the probable location of *Sopatma*, Ramaswami (1986:355-358) identifies the ancient port of *Sopatma* with Vayalur and more specifically with the archaeological mound at Vasavasundaram on the outskirts of Vayalur. The principal reason given for this identification is that Vayalur, on the mouth

of the River Palar, is mentioned in ancient texts as the principal port of the Early Pallavas. There are other credible points to support the Vayalur-*Sopatma* association.

That the Early Historic site of Vasavasamudram (Fig. 35) marks the point of an ancient anchorage is indicated by the settlement's location on the banks of a lagoon which opens to the sea near the mouth of the Palar a few kilometres away to the south (Deloche 1985:148-150). Recent satellite imagery of the paleo-channels of the Palar shows that in the beginning of the Christian Era the estuarine channel of the river was passing a few kilometres north than it is today (Ramaswamy *et al.* 1992:13-26). This means that the site of Vasavasamudram was nearer to the Palar than it is today and may have been even located on its banks.

A salvage excavation carried out at Vasavasamudram by the Tamil Nadu State Dept. of Archaeology brought to light 'conical storage jars in large numbers, some large size bricks, two pieces of imported rouletted ware and potsherds and a neck portion of an amphora of Mediterranean origin' (Nagaswamy 1970:48-49).

The Chinese pilgrim Hwang Chwang records in the 8th century that the river Palar was navigable upto Kanchipuram, the capital of the Pallavas (Deloche 1985:147-148). Excavations carried out at different localities of Kanchipuram have revealed rich Early Historic deposits and evidence of contact with the Mediterranean (*Ency.Ind.Arch.* Vol.II: 200-201). Satellite imagery data shows that the river Palar, which has shifted its course away from modern Kanchipuram, was flowing besides the town in Early Historic times (Ramaswamy *et al.* 1992:13-26).

The evidence consolidated above suggests the importance of the Vayalur-Kanchipuram waterway in Early Historic times. Compared to the other locations proposed for *Sopatma*, the situation of Vayalur, its importance stated in ancient texts and the fact that a rich Early Historic occupational deposit has been found on the outskirts of the town at Vasavasamudram makes the association of Vayalur with *Sopatma* most plausible (Fig. 35).

4.2.4. Sri Lanka, India and the Mediterranean

The earliest evidence of long distance maritime contact between Sri Lanka and the Indian mainland is represented by the Painted Grey Ware (PGW) excavated at the Buddhist site of Anuradhapura (Bopearachchi 1996:65). The PGW has its concentration in the western Gangetic Valley. In India, the PGW has not been found south of Ujjain (Madhya Pradesh) and east of Sravasti (Uttar Pradesh) (*Ency.Ind.Arch.* Vol.I: 241). In the complete absence of the PGW on the Indian coast, we cannot be sure from which direction the PGW arrived in Sri Lanka: the western or the eastern

coast of upper India. In any case the PGW at the Anuradhapura complex places the chronology for early north Indian contact with Sri Lanka in early-mid 1st millennium B.C. (for date of PGW see *Ency.Ind.Arch.* Vol.I: 241). If taken as artefactual corroboration for the southward voyages from western Indian harbours mentioned in the *Jatakas*, it would mean commencement of sailing to the island from before the period of Buddha (6th-5th century B.C.). The presence of the Northern Black Polished Ware (NBP) 'above' the PGW at Anuradhapura (Bopearachchi 1996:65) indicates that seafaring between Sri Lanka and northern India remained unbroken through mid-late 1st millennium B.C. (for date of NBP see *Ency.Ind.Arch.* Vol.I: 255-256). The historical context for export of NBP to Sri Lanka is provided by the Buddhist pilgrim traffic which began with the first proselytising mission sent out to the island by Emperor Ashoka from the harbour of *Tamralipti* (lower Bengal) in the 4th century B.C. (Bastiampillai 1995: 79-95).

While long distance maritime contacts between Sri Lanka - northern India came to be established by mid-1st millennium B.C., the first contacts with the western world took place at the beginning of the Christian Era. The exact circumstances of seaborne contact has been imputed to the visit to Sri Lanka in the 1st century A.D. by Annianus Placanus, a Roman official (Sidebotham 1986a: ; for review of early Greek references to Sri Lanka see Somasiri 1991:89; Bastiampillai 1995:79-95; Bopearachchi 1996:footnote2). Archaeological evidence of Early Roman contact (1st-2nd century A.D.) is represented by a range of artefacts: Imperial Roman coins (Bopearachchi 1996:69), glassware (Carswell 1992:200; Bopearachchi 1996:71), *terra sigillata* (note by Slane 1992:214) and a Roman-Egyptian bead (Carswell 1992:200). However it is the sudden proliferation of Late Roman coinage (4th-6th century A.D.) in Sri Lanka that gives a unique place to the island in the scheme of Indo-Roman trade. Compared to the meagre number of Early Roman coinage in Sri Lanka (maximum of 17 recorded) thousands of Roman copper and brass issues of the 4th-6th century A.D. have been recovered from coastal sites. This situation is contrary to mainland India, where we find a few thousand Early Roman coins and comparatively few Late Roman issues (see under Roman coins in Chapter II).

Artefactual indicators of long distance Mediterranean and (north) Indian trade have been found on the early harbours of Sri Lanka. The most important of these is the evidence from the archaeological site at Mantai on Mannar Island in north-east Sri Lanka (Fig. 36). Mantai has been identified with ancient *Mahatittha* mentioned in Pali texts (Shinde 1987:328). Mantai was excavated between 1984-86 by an international team headed by Dr. John Carswell of the Oriental Institute, Chicago. Mantai and the

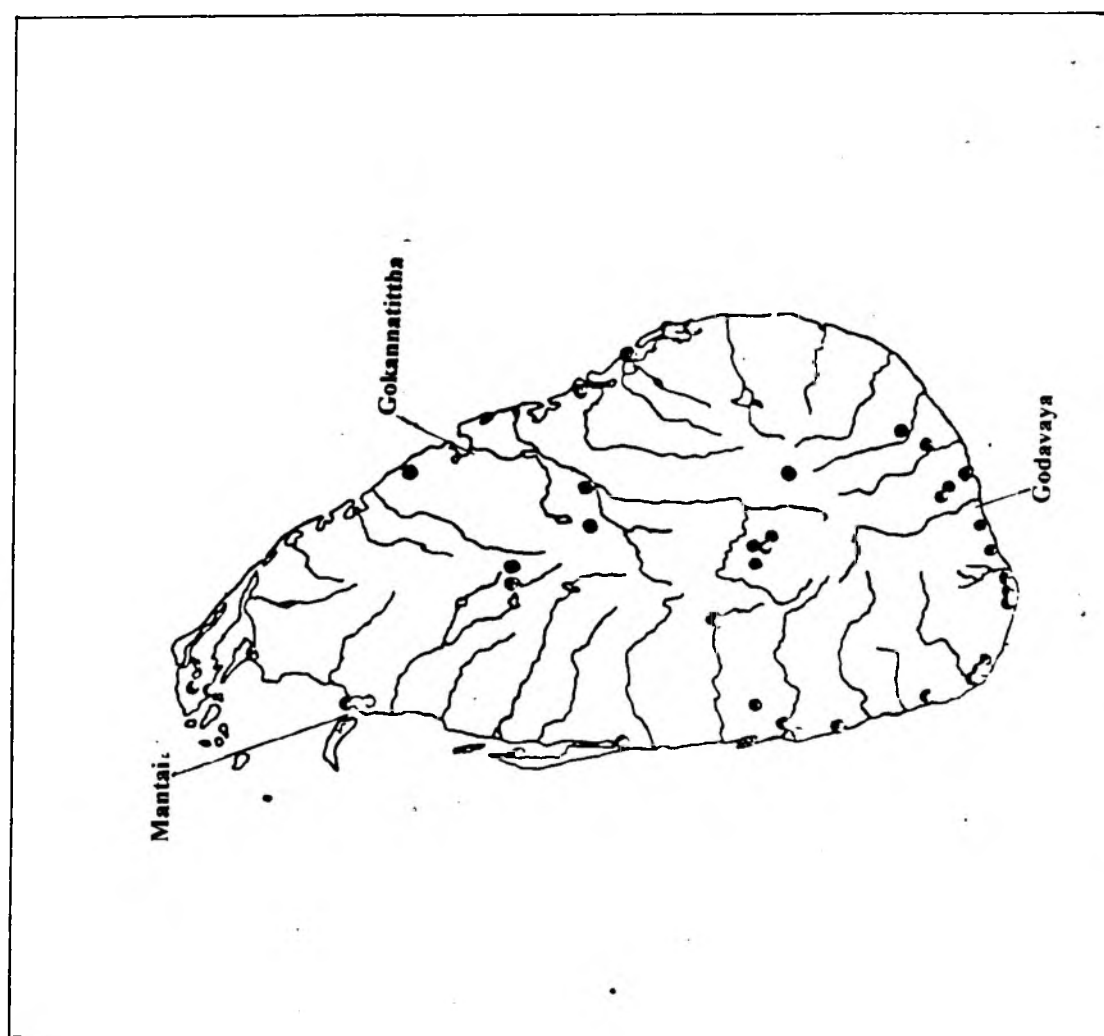


Fig. 36 Map of Sri Lanka showing Roman coin finds and important port-sites
(after Somasiri 1990)

site of Arikamedu on the Tamil coast share the Rouletted Ware and Black-and-Red Ware traditions (Shinde 1987:328-330). Carswell (1992:197-203) reports occurrence of the Red Polished Ware at Mantai, indicative of connections with northern India. Roman material in form of coins, *terra sigillata* and a Roman-Egyptian bead has come to light at Mantai (Carswell 1992:197-203). It is on the southern ports of Sri Lanka where Roman and Indo-Roman coins have been unearthed in large quantities (**Fig. 36**). Some of the Roman/Indo-Roman coin hoards comprise thousands of coins, such as the hoards from Godavaya and Hungama yielding 30,000 and 20,000 coins respectively (for details of Roman/Indo-Roman coin finds in Sri Lanka see Bopearachchi 1990:20-37; 1992: 107-121; 1993: 63-87; 1996: 59-78).

Scholars have taken the large deposition of Late Roman issues in Sri Lanka as indicating fundamental shift in focus of Roman sea trade from south India to the island (Bopearachchi 1996:69-72). Starting from this premise Bopearachchi (1996:69) explains the phenomena of shift :

‘We still think that there is no valid reason to believe that during the first three centuries of our era, Roman traders had direct connections with Sri Lanka: it may be a question of distance, as also the fact that dependence on the monsoons for sailing time limited the gap available between the two monsoon winds.’

According to Bopearachchi, Sri Lanka being left out of the ambit of direct Roman trade for the above reasons is reflected in meagre Early Roman coin finds on the island. Bopearachchi's premise holds implications which impinge on the entire issue of Early Roman commerce on the eastern Indian seaboard and Southeast Asia. Here again Bopearachchi explains: ‘...why would a Roman colony like Arikamedu, exist on the east coast during a period in which the Red Sea trade was focused on the west coast of India. During this period the South Indian traders may have played the intermediary role between Roman traders and Sri Lankans’ (Bopearachchi 1996:69).

Bopearachchi's standpoint is clear: there was no direct Roman sea trade with Sri Lanka (and lands further east) in the first three centuries of the Christian Era because Roman sailors would have had no time to catch the northerlies back to the Red Sea if they ventured towards Sri Lanka (and beyond). Secondly, the Roman sea trade was focused on the west coast of India and the east coast trade in Roman products was handled by Indian middlemen.

Both these premises are open to question. Going by the evidence from archaeology we actually find a greater range and quantity of deposition of Early Roman artefacts on the eastern seaboard than on the western coast. In this regard,

the areas of concentration are on the Coromandel Coast of Tamil Coast and the Lower Krishna Valley (Figs. 37). Moving north of the Krishna estuary we find a chain of Roman coin find-spots distributed along the north Andhra - Orissa coast upto the Early Historic harbours of Palur and Manikpatna (Fig. 37). Further north, in Lower Bengal recent discoveries of 'amphora-like' objects and Mediterranean mariners seals have been made on riverine sites directly accessible from the sea (discussion below under Eastern India).

Even though trans-peninsular land routes represented alternative conduits for movement of Mediterranean material from western harbours (discussion under Eastern India in Chapter V), the regular occurrence of Roman material in Early Historic harbours and estuarine settlements stretched out from Alagankulam to Manikpatna and beyond can be appreciated primarily in terms of external seaborne contact in the early centuries of the Christian Era. The Mediterranean mariners seals found in Lower Bengal (discussion in Chapter V) strengthens this assertion. Furthermore, the Mouths of the Ganga specified by Ptolemy in the *Geographia* can be basically understood in terms of *navigable* points of ingress to riverine 'site-clusters' in Lower Bengal (detailed discussion below). To this extent, Ptolemy's Mouths constitute navigational 'reality' as much as cartographic representation. In this context, it would not be far-fetched to infer that Ptolemy actually acquired information about the Mouths of Ganga from western mariners voyaging to the far Bengal coast.

Now, the other point raised by Bopearachchi. The reduced period between the two monsoons available for trade to western mariners cannot be taken as determining totally the strategies of commerce of Roman merchants in India. The profit instinct expresses itself in complex ways and there is every reason to suppose that some or a substantial number of western merchants were choosing to skip the winds back home if they thought the situation demanded it. In fact, Roman merchants motivated towards acquiring lucrative products of eastern India - muslin, semi-precious/precious stones, ivory - could very well get a useful year for themselves if they stayed put beyond November. After all, the Tamil Sangam poems do tell us of the colony of *Yavanas* at Kaveripattinam (Wheeler 1976:56; Cimino 1994:69). The production of 'agate' glasses, cameos and cameo blanks at Arikamedu (Francis, Jr. 1987) on the Tamil Coast are the expression of specialised Mediterranean techniques and it is logical to infer that Roman craftsmen were involved in their manufacture.

However, the growing evidence for direct Roman commercial activity on the eastern Indian seaboard does not detract from the need to explain why Sri Lanka yields meagre material evidence for Mediterranean contact in the Imperial Roman period

(1st-3rd century A.D.) compared to finds on the Tamil /Andhra coasts. As Bopearachchi points out, only 17 Imperial Roman coins have been recovered from the island compared to hundreds in Southern India (see under Tamil Nadu and Andhra Pradesh in **Appendix-I**). We are also intrigued by the absence of amphorae finds in Sri Lanka. This is again in contrast to the Tamil Coast where substantial number of amphorae fragments have been excavated at Arikamedu, Karaikadu, Alagankulam and Vasavasamudram. The situation reversed itself in the 4th-6th century A.D. when Sri Lanka held 'the central position in international commerce' (Bopearachchi 1996:70). The emergence of Sri Lanka as a hub of long distance sea borne trade may have been due to the development of western (Late Roman, Arabic, Persian) trading interests with Southeast Asia. Besides being strategically located to dominate the seaways to Southeast Asia, Sri Lanka also offered for commerce a rich range of spices and precious stone. The emergence of harbours on the southern coast of the island must have been in response to the new opportunities of trade. In particular, the evidence of Roman artefacts show a concentration in the south of Sri Lanka (Somasiri 1991: 89, Bopearachchi 1996:Fig 1), suggesting that Mediterranean merchants were now sailing around the island and were not constrained to trade only with south India.

4.3. Eastern India (Andhra Pradesh, Orissa and Bengal)

The Eastern Indian trade zone littoral is here demarcated from the estuary of the Pennar river (on the Andhra Pradesh-Tamil Nadu boundary) to the Gangetic delta (Fig. 37). This vast stretch of coastline has experienced maritime activity since the mid-late first millennium B.C. The emergence of harbours and long-distance trade-ports on the eastern Indian littoral during the B.C./A.D. transition paralleled a similar development on the western (Gujarat-Maharashtra) seaboard. Textual, epigraphic and archaeological records reveal that the eastern Indian littoral was a crucial conduit for overseas trade with Southeast Asia and the Mediterranean in the Early Historic period. In particular the substantial and widespread deposition of Mediterranean artefacts on the Andhra-Orissa-Bengal coast points to a fairly regular and close Indo-Mediterranean commercial interaction in this far-flung region.

4.3.1. Harbours and Coastal Settlements

Though the eastern coast is deficient in natural harbours, the ancient textual sources and the epigraphic and archaeological evidence reveals that the Andhra-Orissa-Bengal coast was an active seafaring zone in the Early Historic period. The concentration of port-sites in the Lower Krishna region, the Chilka lake area and the Ganga estuary reveals three main hubs of Early Historic maritime trade on the eastern Indian littoral.

The primary literary sources referring to port-sites and coastal market-towns of early historical eastern India is the *Geographia* of Ptolemy. This text lists about 20 coastal settlements from the mouth of the river Pennar to the estuary of the river Ganga (Fig. 37). The *Periplus*, in contrast, focuses on describing coastal voyaging along the Andhra-Orissa-Bengal seaboard. As discussed above, the *Periplus* indicates the hub of maritime commercial activity to be the estuary of the river Krishna, the Chilka Lake and its adjoining coast in Orissa and the delta of the river Ganga. Other textual sources mentioning early historical harbours in eastern India are the Buddhist and Jaina texts as also the works of Hellenes such as Megasthenes (*Indika*) Jerini and Marcinus of Heraklea. Names of early ports on the eastern coasts are also to be found in epigraphs such as the Hathigumpha Inscriptions of Kharavela and donative records at Buddhist sites in the eastern Deccan.

Attempts to identify the locations of the first ports on the eastern Indian littoral have been going on since the 19th century. Commentaries on the *Geographia*, in particular, have been sharply focused towards pinpointing the location of ancient harbours listed by Ptolemy (see especially McCrindle 1884: 313-411). Archaeological prospections in the last decades have brought to light remains of Early Historic settlements and Buddhist monastic/stupa sites on the eastern seaboard which now require to be correlated with the ancient littoral settlements detailed in old texts and epigraphs.

By the dint of the fact that it is the *Geographia* which provides the most comprehensive list of harbours on the Andhra-Orissa-Bengal coast amongst the early texts, the information of Ptolemy becomes the primary historical source to engage our attention. However, such an imperative also draws us to confront the many cartographic problems and imprecisions inherent in Ptolemy's listings (for difficulties in reading Ptolemy's maps see Gole 1983:29-30). Compared to the west coast where the comprehensive list of coastal settlements provided in the *Periplus* helps us corroborate the situations of the same ports named in the *Geographia*, the near total absence of information in the former about early ports on the Andhra-Orissa-Bengal coast eliminates a strong yardstick.

Following the coastal sites situated in the *Geographia* northwards from the estuary of the river Pennar, the first point of reference from our point of view is *Podouke*, specified by Ptolemy as an emporium/trading-station. The identification of Podouke with Arikamedu/Pondicherry has been pointed out. The sites listed by Ptolemy on the eastern Indian seaboard have been plotted in Fig. 37.

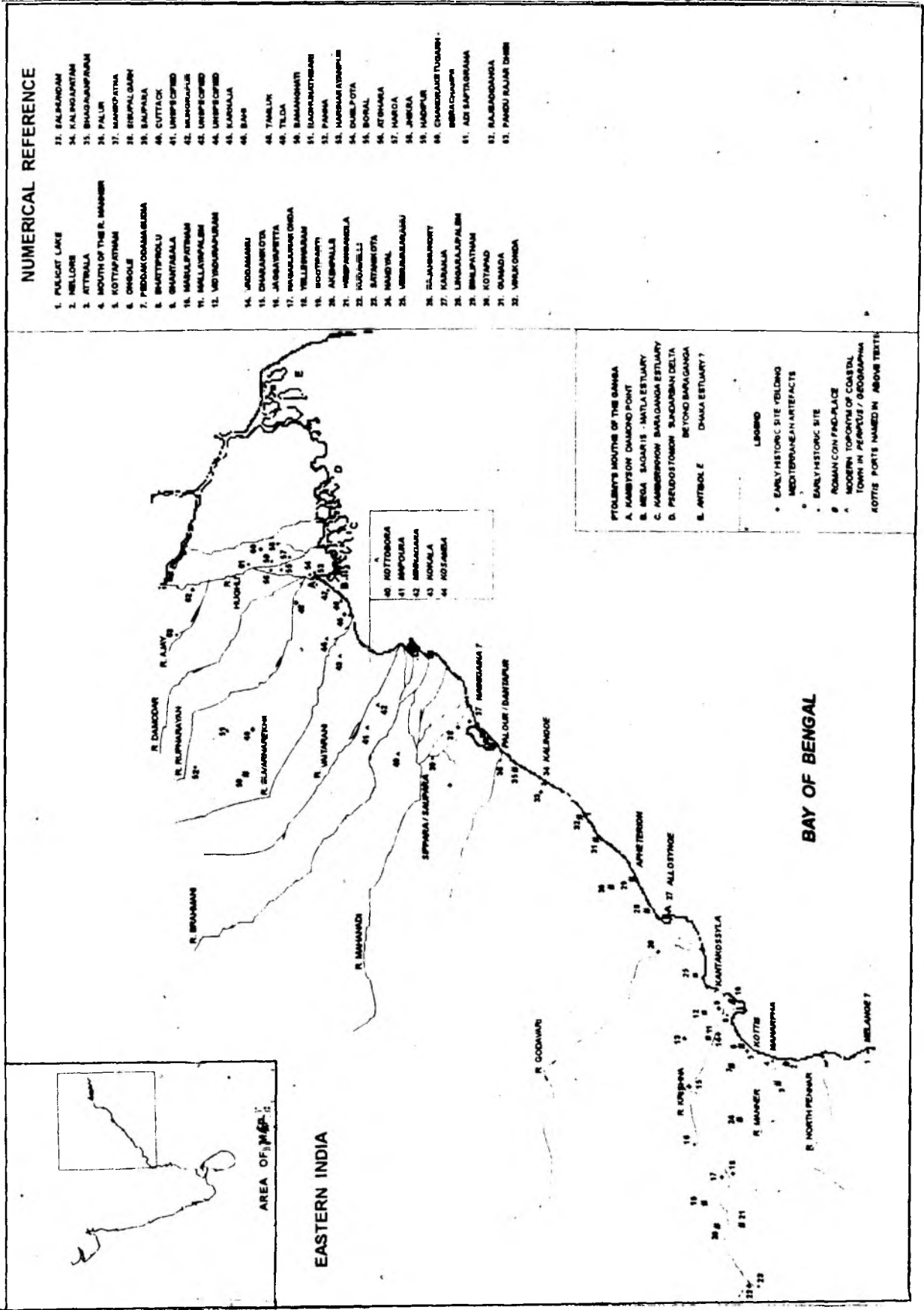


Fig. 37. Ports and market-towns of the *Periplus & Geographia*, Roman coin find-places, Early Historic sites and ancient Mouths of the Ganga.

4.3.1.a. Andhra Pradesh

Melange : North of Podouke, but below the estuary of the river *Tynna*/north Pennar, the *Geographia* situates the settlement of *Melange*, also cited as an emporium. Yule (McCrindle in Sastry 1927:67) identifies *Melange* with Krishnapattaam, a modern coastal site km south of the north Pennar river. However Cunningham (McCrindle in Sastry 1927:67) identifies *Melange* with Bandar Malanka near the Godavari mouth. Sarma (1992a:435-441) differs from the above in placing *Melange* much further south at Kadal Mallai or Mahabalipuram. Schwartzberg (1992:24, plate III.C.5) situates *Melange* below Pulicat Lake, just above Sopatma/Madras.

Now, working upon the identification of the river *Tynna* with the north Pennar adopted in the present study, the position of *Melange* may be looked for south of the north Pennar and north of *Podouke*/Pondicherry. Here we may dispense with the position of Cunningham as being too far north. Between the identifications of Yule and Schwartzberg the equation of *Melange* with Pulicat proposed by the latter is more acceptable. Pulicat, situated south of the north Pennar estuary is a major anchorage whose importance cannot be overlooked.

Two settlements, *Kottis* and *Manarpha* *Manaliarpha* lay, following the listing of the *Geographia*, north of the Pennar but south of the estuary of the Maisolos or river Krishna.

Kottis : McCrindle (in Sastri 1927:65-67) does not give an exact location for *Kottis*, holding that the settlement 'lay not very far' north of the mouth of the river Manara. Schwartzberg (1992:24) also locates *Kottis* north of *Manarpha* but does not relate it to any modern settlement in his map. The toponym for ancient *Kottis* suggests itself in the settlement of Kottapatnam which lies on the seaboard between the Pennar and Krishna rivers (**Fig. 37**). Prospections carried out at Kottapatnam, a sea-facing village (in Vakadu mandal of Nellore dist., Andhra Pradesh) by Rao (1994a:829-831) has brought to light extensive pottery deposition of the Early Historic period on a sandy beach-head along a creek. Rao has also discovered an artificial channel (1.25 km long, 200m wide) which he suggests as a docking area for merchant vessels. However 'the period in which this artificial channel was dug is yet to be confirmed.' Among ceramics recovered from Kottapatnam by Rao are the fine Rouletted Ware type which Wheeler *et al.* (1946:45-49) first discovered at Arikamedu. Rao also retrieved a variety of stamped/impressed pottery decorated with combinations of linear and geometric designs. Rao finds parallels for this decorated pottery from Kottapatnam in Southeast Asian and Chinese ceramic types of the B.C./A.D. changeover. Rao (1994b;1995) also reports finds of Roman

glassware pieces from Kottapatnam. The place name similarity between *Kottis* Kottapatnam, evidence for harbour facilities at the site and the artefactual remains indicating maritime trade contact with Southeast Asia and the Western World present a strong archaeological context for this site to be the *Kottis* of the *Geographia*.

Manarpha : McCrindle (in Sastri 1927:65-67) locates *Manarpha* at the mouth of the river Manara north of the north Pennar river (Fig. 37). Sarma (1992a:435-441) identifies this settlement with Mylarpore near Madras but this would be too far south from our point of view. Schwartzberg (1992:24) locates *Manarpha* roughly between mouth of the north Pennar and Krishna. Though Cunningham's location of *Manarpha* at the mouth of the river Manara seems apt in terms of ancient-contemporary place-name similarity we must also consider the possibility of *Manarpha* being the historical-medieval trade-port of Motupalli located not far from mouth of river Manara. Archaeological prospections at Motupalli (Dist. Prakasham, A.P.) have yielded evidence of habitation going back to the 10th century A.D. (IAR 1973-74:7). That it was a trade-port is indicated by finding of 11 century Chinese ceramics. The Motupalli charter of the Kakatiya king Ganapatideva, dated 1244-45 A.D. records the presence of foreign traders at this port (Parabrahma Sastry 1984:20; see also Chakravarti 1995:57-78). Motupalli may have been functioning as a trade-port before the 10th century. According to Parabrahma Sastry (1984:20) Motupalli means the place located upon a promontory (Motu = projected land) in Telegu. The particular geomorphology of the landform here probably contributed to Motupalli becoming a major port between the Pennar and the Krishna. Ptolemy specifically mentions *Manarpha* to be a mart which agrees with the status of Motupalli as a trade-port. Discovery of Early Historic habitation at this site may give credence to the Manarpha-Motupalli association and also help explain the maritime 'outlet' of the large monastic/stupa complex of Chandravaram nearby (IAR 1972-73:3).

From Podouke to Manarpha the *Geographia* specifies the coastal region as that of the *Avarnoi*. North of the region of the *Avarnoi* was the area of *Maisolos*. The *Periplus* (sec 62) calls the region *Masalia*. *Maisolos Masalia* draws its name from the river *Maisolos* which is here identified with the river Krishna (discussion above). Ptolemy names four coastal settlements in the region of *Maisolos* : *Kantakossyla*, *Koddoura*, *Allosynge* and an *apheterion* or departure point for vessels bound for *Chryse* (Southeast Asia).

Kantakossyla : McCrindle (in Sastry 1927:68) associates *Kantakossyla* with the Sanskrit *Kantakasthala* or 'place of thorns.' Following Yule, McCrindle locates the settlement 'in the neighbourhood of Kondapalle in which its name seems to be

partly preserved' (Fig. 37). Ray (1983:97-100) has convincingly identified *Kontakossyla* with Ghantasala, the well-known early Buddhist stupa complex situated on the estuary of the river Krishna (Fig. 37). Ghantasala is also the Sanskrit *Kantakasthala*. The discovery of Roman coins from Ghantasala corroborates it as a settlement known to the Hellenes (Madras Arch. Report 18th June, 1892:2).

Kaddoura : This site has been identified by McCrindle (in Sastry 1927:68) with Gudru, a town near Masulipatinam. According to Ray (1983: 97-100) *Koddoura* is 'evidently the ancient Kuduru, modern Guduru which came into prominence during the Brhatphalayan and Salankayanas' (also *E.I.* Vol.X 1909-10). The identification proposed by McCrindle and Ray is plausible both historically and in terms of ancient-modern place name connection. However it is necessary to enter a caveat in the sense that ethnographic records show that ancient *Koddoura* may approximate to a number of modern settlements in the lower Krishna region whose names end with Konduru/Kudduru. As Parabrahma Sastry (1984:17-20) explains, the word Konduru is linked to the ancient Telegu meaning of 'to take, to purchase.' The implication of the place-name suffix Konduru is elaborated by Parabrahma Sastry (1984:19) in the context of trade:-

'The village name Konduru, therefore suggests that it was a place where authorized dealers employed by the kings or big merchants used to purchase goods on large scale on their master's behalf... We have to apply this derivation of Konru (place of purchases) to the places which contain Konda or Kondru in their names and do not have any hill in their vicinity. There is a village by the name Devarakonda near Ghantasala in the Divi taluk of Krishna district. To see a hill, one has to come about sixty kilometres west from that village, that is, at Vijaywada. But its position on the bank of the river Krishna makes it a place of commercial importance, where the agricultural produce of Divi delta used to flow in continuously and might have been purchased there by big merchants... Another classic example of Kondaruru is Uppugonduru, near Pedaganjam, on the seashore. It is a place where salt is prepared from seawater and large scale purchases of it are made by the merchants.'

Both *Koddoura* of the *Geographia* and *Kudduru* of the *Salankayanas* approximate to the place-name suffix Konduru. This toponym proliferates in coastal Andhra Pradesh. So though Guduru may lay strong claim on being Ptolemy's *Koddoura*, the identification should be kept 'open' in the light of the possibility

that other trading settlements of similar name also must have existed in the lower Krishna region.

The archaeological evidence, specifically represented by the occurrence of artefacts of Mediterranean origin in the Early Historic settlements of the Krishna estuary, shows that Hellenic/Roman knowledge of Indian cities and trade with these settlements was not restricted to places named in texts. As the evidence reveals, the distribution of Mediterranean artefacts in the lower Krishna region covers nearly all the important Early Historic estuarine sites (Fig. 37). The near congruence of Mediterranean artefact distribution and Early Historic settlement-pattern in the lower Krishna suggests this estuarine zone to be an active 'staging area' of Indo-Mediterranean sea trade.

A close look at the archaeology and geography of the lower Krishna helps us reconstruct inter-connections between major trading stations on this river in Early Historic times. The Divi taluk of Krishna district (A.P.), at the very mouth of the river Krishna, is the deltaic sub-area which must have received the full impact of maritime commerce from the Bay of Bengal as well riverine trade coming out of the Krishna. The commercial significance of the Krishna estuary is suggested by a 13th century inscription informing of the control over 'Divi' exercised by the Kakatiya king Ganapati (Chakravarti 1995:66). It is interesting to note that the name of the modern village at the point where the Krishna bifurcates to form the delta (Divi-sima) is known as Potallanka. The word Pota referred to a large-size ship in the Buddhist text *Angavijja* (Parabrahma Sastry 1984:21).

The situation of Potullanka at the seaward limit of the Krishna delta and the allusion to big ships inherent in the place-name suggests that merchant vessels drawing deep water must have entered the river Krishna from open sea and anchored within the Divi-sima riverine zone. Parabrahma Sastry (1984:21-22) suggests that the village of Potullanka, situated on the Krishna estuary at the point where the river bifurcates to join the Bay of Bengal, may represent the main transshipment centre where large ocean going merchant vessels may have off-loaded/on-loaded goods to/from smaller river craft coming from the nearby settlements like Ghantasala, Bhattiprolu and Amaravati-Dharanikota (Fig. 37).

In fact, the three settlements named above must have been the main trading-stations of the Divi-sima sub-area of the lower Krishna region. As textual/material evidence shows, all three settlements had strong association with long distance seafarers and seafaring. As discussed, the monastic settlement of Ghantasala was well-known to Greek geographers, a fact strengthened by the discovery of Roman

coins at the site. Furthermore, an inscription dated to referring to a master-mariner (*mahanavika*) called Sevika who was a resident of Ghantasala has been recorded at the site (Ray A. 1983:97). Bhattiprolu, situated 4 miles south of the Krishna, is also an early Buddhist stupa-site existing in the B.C./A.D. transition.

Amaravati-Dharanikota, identified as the ancient city of *Dhanyakakata* (*Encycl.Ind.Arch.* Vol. II: 126), was in all likelihood the most important port on the Divi delta. It could be said to have been situated at the head of the Divi-sima, at the point where the rocky tracts of the eastern Deccan began and the flat alluvium of the Divi ended. Excavations at Dharanikota, the port-site complementing the Buddhist stupa at Amaravati, have revealed a rock-cut navigational channel dug during the earliest occupational phase (Pd IA) dated around 400 B.C. A wooden wharf raised on post-holes during Pd IB was found to have been reinforced in Pd IIA with a brick and rammed earth embankment and supplanted in the subsequent sub-phase Pd IIB by additional landings and a brick revetment on opposite side of the existing wharf (*Encycl.Ind.Arch.* Vol. II: 126). Pd II (A+B), the most flourishing period of the port (dated 100 B.C. - 200 A.D.) showed evidence of Mediterranean trade contact in the form of handle pieces of amphorae, Arretine Ware sherds (?) (*Encycl.Ind.Arch.* Vol. II: 126) and Roman glassware fragments (Stern 1992: 117). The port of Amaravati-Dharanikota silted up during Pd III (2nd-4th century A.D.).

The Early Historic settlements of Ghantasala, Bhattiprolu and Amaravati-Dharanikota most likely emerged in the Divi-sima to fulfill the economic demands of the maritime commercial activity going on in the estuary and manage the rich agricultural output of the surrounding alluvial tracts. The Buddhist monastic centres at these settlements must have come up in the context of rapid urbanisation of the Divi-sima. Further upstream we notice two 'settlement clusters' which probably mark, like the Divi-sima, important commercial/religious sub-areas of the lower Krishna region. The sub-areas are represented by the concentration of settlements about the Palar-Krishna confluence and about the Tungabhadra-Krishna confluence. The important Early Historic settlements of the Palar-Krishna cluster are Jaggayapeta, Gummadiduru, Ramareddipalem and further east the major sites of Nagarjunikonda, Yelleswaram and Goli. The major riverine settlements about the Tungabhadra-Krishna confluence were Kudavelli and Satanikota (**Fig. 37**). Kudavelli, in fact, is situated at the very meeting point of the two rivers.

Nearly all the major sites upstream of Divi-sima were situated directly on the riverbanks of the Krishna and its major tributaries. Evidence of large stone-stepped 'ghats' at Nagarjunikonda (*Encycl.Ind.Arch.* I: 298) and Yelleswaram (Khan 1963:9)

suggest the existence of landing stations for commercial traffic on the Krishna. The presence of large collonaded areas besides the ghats, at Nagarjunikonda (48 limestone columns) and Yelleswaram (148 x 40 metres) indicate that these were primarily places for commercial interchange protecting traders and commodities from the elements. It is hard to conceive these large embankment structures as exclusively created for recreative gatherings or religious congregations' (see Khan 1963:9) though such events must have regularly taken place here.

To recapitulate, the port-sites and riverine trading stations on the Lower Krishna were strung out from the deltaic tract of the Divi-sima to the rocky Tungabhadra-Krishna confluence. Large ocean going merchant vessels must have been confined to the sub-area of Divi-sima and river craft must have controlled the transport and distribution of goods from Dharanikota far upstream to the steep gorges of the eastern Deccan about the Tungabhadra. The *regularity* of Mediterranean artefact finds from the Divi-sima to the Tungabhadra-Krishna confluence (especially Roman coins at Kudavelli) and beyond (Fig. 37) indicates that the trading stations on the Lower Krishna were important to the operation of Mediterranean long distance trade in eastern India.

Allosynge : To return to the *Geographia*'s list of coastal settlements in eastern India. Beyond *Kaddoura* but still in the region of *Maisolos* Ptolemy names the mart/trading station called *Allosynge*. McCrindle (in Sastri 1927:68) locates this mart at Koranja, a small port situated slightly north of Point Godavari (Fig. 37).

Apheterion : The last coastal point in *Maisolos* listed in the *Geographia* is the *apheterion* or point of departure for ships bound for Chryse (Burma/Southeast Asia). McCrindle (in Sastri 1927:64) quotes Yule who places the *apheterion* at the mouth of a little river called Baroua. Others place it at Palur, an ancient port in the Ganjam District of Orissa (Pattanayak and Pattanayak 1994:52, Fig. 37). Interestingly, Yule (in McCrindle/Shastri 1927:68-69) provides an ethnological basis for Ptolemy's *apheterion* by citing the tradition of ships choosing Bimlipatnam near river Baroua (Fig. 37) as the embarkment point for sailing to Burma in the 18th century. Recent excavations at Bimlipatnam and its surroundings have lead to the discovery of Hinayana Buddhist settlements going back to the 2nd century B.C. (TOI Delhi ed. 1.11.92). Roman and Satavahana coins recovered from Bimlipatnam and other sites of the coastal Vishakapatnam District such as Lingarajupalem, Kotapad, Gumada and Vinukonda (Fig. 37; Turner 1989:46-87) suggest direct Roman trade contact with this area, most possibly by sea.

4.3.1.b. Orissa

Paloura : The next in the list of coastal settlements north of *Maisolos* furnished by the *Geographia* are sites mentioned along the 'Gangetic Gulf.' The first of these settlements is *Paloura*. Ptolemy refers to it as a town. *Paloura* of the *Geographia* is most certainly the modern Palur in the Ganjam Dist. of Orissa (Fig. 37; McCrindle in Sastri 1927:69). The modern settlement is situated on the estuary of the river Rushikulya. Recent explorations in the vicinity of Palur have led to the discovery of Early Historic mound formations (Pattanayak and Pattanayak 1994:51-54). Preliminary digging at Palur conducted by of the Orissan Institute for Maritime and South East Asian Studies brought to light the Northern Black Polished Ware and a sherd inscribed in Kharosti dated to the 2nd-3rd century A.D. (D.R. Pradhan: personal communication).

Amrendra Nath, Singh and Behera (*IAR* 1984:57), exploring the coastal region between estuary of Rushikulya and the eastern fringe of the Chilka Lake discovered at Potagarh, a rammed earth platform extending some 30 metres along the Rushikulya. The fragments of Chinese Celadon pottery found on the platform date the structure between 12-14th century A.D. The explorers have interpreted the platform as a loading/off loading point for merchant vessels.

The consolidated archaeological evidence from the Palur area indicates that this riverine settlement was a significant trading station in Early Historic and later times interactive in coastal and long distance sea trade. The identification of Palur with *Dantapura*, the famous trade-port on the Kalinga coast mentioned in ancient Buddhist texts has been suggested by Pattanayak and Pattanayak (1994:51-54) who point out that in Oriya the words Palur and Danta are interchangeable for 'tooth.'

After Paloura, three settlements - *Nainigaina*, *Katikardama* and *Kannogora* - are mentioned by the *Geographia* upto the Mouth of the *Manada* (River Mahanadi).

Nainigaina : McCrindle (in Sastri 1927:70) locates *Nainigaina* at Puri. The other two settlements, *Katikardama* and *Kannagara* are equated by McCrindle (in Sastri 1927:70) with Cuttack and Konarak respectively. Obviously McCrindle seems to have been guided by the need to correlate important modern settlements located between the Rushikulya and Mahanadi with the three ancient settlements.

However, it is suggested here that *Nainigaina* should be more appropriately identified with Manikpatna, an ancient port-site situated about 50 km from Puri (Fig. 37). A small excavation at this site conducted by D.R. Pradhan of the Orissan Institute for Maritime and South-East Asian Studies has revealed a rich habitation deposit from the 1st century A.D. to British-Colonial Period (18th century A.D.). The earliest layers at Manikpatna have yielded evidence of maritime contact in the form

of Roman amphorae sherds, imitation Roman lamps (Pls. VII, XI). The recovery of Rouletted Ware sherds and a potsherd inscribed in Kharosti from the early levels also points to Manikpatna functioning as a long distance trade-port in the early centuries A.D. (Pradhan, Mohanty and Mishra 1996:120-123).

The location of Manikpatna on the northern shore of the Chilka Lake must have offered good vantage for seagoing vessels to berth safely at this port. Stirling (1825/1990:187-188) writing a geographical account of Orissa informs that the Chilka Lake 'is seperated from the sea for many miles by a long, narrow strip of sand, seldom more than three hundred yards in breath and discharges its waters by an outfall which has been lately excavated about a mile north of Manikpatnam...' The situation of Manikpatna on the narrowest point of the sandbar shows its strategic location.

Katikardama : Ptolemy places *Katikardama* after *Nanigaina*. McCrindle (in Sastri 1927:70) has identified the settlement with Cuttack on the basis that 'the first part of the name (*Katikardama*)' suggests the connection. However, we may consider here the possible identification of *Katikardama* with the major Hinayana monastic complex adjoining the village of Salihundam (Dist. Srikakulam, A.P.). The finding of a large number of imitation Roman coins and Roman-like statuary from the monastery indicates Hellenic knowledge of this settlement. The basis of the identification is the discovery of a 2nd century A.D. Brahmi-Prakrit epigraph - *Kattaharama* or *Kattahara arama* - engraved around the neck of a water jar discovered in the *chaitya* (IAR 1953-54:11-12) of the monastery complex. The excavators take this epigraph as the name of the ancient monastic complex. This monastery, situated on a hillside, is distinguished by the excavators from the modern village of Salihundam below. The antiquity of the latter is traced by them to the name *Salipetaka* (Emporium of Rice?) found inscribed on potsherds, conches and stones of the monastery (IAR 1953-54:11-12). The village of Salihundam is situated on the bank of the River Vamsadhara and is merely 5 miles upstream of the ancient (Early Historic) seaport of Kalingapatnam (*Kalingoe* of Megasthenes). So if we are to go by the identifications proposed the estuary of the Vamsadhara would have had, in the Early Historic period, the settlements of *Kattaharama*, *Salipetaka* and *Kalingapatnam* in close proximity.

The similarity between *Katikardama* of the *Geographia* and *Kattaharama* cannot be missed. However we know that the monastic complex, situated near Salihundam Village, lies much to the south of its designated location in the *Geographia*. Also it may well be that the potsherd inscribed *Kattaharama* found in the *chaitya-graha* of the monastery may have been part of a vessel brought to the site

by a devotee from elsewhere. We have to await more evidence for the Salihundam monastery being ancient *Kattaharama* to confidently associate it with *Katikardama*.

Kannagora : Next in Ptolemy's list after *Katikardama* is *Kannagora*. McCrindle (in Sastri 1927:70) asserts that 'there can be little doubt that we have here the Konarak of modern times.' After *Kannagora*/Konarak the *Geographia* refers to the *Mouth of the Manada*. This is obviously the River Mahanadi (Fig. 37, McCrindle in Sastri 1927:71).

Kottobora : This settlement is listed in the *Geographia* immediately after the reference to Mahanadi mouth. The place name *Kottobora* shows affinity with modern Cuttack. As pointed out above, McCrindle identifies *Katikardama* with Cuttack on the basis of ancient-modern place name similarity. This criterion can be equally justified for *Kottobora*=Cuttack. Furthermore, Cuttack is situated north of the Mahanadi estuary and is thus a better candidate for *Kottobora* which is also placed by Ptolemy north of the Mahanadi unlike *Katikardama* which is listed south of the same river.

Sipara : After *Kottobora*, the *Geographia* lists the settlement of *Sipara* within the catchment-area of the Mahanadi. Following Yule, McCrindle (in Sastri 1927:71) suggests that the *Sipara* of the *Geographia* represents the ancient *Surparaka*. Mitra (in Dey 1925/1985:197) following Gosselin (in Burgess 1882:236-237), identifies *Sipara* with the small port of Sipelar at the mouth of the River Krishna. Lassen (in Burgess 1882:236) locates *Sipara* of the *Geographia* at False Point on the Orissa coast.

In a thought-provoking paper Burgess (1882:236-237) questions the identification of *Sipara* with *Surparaka* of ancient Indian texts. Providing detailed textual and epigraphical data, Burgess asserts that the only *Surparaka* was on the west coast and could be identified with the modern village of Sopara near Vasai (Fig. 32). Since Burgess' wrote the paper delinking *Sipara* on the east coast with the toponym *Surparaka*, there is now near unanimity on the identification of modern Sopara with *Surparaka* of the *Jatakas*. In consequence, the location of Ptolemy's *Sipara* remains obscure to this day.

However, another important textual source besides the *Geographia* suggests the existence of an 'eastern' *Surparaka*/Sopara. In the great Sinhalese epic *Mahavamsa*, which records events in the latter half of the 1st millennium B.C., it is stated that the prince Vijaya, on a voyage from Bengal to Sri Lanka stopped *en route* at the port of *Suparaka* but was compelled to re-embark because of the lawlessness of his followers (*Mahavamsa* VI.1.46). Burgess, in course of his argument against the

existence of an 'eastern' Sopara, dismisses the evidence of the *Mahavamsa* in the following terms: 'One hardly expects to find Vijaya landing on the west coast of India when on his way from Bengal to Ceylon. Surparaka on the west coast, however, was a place of note among the Buddhists long before Mahanamo's time, and, as his ideas of geography were probably not very clear, he may have believed that this place really was visited by Vijaya.'

A recent piece of archaeological evidence suggests that the *Mahavamsa* may not have misplaced the situation of *Supara Surparaka*. A convincing contemporary toponym for the 'eastern' *Supara* can be evidenced in the modern settlement of Saupara situated on the left bank of the river Bagh, an affluent of the Mahanadi (Fig. 37). S.B. Ota of the ASI, in course of explorations discovered two Early Historic riverine mounds at Saupara-on-Bagh (IAR 1983-84:60-61). The Early Historic site of Saupara re-establishes the *Sipara-Surparaka* connection. As pointed out, Ptolemy situates *Sipara* in the catchment-area of the Mahanadi, specifically between the rivers *Manada* and *Tyndis* (the latter identified with the Brahmani). The location of modern Saupara matches the locus for *Sipara* provided by the *Geographia*. The *Mahavamsa* refers to the 'eastern' *Saupara* as a port. We know that many important early ports on the Orissan coast, such as Palur and Manikpatna, are situated away from the vagaries of the open sea on the banks of navigable creeks, lagoons and rivers. In this context, Early Historic Saupara-on-Bagh may have been a riverine port. Stirling (1825/1990:184-185) observes that 'During the rains the Mahanadi may be navigated as far nearly as Ryepur distant fully 300 miles from the point of confluence with the sea, though the passage is rendered somewhat difficult in the higher points by rocks.' Saupara-on-Bagh, which lies well within the navigable range specified by Stirling, would not have been difficult of access in ancient times by sea-going vessels which probably did not draw the large depth of water modern vessels do.

Mouth of the River Tyndis The *Geographia* mentions the Mouth of the River *Tyndis* following *Sipara*. McCrindle (in Sastri 1927:71), following Lassen, equates the River *Tyndis* with the River Brahmani (Fig. 37). McCrindle's correlation of *Tyndis* with the Brahmani results from his position that the four major rivers listed by Ptolemy from *Manada* to the Mouths of the Ganges are to be equated with the four major rivers of Orissa. In this regard the correlations are: *Manada*=Mahanadi, *Tyndis* = Brahmani, *Dosaron*=Vaitarani and *Adamas*=Suvarnarekha. Yule (in McCrindle 1884:334-335) differs, holding that the *Tyndis* happened to be a branch of the Mahanadi and that the river *Dosaron* was the

Brahmani, *Adamas* the Vaitarani and *Kambyson*, the westernmost mouth of the Ganga was the Suvarnarekha.

A scrutiny of the northern Orissa littoral shows that the rivers Mahanadi, Brahmani and Vaitarani split into numerous branches as they approach the sea. The estuarine zone from the Chilka Lake to Palmyras Point (mouth of Vaitarani) is webbed with distributaries. In this context, Yule's identification of the *Tyndis* as a branch of the Mahanadi would appear to be an arbitrary choice. The Mahanadi has many important branches such as the Cajori, Berupa and Chittertola which further sub-divide into numerous arms. The Cajori for instance sends off a large stream to its north called the Deb Nadi and the Harchandi to the south. We have discussed above the evidence for the 'eastern' Saupara situated on the River Bagh, a branch of the Mahanadi. The multiplicity of branches of the Mahanadi and the other major rivers of northern Orissa makes it difficult to relate any one arm of the Mahanadi to be the *Tyndis* as Yule suggests, particularly when many of the branches are navigable. It would therefore be logical to keep to the position of Lassen/McCrindle who relate the four rivers listed by Ptolemy north of the Chilka to the four major northern Orissa rivers.

Mapoura and Minmagara: Between the River *Tyndis*/Brahmani and *Dosaron*/Vaitarani, the *Geographia* situates the settlements of *Mapoura* and *Minnagara*. McCrindle (in Sastri 1927) does not attempt an identification of *Mapoura*. Neither does Schwartzberg (1992:24) indicate the settlement in his historical atlas. Yule (in McCrindle 1884:335) locates *Minnagara* at Jajhpur (Fig. 37). McCrindle (in Sastri 1927:71) situates *Minnagara* a little away from Jajhpur, closer to the sea, at Mungrapur. The place-name *Minnagara* recalls settlements of the same name located by the *Periplus* in the region of Sind and western India (Schoff 1912/1974:180). The settlements called *Minnagara* are held to be those of the Sakas/Scythians who are termed *Minn* in ancient Indian records (Schoff 1912/1974:180). Similarly the settlement of *Minnagara* on the Kalinga coast may have been occupied by Sakas. We have ample evidence of the presence of communities of 'foreign' migrants from the north-west of the Indian subcontinent on the Bengal and Orissa coastlands. Seals inscribed in hybrid Brahmi-Kharosthi script and belonging to Scythian horse-traders have been recovered from lower Bengal. On the Orissa coast we have evidence of potsherds inscribed in Kharosthi from Manikpatna and Palur (see above). The Murunda dynasty which controlled Kalinga in the early centuries A.D. is purported to have a north-western origin (Das 1985:7-8). Recently, explorations at Radhanagar close to Jajhpur have revealed evidence of a

large urban settlement existing in the early centuries of the Christian Era (Prusty, Mohanty and Mishra 1996:123-127). However, we cannot rule out the possibility of ancient Radhanagar being the base of north-westerners at the time of the *Periplus* and thus being also known as *Minnagara*. In this regard it is relevant to note that a number of Kushan gold coins have been recovered from the site, indicating connections with north-west India.

Kokala between the *Dosaron/Vaitarani* and *Adamas/Suvarnarekha* remains unidentified.

Kosamba/Kosaba: is situated by the *Geographia* between the *Adamas/Suvarnarekha* and *Kambyson*, the westernmost mouth of the Ganges. Yule (in McCrindle/Sastri 1927:71) places *Kosamba* at Balasore and Lassen at the mouth of the *Suvarnarekha*. In the Udayagiri Cave inscription of Kharavela there is a mention of a people known as Kusambas (Luders List 1345 in E. I. X).

4.3.1.c. Lower Bengal and Mouths of the Ganga

The geographer Strabo was probably the first Hellene to comment upon the geography of the Ganges estuary when he recorded that the Ganges discharges into the sea by a single mouth. The *Periplus*, tracing the coastline north along the Orissa coast, records the moment when the Ganges 'comes into view' (PME 63). This, of course, would be an allusion to the westernmost mouth of the river. According to McCrindle (in Sastri 1927:71) 'Ptolemy appears to have been the first writer who gave to the western world any definite information concerning that part of the Bengal coast which receives the waters of the Ganges.' Ptolemy names five mouths of the Ganges in order of *Kambyson*, *Mega*, *Kamberikhon*, *Pseudostomon* and *Antibole*. He also mentions two estuarine settlements: *Poloura* and *Tilogrammon*.

Commentators of the *Geographia* and historical geographers have attempted the identification of the mouths of the Ganges on the basis of toponyms and geomorphology of the Ganges delta. The present study proposes to review the previous identifications by integrating the substantial archaeological records from Early Historic sites explored on the Ganges estuary in the last fifty years.

Before we begin the review it is necessary to put into perspective the idea of 'mouth.' From a purely geomorphological point of view there are many more mouths of the Ganga than the five detailed by Ptolemy. In all likelihood Ptolemy's mouths refer to the important *navigable* estuaries on the Ganga delta. We know that Ptolemy fixed the positions of ports and other settlements in India on the basis of information acquired from those voyaging to this far land (Gole 1983:29-30). The

occurrence of Mediterranean artefacts in Early Historic sites port-sites of lower Bengal, including votive seals and tablets of mariners inscribed in Greek, points to direct Hellenic voyaging to this part of the world (see discussion in Chapter V). In the *Dasakumaracharita* of Dandin there is a reference to *Yavana* mariners near the port of Tamralipti in lower Bengal (Kale 1986: pp. xxxvi, xxxvii, 324-325). Since Ptolemy's knowledge of the Ganges mouths was likely to have been derived from mariners, it is necessary to understand the mouths in terms of the *experience* of the ancient navigators negotiating their ships into the delta. In this context, Ptolemy's mouths must have represented *navigable points of ingress* into the Gangetic delta and riverine ports further upstream.

Another preliminary factor to be considered is the issue of shoreline changes. Is it plausible to attempt a reconstruction of Ptolemy's mouths on the basis of the present configuration of the delta or has the extension of fluvial deposition completely 'distorted' the geomorphology of the delta as it was in Early Historic times? Our understanding of fluvial-marine dynamics in the Ganga Delta will be clearer when the recent work of the Geological Survey of India on coastal geomorphology and shoreline changes on the Bengal coast is published in full (Goswami *et al.* 1989). However, consideration of the new evidence of archaeological sites in the Ganga deltaic zone provides some answers to the above questions. In **Fig. 37** we can see that there is a proliferation of Early Historic sites on the estuarine area of the Ganga. The distribution of these sites extends into the present tidal zone. This is indicated by the location of the sites of Harinarayanpur below Diamond Harbour, Mandir Tala on Ganga Sagar Island and Kanthi on the coast opposite Ganga Sagar. In fact, the island mentioned in the *Periplus* (sec.63) as situated opposite the mouth of the Ganga may well be a reference to Ganga Sagar. The presence of Early Historic archaeological deposits at the edge of the present delta suggests that the geomorphology of the Ganga deltaic zone was not very different from as it exists today.

The identifications proposed for locations of Ptolemy's mouths are reviewed below. The review is presented in two parts. First, the various identifications of Ptolemy's mouths are specified. Thereafter the various identifications are reviewed in the light of new archaeological data.

Kambyson : Saint-Martin (in McCrindle-Sastri 1927:71) locates *Kambyson* at the mouth of the River Hughli saying that 'it would be possible that below Diamond Point the principal channel (of the Hughli) instead of passing now in front of Kalpi remounted to the west in front of Tamruk...and came thus to touch at a

locality of which the actual name Nungabusan recalls that of Kambysum or Kambyson.' Wilford and Yule (in McCrindle-Sastri 1927:71) place *Kambyson* further west at the mouth of the river Suvarnarekha. In his study of the ancient geography of the Ganga, Dey (*Ind.Ant.* 1921:35-36) locates *Kambyson* at Kapilasrama near Sagar island. Explaining the phonetic connection between *Kambyson*-Kapilasrama, Dey (*Ind.Ant.* 1921:35-40) says "that according to phonetic rules the word 'asrama' is sometimes changed into 'ason' or 'son', as Gurga-Asrama is the modern Gugason, Bhri-gu-Asrama is the modern Bagrasan."

Mega : Saint-Martin (in McCrindle-Sastri 1927:71) identifies this mouth with the Matla estuary. Wilford and Yule (in McCrindle-Sastri 1927:71) identify it with the estuary of the River Hughli which, as we see above, has been associated with *Kambyson* by Saint-Martin and Dey. Dey (*Ind.Ant.* 1921:38-39) suggests that *Mega* is a corruption of Magra, explaining his position thus: 'At some remote period there was perhaps a mouth of the Ganges near Magra in the district of Hughli and perhaps with the gradual extension of the delta towards the south the name has also gone down along with the shifting course of the channel and it is at present situated in the district of 24 Parganas now known by the name of Magra-hat near the Rasulpur river which joins the Ocean through the Jamira Estuary.'

Kamberikhon : Saint-Martin (in McCrindle-Sastri 1927:71) identifies *Kamberikhon* with the Baraganga Estuary. In his opinion the name *Kamberikhon* derives from the river Kobbadak which joins the Baraganga. Dey (*Ind.Ant.* 1921:38) also associating *Kamberikhon* with Kobbadak-Baraganga explains his position: "Kamberikhon appears to be a transcription of Kumbirakhatum which means the 'Crocodile channel'...The name of Kumaria village on the river Kobbadak, the river Kumer in the district of Jessore and several places with the name of Kumbhira or its corruptions, situated on the present branches of the Ganges in the neighbourhood, lead us to believe that Kamberikhon must be a corruption of Kumbhirakhatam, now represented by the Bangara estuary."

Pseudostomon : According to McCrindle (in Sastri 1927:71) "the fourth mouth was called Pseudostomon, that is 'false mouth' because it lay concealed behind numerous islands and was often mistaken for the easternmost mouth of the Ganges." Dey does not discuss this mouth.

Antihole : According to McCrindle (in Sastri 1927:71) the easternmost mouth of the Ganga as detailed by Ptolemy 'is the Dhaka or the old Ganges river and seems to have been the limit of India and the point from which measurements and distances relating to countries in India were frequently made.' Dey (*Ind.Ant.*

1921-40) postulates that 'the Antibole mouth in the second century was probably near Atopur in the district of Nadia. Atopura or Atpura is now perhaps represented by the Matla estuary.'

4.3.1.d. Reconstruction of Mouths of Ganga, as identified by Ptolemy, on the basis of archaeological and geomorphic data.

Fig. 37 shows the spread of Early Historic coastal settlements from the Gangetic tidal zone to riverine sites located north of the delta. The location of Early Historic sites indicates the waterways in use. The concentration of riverine sites of lower Bengal points to the main points of ingress into the Gangetic delta which ancient ships must have used to reach these settlements. Sengupta (1996:116-118) detailing the spread of Early Historic sites in Lower Bengal says: 'Archaeological sites in Coastal Bengal are found distributed in three distinct clusters, situated either in the estuary or in the delta, rather than the sea proper. Chronologically, the earliest cluster of sites are located on the river Rupnarayan and Hooghli. Two other clusters are found along the river Vidyadhari and the old course of the Ganga.' Considering that Ptolemy's mouths were a navigational rather than cartographic reality, the Early Historic coastal settlement 'clusters' identified by Sengupta must have been directly related to the points of ingress into the Gangetic delta.

The cluster of sites on the Rupnarayan and the Hughli could be reached from the Bay of Bengal through the mouth of the Ganga which has Ganga Sagar Island at the point of confluence with the sea. This is the widest opening into the Ganga delta, approx. 20 km across (Dutta 1995:32). Obviously, this must be the mouth called *Mega* (Greek: great) by Ptolemy (Mouth B in Fig. 37).

The Early Historic site of Kanthi on the coast right opposite Sagar island must have served as a halting station for ships entering the Hugli estuary. Preliminary prospections at the site suggest that it was an important trade-port, perhaps rivalling Tamralipti (modern Tamluk) further inland (Sarkar 1990:3-54). After the long and hazardous journey from Sagar island or Kanthi, merchant ships must have reached near the point where the rivers Hughli, Damodar and Rupnarayan discharge their waters into the estuary. This second point of ingress is represented by the site of Harinarayanpur, just below Diamond Point (Fig. 37). It is at this juncture that navigators must have been confronted with 'choices' about their final destination. The port of Tamralipti could be reached by sailing into the channel of the Rupnarayan. The Hughli offered access to Early Historic settlements of Atghara, Boral and Chandraketurgh (the last could also be reached through the River Matla-

Vidyadhari opening). The Hughli waterway could be navigated far upstream to reach sites on the Bhagirathi such as Rajbadidanga (ancient *Raktamrittika*)

Harinarayanpur is located near the old mouth of the Hughli (represented by the Atghara, Boral, Deolpota alignment, see Fig. 37) and is strategically placed on a bend of the estuary. Though the sailing distance from Sagar island to Harinarayanpur is only 40 Km, nevertheless it was perhaps the most hazardous phase of the voyage for ships navigating into the main channels of the Rupnarayan and Hughli. This estuarine zone is fraught with high tides, unpredictable currents and hidden shoals. A seaman abroad the *Charles Cooper*, a steamship sailing for Calcutta in 1860 describes the passage through the Hughli estuary as the 'most difficult and dangerous passage in the world' where 'the current runs with great rapidity over treacherous shoals and quicksands' (Bound and McLeod 1992:464). Even today no movement of ships is possible in the Hughli estuary without the use of pilot-boats. The presence of pilot-boats is recorded for the Early Historic period in the term *trappaka* on a clay tablet from Chandraketugarh (Chakravarti 1992:155-160). We know the *trappaka* to be a pilot-boat from a reference in the *Periplus* (sec. 44) which informs of such a vessel engaged in directing merchant-ships from the mouth of the Gulf of Khambhat to the great port of *Barygaza-on-Narmada*. Similarly, the *trappaka* operating in the Ganges estuary must have guided incoming ships from Sagar island to safety of riverine ports such as Tamralipti/Tamluk-on-Rupnarayan (for probable model of *trappaka* see Pl. XXVII).

So by the time the merchant vessels reached Harinarayanpur at the head of the Hughli estuary, the mariners must have put behind them the hardest part of the voyage. Beyond this point the journey upstream on the Hughli or the Rupnarayan presented relatively safe passage. A record of tides in the Hughli at Kidderpore Docks of Calcutta between 1806-7 and 1825-26 reveals that only once, in 1823 did a tidal bore from the Bay of Bengal enter the fluvial channel (Kyd 1832/1980:260). So both from the point of view of sailing conditions and divergence of waterways towards the 'site-clusters' the Harinarayanpur/Diamond Point area must have been a major point of ingress after Sagar island. The existence of a maritime 'crossroad' at Harinarayanpur/Diamond Point suggests that one of Ptolemy's mouths may have been here. It is likely that Harinarayanpur/Diamond Point represents *Kambyson*, for as we notice above, Saint-Martin places the *Kambyson* mouth in the vicinity of Diamond Point on the basis of the Nungabusan toponym (Mouth A in Fig. 37).

The next major opening east of Ganga Sagar estuary is the Matla-Vidyadhari estuary. We see a concentration of Early Historic sites just above this estuarine area,

This 'cluster', centred about the important settlement of Chandraketurgh-Berachampa, has in proximity the sites of Haroa, Jhikra, Hadipur. This cluster indicates that the Matla-Vidyadhari estuary may have been the third navigable mouth of Ptolemy, i.e., *Kamberikhon*. In fact, *Kamberikhon* may have extended to the adjacent Kobbadak-Baraganga estuary if we take into account Dey's interpretation of *Kamberikhon* as Kumbirakhatun (Crocodile Channel) and the presence of toponyms of the latter along the old courses of the Ganga (discussion above, Mouth C in Fig. 37).

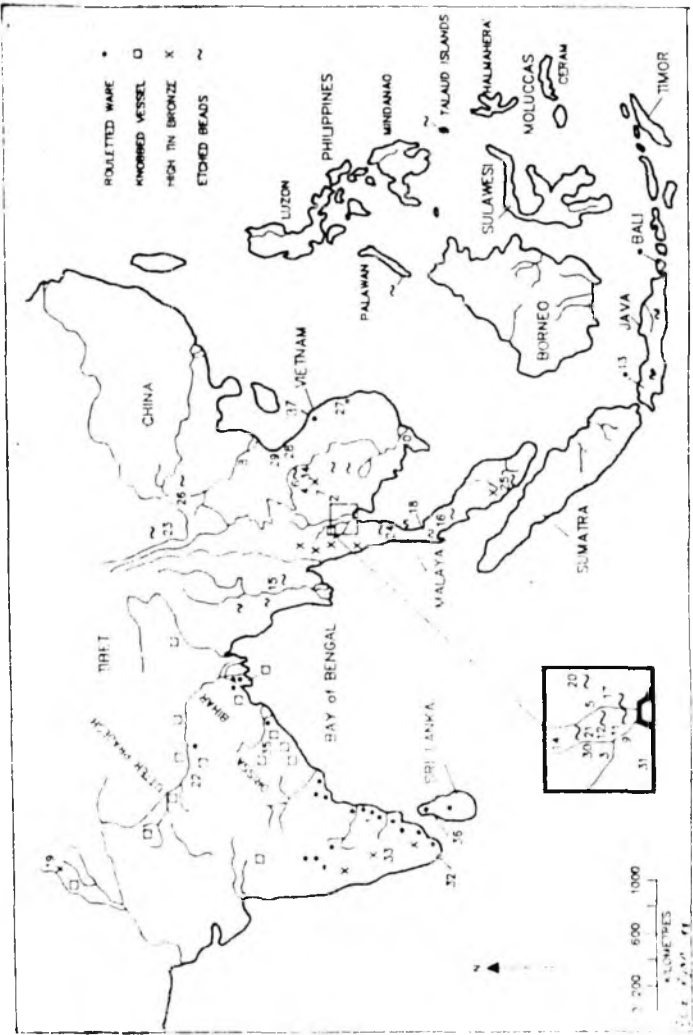
Further east of the Baraganga estuary the fringes of the Gangetic delta is the Sunderbans proper, the thick mangrove forest area of deltaic Bengal. The many channels that wind among the shoals and mud-islands of the Sundarbans could easily convey, to sailors not familiar with the geomorphology of the area, the impression of navigable estuaries leading into the interior. However, the channels of the Sundarbans are extremely treacherous and unfit for heavy maritime traffic (Datta 1995:32). In ancient times, these channels must have been regarded as deceptive and dangerous by mariners. Ptolemy, therefore, must have given to the swamy forested estuary of Sundarbans the name *Pseudostomon* or False Mouth (Mouth D in Fig. 37).

There is no convincing toponym for the identification of Ptolemy's fifth mouth, *Antihole*. Dey's association of *Antihole* with Atopur is based only on the slender resemblance of place names and seems far fetched. McCrindle's identification of *Antihole* with the Dhaka estuary only seem logical (Mouth E in Fig. 37).

5. Southeast Asia

Over the past decade prolific archaeological missions in coastal and mainland Southeast Asia (Burma, Thailand, Malaysia, Indonesia, Vietnam, Laos, Kampuchea) have brought to light artefactual evidence of early trans-oceanic contact with India, the Mediterranean and China. The results from the prospections have pushed back the chronology for early Southeast Asian contact with the Indian civilization to mid-1st millennium B.C. The central data in this regard has emerged from the cemetery-site of Ban Don Ta Phet (BDTP) in Thailand (Figs. 20, 38). Excavations conducted here jointly by the Institute of Archaeology (London) and the Thai Fine Arts Department has revealed Buddhist funerary deposits. The Indian material from the cemetery complex comprises semi-precious and glass beads, green glass cut into shape of beryl, bronze vessels with a central protusion or 'knob' at the inner base and votive stupas made of clay. Five radiocarbon dates provide a chronology of 390-360 B.C. for the funerary deposit at BDTP (Glover 1990; Glover 1996:138).

The 4th century B.C. context provided by BDTP is the earliest chronology available for Southeast Asia - India contact. No other site in Southeast Asia has



South and Southeast Asia locating the more important archaeological sites referred to in the text and the distribution of Rouletted Ware, « knobbed-base » vessels, high-tin bronzes. Only the etched beads found in Southeast Asia are located. Key to the numbered sites
1, Arikamedu, 2, Kok Charoen, 3, Ban Kao, 4, Ban Na Di, 5, Tha Khae, 6, Ban Chiang, 7, Non Nok Tha, 8, Phung Nguyen, 9, Pong Tuk, 10, Oc-eo, 11, Ban Don Ta Phet, 12, U-Thong, 13, Buni, 14, Chaisa, 15, Beikthano, 16, Khlong Thom, 17, Sa-aburi, 18, Chaiya, 19, Taita, 20, Khao Mogul, 21, Bin Piai Nam, 22, Bhitia, 23, Likiang, 24, Khao Sam Kao, 25, Kuala Selinsing, 26, Shi Zhai Shan & Lijashan, 27, Sa-Huyb, 28, Xuan An, 29, Dongson, 30, Tham Ongbah, 31, Chombung, 32, Adichanallur, 33, Coimbatore, 34, Kok Khon, 35, Sisulpalgarh, 36, Mantas, 37, Tra Kieu.

Fig. 38. Location of important archaeological sites in South and Southeast Asia.
(after Glover 1996)

yielded such early dates for the Indian connection, though Glover (1996:136) is of the opinion that etched stone beads from India at other sites in the region may come from 2nd century B.C. contexts.

Of course, towards the beginning of the Christian Era there is greater frequency of occurrence of Indian artefacts, particularly the Rouletted Ware (RW). From the 1st century A.D. we find widespread deposition of Indian sea borne objects about the Malacca Straits and further east. On the Indonesian coast the RW dated to 1st century A.D. has been excavated in substantial quantity from the coastal sites of Sembiran (Ardika and Bellwood 1991:221-232; Ardika *et al.* 1993:101-109). Indian artefacts of early-mid 1st millennium A.D. also been excavated from Beikthano, Chansen, Gilimanuk, Buni Complex in Java, Khlong Thom, Kuala Selinsing, Tra Kieu and Oc-eo (Fig. 20).

Interestingly, objects of Mediterranean origin also appear in early centuries A.D. contexts in many coastal sites of South-East Asia. These settlements are U-Thong (Roman coin), Khlong Thom (Roman intaglios and glass), Pong Tuk (Roman lamp) and Oc-eo (Roman coin) (Chapter II for details of Roman artefacts in Southeast Asia; also see Fig. 3).

The 'exotic' deposition briefly summarized above corroborates the textual records for Indian and Roman sea borne trade with Southeast Asia in the transition towards the 1st millennium A.D. Southeast Asia was the fabled *suvarnabhumi* of ancient Indian literature (Ray 1991:357-365). References to ancient Indian voyaging to Southeast Asia in search of spices are to be found in the *Arthasastra*, *Jatakas*, *Raghuvamsa* and *Milindapanho* (Fig. 21). The textual references to contact and trade between India and Southeast Asia are congruous with the chronological range of the Indian and Roman artefactual deposition in the latter region. Broadly, three stages in the growth of India-Southeast Asia contacts has been envisaged. The first stage, represented by Indian finds in the mid-1st millennium B.C. contexts at BDTP, has been perceived to be essentially non-commercial, brought about more by Buddhist proselytizing missions from eastern India (Ray 1991: 357-359). The second stage, in the 1st-2nd century A.D., witnessed according to Glover (1996:131), the integration of 'the previously rather separate Southeast Asian exchange systems...into a vast network stretching from Western Europe, via the Mediterranean basin, the Persian Gulf and the Red Sea, to India, Southeast Asia and China'. The third stage arrives with the full-fledged 'Indianization' of Southeast Asia when Brahmanical and Buddhist doctrines become predominant from mid-1st millennium A.D. and result in creation of powerful

architectural symbolisms such as the Vishnu temple of Angkor Vat and the Buddhist monument of Borobodur.

In this section, the focus is on the two early stages which created the conditions for large-scale diffusion of Indian culture and polity into Southeast Asia from the mid-1st millennium A.D. The repertoire of Indian artefacts and material cultural elements (iron metallurgy, lapidary techniques, glass crafting) appearing in Late Prehistoric (equivalent to the Indian Early Historic) levels in Southeast Asia have generated an imperative for provenance studies. The direction of research is strongly oriented towards precisising the resource-areas of commodities and technologies reaching Southeast Asia from India and *vice versa*. The glass beads from BDTP and Khlong Thom have been analysed in terms of morphology, manufacturing technique and chemical make-up. The results indicate that both glass beads as well as glass crafting technology was exported from India, the latter probably taken by expatriate artisans (Basa, Glover and Henderson 1991:351-365; Basa 1993:93-100). Ray (1991:357-365) traces Indian seals and intaglios found in Southeast Asia to Gangetic origins. In a series of detailed studies Glover (1990; 1996: 129-158; also Glover and Syme 1993:119-127) searches for parallels for stone beads and 'knobbed' vessels from BDTP in consonant Indian contexts. Recently, scientific analysis on RW from Sembiran (Indonesia), Anuradhapura (Sri Lanka), Arikamedu and Karaikadu (India) reveals a common production source for the ware (Ardika and Bellwood 1991:221-232; Ardika *et al.* 1993:101-109).

The range of Indian artefacts being recovered from coastal Southeast Asia can be traced to resource-areas spread across the entire eastern Indian seaboard as well as the interior of peninsular and northern India (see under Eastern India in Chapter V). However, while the exotic material has been broadly attributed to likely resource-areas in India, it is now necessary to attempt more precise connections.

Take the case of semi-precious stone beads excavated at BDTP and associated sites in Southeast Asia. Glover (1996:139) reports some 600 stone beads (mostly agate, carnelian, crystal) from the site. Distinctive among the stone beads from BDTP are a group of etched carnelian and agate beads to which Glover attributes a Gangetic origin (Glover 1996:fig.2; pl. IV b). A detailed study of decorative patterns on ancient Indian etched stone beads undertaken by Dikshit (1949) is particularly useful for delimiting likely provenances of the etched beads from BDTP. According to Dikshit (1949:14) 'Repeated occurrence of the same (etched) pattern on beads from more than one site, shows the trend of fashion current in the locality at certain periods...' Following from this observation Dikshit demarcates the etched Indian beads in terms

of the Northern and Southern Indian groups on the basis of specific motifs (Dikshit 1949 Pl. V). In this regard, the beads from BDTP having chevrons within marginal bands (3 out of 4 displayed by Glover 1996 Fig 2) would be attributed a likely south Indian origin provenance in Dikshit's scheme. To quote Dikshit (1949:28) 'A chevron within marginal bands is a very common decorative motif in the Southern Group Beads mostly occur in the megalithic burials but the type continues in the Satavahana period also. Those from the former are generally barrel-shaped but plain cylinders seem to be preferred at a later stage'. In this regard it is to be noted that two of the etched beads with chevrons from BDTP are plain cylinders and one barrel-shaped. In his Northern Group Dikshit also shows the presence of chevron decoration. However here the chevron motif appears on beads with rectangular cross-section (Dikshit 1949:Pl. V; Pl. XX.b). Apart from beads with chevron motif, the rest of the etched beads published by Glover (1996: Pl. IVb) are common in the Gangetic zone and are well represented in the Northern Group of Dikshit (1949: Pl. V, nos 6, 9). My study of historical period beads (surface finds) from Kausambi in the Allahabad Museum revealed parallels for most of the designs on etched stone beads published by Glover (see Pl. XX.b.d.e).

Besides the etched beads of likely Indian origin, Glover (1996: Pl. V) has published a photograph of a lion pendant made of carnelian excavated from BDTP. The photograph shows the couchant lion pendant *in situ* together with spherical and tubular carnelian beads. Glover (1996:140) is certain of a northern Indian origin of the lion pendant. He compares the BDTP pendant to a similar one of crystal recovered from the Dharmarajika stupa at Taxila (Peshawar, Pakistan). A similar couchant lion pendant made out of soapstone has also been recovered from the Early Historic/Historic site of Kausambi in the Middle Ganga Valley (Pl. XX.a, Allahabad Museum Collection, on lion pendants from other sites see Margabandhu 1985:222).

Glover (1996:139) reports a number of green glass pendants from BDTP which are cut in the hexagonal shape of beryls. These 'imitation beryls' have been found also at Oc-Eo and Ban Chiang (Glover 1996:139). On the Indian side, the imitation beryls have been recovered from the site of Kausambi, Ahichchatra and Narhan in the Gangetic Valley (Basa, Glover and Henderson 1991:374) and the coastal trading station of Arikamedu on the Tamil coast. Two specimens from Kausambi have been catalogued by Postel (1989) and one piece was observed by me in the Allahabad Museum Collection (Pl. XX.c). From Arikamedu, Francis, Jr (1987) reports a number of imitation beryls and even unfinished pieces broken in course of crafting. An unfinished (fragmented) green glass close to colour of beryl was picked up by me from

the 'bead factory' area at the site of Arikamedu (Pl. XII.c) It is significant that Arikamedu happens to be the only site yielding evidence of imitation beryl crafting. This fact should be seen in the light of Roman techniques of making glass imitations of various stones practised at the site (Francis, Jr. 1987). In this context, the imitation 'beryls' represented, in all likelihood, Mediterranean glass crafting techniques assimilated in South India. The imitation 'beryls' found in North India and Southeast Asia may have been exported from southern manufacturing centres such as Arikamedu.

The consolidated evidence for semi-precious stone beads and glass beads/pendants of Indian origin in Southeast Asia suggests acquisition from resource-regions in northern and southern India. In the north, the ancient cities of the Ganga Valley must have been active as mercantile centres both producing as well as facilitating flow of export-commodities to the eastern seaboard and beyond. In particular, the ancient settlement of Kausambi seems to have been a major supply point, for this site yields a number of Indian artefacts (etched beads, couchant lion pendant, intaglios, seals) recovered in coastal Southeast Asia. The export of glass beads and glass cut in the shape of semi-precious stone seemed to have been primarily initiated from southern India. For instance, the material remains of glass crafting at Arikamedu, BDTP and Khlong Thom show striking similarity: small monochrome beads, glass cullet, attempts to recreate agate from glass and presence of Mediterranean glassware fragments in the residue are present at all three sites.

Parallels for the BDTP 'type' high tin bronze vessels with central protrusion surrounded with concentric circles have been found in bowls discovered in the Nilgiri area (Glover 1996: 142). However the Nilgiri vessels are an isolated cache and may be imported from Southeast Asia. The 'knobbed' vessels, in fact, are copiously found as pottery in Early Historic levels of important *Kalinga* sites: Sisupalgarh, Jaugada and Salihundam. At Sisupalgarh and Jaugada these 'knobbed' vessels are recovered from 3rd century B.C. contexts and therefore are chronologically consonant with the BDTP 'knobbed' vessels (for dates of 'knobbed' vessels at Jaugada/Sisupalgarh see respectively *IAR* 1956-57: 30-31; Lal 1949: 72, 89). At both Sisupalgarh and Jaugada the 'knobbed' pottery comprised the dominant wares of the early levels (discussion under Eastern India in Chp. V). The 'knobbed' motif was probably transmitted from *Kalinga* to Southeast Asia where it was incorporated in high-tin bronze vessels. Some of the latter may have been exported to India, as the Nilgiri cache indicates. (further discussion on Orissa-Southeast Asia connection see under Eastern India in Chapter V).

The Indian (and Indo-Roman) connections with Southeast Asia are represented by the increasing incidence of Indian and Roman objects appearing in the latter region.

Though there is a virtual absence of early Southeast Asian artefacts in India, recent findings of pottery with impressed designs on the eastern Indian coastal sites of Kottapatnam (Rao 1994a: 829-831) and Manikpatna ? (Pradhan *et al.* 1996: 120-123) reveals them to be ceramics of Southeast Asian affinity on the Indian coast. According to Rao (1994a: 829-831), the impressed pottery of probable Southeast Asian origin was earlier excavated by Wheeler at Arikamedu who published them as 'Local Wares' of the 'pre-Arretine' period dated by Wheeler *et al.* (1946: 24) to the beginning of the 1st century A.D. Systematic dating and precise provenancing of the impressed pottery in India may lead us to delineate sharper patterns of early exchange between India and Southeast Asia.

To recapitulate, the archaeological evidence for India-Southeast Asia maritime exchange indicates regular exchanges taking place across the Bay of Bengal in the early centuries of the Christian Era. The Roman involvement in this segment of trade may not have been marginal. The concentration of 'Roman-contact' sites on the Tamil coast and Lower Krishna region cannot be wholly explained in terms of coastal trade on the eastern Indian seaboard. These bases of Mediterranean traders on the east coast must have been established, among other reasons, to take advantage of the traditional India-Southeast Asia exchange mechanism in place since the mid-late 1st millennium B.C. In particular, the tradition of fine glasscutting to make imitations of precious and semi-precious stones observed as trans-oceanic practice at Arikamedu, BDTP and Khlong Thom integrated Mediterranean techniques and may have even involved expatriate Hellenic beadmakers together with Indian artisans in Southeast Asia.

6. Summary

The archaeological review of ports/market-towns, maritime trade routes and trans-oceanic contact undertaken above corroborates and amplifies the picture emerging from ancient textual/epigraphical records (notably the *Periplus*) of seaborne commerce in the Red Sea-northern Indian Ocean during the early centuries of the Christian Era. The 'pan-oceanic' view enables us to discern enduring patterns of contact and interaction between the Roman World on the one hand and India and Indian Ocean lands on the other.

A salient fact which becomes clear in our study is that most of the harbours and coastal settlements mentioned in the *Periplus* and *Geographia* can be traced to archaeological sites. This fact particularly relates to the main ports of trade: *Myos Hormos* or *Luekos Limen* (Quseir, Egypt), *Berenice* (Berenice, Egypt), *Adulis* (Massawa, Ethiopia), *Qana* (Bir Ali, Yemen), *Moscha* (Khor Rori, Oman), *Omana* (Ed-Dur, U.A.E.), *Barbarikon* (Banbhore, Pakistan), *Barygaza* (Bharuch, Western

India), *Sopara* (Sopara, Western India), *Kalliena* (Elephanta-Kalyana, western India), *Camara* (Kaveripattinam, eastern India) and *Podouke* (Arikamedu, eastern India).

Even the relatively less important ports and anchorages listed in the Graeco-Roman sources now proliferate on the archaeological map of the Indian Ocean: *Mundus* (Heis, Somalia), *Opone* (Ras Hafun, Somalia), *Tabai* (Chori Hordoi, Somalia), *Dioscorida* (Socotra, Yemen), *Kammoni* (Kamrej, western India), *Mandagora* (Kuda-Mandad, western India), *Kantakosylla* (Ghantasala, eastern India) and *Sippa* (Saupara, eastern India).

A number of Early Historic port-sites on the Indian subcontinent which cannot be related to harbours listed in Graeco-Roman sources have, nevertheless, yielded material evidence of contact with the Mediterranean World and Indian Ocean lands. Among these sites, the important ones are Mandvi, Dwarka, Prabhas Patan and Nagara in Gujarat, Mantai and Godavaya in Sri Lanka and Dharanikota on the Andhra coast. Of course, many of these port-sites find mention in early Indian literary sources.

Recent attempts to define and grade Early Historic harbours integrate both archaeological and geomorphic-oceanographic features in the descriptive framework. We therefore find a 'holistic' framework being applied by Stiles (1994:103) in his review of East African harbours, by Flinder (1977:127-139) in his description of Jezirat Fara'un as *Ezion-Geber* and Somasiri (1991:84-90) in his discussion of ancient Sri Lankan ports. In this study also, a multiplicity of factors have been integrated to explain the nature and layout of harbours, particularly at Kamrej, Elephanta-Kalyana, Chaul, Kuda-Mandad, the Krishna Estuary and the Mouths of the Ganga. Our survey shows that Early Historic Indian ports involved in Indian Ocean trade can be located within three geomorphic environments: estuary, lagoon/backwater and creek. The major estuarine harbour-sites are Bharuch/*Barygaza* on Narmada, Kamrej/*Kammoni* on Tapi, Alagankulam on Vaigai, Kaveripattinam on Kaveri, Dharanikota on Krishna, and Tamluk/*Tamralipti* on Rupnarayan. Typically, all these sites are represented by extensive archaeological deposits and structures (wharfs, fortifications) compared to ports located on lagoons and creeks. Anchorages and ports on lagoons/backwaters are distributed on the Coromandel coast (Arikamedu, Karaikadu) while the most trade-ports on creeks are located on the Konkan coast (Chaul/*Semylla*, Kuda-Mandad/*Mandagora*, Janjira/*Melizigara*). Interestingly, there are no major Early Historic ports in India located on bays. However, all important trade ports in the Red Sea - Quseir, Berenice, Jezirat Fara'un, Adulis - are situated on the shore of sheltered bays. In the Gulf of Aden, the port-site of Qana is located on a sheltered bay which

Sedov (1996:11-12) calls 'probably the best landing place on the southern coast of Yemen.'

The major ports of the *Periplus* on the Egypt-India route which have been identified with archaeological deposits are Quseir, Berenice, Qana, Khor Rori, Ed-Dur, Bharuch and Arikamedu. It is significant to note that all these interlinked harbours were either founded in the transition years from 1st century B.C. to 1st century A.D. or had their floruit during this period. The port of Quseir is dated to the Imperial Roman times (1st-2nd century A.D.) It has not revealed any Ptolemaic foundations so far (Sidebotham 1992: 12-78; Dr. J-Y. Empereur, C.N.R.S., Alexandria: personal communication). Though Berenice was founded by the Ptolemies, the epigraphical evidence from the temple at the site and inscriptions on the desert route connecting Berenice with Coptos show that the port saw its most flourishing phase in the period of Tiberius Caesar (early 1st century A.D.) (Meredith 1957:56-70; Sidebotham 1986a: 52). At Qana, the excavators date the earliest levels of the port to the early 1st century A.D. According to Sedov (1996: 23) 'It is most likely that the foundation of Qana as a port-city was directly connected with the establishment and expansion of the regular sea-trade between the Red Sea and Indian Subcontinent in early 1st century A.D.' Besides Qana, the other Hadhramauti port of trade was *Moscha*, identified now with the coastal site of Khor Rori. Ceramics found at Khor Rori point to the 1st century B.C. - 1st century A.D. for the beginning of operations at Khor Rori (Yule and Kervran 1993:93-106). In the Persian Gulf region, the principal site from our point of view is Ed-Dur. Ed-Dur has been identified with the trade-port of *Omana* mentioned in the *Periplus* (see above). Though the periphery of Ed-Dur shows traces of Bronze Age occupation, the 'centre of the site appears to have been occupied principally between the first and the third or fourth centuries A.D.' (Potts 1990:274, also Haerinck *et al.* 1993:183-193). At the site of Bharuch (identified with *Barygaza*) limited excavations carried out by the ASI reveals occupation of the city going back to 1st millennium B.C. We cannot be certain about the settlement size and level of activity at Bharuch on the basis of available evidence. However, as we have discuss in Chapter V, the major Early Historic sites in western India show escalation of industrial and building activity in 'Roman-contact' levels dated between the beginning of the 1st century A.D. to 2nd century A.D. Similarly, at the Indo-Roman trading station of Arikamedu, the most flourishing phase has been attributed to 'Roman-contact' levels by Begley (1983:471-472). Wheeler *et al.* (1946:24) date the beginning of Roman contact - indicated by amphorae finds - to the 'end of the first century B.C. or beginning of the first century A.D., with an inclination towards the latter date.'

The foundation or expansion of major port-sites of the Red Sea-Indian Ocean in the beginning of the Christian Era may not be mere coincidence. Sedov firmly associates the foundation of Qana with the demands and opportunities generated by the regularisation of the Egypt-India trade in the Early Roman period. It is not inconceivable that the very same opportunities led to similar emergence/expansion of ports and markets in other parts of the Indian Ocean. In this chapter we explored the 'extra-territorial' dimension of Indo-Roman interaction in far-flung areas of the Persian Gulf and Southeast Asia. In the last chapter we observed the sudden proliferation of Mediterranean artefacts to all parts of the northern Indian Ocean in the 1st century A.D. We also discussed the appearance of 'syncetic' objects like imitation Roman coins and pseudo-*terra sigillata* pottery. These developments point to the 'overarching' nature of the Indo-Roman interaction. In this context, we repeat here the observation of Glover (1996: 131), 'The great expansion of Southeast Asian exchange which is evident in later prehistory is, I believe, closely connected with this Indo-Roman commerce and can be explained in part, at least, by a rising demand for exotic and prestigious items of consumption and adornment in the sophisticated urban civilizations of the Mediterranean basin, India and, of course, China...' The projection, though specific to Southeast Asia, can be applied in turn to other trade zones which came to be integrated through the dynamics of Indo-Roman exchange in the early centuries of the Christian Era.