

TRADITION AND ARCHAEOLOGY

Early Maritime Contacts in the Indian Ocean

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MARITIME ARCHAEOLOGY OF THE INDIAN OCEAN AN OVERVIEW

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A rectangular box containing a signature or initials.
A larger box containing the text "B. S. RAY" and "1972".

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« In any pre-industrial society, from the upper palaeolithic to the nineteenth century A.D., a boat or (later) a ship was the largest and most complex machine produced » (Muckelroy, 1978 : 3).

This dominating influence of the sea was not limited to technological developments only, but extended to social spheres as well, where maritime trade is perhaps the best example of the social and economic impact of seafaring. This influence can be studied from several perspectives determined to some extent by the nature of the sources analysed. Of these, literary sources have been used most frequently to provide a historical reconstruction of maritime trade in antiquity. In contrast, archaeology and ethnography have been largely neglected. An analysis of material objects from and around the sea can not only provide insights to the societies that produced them, but ceramics either used as containers for commodities or traded for their intrinsic value across the Ocean in antiquity are useful indicators of sea-routes. Similarly, a systematic study of surviving traditions of boat-building and navigation is crucial for a realistic appraisal of the nature of water-craft used. This is particularly true of the Indian Ocean where few actual specimens of ancient boats or ships have been recovered and descriptive accounts are often silent regarding construction details.

An issue that requires explanation is the use of the term « maritime archaeology ». This does not restrict itself to underwater archaeology as is often assumed, but includes within its ambit questions such as the identification of landing places, harbours, nature of wood-working, sea routes, cargo items and so on (McGrail, 1984 : 14). Here again studies in the Indian Ocean seem to have been disadvantaged on account of little contact between archaeologists, historians and ethnographers working on the region.

Equally perplexing is the issue of the unity of the Indian Ocean and the differing perceptions of the region depending on the vantage point. Thus, the world view from India (Chaudhuri, 1992 : map 2) accords primacy to West Asia, East Africa and Southeast Asia with the Mediterranean and China being visible at the periphery. The Indian subcontinent, of course, acquires a halfway-house role in this configuration of the Indian Ocean, the unity of the region depending on the routes that linked the different sectors (prior to the advent of mechanised shipping), and to the common religious and economic interests that bonded the communities that traversed the sea lanes.

This collection of papers presented earlier at the seminar on *Techno-Archaeological Perspectives of Seafaring in the Indian Ocean, 4th century B.C. to the 15th century A.D.* is then to be viewed as an

attempt towards evolving a research strategy for a comprehensive study of seafaring in antiquity. It approaches the subject from an archaeological and ethnographic point of view, rather than a continued reliance on literary texts. The chronological framework is by no means an attempt to minimize the importance of seafaring in the protohistoric period, a prominent example being maritime contacts between the Indus civilization and Mesopotamia via centres in the Persian Gulf, or the later use of the sea lanes after the entry of the Europeans. Instead it seeks to focus attention on a period that has been relatively less researched and more so in terms of the archaeology of coastal settlements and traditional techniques of boat-building and navigation.

It is being increasingly accepted that there was a well developed indigenous maritime network in existence in Asian waters long before the fifteenth century and one that survived European intervention in the region (Arasaratnam, 1972). Data on this is still sparse and scattered and there is an urgent need to recognize that this was not a copy of the better documented European trading network of the modern period; instead it functioned within different parameters and responded to its own internal forces. This is nowhere more apparent than in the terminology adopted for a study of seafaring in the ancient period and a major preoccupation in historical writing has been with colonies, ports and the process of acculturation as a result of maritime contacts. It is seldom appreciated that « port » is essentially an economic concept and represents a complex interplay of physical, geographical and socio-economic phenomena (Kidwai, 1992 : 7). In contrast to the port cities of the modern period, where the Europeans demarcated enclaves and forts in antiquity, the elite were in most cases based in centres further inland. Hence the term « port » needs to be redefined. The *Arihasāstra*, for example refers to a *pattana* or *paṇyapatana* (II. 28. 4,7,10), two general phrases used for settlement or town, and the terms occur in early Tamil literature as well. The *Jātakas* refer to a *pattanaḡama* on the river Ganga in the vicinity of Varanasi which was used by merchants bound for Suvarṇabhūmi (Saṁkhajātaka, no. 442). It is evident then that instead of focusing on ports, especially those designated as « Indo-Roman » on the basis of the finds of foreign pottery, (a well-known example being Arikamedu) it would be more useful to study the archaeological evidence of maritime contacts within the broader framework of expanding routes and networks.

Studies on early maritime contacts have hitherto been largely text-based and have used archaeological evidence merely to validate literary references. A case in point is the reliance on the first century A.D. text, the *Periplus Maris Erythraei*, e.g. Begley's emphasis on pre-*Periplus* trade on the basis of foreign traits found in pottery (1992). It should be emphasized that this extraordinary text perhaps represents the first attempt by westerners to codify available information on sailing circuits in the western Indian Ocean, a process that is familiar in the later writings of the Arabs and subsequently the Europeans (Ray, 1994a).

This is evident further in the varied treatment accorded to different sectors of the Indian Ocean littoral in the text. One region noticeable by its omission from the *Periplus* is the Persian Gulf. It has been argued elsewhere by Salles (1993 : 506) that a careful reading of the text clearly shows the presence of several segments on the sailing route between Myos Hormos and Muziris and though direct sailing was not unknown, it was certainly not a rule. One of these segments was the Persian Gulf route, a sector largely unknown to the Oriental Greeks from Egypt, and this accounts for the fact that it is not well represented in the *Periplus*, though archaeologically there is definite evidence for the participation of the region in the regional and long-distance maritime networks from the Hellenistic period onwards.

In contrast, Qana on the south Arabian coast is described as a « port of trade » and all the frankincense grown in the region is said to have been brought to the site « as if to a warehouse » (*Periplus*, sec. 27). The archaeological evidence discussed by Sedov indicates that though the site was occupied and participated in maritime trade from the second century B.C. to the seventh century A.D., its most prosperous phase dates to an intermediate period, i.e. second to fourth centuries A.D. The earliest levels yielded vast quantities of *terra sigillata* and the largest number (56%) of amphorae fragments; 58% of the distinguishable fragments were identified as belonging to the Koan type, i.e. Dressel 2-4 amphorae. What is interesting is that in this initial period, Qana was little more than a transit point. It was only in the second to fourth centuries that the entire site was occupied, a fortification wall was built and a

variety of structures are in evidence. This transition and change was linked, no doubt, to the centralization of authority and to economic and political developments in the ancient Hadramaut kingdom.

An issue that needs to be underlined is the importance of a study of ceramics for demarcating routes and landfalls, and not as indicators of « colonies » as seems to be the persistent argument in the context of the Early Historical period in the Indian subcontinent. In contrast to this reliance on pottery, few studies on pottery types found in India from the seventh to twelfth centuries A.D. exist, and it has been generally argued that Indian participation in maritime trade was limited to coastal sailing (Jain, 1990). This lack of archaeological data from Early Medieval sites particularly in Gujarat is a major handicap in an appraisal of the shifts and changes in the sea-lanes over time. Kervran's work in Oman focuses on the importance of the « Red Polished Ware » with its epicentre in Gujarat as evidence of early maritime contacts. At Suhar, the ceramic occurs in the first-second century levels, decreases in levels corresponding to the Sasanian period (3rd to 6th century), and subsequently coarse varieties of the ware in red and black are in evidence. During the Abbasid period (750-1250), the similarities are more with sites in the Indus delta, such as Dabhol, rather than with Gujarat.

Linked to this is the disregard for non-local coarse pottery in the archaeological record as an indicator of maritime networks in the Indian Ocean. Pots were used in antiquity to transport commodities and the finds of non-local pottery sherds need to be studied with greater attention. The complexity of the trading system is abundantly clear from the example quoted by Kervran of date-honey produced in Bahrain in the thirteenth century and exported to China where it was in great demand by Buddhist pilgrims travelling to India. Recent finds of non-local coarse pottery, for example the « Black Ware » from sites in the Persian Gulf as also along the south Arabian coast eastward to sites on the coast of Java and Bali (Ardika & Bellwood, 1991) further corroborates the presence of a complex network of luxury and subsistence goods which sustained the maritime system (Salles, 1993 : 513-8 ; Ray, 1994 : 36-44).

As the location of ports was determined by the resources of the hinterland, hence shifts in inland trade networks become important for maritime history. This is particularly relevant in the context of ancient India, where urbanism evolved at centres in the Ganga valley in the middle of the first millennium B.C. By the second-first centuries B.C. urban centres developed at sites in peninsular India, a major causative factor being the expansion of trade routes both overland and coastal (Ray, 1987). One of the regions that became prominent was the Gujarat coast with its vast hinterland. Ports like Bharuch or Broach at the mouth of the Narmada river provided an outlet for the urban centres of the north and also acted as a link with settlements in the Persian Gulf as well as with those further along the coast as far south as Sri Lanka (Ray, 1986 : 58-9).

« There is in this region towards the east a city called Ozene [Ujjain], the former seat of the royal court, from which everything that contributes to the region's prosperity, including what contributes to trade with us is brought down to Barygaza » (*Periplus*, sec. 48).

For a variety of reasons, there were shifts in the ports as also periods of growth and decline in the seafaring activity conducted at these. In the first century A.D., Bharuch lost out to the ports of Kalyan and Sopara in the competition for supremacy between the ruling dynasties of the Kṣatrapas and the Sātavāhanas (Ray, 1986 : 70). The west coast at this time still formed the focus of Mediterranean trade with India as is evident from the importance given to it in the *Periplus*. Commodities destined for sites on the east coast either travelled overland or along the coastal network. But by the second century A.D., there was an expansion of knowledge and the *Guide to Geography* by Claudius Ptolemy written in the middle of the second century A.D. was perhaps the first text which gave to the western world any definite information on the east coast, especially the deltaic region of Bengal.

Knowledge of the east coast in Greek literature is also linked to the expansion of sea-lanes in the western Indian Ocean and the increasing importance of Sri Lanka in the transoceanic networks. Boparachchi discusses the participation of Sri Lanka in maritime activity based on a variety of sources such as ceramics, numismatics and literary texts, as also a preliminary survey conducted along the coasts in order to identify the location of early ports.

Historical writing on maritime trade in the past (Wheeler 1946 onwards including Begley & De Puma, 1992) has been single-mindedly concerned with the cataloguing of « foreign pottery » from sites in the Indian subcontinent, often mistakenly identified as Roman, and the subsequent use of this pottery as a chronological marker of maritime networks (Begley, 1992). It was largely with the objective of documenting genuine Roman objects found in India that a project was undertaken jointly by the Archaeological Survey of India and the Society for South Asian Studies. On the basis of this study, as discussed by MacDowall, it is becoming increasingly clear that the bulk of the supposed Roman pottery is in fact of indigenous origin. From a study of the distribution pattern of the « Red Polished » and « Rouletted Wares », it is obvious that these ceramics can only be used to demarcate the extent of internal networks, rather than for providing a chronological framework of maritime contacts. Similarly Roman coin finds in the Indian subcontinent also need to be studied in the wider context of trade in metals and of monetary reform in the Roman Empire.

This question of dating Roman coin finds has implications for a study of social change in south India around the beginning of the Christian era. The impetus for this change is credited to sea-trade with the west which ushered the iron-using Megalithic communities into the Early Historical period (Wheeler, 1946). Recent archaeological evidence from south India, especially Tamilnadu confirms the existence of an indigenous exchange network in centuries prior to the Christian era that extended along the Kaveri river system and linked the Malabar coast through the Palghat gap to the fertile delta on the east. References in Sangam literature of the early centuries of the Christian era describe the different chiefdoms in the region. Archaeologically, contemporary habitation is indicated by Iron Age Megalithic remains and though correspondence between the two has been far from established, results from the excavations at Kodumanal in district Coimbatore indicate the participation of the site in coastal networks with the north and on the overland route extending along the Kaveri valley. It is within this regional network outlined by Rajan that finds of foreign pottery and Roman coins need to be analysed (Ray, 1993). Results from recent excavations at Arikamedu (Begley, 1993 : 105) have also shown that settlement at the site continued into the fourth century A.D. and later. Some medieval pottery and sherds of Chinese and other East Asian ceramics were encountered, though this issue needs to be researched further in view of the evidence from other sites in the region, such as those discussed by Subbarayalu.

Coastal Bengal seems to be a rather late entrant in the maritime network. It is curious that the earliest Buddhist tradition records that the missions from north India to Sri Lanka left from Vidisa via Bharuch on the Konkan coast, while later developments of the legend as preserved in the *Samantapāsādikā* and the *Mahāvamsa* refer to Tamralipti in coastal Bengal as the port of disembarkation. Sengupta discusses the beginnings of coastal trade in Bengal, especially in relation to the availability of resources in the region.

The ports of Bengal continued to be disembarkation points for voyages to Southeast Asia. The Chinese monk Fa Hsien travelling in the fifth century A.D. is known to have left from the east coast for the return voyage to China (chapter XL). Three very similar fifth century inscriptions were found on the west coast of Malaysia and one of these, now in the Indian Museum, records the setting up of a stupa by the mariner Buddhagupta from Raktamṛtikā. Raktamṛtikā has been identified with Rajbadidanga in Bengal and excavations at the site on the now silted bed of the Bhagirathi have revealed a three-fold sequence starting from the second-third centuries A.D. The most prosperous phase, however, was datable from the fifth-sixth to the ninth-tenth centuries on the basis of the large numbers of terracotta seals and sealings unearthed (Das, 1968 : 25). The river Bhagirathi though silted now, formed the Ganga's ancient fluvial channel and was navigable as late as the seventeenth century.

The emphasis in the papers in this volume has been on trade and commercial contacts, and pilgrimage by the sea route has received scant attention. This is particularly true of the writings on early Southeast Asia. Recent archaeological evidence as discussed by Glover from sites in Thailand, Malaysia, Indonesia and Vietnam has pushed back the antiquity of maritime contacts between India and Southeast Asia to the late first millennium B.C. These contacts have been viewed as economic exchanges to provide luxury goods to sustain the insatiable demand from the Roman west. It has been argued

elsewhere (Ray, 1994 : 121-161) that in addition to trade, a potent motivating factor in this expansion of networks from the Indian subcontinent was Buddhism. In the early centuries of the Christian era monks from the subcontinent travelled on proselytizing missions to Sri Lanka and Southeast Asia. The establishment of Buddhism in these regions resulted in regular pilgrim traffic to the Indian subcontinent with the express intention of visiting early sites associated with the Buddha as also to study and translate Buddhist canonical texts (Ray, 1994b). In addition to *upāsakas* from Southeast Asia, Buddhist monks from China frequently travelled along the sea route often with halts at centres in Southeast Asia. Votive tablets and clay stupas are eloquent archaeological indicators of this pilgrim traffic and should be accorded greater importance in maritime studies.

Though the question of pilgrimage in the Buddhist context has been raised, this is equally true of Islam and the use of the maritime route by pilgrims travelling to Mecca. It is intriguing that while conquest and trade have been highlighted as crucial factors in the expansion of Islam, little attention has been accorded to pilgrimage (Wink, 1990 : 7-24). Nor is it a coincidence that a study of Early Medieval trade has been monopolized by the overwhelming influence of literary sources, in this case the writings of Arab geographers to argue that « the Muslims dominated all important maritime and caravan trade routes » (*ibid.* : 10), as if « the Muslims » constituted an unified community from the coasts of East Africa to South China. Contemporary inscriptional evidence from the Indian subcontinent refers to a heterogeneity of groups trading with India such as the Tajika, Parasika, Turuska, Garjjanaka, etc. who cannot all be subsumed under the general term « Muslims ».

This line of thinking has nevertheless had considerable influence in Indian historical writing of the Early Medieval period. It has been argued by Jain (1990 : 79) for example that « the Arabs, who controlled a major part of the overseas trade of Asia during that period, gradually strengthened their grip on foreign trade and shipping of western India too. As a result, the actual participation of Indians in long-distance trade declined, and they were relegated primarily to the position of coastal or internal traders ». A critical analysis of the itineraries given by Arab geographers indicates that very few provide precise details of transoceanic routes and in most cases these can only be used to demarcate shifts in the western Indian Ocean trade. For example, the Persian Gulf was important before 870 A.D. ; but by the end of the tenth century the focus was on Aden, and after the establishment of the Fatimids in Cairo in 969 A.D. the emphasis shifted to the region of the Red Sea. Thus it is evident that the accounts given by the Arabs are not based on actual sailing itineraries but are moulded by contemporary perceptions of the Indian subcontinent, many of the stereotypes being a continuation of early Greek and Christian origin.

Rougelle arrives at somewhat similar conclusions regarding discrepancies between the literary and archaeological evidence as also shifts in the centres of maritime trade based on a study of the archaeological data, especially the finds of Chinese ceramics from the region of the Persian Gulf and the Red Sea. Chinese pottery was a major item of export along the sea lanes from the eighth to the fifteenth centuries and though these are abundant at coastal sites, few specimens have been found along the overland Silk Route.

Interlinking sectors then seem to be a continuing pattern in the Indian Ocean trade networks, but certain new developments are nevertheless noticeable in the Early Medieval period. The ninth century marks the beginning of an emerging trend of « migration and settlement of substantial merchant communities from widely dispersed lands » (Arasaratnam, 1994 : 36). These colonies of expatriate merchants in the major trading centres, no doubt were the result of the enormous expansion of Islam. Merchants participating in long-distance trade were known to have settled for long periods in distant lands, but in the earlier period these were largely temporary settlements. « In India this led to the first Arab merchant settlements all along the western coast, from Sind in the north to the port of Kayal in the southern tip, near Comorin » (*ibid.*).

A second development was the increased involvement of the coastal elite in maritime trade. Prominent among these along the west coast of India were the Traikūṭakas and the Śīhāras. The Traikūṭakas established themselves along the Konkan coast in the fifth century A.D. and continued to rule for more than a century, with Chaul as a major port. The Śīhāras ruled somewhat later from the

eight to the twelfth centuries with Thana near modern Bombay as their capital and Chaul and Sopara continued as ports. Rougelle argues that the nature of Gulf trade changed in the eleventh century from a free economy handled by private traders to a monopoly economy concentrated in the hands of some local rulers.

It is not quite clear to what extent this change in the nature of trade and control of landing places by the local elite was due to new developments in boat-building and navigation. These traditions are the least researched in the context of Indian Ocean studies, though this is one of the few regions where ethnographic evidence is still available for a meaningful analysis of archaeological data. Except in parts of Southeast Asia, as discussed by Manguin, little attempt has been made to recover actual boat specimens and several paradigms continue to be unquestioningly repeated in scholarly works. Hornell, for example, had argued that scant improvement or change seems to have taken place in the construction of boats of the Indian subcontinent prior to the coming of the Europeans. Thereafter rapid advance was made: iron nails were used in place of stitching; and the square-sterned design was introduced in place of the sharp two-ended one previously characteristic of the Persian Gulf and Indian shipping (1970: 236). This view no doubt stems from the traditional approach which states that there seems to have been less of a transoceanic seafaring tradition among the inhabitants of India, and that the bulk of ship-building activity was geared towards the demands of coastal or river traffic.

An analysis of the water-craft depicted on monuments by Deloche shows that this is far from true. Two-masted sea-going vessels with similarities to those built in the last century on the east coast have been depicted on Sātavāhana coins and in the paintings at Ajanta and Aurangabad. It is also interesting that the depictions on monuments are restricted to those of Buddhist affiliation dated between the second century B.C. and the seventh century A.D. The significance of this for a study of the Buddhist approach to seafaring in the Early Historical period has been discussed elsewhere (Ray, 1994: 153-4), but a point that needs to be emphasized here is the evidence from memorial stones. These show a distinct change in the construction of vessels from the eleventh century onwards and the adoption of the stern-post rudder in the twelfth century, almost at the same time as in the Mediterranean. Equally interesting is the evidence of memorial stones as indicators of the violence at sea, as memorial stones with representations of boats were set up at this time in memory of men who lost their lives in battles at sea.

An issue that needs to be questioned is the so-called fragile construction of vessels used by the Indians and Arabs, in contrast to the better-built and larger craft of the Europeans. This again is an argument that stems from stereotyped observations by travellers to the region, starting from the Greek writer Onesicritus who came to India with Alexander and sailed down to the mouth of the Indus (Ray, 1994b). Casson draws the argument forward and states that on account of their superior ships, the Romans sailed to India at a time when the south-west monsoon was blowing the strongest: « Skippers of later ages waited until it had lost its bite before venturing forth during its period, but not the Greeks or Romans, thanks to the nature of their ships... No doubt the ships were big as well as safe » (1989: 34-5).

In his study on sewn-plank boats, McGrail demonstrates that in spite of their wide distribution in time and space, these continued to form a homogenous group in the western Indian Ocean. Though elsewhere, in Europe and the Mediterranean, for example, the practice was given up for wooden plank fastenings, it continued in use in Arabia and South Asia well into present times. Iconographic representations discussed by Deloche (in this volume) indicate that this continuity was on account of the flexibility of sewn-plank boats and their suitability for the peculiar surf and sea conditions of the western Indian Ocean. It has been suggested that the criss-cross pattern of plank fastenings shown on ships at Bharhut and Sanchi may indeed be the earliest representations of wooden plugs driven in between the lashings and the planking as practised at present by Gujarati boat-builders.

Another dimension of this issue relates to the appearance of similar boat-types in different parts of the world. Hornell had stressed common origins of certain boat-types and their dispersion through migrations and movements of people, a typical example being the outrigger canoe. The single outrigger is characteristic of the whole of Polynesia and Micronesia and is also found on the coasts of India, Sri Lanka, Madagascar and the Comoro Islands (1970: 255) as a result of the voyaging and colonization by

the « Island people of the Far East ». This argument is developed further in the writings of Varadarajan (1993: 550-1), particularly with reference to the peopling of the islands of Lakshadweep. It should nevertheless be remembered that the history and development of a boat-type is a far more complex process. « The appearance of similar types of simple boats in widely separated areas and totally different societies suggests that the same solution to the problem of providing water transport, given a reasonable similarity of resources, developed independently at different periods in different parts of the world » (Greenhill, 1969: IX). The situation should perhaps also be contrasted with that from the Andaman Islands as discussed by Cooper. Though the islands find mention in the writings of several authors from Ptolemy onwards and were inhabited at the beginning of the Christian era, yet the present boat-types present a marked simplicity based on variations of the dug-out, and there are no indications of the participation of the islanders themselves in transoceanic voyaging.

Water transport has generally been classified on the basis of raw material used in construction, e.g. wood, reed, hide, bark and so on. These categories have been further divided into rafts which are not water-tight, but obtain their buoyancy from the density of the material used; and boats with a near water-tight hull deriving buoyancy from the displacement of water. This Archimedean classification of vessels does not, however, take into account the equally important environmental and cultural factors (McGrail, 1985: 294). Rafts can be used on almost all rivers and lakes, but their use at sea is restricted to the zone of warmer waters. Similarly the choice between a boat and a raft is mainly a culturally related one: whether to invest in a low-level technology, often relatively short-life wash-through raft; or in a comparatively dry boat which requires greater investment of materials and effort; the use of a higher technology; and is longer lasting (*ibid.*).

Demands of maritime trade and the need to adapt to changing circumstances is crucial if the competitive edge in shipping is to be maintained. Other, important variables are the commodities involved and understandably the size of the vessel will depend on the nature and bulk of goods that need to be transported. For example, the size of the Arab vessels known by the generic term « dhow » increased with a shift to bulk cargo like mangrove timber in the mid-twentieth century (Prins, 1965: 4-5). It is then evident that boats developed in accordance with the needs of the society and their basic function was to transport men and materials. Changes in these demands led to alterations and the evolution of newer types. Within this broad framework, Kentley discusses the *masula* of India's east coast; the different varieties; their specific uses; and their gradual adaptation to changing requirements.

Linked to boat-building is the indigenous tradition of navigation in the Indian Ocean. Needham (1971: 555) has identified three stages in the development of navigational techniques: non-instrumental; quantitative; and mathematical. « The third phase, mathematical or scientific navigation, did not begin until the 17th century. The second stage may be said to have started in N.W. Europe with the use of the mariners' compass in the late 12th century, although it was not until the 15th century that such navigational aids as the sandglass, traverse tables, astrolabes, quadrants and rutters (written sailing directions or pilots) became relatively commonplace in the northern seas. Thus, in prehistoric and medieval times, navigation was essentially non-instrumental, the only instrument for which there is any evidence being the sounding lead » (McGrail, 1989: 25-6). In this situation astronomical observations became crucial aids for pilotage and sailing, a situation that persists to this day in the Indian subcontinent.

Based on field-work and hand-written manuscripts in vernacular languages, Arunachalam discusses the traditional techniques of navigation that continue to be used for coastal and trans-oceanic sailing. It is interesting that the *Periplus* adopts the Indian Ocean tradition of identifying the approach of the coast by the colour of the water and the appearance of sea-snakes. For example, « the seaboard of Skythia is very flat and through it flows the Sinthos River... before you reach land, its light-coloured water meets you out at sea. An indication to those coming from the sea that they are already approaching land in the river's vicinity are the snakes that emerge from the depths to meet them; there is an indication as well in the places around Persis mentioned above, the snakes called *graii* » (sec. 38).

This then substantiates an issue raised elsewhere (Ray, 1994a), *i.e.* the extent to which texts like the *Periplus* were attempts to codify existing sailing and navigational knowledge of the Indian Ocean for the

benefit of the merchants and seafarers travelling in the region. Fatimi raises an important though related proposition, i.e. the development of navigational instruments such as the *kamal* for measuring the altitude of celestial bodies, though this had been done quite effectively earlier by means of finger measurements. The use of fingers for altitude measurement was widespread in antiquity, not only by sailors, but those traversing the desert. This nevertheless required long experience and ultimately led to replacement by instrumentation.

In conclusion, it should be reiterated that maritime archaeology has wider implications for the study of the past than have hitherto been recognized. Scholarly writing especially in the Indian subcontinent has largely focussed on social and economic history, with religion mainly Hinduism providing legitimacy to the emerging ruling elite (Thapar, 1993 : 114 - 136). Starting with the Vedic period, the issues of primary concern have been social change and the emergence of the state, e.g. Thapar, 1984, or the conversion of lineage-based societies into peasant economies especially in the post-Mauryan period where Buddhist and Jaina sources have been extensively used for the purpose (Sharma, 1983). A connection seems to have been established between the development of long-distance trade, such as the Mediterranean trade, and the emergence and prosperity of urban centres. A necessary result of this linkage correlates the fall of the Roman Empire and hence a cessation of Mediterranean trade with the decline of the urban economy of north India in the post-Gupta period (Sharma, 1987).

A major debate in historical writing in the subcontinent has revolved around agrarian expansion from the fourth-fifth centuries onwards ; political decentralization ; subjection of the peasantry ; and the emergence of a feudal structure (Chattopadhyaya, 1994 : 7 ; 1994a). This is also the period when the Brahmanical temple emerged as the focus of social and economic activity and the first land-grants were made to them by the ruling elite. The core of the ideology of the period was characterized by relationships of loyalty and devotion — believed to be hallmarks of feudal ties. Buddhism started to decline and gradually survived in a few pockets till the tenth century A.D.

Within this broad general framework of ancient Indian history, seafaring and maritime activity has been totally disregarded, except as a brief interlude around the beginning of the Christian era when Roman trade with the subcontinent has been credited with ushering in a period of prosperity ; or in the tenth-twelfth centuries A.D., when the pillaging raids of the Cola dynasty on Sri Lanka and south Thailand are viewed as a part of the pattern of Indian overlordship and a central aspect of Indian kingship » (Stein, 1985 : 41).

The issues discussed in this volume challenge this structure of Indian history and clearly indicate the continuity of seafaring activity in the Indian Ocean from the fourth century B.C. to the fourteenth century A.D. There is no cessation of trade with the decline of Empires, instead there are shifts in routes and changes in the partners involved. It is also evident that far from being a « peddling trade » carried on by peripheral groups in society such as fishing communities, maritime trade involved a hierarchy of transactions which included elite groups and trading communities (Ray, 1994 ; Abraham, 1988) often with close links with royalty. Seafaring activity was thus a potent medium for the dispersal of ideas and for cultural interchanges.

Perhaps a second contribution of the Seminar was the focus on traditions of ship-building and navigation for a study of maritime contacts. This shift in emphasis is crucial for an appreciation of the role of innovation and technological change vis-a-vis tradition and continuity. It also raises the question of changes in the structure of sea-craft in the Indian Ocean from the eleventh century onwards and increasing violence at sea. Raids carried out by the Colas against Sri Lanka must also take into account the technological perspective. Equally important were the new political alignments with the rise of the Fatimids in Egypt in 967 A.D. ; the Imperial Colas in 985 ; the Song dynasty in China in 960 ; and the changing perceptions of diplomacy in the Indian Ocean (Kulke, 1994). Buddhism played a key role in cementing ties between the rulers of South, Southeast and East Asia, thereby paving the way for the expansion of trading links. Thus in 1003 the king of Srivijaya made a donation for the construction of a Buddhist shrine at Nagapattinam in Tamilnadu, the major port of the Colas, and around the same time

also paid for the construction of a Buddhist temple in the capital of the Chinese emperor. It is interesting that in 1005, the Cola ruler Rajaraja donated the revenue of a whole village for the maintenance of this shrine at Nagapattinam.

It is hoped that these and other issues would form the focus of subsequent seminars on the theme. This would perhaps contribute towards the pursuit of serious research on maritime archaeology of the Indian Ocean.

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QANA' (YEMEN) AND THE INDIAN OCEAN THE ARCHAEOLOGICAL EVIDENCE *

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Abstract : Qana' has been described in the *Periplus* as a port of trade where all the frankincense grown in the land of Hadramawt was collected. Recent excavations have led to the identification of the site with the ruins near the modern village of Bi'r 'Ali situated on the southern coast of the Arabian peninsula. Though sherds of Dressel 2-4 amphorae have been found in large number in the earliest occupation indicating a participation in maritime activities, the most prosperous phase at the site dates from the 2nd to 6th cent. A.D. There is also material evidence of Christian and Jewish presence at Qana' in the 4th cent. A.D. By the 5th-early 7th cent. A.D., the maritime links of Qana' had shifted to the East Africa coast.

The ruins of Qana' are situated on the southern coast of the Arabian Peninsula near the modern village of Bi'r 'Ali, on the opposite side of the Bay, probably the best landing place on the southern coast of Yemen (*pl. Ia*). According to some scholars, the earliest mention of Qana' occurs in the Bible (*Ezekiel XXVII, 23*) and can be dated around the first quarter of the 6th century B.C. (Doe, 1971 : 182 ; Griaznevich, forthcoming). *Κανή ἐμπορίον* (Kane emporion) was known to Pliny (*Natural History*, VI, XXVI, 104) and Ptolemy (*Geography*, V, 7, § 10 ; VIII, 22, § 9), and is also mentioned in the *Periplus Maris Erythraei*, the ancient guide written most probably around the middle of the 1st century A.D. by a Greek-speaking merchant (Robin, 1991 : 1-30 ; Fussman, 1991 : 31-38). The site was described as a port of trade, « belonging to the kingdom of Eleazos, the frankincense-bearing land », and the place where « all the frankincense grown in the land » was collected (*Periplus*, 27 : 9. 4-8).

Description of the site

The first Europeans who visited the ancient site were, in all probability, British naval officers who landed aboard the *Palinurus* on the morning of the 6th of May, 1834. In a book published in London in 1838 one of the explorers, Lt. J.R. Wellsted, described the ruins of a vast settlement at the foot-hill on the southern coast of the Bi'r 'Ali Bay and a fortress on top of the rock called Husn al-Gur'ab, the first-

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from "Seafaring in the I. O., Arch. Ev. from Sri Lanka," Osmond Bopéarachchi. BOPEARACHCHI 58-78

impressions of the Sasanian period from Mantai.⁶³ We have also shown elsewhere, when defining the function of the interior city, the royal pleasure gardens and the palace, that the ancient site of Sigiiriya was, to a certain extent, influenced by the Persian tradition.⁶⁴

By publishing three coins of Yazdigerd I (A.D. 397-417), Codrington (1924 : 30) put forward the hypothesis according to which occasional finds of small copper coins among the « third brass » show the dealing of Persians in the island. We have added three more Sasanian coins hitherto unknown in Sri Lankan context. All of them bear the same obverse and reverse types : bust to r. surmounted by crescent / fire altar with flames and two attendants.

The first coin is of Xusro I (A.D. 531-579), of the year 16, mint AYR.

The second is of Hormizd IV (A.D. 579-590), of the year 10, mint BBA.

The third is of Xusro II (A.D. 591-628), of the year 6.⁶⁵

It would seem that with the decadence of the Sasanian empire, the Muhammadan Arabs began to reach the Malabar coasts and Sri Lanka. Besides a great number of literary sources and inscriptions, archaeological evidence, such as ceramics and especially coins bear witness to the presence of Muslims in the island as early as the 7th century. Gold and silver coins of almost every Muslim dynasty of Baghdad, Alexandria, North Africa and Northern India belonging to various periods between the 8th century and the 15th century have been found in the island.

Seafaring in the Indian Ocean : Sri Lanka and China

From about the 7th century Chinese traders, along with the Arabs and South Indians developed their commercial activities with Sri Lanka. It seems that the Sri Lankan contacts with China as early as the 2nd century A.D. were purely religious. By the 8th century the first trade links begin to take form. It was with the sudden burst of trade activities between China and Middle East from the 7th century onwards that Sri Lanka began to play a decisive role in the maritime trade between East and West. The main reason for this active trade relations was the unification of Arabian countries under Islam, putting an end to the Sasanian power in A.D. 650 on the one hand, and on the other hand the establishment of power by the Tang dynasty in China. Axelle Rougeulle (*in this volume*) correctly observed that during this Tang period, silk lost its role as a major export and was replaced by pottery such as the famous porcelain and stonewares. On the other hand, P.Y. Manguin (1993) clearly shows that these ceramics appear in all archaeological sites from Southeast Asia to East Africa, especially along most of the shores of the South China Sea and the Indian Ocean. After the unification of China in A.D. 960 under the Song dynasty, ceramics became the major export product of China.

The imported Chinese ceramics constitute the most characteristic sign of the trade contacts that Sri Lanka had established with China from the 8th century. The first transactions are revealed by the presence of three heavy Chinese storage-jar fragments found in archaeological context.⁶⁶ The earliest wares from Mantai are products of the Tang dynasty (618-907). It was only from the 11th century that China developed extensively its commercial activities with Sri Lanka. The South Indian conquests of the island which brought the existence of Anuradhapura as the capital of the island to an end, diverted the trade centres. By this time, Gokunna on the east coast and all the ports in the western wet zone became more important. P.L. Prematilake (1990 : 235), director of the Alahana Parivena Excavation Project, comparing the Chinese ceramics found at Anuradhapura, comments : « The Polonnaruwa wares are quite distinctive in that, except one dish fragment of Islamic pottery, all belong to the stock of Chinese ware and that too of the Sung period (960-1279). The excavations conducted at the Alahana Parivena monastery complex over the last ten years have exposed comparatively the largest number of Chinese

63. J. Carswell, 1991.

64. O. Bopéarachchi, 1993b.

65. See O. Bopéarachchi, 1993a : 79.

66. M. Prickett-Fernando, 1990a : 70.

ceramic sherds of this period. Four complete vessels, a Green-yellow glazed grey ware jar, a White ware dish, a White ware small jar and an Olive-green decorated bowl were also discovered from the site ».

Hundreds of coins belonging to the Song and Southern Song dynasties found at Anuradhapura and Polonnaruwa, and especially in the short-lived capitals of the 13th and 14th centuries such as Yaphuwa, Kurunagala and Dambadeniya, and many other places in the country, proclaim commercial exchanges of China with ancient Sri Lanka (see fig. 1). We record here some of the most common Chinese coin types :

— Sien Ping yuan bao - Zhezong of Song, Xian Ping era 998-1003. Regular style - value 1.

— Yuan Feng tong bao - Zhenzong of Song, Yuan Feng era 1078-1085. Cursive style - value 1.

— Yuan You tong bao - Zhenzong of Song, Yuan You era 1086-1094. Cursive style - value 2.

— Sheng Song yuan bao - Huizong of Song, Jian Zhong jingguo era 1101. Seal Script style - value 2.

— Xi Ning zhong bao - Shenzong of Song, Xi Ning era 1168-1077. Regular style - value 10.

— Chun Xi yuan bao - Xiaozong of Southern Song, Chun Xi era 1174-1189. Regular style - value 2.

— Qing Yuan tong bao - Ningzong of Southern Song, Qing Yuan era 1195-1200. Regul. Style - value 2.

The absence of Chinese coins for the period prior to the 10th century and the abundance of coins dating from the Zhenzong period in the island can be explained by two factors. Firstly, in 1075 the prohibition to make payments for imports with cash was cancelled, and secondly, from the time of emperor Shenzong (1078-1086), the annual production of coins was raised up to six millions of strings, each containing thousand cash. The discovery and exploitation of mines in the centre and south of China enabled the production of such enormous quantities of coins. These Chinese coins were found everywhere in Asia and Africa along the maritime routes, especially in Japan, Vietnam, Java, Sumatra, India, Sri Lanka, Zanzibar, Mozambique and Middle East. The exploitation of copper mines was so intensive that the Southern Song dynasty began to feel a sensible shortage. In 1219, it was ordered to pay the imports only with silk and porcelain.⁶⁷ Only very few coins are attested in the island belonging to the period that follows. The first voyages of the Portuguese and Spaniards in the Indian Ocean and the reduction of trade activities of China with Sri Lanka take place almost at the same period. The last delegation from Sri Lanka was sent to China in 1459.⁶⁸

The history of 2250 years of Sri Lanka is dominated by the complexity of religious, political and above all commercial relations which the island had maintained throughout many centuries with the external world. Archaeological material from different horizons entered the island as a result of seafaring in the Indian Ocean. It should be made clear that we are fully conscious that this paper is merely a preliminary survey and we also admit that our investigations are still at their beginning and are neither systematic nor complete. We consider it as a prologue to a larger comprehensive study which will be based on all the available archaeological materials and literary sources, and on the results we hope to obtain from our own investigations.

67. Fr. Thierry, 1989 : 22-3 ; A. Schroeder, 1905 : 373-5. On the distribution of the Chinese coins in South Asian countries, see Fr. Thierry, 1992.

68. P. Pelliot, 1904 : 356-7.