

BRIDGING THE GULF

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Maritime Cultural Heritage of the Western Indian Ocean

Foreword by

KAPILA VATSYAYAN

Chairperson, IIC-International Research Division

Edited by

HIMANSHU PRABHA RAY



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Foreword

From its inception in 1960 the India International Centre (IIC) has underscored the importance of research in order to fulfil its objectives of promoting an in-depth understanding of world cultures. In 1997, keeping in view the neglect of scholarship on Asia by Asians, IIC launched a long-term project termed the IIC-Asia Project. The Project highlighted the long history of dialogue between and amongst India and Asian countries. In its first phase from 1997 to 2003, the Project explored several themes such as politics, religion and society under the chairmanship of Dr. Karan Singh. Many of these resulted in publications.

Since 2003, in the second phase, a thematic approach was adopted in order to explore the different dimensions of cross-cultural dialogue which bind the diverse cultures of the region – be it in the sphere of distinctive Asian educational systems and paradigms of learning; the role of the humble needle and thread in stitching cultures together; mutual influences and yet distinctive styles of art and architecture; women's creativity, especially of the younger generation, as exemplified in creative writing and documentary film-making; and more. Several seminars were organized which resulted in publications.

One of the first themes taken up was the shared religious and architectural heritage of Asia and the aesthetic theories underlying many genres of Asian art. Flowing from this was the international seminar on 'Asian Encounters: Networks of Cultural Interaction', which focused attention on the lasting legacy left in various spheres of human experience by the centuries-old exchange of ideas, knowledge systems, resources, skills and materials among the people of the Asian continent. In this seminar, the three collaborating organizations each took up a specific theme: 'Exploring Connected Histories' (University of Delhi), 'Asian Aesthetic Theories and Art Forms' (Indira Gandhi National Centre for the Arts) and 'Exploring the Epigraphic Sources' (Archaeological Survey of India).

An exciting theme taken up was 'The Culture of Indigo: Exploring the Asian Panorama'. Participants in this multi-disciplinary programme were botanists, archaeologists, socio-political historians, art historians, those actively engaged in the processing of natural dyes, textile specialists and craft activists. The seminar discussed issues of the indigo plant, its pervasiveness in Asia, methods of extraction, the political history of movements like the Champaran agitation, trade routes as also the emergence of synthetic dye.

Two other themes taken up by the Asia Project were on 'Mind and Body in Health and Harmony in the Asian Systems of Medicine' and 'Remembering Raimundo Panikkar: A Pilgrim Across Worlds'.

In 2008 the Asia Project organized a seminar to focus attention on 'New Discoveries about Buddhism in Western Central Asia', led by Professor Gerard Fussman, Professor of History of India and Greater India, and President, College de France, Paris. He made a detailed presentation of the work done by French archaeologists in conjunction with archaeologists from Uzbekistan and Afghanistan.

This emphasis on Asia and Central Asia was carried forward in a seminar on 'The Arabian Nights in World Literature', in collaboration with the Jawaharlal Nehru University. It brought together scholars from Malaysia, Turkey, Bulgaria and France, besides India. This seemingly popular narrative was examined from its capacity to travel from one region to the other, to digest one language and transform it into other languages and, of course, its moral message. A programme on a similar vein organized this year was on the novel *The Blind Owl* (*Buf i Kur* in Persian) by Sadeq Hedayit, a prominent writer of Iran. The novel portrays glaring social dimensions and shows the Indo-Persian society in all its hues and colours and sights and sounds.

The Asia Project has by no means restricted its activities to the geographical area called Asia. There is now an overall consensus that a shift is taking place in the structure of power from the West to the East, not simply to Asia but also via select parts of South America and Africa. The older civilizations have not only maintained their continuity in spite of their turbulent trajectories and the political and economic dominance that they have been subject to over time but they have also been able to retain and sustain their inherent values and traditions together with knowledge systems that are alive. In this background, a major conference was organized on the theme *The Relevance of Traditional Cultures for the Present and the Future*, which drew participation from as far as Egypt, Ethiopia, Ghana, Senegal, Mauritius, Benin, Lebanon, Mexico, Argentina, Greece, Russia, Germany, Hungary, UK and USA, besides delegates from Asian countries. Papers presented at this seminar are being published.

Asia Project continued its attention to shared heritage and hosted an international seminar on *Maritime Cultural Heritage of the Western Indian Ocean: Bridging the Gulf* on 28-9 July 2015, which was conceived and coordinated by Professor Himanshu Prabha Ray. An important component of the maritime cultural landscape is religious architecture and its inter-linkage with travelling groups who moved both across the sea, as well as on routes into the interior. The objectives of the seminar were: (1) to highlight the multi-layered meaning of the cultural heritage on the coasts; its context; and its continued relevance to communities; and (2) to shift the emphasis from understanding cultural heritage in its local context to discussing it across the waters of the Arabian Sea.

The participants at the workshop included Dr. Anjana L. Reddy (Abu Dhabi Tourism and Culture Authority), Dr. Andrew Bauer and Dr. Lynn

Meskel (from Stanford University), Dr. Rukshana Nanji and Dr. Ashok Rajeshirke (researchers), Dr. Abhijit Dandekar and Dr. Kirit L. Mankodi (Deccan College, Pune), Dr. Alaa El-Habashi (Consultant UNESCO), Dr. Robert Parthesius (Visiting Professor, New York University Abu Dhabi), and Dr. Janhwij Sharma and Dr. M. Nambirajan (Archaeological Survey of India).

The seminar served as a platform for discussion on inter-disciplinary, intercultural and transnational approaches to the theme of Maritime Cultural Heritage. The papers explored conceptual aspects, as also practical nuances of specialized sources and micro fields and included discussions of archaeological finds from sites in the Arabian Gulf and the West Coast of India with a focus on studies on pottery, along with the new found navigational manuals or *pothis* of the Kachchhi navigators of the pre-colonial period. Landscape archaeology of a possible port site on the west coast was debated and linkages between coastal centres and the interior examined.

The present volume includes a selection of papers presented at the seminar. It also has two papers contributed by Professor Himanshu Prabha Ray, who has edited this volume. The papers emphasize the need for an understanding of maritime history and archaeology on account of the continued survival of maritime regions in the Indian Ocean. These regions have participated historically in the Indian Ocean network and in several cases are characterized by local traditions of boat building and navigation, architectural features and archaeological sites, as well as narratives of the central experience of trans-locality of maritime communities. Thus it is important to comprehend conceptions of the sea by people who lived along its coasts and traversed it for varied reasons.

I am sure that the book will be well received by scholars and will pave the way for further programmes.

31 March 2016

KAPILA VATSYAYAN
Chairperson,
IIC-International Research Division
(formerly IIC-Asia Project)

Introduction

Maritime Cultural Heritage of the Western Indian Ocean: Connecting Sea Spaces

HIMANSHU PRABHA RAY

The coastal peoples of the western Indian Ocean, Arabia, Iran and India have been united, since prehistory, by the Indian Ocean basin and seasonal monsoon winds in a culture and economy entirely dominated by the sea and a lifestyle still observable today in many coastal fishing communities (Bhacker, 2009: 166).

Sea space may be defined as a plural assemblage of spatial representations, practices, and imaginations related to the sea seen as social space. These may be categorized as coastal spaces; mobile spaces represented by the boat; island spaces, harbour spaces; and the sea as an imagined space (Barata and Rocha, 2015). An important component of this landscape is coastal architecture and its inter-linkage with travelling groups who moved both across the sea, as well as on routes into the interior. The demarcation of sea spaces may be understood through intellectual traditions of writing, but more importantly through an active engagement with the nature of coastal installations that physically circumscribed the seafaring world and framed the interactions of several groups.

The papers in this volume were presented in New Delhi as part of an ongoing dialogue among scholars and researchers from different disciplines on maritime cultural landscapes as these evolved in the western Indian Ocean both spatially and historically. A common concern that all papers share is with definitions of maritime heritage; different articulations of social and political power; and regional and local nautical traditions. One of the objectives of this volume is to highlight the important role of World Heritage, especially sites and monuments located along the coasts that have already been identified as national treasures by individual nation states (Figure I.1). The issue is to bring these coastal monuments and structures into dialogue with those located across the ocean for a holistic understanding of maritime cultural heritage of the western Indian Ocean. It is suggested here that this dialogue across the seas would help in the protection and preservation of a maritime heritage that is universal in nature, rather than being fragmented in the somewhat debatable categories of tangible and intangible or being restricted to either a single



FIGURE I.1: MAP SHOWING COASTAL WORLD HERITAGE SITES OF THE INDIAN OCEAN

architectural relic or a group of monuments, as has been the case in many countries, especially those in India. This need for a comprehensive perspective was amply brought out by the inscription in 2012 of Pearling, as an outstanding example of traditional utilization of the sea's resources in Bahrain, as will be discussed in the penultimate section of this paper.

In this volume the emphasis is on the western Indian Ocean, limiting the field of enquiry in South Asia to the Western Coastal Plain, which is best described as a narrow strip of land between the Western Ghats on the east and the Arabian Sea on the west. It ranges in width from 50 to 100 km and extends from the present state of Gujarat in the north through Maharashtra, Goa, Karnataka, and Kerala. At the other end of the cultural routes, the focus will be on the south Arabian coast and the Gulf, as also the east coast of Africa. Approximately 1,000 km long, the Persian Gulf has a variable width of 200-350 km narrowing to 60 km at its effluence into the Indian Ocean through the Straits of Hormuz.

As suggested by George Hourani in his book *Arab Seafaring* (1995), the peninsula's long coastline extending from the Gulf of Suez to the head of the Persian Gulf and proximity to the region's most fertile zones encouraged engagement with the sea from an early date. The Oman coast is thus one of the richest fishing zones in the Middle East, and serves as a seasonal passage for a number of migrating species that are favoured by people and has accordingly been a focus of fishing activity from at least the prehistoric period. Sites like Ras al-Hadd at the conjunction of the Gulf of Oman and Arabian Sea demonstrate the presence and use of natural harbours (Boivin and Fuller, 2009).

The modern western Indian Ocean bore several names in antiquity: 'Erythraean Sea' (Greek: Erythra thalatta; Latin: mare Rubrum) or Indian Sea (Greek: Indikon pelagos; Latin: mare Indicum) are the most common. The modern Red Sea was generally called either 'Arabian Gulf' or 'Erythraean Sea'. The Arabo-Persian Gulf was called 'Persian Gulf' as well as 'Erythraean Sea'. Inscriptions from India starting from the third century BCE onward refer to the country as *jambu-dvīpa* or island of the rose apple tree and mention the three seas surrounding it (Luders, 1912: no. 1140). The terms *al-hind* and *al-hindī* were used by the Arabs to name respectively the territories and populations located to the east of Indus River, while the Arabian Sea was termed *Bahr al-'Arab* or Sea of Arabs.

Maritime Cultural Heritage, the thematic focus of this volume, highlights the interconnectedness of maritime spaces and cultural traditions. A distinctive wind-system of the Indian Ocean region known as *Mausam* or *Mawsim* follows a regular pattern: south-west from May to September; and north-east from November to March (Figure I.2). While the monsoon winds permitted a single round-trip a year, there was greater flexibility in latitudinal movement, such as for example between the southern coast of Arabia and north-western

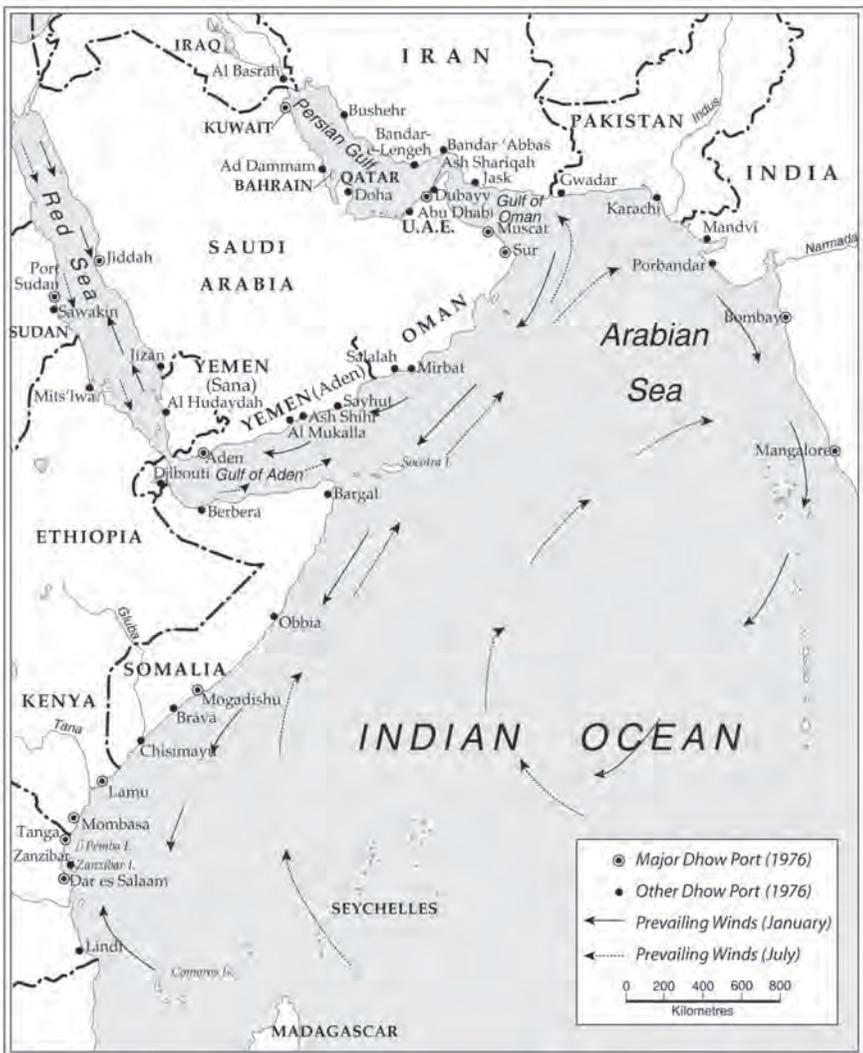


FIGURE I.2: MAP OF DHOW PORTS ON ADEN – MANGALORE ROUTE, 1976 (MAP COLLECTION, PERRY CASTAÑEDA LIBRARY, UNIVERSITY OF TEXAS)

India (Sheriff, 2010: 21): ‘In 1900 some dhows made up to four voyages between the coast of Oman and India, although about two was normal.’

The etymology of the word *mawsim* signifies the importance of this season to a variety of seafarers. This intertwining of natural phenomena such as monsoon winds and the ways in which these were harnessed historically to create cultural networks provide building blocks for contemporary societies as they work towards universal values and trans-border groupings – both of which underwrite UNESCO’s 1972 World Heritage Convention. As world history acquires centrality and the focus shifts from national histories to globalization, the history of the sea is discussed as ‘connected history’ across

porous borders, linked through boat-building traditions, community networks and cultural practices (Vink, 2007: 41-62).

This book is based on the premise that fishing and sailing communities formed the foundation of maritime activity in the Indian Ocean and provided a continuum to seafaring throughout history, though no doubt their fortunes fluctuated over time. These communities adopted numerous occupations associated with the sea: fishing and harvesting other marine resources, salt making, sailing, trade, shipbuilding and piracy. A common feature of the sewn boats of the Indian Ocean was the use of coir-rope for stitching. As coconut palm plantations were restricted to certain parts of the Indian Ocean littoral, coir-rope would have been one of the commodities in demand along the boat-building settlements of the coast (Ray, 2003). Thus, the building of the *dhow* or traditional watercraft involved trade and transportation of wood for planking and coconut coir for stitching from different regions of the Indian Ocean, thereby creating and sustaining networks of interaction.

These historical linkages of World Heritage sites, both cultural and natural (Table I.1) need to be brought into discussion in accordance with changing priorities of UNESCO's 1972 charter, which have been broadened over the decades to include cultural landscapes, industrial remains, and heritage routes, which are all now valued as a part of our cultural heritage. As evident from Table I.1, the list of World Heritage monuments includes a diverse range of sites extending all along the western Indian Ocean from iSimangaliso Wetland Park in Natal, South Africa inscribed in 1999, to the sixteenth-century Old Town of Galle on the Sri Lankan coast, inscribed in 1988. Each of these has however been circumscribed by national interests rather than by transnational linkages and networks. This volume is an attempt at initiating discussion on incorporating many of the coastal sites within narratives of maritime interconnectedness, as also to underscore the vibrancy and dynamism of travel across the seas.

Archaeological research dates the beginnings of these networks to the prehistoric period and also highlights their wide-ranging nature. The themes to be discussed in the next three sections that have been identified as markers of interlinkages across the western Indian Ocean in this volume include: ecology and movements of food-crops across the seas; coastal landscapes and their wide-ranging networks as evident from cultural routes; and finally diverse traditions of sailing and nautical reckoning. A crucial element of these discussions is the need to preserve and protect maritime cultural heritage and to guard against theft and plunder of antiquities.

ECOLOGY

The western Indian Ocean has often been divided into three ecological zones extending from the coastal areas of East Africa, Mozambique and Madagascar

to peninsular India and as far as the Timor Sea in Southeast Asia (Sheriff, 2010: 22-3). The forest-and-sea region of East Africa stretching from south Somalia to Mozambique and Madagascar forms a distinct zone, with the interior marked by low-rainfall scrub. The coastal areas are covered not by equatorial forest vegetation, but by forest savanna.

The second zone in this threefold classification is the desert-and-sea zone extending from the Horn of Africa to the Indus Valley. The Arabian Peninsula with the Red Sea and the Persian Gulf on its two sides provides a long coastline for the development of maritime culture. In recent years, archaeologists have called for a theoretical reorientation away from over-studied land-based narratives that marginalize the complex processes, exchanges, and interactions occurring at coastlines and seaways to according centrality to the coasts and to maritime cultural landscapes.

Ancient shell middens found along much of the coastal rim of the Arabian Peninsula, some of which date as far back as the late seventh millennium BCE suggest the exploitation of marine and mangrove swamp resources from an early date in the peninsula, and point to the prehistoric origins of the Ichthyophagi or primitive fish-eaters of the East African, Arabian and Indian coasts described in Greek sources like the *Periplus of the Erythraean Sea* (Ray, 2003: Chapter 2.2). During the sixth millennium BCE, the number of sites with shell middens increased, and sites like Ras al-Hamra (RH-7) and Dosariyah, in Saudi Arabia, date to the mid-sixth millennium BCE (Boivin and Fuller, 2009: 126) (Figure I.3).

Recent research on the prehistoric movements of plants and animals across the Indian Ocean has underscored the contributions of small-scale groups as a major focus of cultural history and as agents for the exchange of native crops and stock between Africa and India (Fuller et al., 2011: 544-58). Archaeological evidence for these translocated crop plants dates to at least the third millennium BCE and draws on historical linguistics, most notably relating to tree-crops and boat technology, with a growing contribution from genetic studies of animals, including domesticated and commensal species. There is a growing body of literature on the origin of major crops of peninsular India, such as sorghum (*Sorghum bicolor*), pearl millet (*Pennisetum glaucum*) and finger millet (*Eleusine coracana*) in Africa and their presence at sites in India in the second millennium BCE (ibid., 2011: 546). It is suggested that these contacts were systematic and frequent, rather than being occasional and peripheral (Hoogervorst, 2013).

Food would have been transported for a variety of reasons ranging from overcoming food shortages to a desire for certain foods acquiring ritual or elite status. An appropriate example of the latter is the spice-trade. Data from ship-wrecks indicates that pepper had been imported to the Mediterranean at least from the second millennium BCE. It was a critical ingredient in medicines, had culinary applications and was also used in funerary and religious

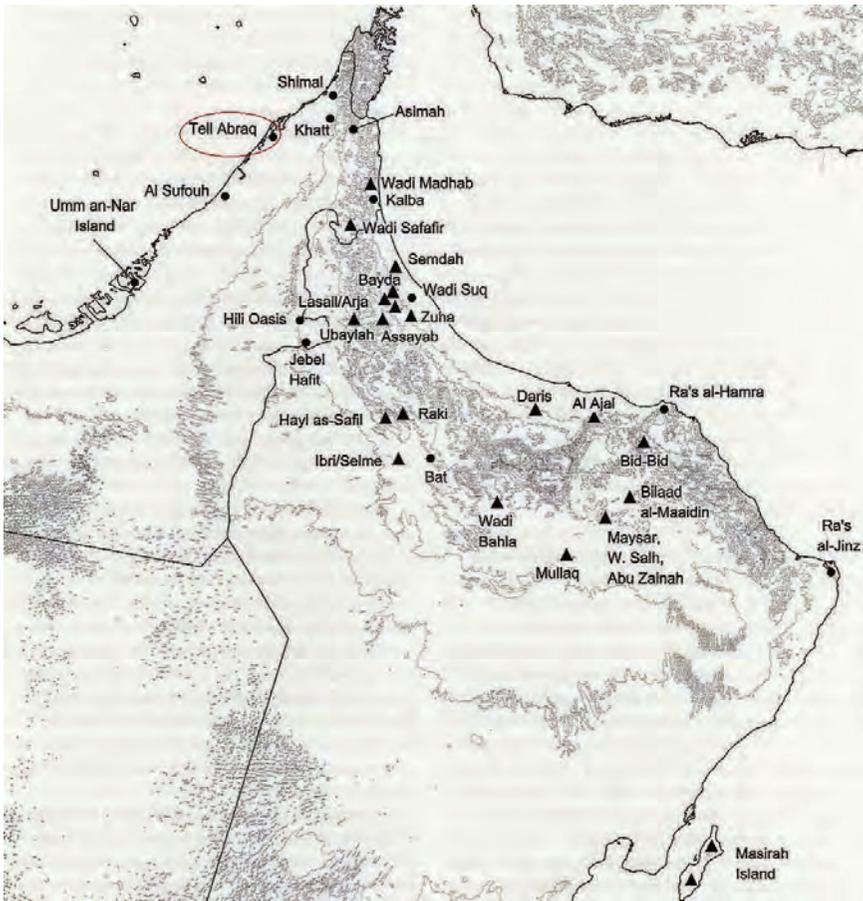


FIGURE I.3: MAP OF SOUTH-EASTERN ARABIA SHOWING THIRD-MILLENNIUM SITES (CIRCLES) AND COPPER DEPOSITS (TRIANGLES). TELL ABRAQ IS CIRCLED IN RED (IMAGE: AL-JAHWARI, NASSER SAID ALI, 'SETTLEMENT PATTERNS, DEVELOPMENT AND CULTURAL CHANGE IN NORTHERN OMAN PENINSULA: A MULTI-TIERED APPROACH TO THE ANALYSIS OF LONG-TERM SETTLEMENT TRENDS', PHD. DISS., DURHAM UNIVERSITY, 2008)

rituals. Pepper (*Piper nigrum*) has been found at several sites on the Red Sea coast, but perhaps was the most noteworthy import to Berenike, located at the boundary of the Red Sea and the Eastern Desert on an extinct coral reef and dated from the first half of the third century BCE to about 550 CE. Imports included black pepper, white pepper or black pepper that had ripened and long pepper. Black pepper was a product of south India, while long pepper was cultivated in north India and in all probability shipped from the west coast centre of Bharuch or Barygaza.

The most remarkable find was that of two large terracotta jars made in India and recovered from the courtyard of the first-century CE temple of the Graeco-Egyptian god, Serapis. While one of them was empty, the other

contained 7.55 kg of black pepper-corns. The nature of religious ceremonies where pepper may have been used is not clear, nor are there any explanations in written accounts, though it was also found in the shrine of the Palmyrenes dated from the late second/early third to late fourth/early fifth century CE (Sidebotham, 2011). Other foods imported into Berenike included Asian plants like rice (*Oryza sativa*), coconut (*Cocos nucifera*), mung bean (*Vigna radiata*), belleric myrobalan (*Terminalia bellirica*) and citron (*Citrus medica*) (Cappers, 2006; van der Veen, 2011).

Live animals were also shipped, as evident from representations of elephants and horses on boats. Although the first horses were imported in South Arabia from Egypt by sea (Casson, 1989, sections 24, 28), the analysis of the names attested for these animals as well as for their equerries and grooms in Sabaic inscriptions demonstrates that horse-breeding in this region was put into practice by people who had no relation to the Hellenistic civilization, but whose ancestors appeared to belong to Arabian nomads (Fratsouzoff, 2015: 92). It is generally suggested that horse-breeding in India, though viable, could not compete with the demand for land from arable farming and often lost out (Wink, 1997: 84-5). The breeding industry nevertheless was dependent on outside supply both for direct use and for improving the indigenous breed. The imported breeds were, however, considered more valuable, especially those brought along the sea-route, which was very difficult as many of the animals died during transit (Gommans, 1995: 74-5).

The inscription of several natural World Heritage sites in the western Indian Ocean underlines the importance of ecology and the need to preserve and protect the coastal environment, though as has been suggested in an earlier publication (Ray and Kumar, 2014), the distinction between 'natural' and 'cultural' World Heritage sites often appears artificial and unnecessary. Unplanned urban expansion along the coasts and intensive agriculture in the hinterland coupled with population pressure has meant marginalization of local communities, including those involved in fishing and utilization of marine resources. A beginning has however been made in the identification and implementation of research strategies that would help address the issue of preservation and protection of coastal environments.

The Mauritian Archaeology and Cultural Heritage Project aims at exploring the impact of colonialism and colonization on the Indian Ocean by establishing baseline data detailing specific environmental and landscape transitions through time, especially through colonial models of exploitation of the coasts from the seventeenth to twentieth century (<https://www.stanford.edu/dept/archaeology/cgi-bin/drupal/indianocean> accessed on 26 September 2015). This would then help in better understanding other coastal regions and natural World Heritage sites in the Indian Ocean. The Aldabra Atoll, Seychelles, inscribed in 1982, consists of four main islands of coral limestone in a shallow lagoon. Though the atoll has remained inaccessible for most of its existence,

it faces threats by invasive alien species, climate change and oil spills. Vallée de Mai Nature Reserve on Praslin Island is the second natural World Heritage site of Seychelles inscribed in 1983. The iSimangaliso Wetland Park, South Africa's first World Heritage site, for example, is located along 220 km of the Indian Ocean coast in South Africa and includes coral reefs, long sandy beaches, coastal dunes, lake systems, swamps, and extensive reed and papyrus wetlands. The park is largely uninhabited apart from six small villages, but historical changes in the ecosystem upstream of the park have resulted in serious water shortages (<https://www.globalnature.org/bausteine.net/f/7601/2011-07-18StLuciaunderstandingtheproblemandfindingasolution.pdf?fd=0> accessed on 26 September 2015). In contrast, pitons, cirques and ramparts of Reunion Island have been recognized in 2010 more for their striking volcanic landscape than for their marine environment. Nevertheless the preservation of these ecosystems remains a challenging and uphill task, given that research in several parts of the Indian Ocean has shown loss of bio-diversity, as well as coastal degradation (Seetah, 2014; Chou, 2013; Ribeiro, 2014).

As mentioned at the beginning of this section, the 1972 World Heritage Convention makes a distinction between 'nature conservation' and 'protection of cultural properties' which seems somewhat arbitrary as evident from the two cases discussed here. The Socotra Archipelago, in the north-west Indian Ocean near the Gulf of Aden, was inscribed as a natural World Heritage site in 2008. It is 250 km long and comprises four islands and two rocky islets. The site is of universal importance because of its biodiversity with rich and distinct flora and fauna. What has been missed out in this account is the enormous importance of the Socotra archipelago for the early history of sailing in the Indian Ocean (Figure I.4). The island was settled in the early centuries



FIGURE I.4: MAP SHOWING ARCHAEOLOGICAL SITES ON THE ISLAND OF SOCOTRA

of the Common Era by Arabs and Indians and even some Greeks, who sailed out of there to trade (Casson, 1989, section 30). Several varieties of tortoise shell found on the island were referred to, and were said to have been in demand by the shippers from Arabia and the west coast of India who exchanged big cargoes of tortoise shell for rice, grain, cotton cloth and female slaves. The other resource referred to is cinnabar, which is collected as an exudation from the *Dragon* trees.

One of the most interesting discoveries was that of a settlement along the northern littoral of the island 2 km south of the modern village of Suq. An analysis of the archaeological data from the site indicates two phases of settlement: an earlier phase dated to the early centuries of the Common Era; and a second phase from around the tenth-thirteenth centuries CE. The archaeological data also suggest similarities with the Arabian Peninsula and Persian Gulf. In the first centuries of the Common Era, Hoq cave on the northern face of the island of Socotra was known in a wide region by merchants travelling between Africa, India, the Middle East and Far East. Explorations in the 2,000-m deep cave in 2001 led to the discovery of 200 graffiti, drawings and small offerings dated to the late second to fourth century CE (Strauch, 2012).

A second natural World Heritage site inscribed more recently in 2012 comprises the mountain chain of the Western Ghats that runs almost parallel to the coast approximately 30 to 50 km inland in western India. As a result, the high montane forest ecosystems have influenced the Indian monsoon weather pattern and also represent the best example of the monsoon system. What is missed out in this categorization is the unparalleled cultural component of the large number of Buddhist cave sites located at fording points and passes in the Western Ghats (Figure I.5; Ray, 1986). More than a thousand Buddhist caves were excavated in the hills of the Western Ghats and its offshoots at about 50 centres in the western Deccan. Broadly these sites are located at passes along overland routes or overlooking creeks and coastal settlements. Of these 19 centres are significant in terms of providing inscriptional data and have yielded a total of more than 200 inscriptions (Figures I.6-I.8). This epigraphic record is critical for understanding the organization of cultural networks across the Indian Ocean in the early centuries of the Common Era, as will be discussed in the next section. Clearly there is a need to rethink the current categories of UNESCO's World Heritage Convention in view of the larger networks of sailing in the Indian Ocean and the linkages established by them.

Archaeological evidence indicates the use of frankincense and myrrh by the third millennium. Arabian frankincense is obtained from the small *Boswellia* tree that is native to the Dhofar and Hadramaut coastal regions, and is regarded as the resource for the highest quality of frankincense. Several

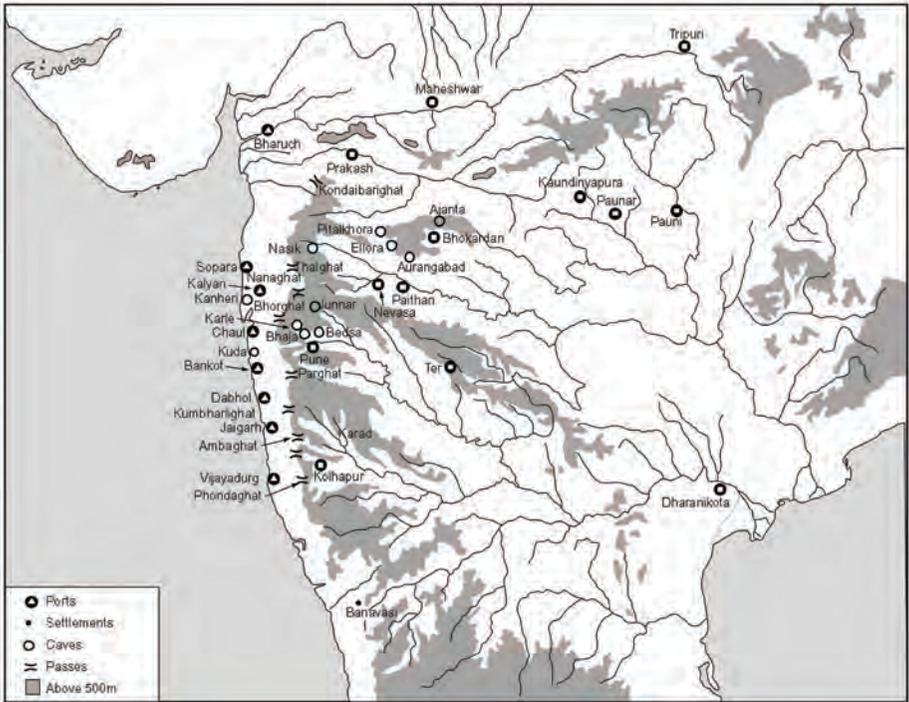


FIGURE I.5: MAP SHOWING BUDDHIST CAVE SITES IN THE WESTERN GHATS



FIGURE I.6: KANHERI CAVES LOCATED IN BORIVALI RESERVED FOREST AREA



FIGURE 1.7: LITANY OF AVALOKITESVARA SCULPTED AT THE CAVE SITE OF KANHERI



FIGURE 1.8: SAVING FROM SHIP-WRECK IN THE LITANY OF AVALOKITESVARA AS DEPICTED AT KANHERI

other species of *Boswellia*, however, are harvested for lesser incenses, including Indian and West African species (Singer, 2007: 7). There are over 25 different species of frankincense trees. They grow in the Dhofar region of southern Oman; the Hadramaut and Mahra regions of Yemen; the island of Socotra; Ethiopia and Somalia; and in parts of Rajasthan and Madhya Pradesh in India. Every species produces a different quality of resin, from dark brown lumps yielding a bitter smoke to pale tears, which melt slowly and emit a fine clean scent. Thus the land of frankincense may be located in a much wider cultural landscape than the present World Heritage site.

In 2000, Oman inscribed the frankincense trees of Wadi Dawkah and the remains of the caravan oasis of Shisr/Wubar and the affiliated ports of Khor Rori and Al-Baleed as components of the World Heritage site titled 'Land of Frankincense'. This inscription denotes the multiple dimensions of the archaeology of incense and its transformations in the historical period. It appears that there was a very specific group of South Arabians who acted as long-distance traders and who came from the kingdom of Ma'in. The coffin of a Minaean frankincense merchant named Zayd'il, for example, dating to the third century BCE was discovered at Memphis in Egypt (Singer, 2007: 13). More importantly this raises the question of cultural routes that stretched across the Ocean.

COASTAL LANDSCAPES AND CULTURAL ROUTES

In his study *Dhow Cultures of the Indian Ocean*, Abdul Sheriff has identified several peaks in trading activity starting from the third-second millennium BCE maritime contacts between centres in the Persian Gulf and Gujarat as also the mouth of the Indus (Ray, 2003; Sheriff, 2010: 131, 133, 139). By the beginning of the Common Era, these connections had expanded to include almost the entire western Indian Ocean, including the island of Socotra, as evident from the *Periplus Maris Erythraei* by an anonymous writer. The Persian Gulf is however one region that continues to be somewhat neglected and in the blind spot of early Greek writing.

New sectors were added to the networks over time, as evident from accounts of sailing and travel in Arabic, for example the ninth-century *Book of Routes* of Ibn Khurradbeh, which describes several stages in the voyage to China. Adventures of sailors across the Indian Ocean have been immortalized in stories in different languages, many of which survive in later Arabic versions, such as in the *Ajaib al-Hind* or *Marvels of India* and narratives of *Sindbad the Sailor*. One of the popular tales is that of Ishaq the Jew who left Oman with 200 dinars but returned after thirty years from China with a 'couple of million dollars' worth of merchandise' (Sheriff, 2010: 173). In the fourteenth century Hormuz emerged as an important and magnificent city that controlled the

horse trade across the western Indian Ocean, but more significantly with Gujarat and Karnataka (Digby, 1982: 125-59).

These broad generalizations are important to understand patterns in maritime networks in the western Indian Ocean, though the emphasis on trade contacts and identifying 'peaks' based on available textual and archaeological data often hides a more complex picture. As discussed in earlier sections, the data from historical linguistics and paleo-botany indicates maritime travel in the western Indian Ocean from at least the third-second millennium BCE and sustained contacts throughout the historical periods. The role of small-scale societies in these contacts is as yet inadequately understood, as also the motivation to travel and to undertake risks and confront dangers. Was the motivation solely economic? We have also discussed the use of several so-called items of trade, such as pepper, in ritual and for medicinal purposes. Also significant are culinary changes and the various ways in which food items have been used to cement social and cultural ties. Sheriff refers to the fruit of the date-palm, which was not merely a sweet fruit, but had deeper cultural and religious meaning for Muslims across the region. Dates are crucial for breaking the Ramadhan fast (Sheriff, 2010: 1). This emphasis on the cultural meaning of food also raises the issue of linkages of many of the sites discussed above and their understanding within an interconnected Indian Ocean world.

BRONZE AGE INTERCONNECTIONS

In the third-second millennium BCE period one of the routes across the western Indian Ocean was from the Red Sea to the land of Punt, as evident from recent excavations at Wadi Gawasis on the Red Sea coast, 60 km north of Quseir al-Qadim, and Ayn Sokhna on the western bank of the Gulf of Suez, 120 km east of the modern city of Cairo. Two phases of this route have been suggested based on archaeological evidence: the first phase dated to 2500-1500 BCE was characterized by a diffusion of obsidian from the African coastal regions to the Yemeni Tihama across the southern Red Sea. The second phase dated from 1500 to 900/800 BCE and involved greater participation of the African coast in the Arabian networks (Fattovich, 2012: 39).

A second route linked centres in the Persian Gulf to those on the Makran and Gujarat coasts. In the first half of the third millennium BCE important changes occurred in the orientation of the Oman peninsula towards the exterior. An indigenous Omani cultural tradition emerged with a widespread network of cultural and economic relations, especially with south-east Iran and the Indus Valley sites. The period from *c.* 2500 to *c.* 2000 BCE is known as the Umm an-Nar period after the type-site situated on a small island off the coast of Abu Dhabi. Discoveries in Oman and the neighbouring United Arab Emirates (UAE) are beginning to show that there was a southern sea

route as well, which funnelled raw materials such as copper and manufactured goods such as textiles across the Arabian Sea and the Persian Gulf. Those links reached deep into the eastern Arabian Peninsula to sites such as Bat, a modest settlement that by 2400 BCE boasted massive round stone towers and tombs, a clever system to manage scarce water, and exotic goods (Potts, 1990; 2012). Archaeological evidence for prehistoric boat-building and seafaring activity comes from Ras al-Jinz on the Oman peninsula. One of the structures at the site contained 295 bitumen slabs, used for caulking boats, in a mid-third millennium BCE context. Several slabs bear the imprint of lashed reed bundles and twill-patterned woven mats, thus indicating the nature of boats used in this early period (Vosmer, 2000: 149-52).

There is consensus among archaeologists that the corridor extending from the Persian Gulf to the west coast of India was an important element in the economic circuit of the third millennium BCE, funnelling raw materials to Mesopotamia and serving as a trans-shipment point for Indus goods (Figures I.9 and I.10). On the Persian Gulf coast, at the site of Umm an-Nar near Abu Dhabi, inhabitants built a dozen stone houses dating to about 2500 BCE, worked copper into usable products, and weighed their goods with a collection



FIGURE I.9: HILI GRAND TOMB WORLD HERITAGE SITE OF AL AIN. THE CULTURAL SITES OF AL AIN (HAFIT, HILI, BIDAA BINT SAUD AND OASES AREAS) IN UAE CONSTITUTE A SERIAL PROPERTY THAT TESTIFIES TO SEDENTARY HUMAN OCCUPATION OF A DESERT REGION SINCE THE NEOLITHIC PERIOD WITH VESTIGES OF MANY PREHISTORIC CULTURES. REMARKABLE VESTIGES IN THE PROPERTY INCLUDE CIRCULAR STONE TOMBS (c. 2500 BCE), WELLS AND A WIDE RANGE OF ADOBE CONSTRUCTIONS



FIGURE I.10: ROCK CARVING ON HILI GRAND TOMB WORLD HERITAGE SITE OF AL AIN CLOSE UP

of weights corresponding with northern Syrian standards. Along with Indus pottery, archaeologists found an impression made by a northern Syrian cylinder seal, demonstrating links with that distant area. Artefacts testify to links with eastern Iran, Central Asia, Bahrain, the Indus, and Mesopotamia in the late third millennium BCE, as well as with important settlements in the interior. Several Persian Gulf sites include scatters of Harappan pottery. Tell Abraq continued as a modest port until 500 BCE, but most of the other sites along the Hajar corridor underwent dramatic change during about 2000 BCE (<http://www.andrewlawler.com/a-forgotten-corridor-rediscovered/> accessed on 6 November 2015). A drying climate, increased warfare, and an unstable economic system may have been factors. The beginning of the Common Era saw changes and transformations in many of these routes, as discussed in the next section.

EARLY HISTORIC CONNECTIONS

Many of the commodities already known in the Mediterranean region had been imported over long distances, but in the early centuries of the Common Era came through more direct routes. A good example of this is pepper. Shipwrecks from the Bronze Age show that pepper was being imported into the Mediterranean as early as the second millennium BCE, but texts in the first

century CE refer to many more varieties of pepper, such as black pepper, long pepper and white pepper and diverse and varied uses, including in desserts (Parker, 2008: 151-3).

Erythraean Sea is the name by which the Graeco-Roman writers referred to the more northerly reaches of the Indian Ocean including the Red Sea, the Arabian Sea and the Gulfs of Aden and Arabia. According to the first-century *Periplus of the Erythraean Sea* (Casson, 1989, sections 13-14), a text that is unique not only in the corpus of Greek writings, but also within the domain of historical literature on the Indian Ocean, the Egyptian ports of Myos Hormos and Berenike were the starting points, as well as final destinations of cultural routes across the western Indian Ocean (Figure I.11). From here one route went from Muza, located at the mouth of the Red Sea to the coast of Somalia and Horn of Africa and further south along the coast of Azania. Rhapta was the last port of call on the Azanian coast and beyond it was the western sea. The *Periplus* provides an interesting account of sewn boats and methods of fishing at Menuthias, identified with Zanzibar (ibid., section 7.1).

A second route proceeded along the south Arabian coast to reach centres at the mouth of the Indus and Gujarat and further down on the Malabar coast. A comparative analysis of commodities traded along the East African, Arabian and Indian coasts shows that the west coast of India provided the

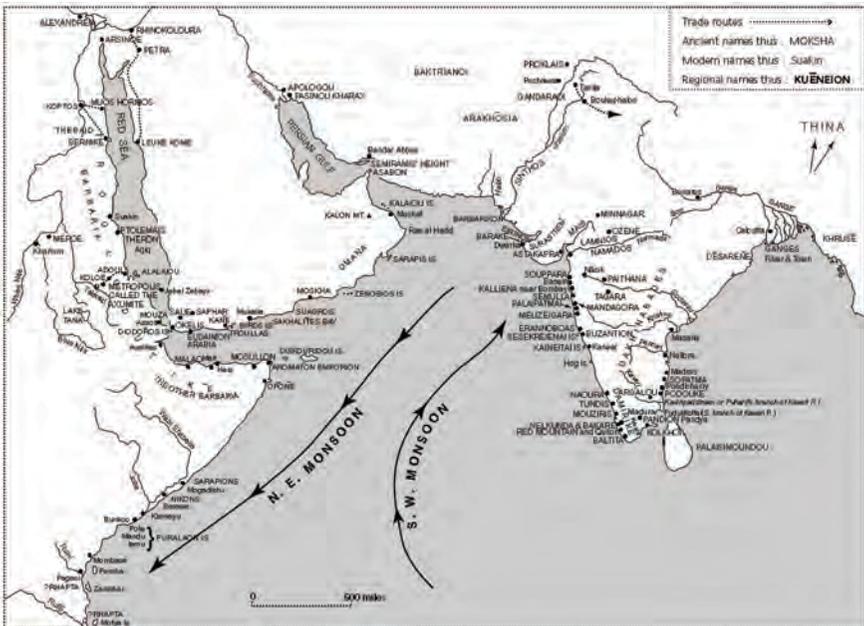


FIGURE I.11: SITES MENTIONED IN THE FIRST CENTURY CE GREEK TEXT, THE *PERIPLUS OF THE ERYTHRAEAN SEA*

largest variety of goods. While East Africa yielded ivory, tortoise shell, frankincense, myrrh and various grades of cassis, the products of the Arabian coast were restricted to frankincense, myrrh and aloe. On the island of Socotra at the mouth of the Red Sea grain, rice, cotton cloth and female slaves could be picked up (*ibid.*, section 31). In contrast the Indian coast provided spices, medicinal and aromatic plants, gems, textiles, both cotton and silk, dyes such as indigo, grain, rice, sesame oil, ghee, ivory, pearls and tortoise shell (*ibid.*, sections 39-61).

It is owing to the importance of trade with the Indian coast that the *Periplus* provides graphic descriptions of entry into the different harbours and landfall at several centres. For example, entry into the River Indus, known for its seven mouths, narrow and full of shallows is indicated by changes in the colour of the water and the sea-snakes that emerge from the depths. The Rann of Kachchh is described with bodies of water having shoals and shallow eddies, as a result of which the land was scarcely visible and vessels ran the risk of being grounded. The Gulf of Barygaza or the present Gulf of Khambat is described as being too narrow and difficult for vessels coming from the seaward to negotiate and the mouth of the River [Narmada] on which Barygaza was located was hard to find, because the land was low and the structures were not clearly visible (*ibid.*, section 43). These graphic accounts resonate with descriptions of the west coast in later texts and the problems associated with navigating this stretch.

Coastal centres along the west coast of India could be divided into two spheres: those on the north-west coast comprising Barbarikon and Barygaza; and the south-western ports of Muziris and Nelkynda. It is significant that the *Periplus* also makes a distinction between Barbarikon and Barygaza, while it slots the two centres further south in a single category. Barbarikon was merely a mooring or landing place and all goods were taken up the river to the king at the metropolis (*ibid.*, section 39). In contrast, Barygaza was not only a landing place for cargoes, but also a market centre. It imported both raw materials such as glass, copper, tin and lead and a range of more expensive goods like fine wine, precious silverware, expensive clothing, etc., and not only provided an outlet for Chinese cloth, but also for a variety of cotton textiles, silk yarn, long pepper and other items brought from centres in the vicinity. The two centres on the Malabar coast were quite similar and were major exporters of pepper, pearls, gems, ivory and tortoise shell, while the items of import were less diverse and high-end as compared to those going to Barygaza (*ibid.*, section 56).

Does the text indicate the ethnic identity of traders who traversed the sea lanes of the western Indian Ocean? While discussing Muza or Mocha on the Yemen coast of the Red Sea, the text refers to Arabs – shipowners or charterers and sailors – who ‘trade across the water and with Barygaza, using their own outfits’ (*ibid.*, section 21). Muza is termed ‘port of trade’ even though it is

without a harbour. Another important harbour and storehouse at the entrance to the Red Sea was the island of Socotra, which was settled by Arabs and Indians and even some Greeks, who sailed out of there to trade (ibid., section 30). Merchants from Barygaza or Bharuch customarily traded with Oman and centres in the Persian Gulf and brought in supplies of copper and logs of teak and ebony. The Malabar coast owed its prosperity to Greek shipping and also to traffic from Ariake or Gujarat (ibid., section 54). On the east coast, the *Periplus* refers to Poduke, identified with Arikamedu near Pondicherry, where local boats mixed with those that sailed down from the region of the Ganga and from across the Bay of Bengal (Figure I.12). Clearly there were a variety of watercraft engaged with maritime trade and this involved participation from several groups and communities all across the Indian Ocean.

As discussed elsewhere, the shared culture that extended across not only South Asia, but also the Indian Ocean from fourth century BCE to fourth century CE was part of a literate tradition, which was by no means controlled by the ruler or the Brahmana, but included Buddhist and Jaina monks, navigators and trading and crafts groups. Writing facilitated storing of information, cumulative knowledge promoted a new genre of cultural and artistic expression and aided ordering of information under numeric and alphabetic heads and the use of maps (Ray, 2006: 113-43). These networks may be identified in the archaeological record by specimens of writing on



FIGURE I.12: POTSHERD DATED TO THE EARLY CENTURIES CE FROM ALAGANKULAM ON THE TAMIL COAST WITH SHIP GRAFFITO

pottery, seals and sealings and by inscriptions on stone and copper plates, though there were further shifts and transformations in these as discussed in the next section.

SHIFTS IN NATURE OF NETWORKS

The fourth century saw the rise of both the Christian holy man and Christianity as a civic institution in Egypt. Archaeological work at Abu Sha'ar located 20 km north of Hurghada on the Red Sea coast located a fort built in the late third-early fourth centuries CE as a result of the reorganization of the eastern defences of the Roman Empire. After the fort's abandonment in the early fifth century, it was occupied by Christian communities and converted into a church and the north gate became the principal entrance. The presence of graffiti, Christian crosses, two major ecclesiastical inscriptions in Greek attest to the importance of Abu Sha'ar as a pilgrimage centre in upper Egypt. In addition it was ideally located to facilitate travel to Sinai for St. Catherine's Monastery or to Aila (Aqaba at the northern end of the Gulf of Aqaba) and onward to Jerusalem (Sidebotham, 2005: 109-10).

Cosmas Indicopleustes ('India-voyager'), a Greek sailor from Alexandria who travelled to Ethiopia, India and Sri Lanka in the early sixth century provides a good example of interconnectedness of the western Indian Ocean. In later life, he became a monk, probably of Nestorian tendencies. Cosmas tells us that he was a native of Egypt, probably of Alexandria and never received a complete education (II, 1). He was a merchant (II, 54 and 56) in early life, perhaps importing spices and made many voyages. He knew Palestine and the area around Mt. Sinai (V, 8, 14, 51-2), had been to Socotra (III, 65), and had navigated in the Mediterranean, Red Sea and Persian Gulf (II, 29). He had rounded Cape Gardafui and sailed off Somalia (II, 30). Cosmas even mentions in Book 2 another merchant, Menas, a friend of his, who also became a monk. His book, the *Christian Topography* is dated to CE 550. The surviving manuscripts of the text include an uncial manuscript of the ninth century, written in Constantinople (Rome: Vaticanus Graecus 699 (V)); and No. 1186 of the Greek Mss. of the Monastery of St. Catherine at Sinai (S) dated to the eleventh century (Cosmas, 1897).

It would seem that from the fourth to seventh centuries the focus of maritime activity shifted further south along the Red Sea coast to Adulis. Adulis with the two harbours of Diodorus island and Oriênê is located at a spot where the Red Sea winds are less ferocious. At present the site is located 7 km from the coast – though there is evidence that it was connected with the sea by a silted channel of the River Haddas. The sixth-century work of Cosmas Indicopleustus refers to the town in the Aksumite period and contains a sketch map showing Adulis a little way from the coast, clearly connected with Aksum. There are also indications of the presence of a church at the site.

Excavations at Fustat in Egypt have yielded Chinese ceramics dating from ninth through the fifteenth century, with the largest concentration from the tenth to fourteenth century (Burke and Whitcomb, 2004: 92). As the following example indicates, these need to be used with caution for demarcating the extent and nature of the network. The excavations at Siraf in the Persian Gulf yielded a Chinese stoneware fragment bearing two Arabic names Yusuf and Mansur or Maymun, incised before glazing the vessel, belonging to a jar probably sent by a merchant resident in China (Tampoe, 1989).

Quseir al-Qadim on the Red Sea coast provides further testimony of the continuity of the sailing tradition on the one hand and the changing topography on the other. Myos Hormos is identified with the site of Quseir al-Qadim, which lies about 8 km north of the town of al-Quseir situated on the Red Sea coast about 500 km south of Suez. The town was situated on a peninsula, with the sea on one side and a lagoon, now silted, on the other. One of the advantages of this port is that it lies at the point where the Red Sea and the Nile are closest and there is a direct easy road over the watershed in the Red Sea mountains between Quseir and Coptos or nearby Qus. The site dates from first to third century CE and was later reoccupied in the eleventh-twelfth centuries CE in the Mamluk period. It was described by Arab geographers as the port of Qus, which lay at the end of the route connecting Qus to the sea.

Though the site was resettled in the eleventh century CE, but interestingly the Islamic town did not lie above the Roman settlement, but some distance away to the east and the harbour occupied the bay that extended only about 200 m inland from the location of the current beach. In the thirteenth-fourteenth century it was described by Arab geographers as the port of Qus, the capital of upper Egypt and the starting point for the desert routes to Quseir and Aidhab on the Red Sea coast. Yāqūt described Quseir as a 'port of the Yemeni ships' and stated that it was three days from Aidhab and five from Qus (Yāqūt, 1955-7: 367; Bonner, 2012). Of particular importance is a grave covered with wooden planks, probably from a sewn boat (Peacock and Blue, 2006: 65-6, 177).

An important hub at the mouth of the Red Sea was located at Aden, often termed a 'maritime city' from the eleventh to thirteenth century and also the centre of Jewish activity in the Indian Ocean (Margariti, 2007). The Aden to Mangalore route linking the mouth of the Red Sea to the west coast of India is prominently referred to in the India letters of the Cairo Geniza dated to the eleventh-twelfth centuries CE. These Judeo-Arabic texts recovered from the Geniza chamber of the Ben Ezra synagogue in Fustat – Old Cairo provide fascinating insights into the maritime world of the Indian Ocean and the recently translated 459 documents (comprising 523 shelf marks of the India Letters from the Cairo Geniza dated from CE 1080 to 1160) are crucial to this discussion (Figure I.13) (Goitein and Friedman, 2008). These crossings and trade networks provide insights into the social and cultural milieu of trade

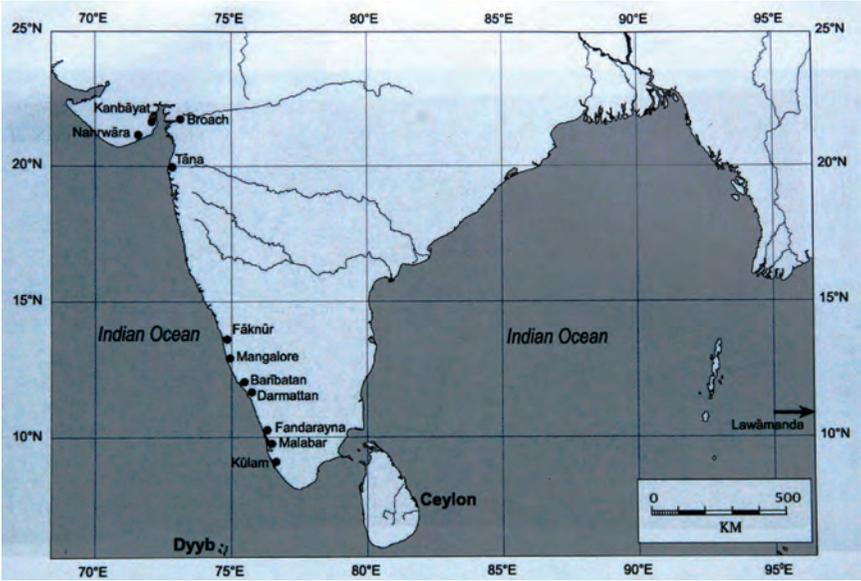


FIGURE I.13: INDIAN LOCALITIES MENTIONED IN THE INDIA LETTERS FROM THE CAIRO GENIZA

and are further supported by inscriptions and archaeological data from several sites along the west coast of India (Ray, 2015).

This brief overview of archaeological work at coastal centres often termed ‘ports’ raises crucial issues regarding the nature of installations present at these sites. As discussed above, the archaeological data suggests that around the beginning of the Common Era, these were more in the nature of landing places for boats and ships with no elaborate boat yards and docks or repair facilities. Sites such as Berenike were integrated within the local and regional economy, rather than being centres of Roman Imperial presence. There is also continuity in seafaring activities and the Red Sea coasts continue to be active well into the thirteenth-fourteenth centuries. What then is the nature of change that is evident with the expansion of Islam in the region? The evidence indicates changes in the organization of trade and in the nature of partnerships and contracts that legalized interactions across the sea. This is not an issue that we can handle in detail here, but would only mention in passing, but perhaps articulate in some detail about the varied dimensions of the World Heritage site of ‘Pearling, Testimony of an Island Economy’ inscribed by the kingdom of Bahrain in 2012. This is the second World Heritage site in Bahrain, the first being ‘Qal’at al-Bahrain, Ancient Harbour and Capital of Dilmun’, which was inscribed in 2005. But perhaps it is the traditional harvesting of pearls in Bahrain that not only shaped the economy of the country between the second and the twentieth centuries, but also represents a unique blend of traditional knowledge with historical memory and urban landscape.

PEARLING, TESTIMONY OF AN ISLAND ECONOMY

A major economic activity of the Indian Ocean until well into the present was pearling and three regions are particularly important for this: the Persian Gulf; the waters of the Gulf of Mannar between India and Sri Lanka; and the Sulu archipelago. In keeping with the thrust of the volume on the western Indian Ocean, we shall mainly deal with the first of the three sources mentioned. The pearl banks are situated in shallow waters, mainly off the Arabian shore of the Persian Gulf and three species were gathered for pearls and mother-of-pearl: *Pinctada radiata*, *Pinctada margaritifera*, and *Pteria macroptera*. The last was mainly gathered for mother-of-pearl. Many professions revolved around the pearling activity, which can be categorized as professions directly linked to pearling, such as divers, *nukhidhah* (boat captain), *tawwash* (pearl merchants), and *tajir al lulu* (the grand pearl merchant), while other professions that supported pearling activity included boat building, folk medicine, provision of sweet water and goods.

A pearl dated to about 5000 BCE has been found during archaeological excavations at as-Sabiyah in Kuwait (6135 ± 50 BP for the earliest remains at the site), though the oldest find, as recently reported comes from a burial at Umm al-Quwain 2 (UAE) and is dated 5500-5400 BCE (Charpentier et al., 2012: 1-6). The presence of pearls at Neolithic sites confirms their popularity not only in the Gulf, but also at other sites in the Indian Ocean. They formed a part of personal adornment and were also important in funerary rituals, as evident from the find of 18 pearls deposited on the face of the deceased at Jebel al-Buhais. Analysis of pearl finds shows that while semi-perforated pearls were associated with males, perforated examples were linked to females, the significance of this difference has not yet been adequately understood.

The *Periplus* refers to 'much diving for pearl oysters' at the mouth of the Persian Gulf (Casson, 1989, section 35) and the Tamil coast (*ibid.*, section 59), the Arabian pearls being inferior to the Indian ones (*ibid.*, section 36). These accounts of pearling continue in the later periods and refer to Muharraq, an island immediately north of the main island of Bahrain as a major source. The importance of pearls is not only indicated by textual references, but also supported by iconographic and archaeological finds (Carter, 2005: 139-209).

Recent research on *fieri*, the music of the pearl divers, not only shows how this music is closely associated with activities of diving and sailing, but also illustrates that the repertoire is imbued with mystical, religious, and symbolic meanings. 'In contemporary culture of the Arabian Gulf, the challenge of preserving this ancient art form further reflects the ongoing battle concerning issues of cultural identity constructed and pursued through music' (Al-Tae, 2005: 19-30).

The evidence from the tenth century is more specific and shows Bahrain as the leading centre for pearling. It would seem from the account of the

fourteenth-century traveller Ibn Battuta that some form of taxation existed and one-fifth of the pearl yield had to be given to the Sultan. Other centres for pearling are also mentioned in twelfth-century sources and these include Julfar, located just to the north of the modern town of Ras al-Khaimah and the island of Qays, as also Qatif in eastern Saudi Arabia, though the yield from these places was inferior to that from the island of Bahrain. References to pearling continue in the twelfth to fifteenth centuries and so does the association of centres in the Gulf. The period from the mid-eighteenth to nineteenth centuries is marked by a boom in the value of pearls and an upswing in the industry. In 1675 Captain John Weddell remarked upon the richness of the pearl fishery of the Gulf, and named Bahrain as the chief place, thus providing the first explicit mention of pearls in the records of the East India Company (Bowen, 1951: 160-80; Carter, 2005: 149).

The eighteenth to the twentieth century saw marked expansion of the pearling industry boosted by increased and growing demand from the global economy. Between 1870 and 1930, profits from pearling numbered in millions of rupees at a time when the rest of the Middle East was in political turmoil and decline and even though the industry had declined in Sri Lanka. After 1930, the pearling industry in the Gulf declined due to a number of factors, including the introduction of Japanese cultured pearls, as also the Great Depression (Hightower, 2013: 44-59).

In an attempt to not only draw global attention to the cultural past of pearling in Bahrain, but more importantly to develop a new range of activities connected to the country's cultural roots, a national project has been launched that aims at reviving the historical centres associated with the industry, and reinstating them in the local community (Figure I.14). As a part of the Pearling



FIGURE I.14: PEARLING SITE INSCRIBED AS WORLD HERITAGE NOMINATION BY BAHRAIN

Narrative three oyster beds have been identified for protection, as also a part of the seashore at the southern tip of Muharraq island, from where boats set off for the oyster beds and 17 urban properties in Muharraq, which represent the distinctive building tradition in timber and plaster associated with the pearling industry. These include the Qaysariya market, the Siyadi Majlis, houses of merchants such as Alawi House and Ghus House and the ruins of Bu Maher fort, many of which have survived. Thus the project hopes to revive the local and international links of the pearling industry and also reconnect with the seashore and the oyster beds, many of which are still workable. This brings us to the final section on mobile spaces that provided travel and communication across the ocean, i.e. the boat or the traditional *dhow*, a term that first occurs in documents of the East India Company from the Gulf to indicate the traditional sailing craft.

DHOWS AND SHIPS: MOBILE SPACES

The source material for a study of nautical traditions in the Indian Ocean includes a few examples of boats excavated from South and Southeast Asia; ethnographic data that has been recorded in detail; iconographic representations; and living traditions (Ray and Salles, 2012). South Asia is known to have exported teak and coconut palm to different parts of the Indian Ocean region for making watercraft and this is a practice that continues. Socotra still imports teakwood from India for the construction of the traditional *hawāri* boats (van Rensburg, 2010: 99-109). Early ship-wrecks have been few and far between in the western Indian Ocean, an important discovery being the Kadakkarapally boat found in a coconut grove in the Indian state of Kerala with no associated finds. The boat was radiocarbon dated to eleventh-twelfth centuries CE, which represents a cargo-carrying sailing craft best suited for bays and large rivers, as stated by the excavator (Pedersen, 2004: 8).

It is evident that a different system of nautical reckoning prevailed in the Indian Ocean as compared to that adopted at present. Seventeenth-century nautical documents or *roz namah* of Gujarati sailors not only contain summaries of astronomical observations and itineraries, but also sketches showing contours of the coast. Thus, coastal landmarks remained crucial to both systems of navigation. Eighteenth-century British maps of the Indian coasts highlighted prominent landmarks visible from the sea as evident from the 1724 map of Mumbai and its vicinity highlighting features visible from the sea.

Of the two inscriptions of Mahmud I, both from Cambay, one records the erection of a mosque during the governorship of Malik Amin by Nakhuda Yahya, son of Tandel Nayna Sailani, a servant of Khan-i-A'zam Kamal Khan, in AH 883 (1478 CE); the other is a record of Jamal, son of Fathu'llah, known as Malik Makhдум, a boon-companion of the king, who died in AH 904 (1498 CE) (*Indian Archaeology – A Review 1956-57*: 42).

In secondary writing on the subject, the emphasis has been on trade, often termed an 'elite' enterprise conducted by ship-owning merchants, especially in the second millennium CE. How is the relationship between the *nākhudā* or in-charge of the ship and the merchant to be defined? Recent analytical study of the India Letters has interrogated this connection. Roxani Margariti in her study of Aden based on the published and unpublished records of the Cairo Geniza has concluded that the terminology used in them is ambiguous and it is not easy to distinguish ship owners from captains and other crewmen (Margariti, 2007: 223-4). She also draws attention to differences in ownership of shipping craft and the role of officials of the State in the Mediterranean as opposed to that in the Indian Ocean. In contrast to practice in the Mediterranean, in the Indian Ocean, while government officials did own ships, the Geniza papers suggest that merchants dominated this business (ibid.: 21-2). This ambiguity in terminology and the need to distinguish modern practices from those in the medieval period is further corroborated by a careful reading of the India Letters, as evident in Friedman's statement:

The ambiguity in terminology in our sources, especially in connection with the *nākhudā*, which certainly was used in more than one sense, and the difficulty in equating medieval terms with modern concepts present a major obstacle in any attempt to define the word with precision. Some *nākhudās* were clearly ship owners; others evidently served as captains or may have filled other functions on the ship'. (Goitein and Friedman, 2008: 138)

The larger issue that this debate raises is the extent to which seafaring activity may be termed 'elite' and discontinuous as indicated by the terms ancient and early medieval to define maritime linkages of the subcontinent. To what extent can the *nākhudā* be termed 'a distinct type of merchant who appears in the commercial scenario of India around AD 1000' (Chakravarti 2000: 37)? *Nākhudā* was a Persian term from *nāw* meaning 'boat/ship' and *khudā* meaning master, though its meaning varied over time. The *nākhudā* was the general supervisor in-charge of the ship and trade and his responsibility included the safe delivery of passengers and goods (Agius, 2008: 178-9). Al-Mas'ūdī (d. 345/956-7) replaced the Persian term for one in Arabic, viz. *Rabb al-markab* or 'master of the ship'. In the Geniza collection there are at least 75 instances of *nākhudā*, but the term is not used in texts relating to Mediterranean shipping, which use the term *rāyīs* (Goitein and Friedman, 2008: 125).

Leading on from this is the definition of the term 'port', which is often used rather loosely to indicate a coastal centre. I would argue for rigour in the adoption of the term and to differentiate it from landing places, beach and inlet marketplaces, tidal harbours where cargoes were exchanged or coastal centres where customs duties were levied. Over 20 places are mentioned on the west coast of India in the Geniza records and each ship or convoy had its pre-allocated landing place and was labelled accordingly, such as 'one bound

for Broach' or Tana or Kulam (Goitein and Friedman, 2008: 24). Indian shipowners were designated as PTN SWMY corresponding to *Pattana Sami* in one inscription. Basham translates it as 'lord of the mart' or in Arabic *shaykh al-sūq* (ibid., 2008: 24, fn. 58). Dahbattan or Valarapattanam is mentioned on the Kanara coast where Abraham Ben Yijū, a Tunisian Jew who arrived in India in 1132, had his bronze factory (ibid.: 598, III, 10). An Indian shipowner mentioned several times is PDYĀR who possessed several ships, one of which was commanded by a Muslim. Are all these 20 places to be considered ports?

The use of the term *patana* or *pattana* is significant – a term that continued to be used in the India Letters of the Cairo Geniza. The *Arthaśāstra*, a text dated to the early centuries CE, for example, makes a distinction between local trade transacted in fortified cities of the interior, identified as *nagara*, from that originating at distant places and exchanged at the *pattana*, located either on sea coasts or on river banks of the interior. The two had different organization of trade and different administrative structures, with itinerant merchants' organizations being active at coastal centres. The concept of *pattinam* is further refined in Tamil epigraphy and the distinction in organization of trade reflected in the introduction of the term *erivirapattinam*, which connected both the local and 'foreign' levels of exchange. At Nagapattinam on the Tamil coast, for instance, there was no *nagaram*, only *ūr* and *sabhā* assemblies and this was true for other coastal centres also such as Tiruvadandai. An inscription of Rajendra III (1256) from Gandagopalapattinam (Krishnapatnam, Nellore) states that a local (*ūr*) assembly and an itinerant merchant organization controlled the collection of levies associated with boats and ships (Hall, 1978: 91). Thus clearly *pattana* was a market centre which had a distinctive administrative structure for collection of levies. This discussion raises the larger issue of the need for protection and preservation of coastal heritage within a global context and not merely as markers of national or regional identity and value.

PROTECTING AND PRESERVING

Although UNESCO's Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property was adopted as long ago as 1970, the destruction of archaeological sites through looting has increased rather than diminished in recent years (<http://www.theguardian.com/world/2015/aug/03/india-struggles-to-halt-multimillion-dollar-trade-stolen-artworks-temples> accessed on 9 November 2015). The particularly damaging effects of the illicit traffic in un-provenanced antiquities were effectively and impressively documented as early as 1973 by Karl Meyer in the *Plundered Past*. He showed clearly that while the traffic in illicit cultural property in general encouraged theft, that of illicit antiquities in particular

led to clandestine excavations and the ensuing destruction of archaeological sites, with the consequent and irrevocable loss of context of the artefacts removed. The true catastrophe was thus loss of information, the vanished opportunity of learning something more about the past of humankind (Brodie et al., 2001). As demonstrated in the final paper in this volume, this is an issue that needs to be addressed urgently as a part of global cooperation. ‘It will be difficult to stem looting until people understand the importance of context, and that their heritage is worth more in every sense than the usually paltry sums that it can generate in the short-term when sold to middlemen (ibid.: 4).’ It is here that dialogues between researchers across the ocean become crucial, as indicated in this volume.

TABLE I.1: COASTAL SITES ACROSS THE WESTERN INDIAN OCEAN ON UNESCO WORLD HERITAGE LIST

<i>Cat.</i>	<i>Site Name</i>	<i>Country</i>	<i>Description</i>
Natural	iSimangaliso Wetland Park [inscribed in 1999]	South Africa	Along its 220 kms coast, the Park includes a wide range of pristine marine, coastal, wetland, estuarine, and terrestrial environments which are scenically beautiful and basically unmodified by people. The park is not inhabited except for six small townships and two villages. About 100,000 people from 48 tribal groups live in villages surrounding the Park.
Cultural	Island of Mozambique [inscribed in 1991]	Mozambique	The island communities are linked to the history of navigation from the 10th century onwards, while the fortified city of Mozambique is a former Portuguese trading-post on the route to India.
Natural	Tsingy de Bemaraha Strict Nature Reserve [inscribed in 1990]	Madagascar	The Tsingy de Bemaraha Integral Nature Reserve is located in the central west part of Madagascar. It represents rare or eminently remarkable geological phenomena of exceptional beauty and contains communities of rare and/or threatened animal species. It also provides grazing lands for communities living along its periphery.
Natural	Rainforests of the Atsinanana [inscribed in 2007; on the World Heritage in danger list since 2010]	Madagascar	The Rainforests of the Atsinanana comprise six national park distributed along the eastern part of the island. These relict forests are important for maintaining ongoing ecological processes necessary for the survival of Madagascar’s unique biodiversity, which reflects the island’s geological history.

(contd.)

TABLE I.1 contd.

<i>Cat.</i>	<i>Site Name</i>	<i>Country</i>	<i>Description</i>
Cultural	Royal Hill of Ambohimanga [inscribed in 2001]	Madagascar	The Royal Hill of Ambohimanga constitutes an eminent example of an architectural ensemble (the Rova) and the associative cultural landscape (wood, sacred fountain and lake) illustrating significant periods of human history between the 16th and 19th centuries in the islands of the Indian Ocean. The site constitutes a remarkable testimony to the Austro-Indonesian culture (Indonesia) through ancestor worship and agricultural practices, notably irrigated stepped rice paddy fields on the one hand, and the African culture (west and southern Africa) through the cult of the royal person, on the other.
Natural	Pitons, cirques and remparts of Reunion Island [inscribed in 2010]	France	Dominated by two towering volcanic peaks, massive walls and three cliff-rimmed cirques, the property includes a variety of rugged terrain and impressive escarpments, forested gorges and basins creating a visually striking landscape. It is the natural habitat for a wide diversity of plants.
Cultural	Aapravasi Ghat [inscribed in 2006]	Mauritius	In the district of Port Louis, lies the 1,640 sq. m. site where the modern indentured labour diaspora began in 1834. The buildings of Aapravasi Ghat are among the earliest explicit manifestations of what was to become a global economic system. Between 1834 and 1920, almost half a million indentured labourers arrived from India at Aapravasi Ghat to work in the sugar plantations.
Cultural	Le Morne Cultural Landscape [inscribed in 2008]	Mauritius	Le Morne Cultural Landscape, a rugged mountain that juts into the Indian Ocean in the southwest of Mauritius and was used as a shelter by runaway slaves, maroons, through the 18th and early years of the 19th centuries.
Natural	Aldabra Atoll [inscribed in 1982]	Seychelles	The atoll is comprises of four large coral islands which enclose a shallow lagoon; the group of islands is itself surrounded by a coral reef.

(contd.)

TABLE I.1 contd.

<i>Cat.</i>	<i>Site Name</i>	<i>Country</i>	<i>Description</i>
Natural	Vallée de Mai Nature Reserve [inscribed in 1983]	Seychelles	In the heart of the small island of Praslin, the reserve has the vestiges of a natural palm forest preserved in almost its original state.
Cultural	Ruins of Kilwa Kisiwani and Ruins of Songo Mnara [inscribed in 1981]	United Republic of Tanzania	Located on two islands close to each other just off the Tanzanian coast are the remains of the two East African ports. From the 13th to the 16th century, the merchants of Kilwa dealt in gold, silver, pearls, perfumes, Arabian crockery, Persian earthenware and Chinese porcelain.
Cultural	Stone Town of Zanzibar [inscribed in 2000]	United Republic of Tanzania	Located on a promontory jutting out from the western side of Unguja island into the Indian Ocean, the Stone Town of Zanzibar is a fine example of the Swahili coastal trading towns of East Africa, which formed a part of the trade network between the African and Asian seaboard. The Stone town is also marked by being the site where slave-trading was finally terminated.
Cultural	Fort Jesus, Mombasa [inscribed in 2011]	Kenya	The Fort, built by the Portuguese in 1593-1596 to the designs of Giovanni Battista Cairati to protect the port of Mombasa, is one of the most outstanding and well preserved examples of 16th century Portuguese military fortification and a landmark in the history of this type of construction.
Cultural	Sacred Mijikenda Kaya Forests [inscribed in 2008]	Kenya	The Mijikenda Kaya Forests consist of 11 separate forest sites spread over some 200 km along the coast containing the remains of numerous fortified villages, known as kayas, of the Mijikenda people, now revered as sacred sites.
Cultural	Lamu Old Town [inscribed in 2001]	Kenya	Lamu Old Town is the oldest and best-preserved Swahili settlement in East Africa, retaining its traditional functions. Built in coral stone and mangrove timber, the town is characterized by the simplicity of structural forms
Cultural	Aksum [inscribed in 1980]	Ethiopia	The ruins of the ancient city of Aksum are found close to Ethiopia's northern border. The massive ruins, dating from between the 1st and the 13th century CE, include monolithic obelisks, giant stelae, royal tombs and the ruins of ancient castles.

(contd.)

TABLE I.1 contd.

<i>Cat.</i>	<i>Site Name</i>	<i>Country</i>	<i>Description</i>
Natural	Socotra Archipelago [inscribed in 2008]	Yemen	Long after its political decline in the 10th century, Ethiopian emperors continued to be crowned in Aksum. The introduction of Christianity in the 4th century resulted in the building of churches, such as Saint Mary of Zion, rebuilt in the 17th century. Socotra Archipelago, in the northwest Indian Ocean near the Gulf of Aden, is 250 km long and comprises four islands and two rocky islets. The site is of universal importance because of its biodiversity with rich and distinct flora and fauna.
Cultural	Historic Town of Zabid [inscribed in 1993; on the World Heritage Danger list since 2010]	Yemen	Zabid's domestic and military architecture and its urban plan make it an outstanding archaeological and historical site. Besides being the capital of Yemen from the 13th to the 15th century, the city played an important role in the Arab and Muslim world for many centuries because of its Islamic university.
Cultural	Old walled city of Shibam [inscribed in 1982; on World Heritage Danger List since 2015]	Yemen	Surrounded by a fortified wall, the 16th-century city of Shibam is one of the oldest and best examples of urban planning based on the principle of vertical construction.
Cultural	Land of Frankincense [inscribed in 2000]	Oman	The frankincense trees of Wadi Dawkah and the remains of the caravan oases of Shisr/Wubar and the affiliated ports of Khor Rori and Al-Baleed vividly illustrate the trade in frankincense that flourished in this region for many centuries, as one of the most important trading activities of the ancient and medieval world.
Cultural	Bahla fort [inscribed in 1987]	Oman	Bahla is an outstanding example of a fortified oasis settlement of the medieval Islamic period, The immense, ruined Bahla Fort, with its walls and towers of mud brick on stone foundations and the adjacent Friday Mosque with its decoratively sculpted prayer niche (mihrab) dominate the surrounding mud brick settlement and palm grove.
Cultural	Archaeological Sites of Bat, al-Khutm and al-Ayn [inscribed in 1988]	Oman	The protohistoric archaeological complex of Bat, al-Khutm and al-Ayn represents one of the most complete and well preserved ensembles of settlements and

(contd.)

TABLE I.1 contd.

<i>Cat.</i>	<i>Site Name</i>	<i>Country</i>	<i>Description</i>
			necropolises from the 3rd millennium BCE worldwide. As in many other ancient civilizations, monuments in ancient Oman were usually built with regularly cut stones. Unique of Bat and al-Ayn are the remains the ancient quarries from which the building materials were mined, and the many workshops that attest to the complete operational procedure, from the quarries, to the stone-masonry, to the buildings construction techniques.
Cultural	Cultural Sites of Al Ain (Hafit, Hili, Bidaa Bint Saud and Oases Areas) [inscribed in 2011]	Oman	Occupied continuously since the Neolithic, the region presents vestiges of numerous prehistoric cultures, notably from the Bronze Age and the Iron Age. Al Ain is situated at the crossroads of the ancient land routes between Oman, the Arabian Peninsula, the Persian Gulf and Mesopotamia.
Cultural	Al Zubarah Archaeological Site [inscribed in 2013]	Qatar	The walled coastal town of Al Zubarah in the Gulf flourished as a pearling and trading centre in the late 18th and early 19th century, before it was destroyed in 1811 and abandoned in the early 1900s.
Cultural	Qal'at al-Bahrain – Ancient Harbour and Capital of Dilmun [inscribed in 2005]	Bahrain	Qal'at al-Bahrain on the north coast of Bahrain testifies to continuous human presence from about 2300 BCE to the 16th century CE. The sea tower, probably an ancient lighthouse, is unique in the region as an example of ancient maritime architecture and the adjacent sea channel demonstrates the tremendous importance of this city in maritime trade routes throughout antiquity.
Cultural	Pearling, Testimony of an Island Economy [inscribed in 2012]	Bahrain	The site consists of seventeen buildings in Muharraq City, three offshore oyster beds, part of the seashore and the Qal'at Bu Mahir fortress on the southern tip of Muharraq Island, from where boats used to set off for the oyster beds. The site is the last remaining complete example of the cultural tradition of pearling and the wealth that it generated.
Cultural	Chhatrapati Shivaji Terminus (formerly Victoria Terminus) [inscribed in 2004]	India	The building, designed by the British architect F. W. Stevens, became the symbol of Bombay as the 'Gothic City' and the major international mercantile port of

(contd.)

TABLE I.1 contd.

<i>Cat.</i>	<i>Site Name</i>	<i>Country</i>	<i>Description</i>
Cultural	Elephanta Caves [inscribed in 1987]	India	India. It is an outstanding example of the meeting of two cultures, as British architects worked with Indian craftsmen to include Indian architectural tradition and idioms thus forging a new style unique to Bombay. The 'City of Caves', on an island in the Sea of Oman close to Bombay, contains a collection of rock art linked to the cult of Shiva. Here, Indian art has found one of its most perfect expressions, particularly the huge high reliefs in the main cave.
Cultural	Churches and Convents of Goa [inscribed in 1986]	India	The churches and convents of Goa, the former capital of the Portuguese Indies – particularly the Church of Bom Jesus, which contains the tomb of St Francis-Xavier – illustrate the evangelization of Asia. These monuments were influential in spreading forms of Manueleine, Mannerist and Baroque art in all the countries of Asia where missions were established.
Natural	Western Ghats [inscribed in 2012]	India	Moderating the tropical climate of the region, the site presents one of the best examples of the monsoon system on the planet. It also has an exceptionally high level of biological diversity and endemism and is recognized as one of the world's eight 'hottest hotspots' of biological diversity.
Cultural	Sacred City of Anuradhapura [inscribed in 1982]	Sri Lanka	Anuradhapura, a Ceylonese political and religious capital that flourished for 1,300 years, was abandoned after an invasion in 993. It was discovered and conserved in the colonial period.
Cultural	Old Town of Galle and its Fortifications [inscribed in 1988]	Sri Lanka	It is the best example of a fortified city built by Europeans in South and South-East Asia, showing the interaction between European architectural styles and South Asian traditions.
Cultural	Ancient City of Polonnaruwa [inscribed in 1982]	Sri Lanka	Polonnaruwa was the second capital of Sri Lanka after the destruction of Anuradhapura in 993. It comprises, besides the Hindu monuments built by the Cholas, the monumental ruins of the fabulous garden-city created by Parakramabahu I in the 12th century.

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Archaeology of Indo-Gulf Relations in the Early Historic Period: The Ceramic Evidence

ANJANA L. REDDY

INTRODUCTION

The countries connected with the Indian Ocean form a series of relationships based on sea communication. These are reflected above all in trade. The Indian Ocean is one of the world's most ancient trading systems. Its existence as a cultural entity was first defined by K.N. Chaudhuri in his book titled *Trade and Civilisation in the Indian Ocean: An Economic History from the Rise of Islam to 1750*. He recognized that the Indian Ocean has a unity of civilization that is equivalent to that perceived of the Mediterranean by Fernand Braudel (Chaudhuri, 1985). Of all the seas, the Indian Ocean is perhaps a late entrant in historical studies. One reason for this may be the complexity of the subject, owing to the diversity of cultures prevailing in the Indian Ocean, which would make it a subject of study for many lives of many historians (Kejariwal, 2006). This is what Chaudhuri (1990: 11) explains has led to

. . . the specialist historians of Asia, each examining his own narrow chronology and field, are often unable to see the structural totality of economic and social life and are inclined to treat the experience of their own regions as unique or special . . . historians of Asia, whether working on the Middle East, India, China, or Japan, seem to be much more interested in comparing the course of their history with that of Western Europe rather than with other regions of Asia.

Subsequently, Indian Ocean studies relating to the Early Historic period have focused on the Early Roman 'India Trade' with emphasis particularly on the role of the Red Sea, East African and South Arabian ports. Studies so far tend to ignore the Arabian Gulf extension of the Indian Ocean area, or rather previous research has had the propensity to focus on these trading sites in isolation and seldom made the effort to include them in the Indian Ocean trading network. It is striking that no attempt has been made to conduct a detailed study of possible Indian material particularly the ceramics found in the sites within the Gulf arm of the Indian Ocean (Reddy, 2014: 16). The anonymous *Periplus Maris Erythraei* or the *Periplus of the Erythraean Sea* is the most explicit text to describe the ports of the Indian Ocean in the first

century AD. The *Periplus*, however, has several omissions, particularly in that the ports and market towns of the Arabian Gulf are barely mentioned in the text (see also Salles, 2005: 121). However, what this book lacks in detail and clarity especially with reference to the Arabian Gulf and its commercial ties with India can be fulfilled through a multidisciplinary approach combining historical data with archaeological evidence. The present paper seeks to corroborate the evidence of Indian pottery in the Arabian Gulf to explore inter-regional, international and assessment of trade networks, to define key source/provenance areas for particular vessels types from the subcontinent as well as to establish the position of the Arabian Gulf as more than an intermediary of Indo-Roman trade.

Geographical Parameters of Research

The limits of the Indian Ocean are most clearly defined on its western and northern shores where it runs up against the coasts of East Africa, Arabia and Iran with extensions running deep into the Middle East formed by the Red Sea and the Arabian Gulf (Plate 1.1). As Tomber points out (2008: 109), of all the regions involved in Indo-Roman trade, the Gulf was the most separate, both geographically and politically, and only two ports are mentioned: Apologos, at the head of the Gulf (PME 35) near modern Basra (Iraq), and Omana (PME 36-7), on the Arabian side. The location of Omana has been much debated between the sites of the Arabian Gulf: Ed-Dur in Umm al Qaiwain (Potts, 1990: 309; Haerinck, 1998: 275) and Dibba al-Hisn in Sharjah (Jasim, 2006). According to the *Periplus* both ports (i.e. Apologos and Omana) carried out trade in pearls, purple cloth, dates, wine, gold and slaves (PME 36) with Barygaza in western India. From this perspective, both Ed-Dur and Dibba have been included in this paper, notwithstanding the numerous quantities of Indian pottery unearthed during excavations at the two sites. The geographical parameters of study are not simply bound by the Arabian Gulf littoral, and ports in general are dependent on their hinterland to varying degrees (Power, 2010: 25). In this case, the site of Mleiha, located inland in the emirate of Sharjah, known archaeologically from the third century BC, has been included. In south-eastern Arabia, by the fourth century AD even the limited areas of occupation at Ed-Dur and Mleiha had disappeared and the two sites had been completely deserted. Occupation dating to the late Sassanian period has so far has been identified in the UAE and Oman. Kush, a small coastal tell in the modern Emirate of Ras al Khaimah (Kennet, 1997) has been included in the parameters of this study pertaining to its material evidence of 'India trade' in the early historic period as well as medieval trade links.

From the earliest times, South Arabia had closer ties with East Africa than the Roman world (Singer, 2007: 10-13). For the sea trade, the *Periplus Maris*

Erythraei (Casson, 1989) names Muza (PME 21), Okelis (PME 25), Eudaimon Arabia or Aden (PME 26), Kane/Qana or Bir Ali (PME 28), Syagros or Socotra (PME 30) and Moscha Limen or Khor Rori (PME 32). Of these only Muza, Qana and Moscha are described as ports and only Qana and Khor Rori, established when the incense trade began to shift from overland to seaborne routes, are known archaeologically. Qana and Khor Rori form an integral part of this study concerning Indian pottery data from South Arabia.

In the east, the Indian Ocean's limits are far more imprecise, for beyond India it runs against the coasts of the island complex south and east of the Malay Peninsula and in the south-east against the coast of Australia (Geoffrey King, personal communication). The parameters of this study, however, have their geographical limits set predominantly within peninsular India, although mention is made of sites in Sri Lanka (Plate 1.1). As a region, India presents the greatest challenge because of its geographical diversity and in this case the ambiguity of Early Historic Indian pottery spread across the varied regions. The present paper will focus on the three main regions of peninsular India, which follow Roberta Tomber's description of the geographical parameters (Tomber, 2008: 124-32). These includes Gujarat and the Konkan coast, which is the main area of the Western Kshatrapas (AD 35-405) in the modern states of Gujarat and the coastal area of Maharashtra, incorporating foci of the western coast such as the Indus delta, Saurashtra and the Konkan (Thapar,

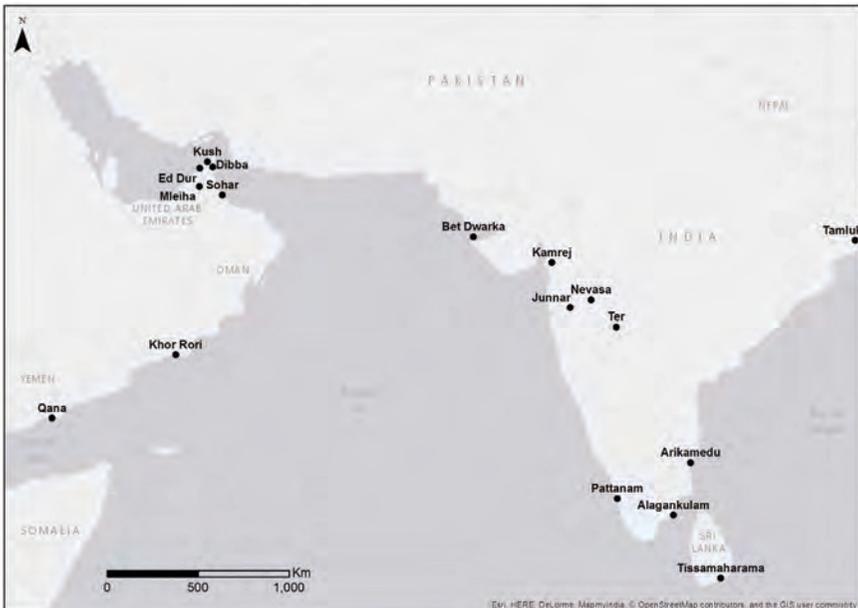


PLATE 1.1: LOCATIONS OF ARCHAEOLOGICAL SITES IN ARABIA AND INDIA IN THE EARLY HISTORIC PERIOD MENTIONED IN THIS STUDY (ESRI ARCGIS 10.2.2/BASEMAP ARCGIS ONLINE_WORLD LIGHT GRAY CANVAS)

2002: 46); the Deccan, including the area between the Krishna and Godavari rivers and encompassed the Satavahana Empire (200 BC-AD 250); and Tamilakam, which comprised the three chiefdoms of Chola, Pandya and Chera.

Chronological Parameters of Research

The chronological extent of Indo-Arab relations in the Early Historic period begins with the third century BC which marks the Indian campaign of Alexander the Great (c. 327-325 BC) and the exploration of the Red Sea route to India by the Ptolemies. Further the backdating of several important trading sites in the Red Sea region (Berenike), Africa (Adulis), South Arabia (Khor Rori), Sri Lanka (Tissamaharama) and India (Arikamedu) to the third century BC indicates their founding at least four centuries earlier than the heyday of Roman trade (Pavan and Schenk, 2012: 191) (Table 1.1). The evidence from Khor Rori in South Arabia as well as sites in the Arabian Gulf and the Red Sea of Indian pottery dating indisputably to the centuries BC further corroborates the early trade relations between Arabia and India (Pavan, 2011: 102-3). This period also saw the rise of important sites in south-eastern Arabia; Mleiha (c. third century BC-mid third century AD), Ed-Dur (c. first century BC to third century AD) and Dibba (c. first century AD-mid third century AD) (dating based on Mouton and Cuny, 2012), in what is commonly referred to

TABLE 1.1: CHRONOLOGICAL TERMS AND TENTATIVE PERIODIZATION OF SITES IN THE EARLY HISTORIC PERIOD

<i>Chronological Terms</i>	<i>Date (circa)</i>	<i>Examples of Sites</i>
Late Pre-Islamic (PIR A)	3rd-mid 2nd cent BC	Mleiha, Ed-Dur & Dibba
Late Pre-Islamic (PIR B)	Mid 2nd-1st cent BC	
Late Pre-Islamic (PIR C)	1st to 2nd cent AD	
Late Pre-Islamic (PIR D)	2nd-mid 3rd cent AD	
Hellenistic	3rd cent BC-1st cent BC	Mleiha, Ed-Dur, Dibba, Khor
Graeco-Roman period	3rd cent BC-7th cent AD	Rori, Qana, Suhar, Quseir,
Early Roman	1st cent BC-mid 3rd cent AD	Berenike, Ras Hafun, Tissamaharama
Late Roman Civilization	4th cent AD-mid 6th/7th cent AD	Kush, Suhar, Berenike, Ras Hafun
Early Byzantine	4th/5th centuries AD	
Long Late Antiquity	c. 300-830 AD	
Islamic period	8th cent AD-16th/17th cent AD onwards	Kush, Suhar, Manda, Kilwa, Pate, Shanga
Early Historic (north India)	5th cent BC-3rd cent AD	Ter, Nasik, Kamrej, Bet Dwarka
Early Historic (south India)	terminated in 500 AD	Pattanam, Arikamedu
Early Medieval/Early Islamic	6th/early 7th cent AD	Akota, Vadnagar, Timbarva

as the Late Pre-Islamic period by archaeologists in the UAE. The end of this era in south-eastern Arabia is placed during the Sassanian period that marks the decline of the three main sites in south-eastern Arabia (around *c.* third/fourth century AD) and the rise of Kush in the fourth/fifth century AD until the medieval period (*c.* thirteenth century AD), with evidence of Indian pottery and continuing trade/contact with the subcontinent (Kennet, 2004).

For the subcontinent, the period of Roman contact is subsumed mostly within the Early Historic period in India, whose parameters vary as a result of different cultural developments (Tomber, 2008: 118). During the third century BC, most of north and south India belonged to the Mauryan Empire (*c.* 325-184 BC). In the south, the early historic period marked the transition from the megalithic to a more urbanized society as a result of inter-regional trade (Champakalakshmi, 1996: 92). The Early Historic period in the north was terminated between AD 300 and 500 during the time of the Gupta Empire and based on the end of Roman contact with India, while in southern India, the Early Historic Period ends by *c.* AD 500 (Selvakumar and Darshana, 2008, cited in Tomber, 2008: 120). However, as Tomber (2008: 120) points out, Roman finds continue into the sixth- early seventh century or early medieval period. So whether Roman contact with India ended in AD 300 or whether this is an appropriate measure to define the Early Historic period must be considered, and requires ongoing review.

ARCHAEOLOGY OF INDO-GULF TRADE: THE CERAMIC EVIDENCE

The archaeological evidence that we are dealing with in terms of Indo-Arab trade of the Early Historic period does not involve an elaborate list of artefacts. But it is the question of integrating this evidence to create a coherent narration of the broader Indian Ocean networks, which makes the study all the more challenging. Foreign and local pottery comprises the largest body of evidence, followed by coinage. Then, epigraphic evidence forms a large part of the archaeological data, particularly from South Arabia and India. And finally, archaeo-botanical remains indicate a culinary change and introduction of new food items from India into Arabia. The focus of this paper however will be the data derived from pottery and archaeo-botanical evidence of trade.

Pottery provides tangible archaeological evidence for the study of trade and contact in the Indian Ocean world. A large amount of imported ceramics have been found during the excavations of several important Indian Ocean trade sites in the Red Sea region, East Africa, Arabia and India, that have been the subject of documentation and analysis. Roberta Tomber's recent study *Indo-Roman Trade: From Pots to Pepper* (2008) includes a rare synthesis of the late Roman Red Sea 'India trade' based largely on the ceramic evidence (Power,

2010: 12). The issue of Indian pottery is complex and problematic, beginning with its definition. The term 'Indian pottery' is used for materials of great diversification in fabric and form and is widespread in the Indian subcontinent as well as in different sites along the coasts of the Indian Ocean and the Red Sea. Less attention had been reserved, therefore, for a comprehensive study of Indian material. As the key focus in the present paper, the Indian assemblage discovered in the various sites in the Indian Ocean has already formed the subject of investigation.

The detailed study of Early Roman Indian pottery in the Red Sea region was first undertaken in 1997 by R. Tomber and V. Begley at Berenike by classifying and illustrating both fine and coarse wares and citing parallels primarily from the site of Arikamedu in south India (Begley and Tomber, 1999). Tomber consequently undertook preliminary sourcing studies of the Indian ceramics found at Roman Berenike in 2000 (Tomber, 2000a; 2002). In the same year, Indian pottery vessels were amongst the collection of 'non-Roman wares' recorded and published at Quseir al-Qadim (Tomber, 2000b).

The presence of Indian pottery as far as the Red Sea garnered interest in the assemblages closer to home. From south-eastern Arabia, Indian pottery forms have been identified and recorded briefly from excavations at Ed-Dur (Rutten, 2006; Haerinck, 2001 and 2003), Mleiha (Mouton, 1992; Mouton and Cuny, 2012; Mouton et al., 2012) and Dibba (Mouton and Cuny, 2012; Jasim, 2006). Late Roman- and Islamic-period Indian wares dating from the fourth/fifth to sixteenth/seventeenth centuries were identified and documented into different classes at Kush by D. Kennet and quantitative comparisons were drawn with Indian assemblages from Shanga and Pate in Kenya (Kennet, 2004: 88-96). From South Arabia, imported 'RPW' was the first Indian ceramic to be identified and reported from Khor Rori (Yule and Kevran, 1993: 91; Zarins, 1997; 2001). A reassessment of the Indian pottery from Khor Rori was undertaken in the following years through the publication of Khor Rori reports 1 and 2 (Sedov and Benvenuti, 2002; Avanzini (ed.), 2002a; 2008).

The evidence of Indian ceramics from the eastern Arabian seaboard and the Red Sea indicates the trade of not merely the pottery itself but in the contents of these vessels. Botanical commodities of trade are of particular interest in this study as it is likely that these were transported or stored in pottery vessels. Historical sources such as the *Periplus* and Alexandrian Tariff was issued by the emperor Marcus Aurelius between AD 176-80. The document enumerates a vast number of imports and exports to and from Berenike including a wide variety of plant parts: root, wood, bark; plant secretions such as resins, gums, oils and wine as well as leaves, flower, seeds, fruits and whole plants (Cappers, 2006: 3 quoted in Reddy, 2014: 269). Given the lack of an extensive archaeo-botanical record in the Arabian context, the aspect of culinary change, i.e. the adoption of new foodstuffs and new forms of food preparation/

consumption is indicated in part by the Indian ceramic evidence and changes in the range of vessel forms (and usage of trade ceramics) through time (see Fuller, 2005 quoted in *ibid.*: 277).

RECORDING PROTOCOL OF INDIAN POTTERY: CLASSIFICATION OF FORMS AND FABRIC ANALYSIS

The recording protocol for Indian forms varies slightly based on the individual sites in Arabia. On the whole the information that was recorded includes sherd number, context, description, rim diameter, munsell colour, decoration, etc. Additional recording procedures included pottery drawing, photographic documentation and cross-referencing with ceramics from Indian sites through examination of excavation reports and actual pottery collections (Reddy, 2014: 21-2; 2015: 254).

Next, the methodology involving fabric study was given particular importance. This study was especially essential in the case of Indian fabric due to the use of generalized terms to define ware classes in India. For example, the nomenclature used in Indian site contexts is based on the colour and texture of the fabric – red, black, grey, coarse, fine, etc. – which is not scientific and is highly subjective. In addition, the type of surface treatment is often used to describe the fabric, e.g. red slipped wares, black burnished wares, etc., without identifying variations in the fabric (see Nanji, 2011). The fabric study involved an examination of the core and surface of several pottery samples using the hand-held Dino-lite microscope (AM 4113ZT) with a magnification range of 10x-200x. Photographic images of the fabric were recorded using Dino-capture software with a resolution of 1.3M pixels. Inclusions and other particles in the fabric were measured in mm or microns. Based on the fabric variations, sub-groups or sub-classes of fabric were created (Reddy, 2015: 254). These variations are based on the visual identification of principal inclusions (naturally occurring in clay or added temper, voids, etc.), texture, sorting parameters, size of the inclusions, frequency, grain-size classifications, etc. In terms of additional evidence to prove its import or imitation status, results from petrographic analysis were used to provide more precise indicators of the geographical origin of the wares and more particularly the geological provenance of the raw material (Reddy et al., 2012).

INDIAN POTTERY IN ARABIA: IMPORTED VS. IMITATION WARES

The present paper constitutes a major part of the author's own doctoral research on the subject (Reddy, 2014). The overall research looked into the examination of Indian ceramic assemblages from three archaeological sites located in the south-eastern part of the Arabian Gulf within modern-day UAE (Mleiha,

Ed-Dur and Kush) and one site in South Arabia (Khor Rori) in the Dhofar region of Oman. One of the objectives of the research thesis was to document this pottery evidence including description and classifications of vessel morphologies as well as the results from the visual examination of various fabric types and petrographic analysis. Though form parallels are a significant aspect of studying the cross-cultural influx of pottery types, Begley and Tomber (1999) were right in observing that fabric is the more important criterion for determining the source of the pottery.

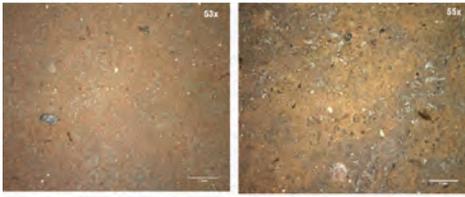
The documentation process revealed two categories of Indian pottery identified from the Arabian context: Actual imports, relating to source or production centres from India, and secondly, local imitations of Indian pottery that employ the same techniques as attested in the subcontinent, but using locally available raw materials or clay (Reddy, 2015: 253). Several vessel forms and fabric types were identified in the course of the study that fit into the categories of actual imports and local imitations of Indian vessels. For the purpose of this paper however, the focus will be on two case studies or examples of imported and imitation wares:

Case Study 1: Imported Indian Pottery – Indian Micaceous Ware (Fabric 2)

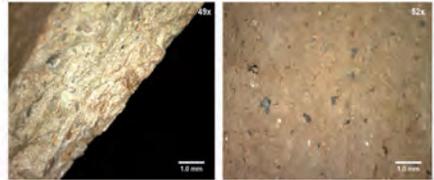
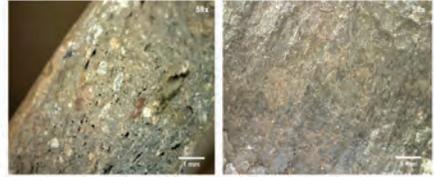
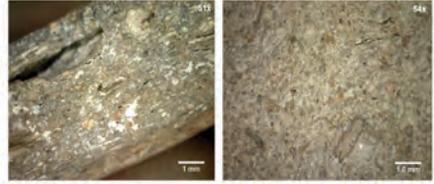
Indian micaceous ware or Indienne micassée is a red ware with a dark grey or black core (indicative of ill-firing) and tempered with mica particles. This fabric is mostly recorded in forms representing carinated *handi* vessels as well as a few examples of storage jars, cooking pots and flasks at Mleiha and Ed-Dur. The exterior is often covered with a thick red slip in a majority of these wares and the surface is often 'strip burnished' with a series of streaks seen on the slipped surface. Decoration usually comprises a number of incised lines recorded on carinated *handis* immediately above the point of carination (Reddy, 2014: 42).

The fabric is hard with a hackly fracture and rough texture indicating that it is a type of coarse ware. The principal inclusions in the fabric are dominated by an abundance of white mica particles (muscovite) dotted with occasional medium-sized particles of dark mica (biotite) (ibid.: 43). Several variations can be noted in these wares based on the fabric and principal inclusions (Plate 1.2)

In terms of its import status, it is gathered that mica is often present in the original clay source, especially from sites in western India. The Indian micaceous ware from Mleiha, however, appears to have been intentionally tempered with mica indicative of glistening flakes visible on the surface and in the core of the samples. Micaceous ware or mica-tempered pottery is part of a long tradition of pottery technique from Gujarat since the Chalcolithic period and continues into the Late Pre-Islamic. Additionally the surface treatment is represented by specific techniques of 'strip burnishing' visible on the external



Fabric 2(A) with predominantly mica particles and infrequent inclusions of clay pellets



Fabric 2(B) with irregular sized white limestone and quartz/quartzite grains with vegetal temper and some mica



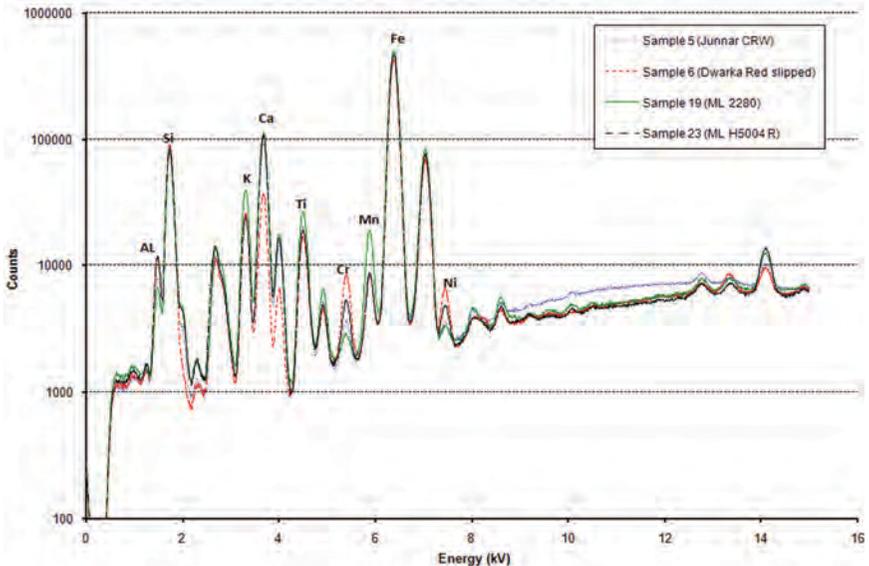
Fabric 2(C) with grit or grain-sized white inclusions in combination with mica particles and grains of red quartz/quartzite and iron oxide

PLATE 1.2: INDIAN MICACEOUS WARE (FABRIC 2) FROM MLEIHA WITH VARIATIONS (SAMPLES COURTESY: FRENCH ARCHAEOLOGICAL EXPEDITION AT MLEIHA/PHOTOGRAPH: ANJANA REDDY).

slip of the vessels similar to pottery traditions in parts of western India. Working techniques recorded on particular vessels from Mleiha are known even today to potters in north India and Kerala and involve the use of bamboo tools to hollow the inside and define the rim and neck of the vessel which is beaten internally to achieve the desired thickness (Saraswati and Behura, 1966 quoted by Tomber, 2008: 47). These bamboo marks are still visible on the interior of the vessel from Mleiha. Carinated *handis* or Wheeler-type 24s have been recorded from the Red Sea area that demonstrates a similar technique (ibid.). It is therefore likely that many of the carinated *handis* and slipped cooking pots/storage jars from the Arabian Gulf could signify their origin from western India (Reddy, 2014: 43-4).

Sourcing Indian Ceramics in Arabia: Petrographic Analysis

In order to further prove its import status, seven samples of Indian pottery from Mleiha (including fragments of cooking pots in Indian micaceous ware) were compared and analysed with 21 samples from key sites in the Gujarat and Maharashtra regions of western India (Ter, Nevasa, Junnar, Padri, Dwarka, etc.) using X-Ray fluorescence (CRF) spectrometry analysis (Reddy et al., 2012). The results indicated that two (out of seven) sherds from Mleiha had strong correlations in chemical/elemental composition with thirteen sherds from sites in western India (Graph 1.1), signifying more than a 90 per cent



GRAPH 1.1: EXAMPLES OF XEF SPECTRA PLOTS OF PHOTON COUNTS (LOG) VERSUS PHOTON ENERGY (keV) THAT SHOW HOW WELL INDIAN POTTERY SAMPLES (5 & 6) CORRELATE WITH MLEIHA POTTERY SAMPLES (19 & 23) (ANALYSIS BY: GAFFAR ATTAEMLANAN/ UNIV. OF SHARJAH)

probability that they are from the same environment/clay source (*ibid.*: 4). This scientific evidence further corroborates the position of western India as a key source of Indian pottery in Arabia.

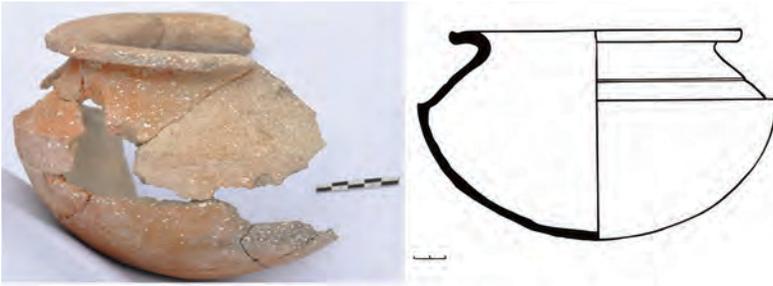
Case Study 2: Imitation Indian Pottery – Shell-tempered Ware (Fabric 3) and Fine Indian Red Ware (FIRW).

This category of coarse ware fabric has quantities of roughly crushed shell fragments in the clay. The fabric ranges from buff to reddish-brown and occasionally grey, while the shell inclusions are identified by their flat/lamellar (plate-like) or curved features (Reddy, 2015: 265) (Plate 1.3). Shell-tempered ware is well attested as a local fabric from several sites in the Dhofar region of Oman, including at Khor Rori (Avanzini (ed.), 2008; Pallecchi and Pavan, 2011: 84-5), from south-eastern Arabia at Mleiha (Reddy 2014: 45-6) and from Ras Hafun (Somalia) where ‘quantities of coarsely crushed shell fragments in the clay’ have been reported (Smith and Wright, 1988: 122).

In terms of identifying the source of shell-tempered wares, this ware group could be designated as part of the Dhofari tradition of pottery, which are characterized by pottery with reddish/buff fabrics, never wheel-made and that usually employ crushed shells as temper (Pallecchi and Pavan, 2011: 85). The recent work by the Italian Mission to Oman (IMTO) researched the local raw materials used in the manufacture of pottery indicated that samples of locally made Dhofari pottery besides comprised microfossil calcareous fragments and shells as its main components (*ibid.*).

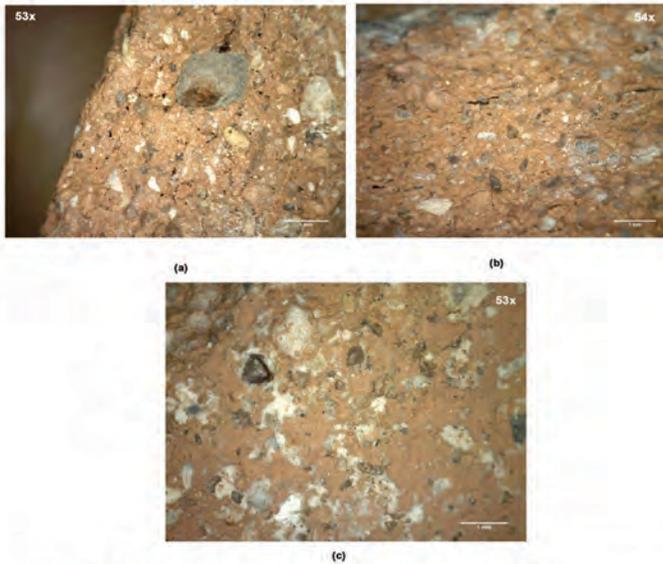
Although the Dhofar region of Oman may seem to be the most likely source of this ware group, the question of possible local Arabian imitations of typical Indian cooking vessels by utilizing this locally available fabric is more complex. The forerunner in this category are a group of carinated *handi* vessels from Mleiha manufactured using this shell-tempered clay (Plate 1.3). Although shell is occasionally present in natural clay sources from coastal/riverine sites in India, so far there is no pottery industry known in India that employs the addition of medium to large fragments of crushed shell as a tempering agent to the clay (Reddy 2015: 258). It may be safe to speculate that this vessel type of shell-tempered Indian-inspired *handis* with everted rims may have been manufactured for Indian residents/traders within Arabia who for cultural reasons perhaps preferred to use their own familiar cooking vessel forms (see Kennet, 2004: 96).

A detailed study of pottery fabric has essential merits in not only defining the source of the ceramic, but in identifying certain wares often mistaken to represent a different pottery group. An example of this is a category of fine red wares nearly identical to Indian red polished wares (RPW), but for the quality of the pieces, especially the weak treatment of surfaces and poor firing. These were referred to instead as Indian-style table jars at Khor Rori (Sedov



Carinated 'handi' type shell-tempered vessel from Mleiha

photograph courtesy of the French Archaeological Expedition at Mleiha
pottery drawing V. Bernard/French Archaeological Expedition at Mleiha



Khor Rori shell-tempered fabric sample (photograph: Anjana Reddy)

(a) to (b) sample core section with curved shell features, quartz/quartzite and igneous grains

(c) surface section of sample with flat lamellar shell fragments

PLATE 1.3: LOCAL IMITATIONS OF INDIAN POTTERY: SHELL TEMPERED 'HANDI-TYPE' VESSELS FROM MLEIHA AND SHELL-TEMPERED FABRIC SAMPLES FROM KHOR RORI

and Benvenuti, 2002: 187) and at Ed-Dur as 'fine red slipped' and 'fine reddish brown and grey slipped' wares (Rutten 2006). The term Fine Indian Red Ware or FIRW was coined by Kennet (2004: 90) based on evidence from the site of Kush, where it was classified as a separate class of wares from RPW.

To corroborate this, samples of FIRW and RPW from Kush were examined microscopically (Reddy, 2014: 80). What is interesting is that the RPW from Kush, as Kennet points out, is from securely dated levels of the seventh-eighth centuries AD when it was thought to have ceased production in India (Kennet 2004: 89). The microscopic examination of samples from both wares revealed

that RPW from Kush was coarser with a greater range of inclusions than FIRE which had smaller mineral inclusions and a fine clay matrix. The external slip and burnishing of RPW was of superior quality (Reddy, 2014: 226-7) (Plate 1.4). This fine red ware category could represent either imitations from the Gulf itself or actual imports from India. To determine this, a detailed study is required from the Indian excavations in order to classify 'fine red wares' as a separate category from Indian Red Polished Wares (Reddy, 2015: 265).

ARCHAEO-BOTANICAL EVIDENCE OF INDO-ARAB TRADE

The evidence of Indian ceramics from the eastern Arabian seaboard and the Red Sea indicates the trade of not merely the pottery itself but in the contents of these vessels. Botanical commodities of trade are of particular interest in this study as it is likely that these were transported or stored in pottery vessels. Historical sources such as the *Periplus* and Alexandrian Tariff enumerate evidence of archaeo-botanical remains and research from Berenike and Quseir al Qadim that are of exceptional international importance owing to the excellent preservation condition of most specimens as well as the size of the data set and the high species diversity (Cappers, 2006; van der Veen, 2011a; van der Veen et al., 2011b). On the other hand, the evidence of botanical remains is mostly absent in the archaeological records from the Arabian context and in this case, the study relies on historical sources and ceramic data to envisage the various commodities of trade. This ceramic evidence also indicates changes in the range of vessel forms through time, suggesting the development or adoption of new forms of food preparation and consumption (see e.g. Fuller, 2005) resulting from trade with peninsular India.

A comparison between the Alexandrian Tariff and the *Periplus* shows that they have a small quantity of commodities of botanical origin in common. Together, they mention 45 different trade items, of which only 9 are mutual trade items ranging from sources in Arabia and India. Exports from the Arabian harbours to Berenike concerned aloe, frankincense and myrrh, while items traded from India to Berenike were indigo, long and black pepper, lykion, costus, nard, bdellium and malabathron. In terms of the commodities exported from the south-west India, the *Periplus* mentions, 'ships in these ports of trade (Muziris and Nelkynda) carry full loads because of the volume and quantity of pepper and malabathron . . .' (PME 56; Casson, 1989: 85). The route to India required big and strong ships, which according to the author of the *Periplus* was the rationale behind such uncommon dimensions of the ships that sailed from Egypt to the Malabar coast to accommodate the exceptional quantities of pepper and malabathron being transported to Egypt (De Romanis, 2012: 75). Similarly a closer examination of the 'Muziris papyrus', although fragmentary, can identify three cargo items from India (Gangetic nard, black pepper and malabathron) as part of the unidentified cargo on the *Hermipollon*



Fine Indian Red Ware (FIRE) samples from Kush
(samples courtesy: Derek Kennell/ Photograph: Anjana Reddy)

Indian Red Polished Ware (RPW) samples from Kush
(samples courtesy: Derek Kennell/ Photograph: Anjana Reddy)

Pagan (Gujarat)
Navasa (Maharashtra)

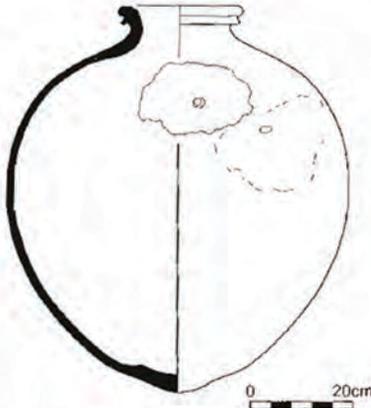
Anjapar (Gujarat)

PLATE 1.4: COMPARISONS OF FIRW AND RPW POTTERY SAMPLES FROM KUSH WITH SAMPLES OF RPW FROM INDIA

(name of the shipping vessel). Theoretically, black pepper could be measured either by some container unit (such as sacks) or by actual weight and nearly 87 per cent of the cargo on the *Hermapollon* was pepper (ibid.: 75-101). Pepper was understandably an important eastern commodity of export from India and excavations at the Red Sea port of Berenike revealed nearly 7.5 kg of black peppercorns in an Indian dolium (storage jar) recovered from a late first century BC or early first century AD courtyard in the Serapis temple at the site (Cappers, 2006: 114-15) (Plate 1.5). In the Arabian Gulf context, an



Emptying a dolium filled with 7.5 kg of black pepper at Berenike - *Piper nigrum*.
Cappers 2006: Fig. 4.58



Indian storage jar from Berenike that contained 7.5 kg of pepper
(Tomber 2008: Fig. 14)

PLATE 1.5: INDIAN STORAGE JAR FROM BERENIKE THAT CONTAINED 7.5 KG OF PEPPER (AFTER CAPPERS 2006: FIG. 4.58/ TOMBER 2008: FIG. 14).

exception to the case is the site of Mleiha where the food remains are generally well preserved because they were charred as a result of fire in the final phase of the site. In several rooms and in the courtyard, the concentrations of carbonized grain most probably resulted from the storage of food in bags or baskets and likely to have been cultivated locally in the al-Madam plain (Mouton et al., 2012: 214).

The *Periplus* mentions important food items imported from India into Arabia: grain (PME 14, 31, 32), rice (PME 14, 31), sesame oil (PME 14, 32), cotton cloth, ghee and cane sugar (PME 14). The rice mentioned in the *Periplus* is reported as being exported from the Gulf of Cambay in north-west India and near modern-day Karachi in Pakistan (PME 41) and from these regions, rice was brought to the ports at the entrance of the Red Sea, on the northern coast of Somalia and on Socotra, with Roman ships directly collecting rice from these ports (van der Veen, 2011a: 47). The import of rice could also be interpreted as evidence for the presence of South Asians/Indians at the sites in Arabia, who preferred to eat this commodity even when away from their home country. Additionally rice is well known for its good preservation conditions and could be easily transported over long distances. Whether the local Arabian population consumed rice is still questionable, although it is clear that by the Islamic period it was being cultivated locally in Egypt and was well inducted into the Arab cuisine (ibid.: 80). Other food items mentioned in the *Periplus* such as ghee and sesame oil could easily be stored for long periods during transportation and at the port of destination. Also ghee as a commodity solidifies when left for a time and was therefore not prone to spillage when transshipped.

Distinct forms of Indian pottery vessels entered the archaeological record of the Arabia in the Early Historic period. These could be connected either to the adoption of new food items or to the elaboration of ways of preparing those already present (see Fuller, 2005: 767). As Kennet (2004: 96) explains, ‘. . . a notable aspect of the Indian pottery from all of these sites (in Arabia) are not high-quality wares which might be traded for their own value but traded for use as cooking pots by communities of South Asians in the Gulf who, perhaps for cultural reasons, used vessels manufactured in South Asia.’ Cooking pots are generally used to prepare boiled food, especially rice and occasionally lentils in India. Strabo (*Geography*, 15.1.53) states that most of the Indian food consisted of rice porridge and that Indians made a beverage from rice that is known as *arak* (cited in Cappers, 2006: 105). Evidence from Mleiha suggests large Indian cooking and storage vessels with soot remains and probable food residue (Plate 1.6). This could indicate the preparation of food or community-style cooking at the site. Furthermore, the site located in the fertile Al-Madam plain has produced preliminary archaeo-botanical evidence of large quantities of hulled barley (*Hordeum vulgare*) and free-threshing wheat of the bread wheat type (*Triticum aestivum*), lentils (*Lens*



PLATE 1.6: FOOD RESIDUE AND SOOT REMAINS INSIDE A LARGE INDIAN COOKING POT FROM MLEIHA (IMAGE COURTESY: FRENCH ARCHAEOLOGICAL EXPEDITION AT MLEIHA)

culinaris), etc., cultivated locally. It is not implausible to assume therefore that introduced varieties of food grains/seeds from the Indian subcontinent were also perhaps cultivated locally at Mleiha to compensate for the rising food demands made by the ever-increasing population of traders/visitors to the site. Further archaeo-botanical studies are required to corroborate this.

INDIAN CERAMICS IN ARABIA: KEY PROVENANCE AREAS AND PATTERNS OF TRADE

From the available evidence of Indian pottery, four key areas or zones from the Indian subcontinent were identified in the present research (Reddy, 2014: 316-22) that indicate possible source areas as well as transit/transportation centres for these particular vessel groups found in the Arabian contexts:

Key Area 1 (Western India)

Gujarat and Maharashtra regions in western India are now accepted in this study as the two main sources for the Indian vessels regularly discovered in

the assemblages of sites like Mleiha, Ed-Dur Khor Rori and further at Red Sea sites like Berenike and Quseir.

Key Area 2 (North-Western Frontier)

The north-western part of India including the Indus region as well as the Pakistan-Baluchistan areas. The Indus-region is a likely source of some of the fine Indian red wares found in Ed-Dur (see De Paepe et al., 2003) and Indian black-and-grey wares discovered at Mleiha (M. Mouton, personal communication).

Key Area 3 (South-Western Coast)

Along south-western or Malabar coast, a source from the site of Pattanam in Kerala can be attributed to some Indian cooking and storage vessels from Red Sea ports of Berenike and Quseir that display working techniques like 'internal wiping' and 'scooping' using bamboo/organic tools (Tomber and Begley, 2000). Similar vessels were also documented in Arabia including at Khor Rori and Mleiha.

Key Area 4 (Eastern and Southern India including Sri Lanka)

Two types of Indian pottery in the South Arabian port of Khor Rori suggest a source from eastern and southern India: Rouletted Ware (RW) and Paddle-impressed Ware. A source in eastern India particularly Bengal may be attributed to the RW from Egypt, Arikamedu and other sites based on a personal examination of the fabric by Roberta Tomber (see Tomber, 2008: 44). Also recent research by Magee (2010) identified two distinct workshops for RW, i.e. Group A produced somewhere in south-eastern India (c. 500 BC-AD 300) and Group B produced somewhere in Sri Lanka, probably in the northern part of the island (c. after 200 BC-AD 300).

Reconstructing Indian Ocean trade routes is an important aspect in the archaeo-historical analysis. Trade goods of course do not necessarily travel a straight course or take the shortest route (Salles, 2005). The distribution pattern for Indian vessels in Arabia (and Red Sea region) suggests the following seaborne routes from India:

Route A: India-South Arabia

As part of Route A, ships made their way from Bengal and south India by way of Sri Lanka or via Pattanam (Kerala) to Khor Rori in South Arabia. Then they proceeded to the Red Sea port sites of Berenike and Quseir, when the winds were favourable. According to Pavan and Schenk (2012: 200),

distribution pattern of rouletted ware, paddle impressed ware and cooking pots (Wheeler Type 24) reflects the trade routes that traversed India, but the principal route ran along the eastern coast from Bengal down to the island of Sri Lanka. Rice-tempered wares, along with RPW, could have reached South Arabia directly from the Gujarat region.

Route B: India-Gulf

Route B includes trade routes starting from Gujarat or western India and circumnavigating the Arabian Gulf. The Indian material first reached Suhar or Dibba port in the eastern Arabian Gulf. It was then re-exported from either south Mesopotamia or Iran to Ed-Dur and Mleiha in the UAE. From southern Mesopotamia the Indian material also reached the Mediterranean via the camel caravan route through Syria.

Route C: Overland Arabia

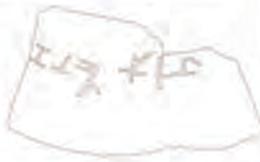
Frankincense routes form a very important component of overland routes traversing the Arabian peninsula. Kennet (2007: 109) indicates four possible overland routes with Gerrha (Thaj Oasis, Saudi Arabia) acting as the conduit: (i) South Arabia to Petra via Gerrha, carrying South Arabian incense, (ii) South Arabia to Palmyra, carrying South Arabian incense overland to Gerrha and then by sea and river, (iii) Gerrha to Petra, carrying Indian goods brought to Gerrha by sea, and (iv) South Arabia to Persia via Gerrha, carrying South Arabian incense.

These overland routes may also have been used to supply Gulf sites with Indian material from South Arabia.

So how did this Indian material reach the Gulf? Depictions of sailing ships have been identified in epigraphic records and archaeological remains of shipwrecks. In the Red Sea area, there is archaeological evidence from sites like Berenike and Quseir including hull planks, wooden and horn brail-rings, deadeyes, block sheaves, wooden toggles and fragments of sail-cloth of Indian origin (Blue et al., 2011). The data also includes examples from Arabia comprising sailing vessels inscribed at a number of Dhofar hill sites (Zarins, 2001: 134) and from the Brahmi inscriptions/ship graffito at the Hoq cave on the island of Socotra (Yemen) pointing towards the presence of Indian sailors in Arabia from the end of the second-fourth centuries AD (Strauch and Bukharin, 2004). Pottery and plaster also serve as a medium and a particular example is the ship graffito at Khor Rori (Sumhuram) carved into wall plaster near the gate and represents an ancient sailing vessel with two masts, engaged in what appears to be whaling (Plate 1.7). The depiction is similar to that of two-masted ships found stamped on coins minted by the Satavahana/Andhra dynasty sometime between the second/first century BC and the second



**Ship graffito on plaster from Khor Rori
(after Avanzini 2007)**



0 10 CM

na-n-tai-ki-ra-ṅ
 னைந்தை-கிரன்

**Tamil Brahmi ostraca from Khor Rori
(Rajan 2012)**

PLATE 1.7: PLASTER WALL INSCRIPTION OF INDIAN
 EARLY HISTORIC SHIP AND TAMIL-BRAHMI
 OSTRACA FROM KHOR RORI

century AD (Ray, 1986; Avanzini, 2007: 27; Fig. 4). With regard to Tamil-Brahmi ostraca in South Arabia, a potsherd was found in the residential area of Sumhuram (Khor Rori). The sherd itself was part of a lid made by reusing the shoulder of an amphora. Soot traces visible along the external ridge suggest the use of the lid for a cooking pot, found in the first century AD context or earlier. The ostraca is inscribed with 'nantaikiran', signifying a personal name with two components. The first part '[n] antai' is an honorific suffix to the name of an elderly person. The second component 'kiran' stands for a personal name. More than 20 poets of the Tamil Sangam age (c. third century BC to third century AD) have 'kiran' as part of their personal names. The broken piece of the pot probably carried the personal name of an important trader who commanded high regard in the community (Rajan, 2012) (Plate 1.7).

CONCLUSION

The archaeological evidence of trade routes could be further enhanced by the theoretical approach proposed by Chase-Dunn and Hall (1997) and Hall and Chase-Dunn (1999) as a 'comparative world-systems perspective' wherein 'important networks of interaction impinge upon a local society and condition social reproduction and social change'. Accordingly, in most inter-societal systems there are several important networks of interaction:

1. Information Networks (INs) – Information is light and it travels a long way, even in systems based on down-the-line interaction.
2. Prestige Goods Networks (PGNs) – A smaller interaction network is based on the exchange of prestige goods or luxuries that have a high value/weight ratio.
3. Political/Military Networks (PMNs) – The largest interaction net composed of polities that are allying or making war with one another.
4. Bulk Goods Networks (BGNs) – A network based on production and trade of basic everyday necessities such a food and raw materials.

To apply this theory within the Indian Ocean sphere, prestige or elite goods networks involved various partners in the Indian Ocean, particularly Rome and India. It is this direct interest in prestige goods that led the Romans to establish political or military networks in South Arabia, in order to control this trade and the trade in aromatics. As historic records show, this was attempted through the invasion of South Arabia and the adjacent Arabian Gulf by the Roman governor of Egypt, Aelius Gallus in 25-24 BC. This military mission proved to be a failure, attributed partly to an over-extension of supply lines from Egypt. Large quantities of food and water to sustain the Roman troops in Arabia were unavailable owing to poor guides that led the army through long circuitous routes that avoided wells and provisions (Ball, 2000: 110-12). Moreover this disastrous Roman mission shows that local food

production in Arabia by the first century BC-AD had to be supplemented by an influx of food items from India and Roman Egypt. This was to cater to the growing demands from the increased number of visiting traders. Food and bulk goods networks (BGNs) were therefore more important to Indo-Arab trade than so-called prestige goods.

The collation of large quantities of Indian pottery data from the Arabian sites as part of the present research indicates two main points: (a) these were not just residual containers that belonged to traders on their way to Rome or back to India, suggesting that these were probably transported and used by Indian or South Asian residents in Arabia during the early centuries AD, and (b) the trade in bulk essentials (rice, grain, cloth, ghee, sesame oil, etc.) from India to Arabia was probably more important for the sustenance of local residents and visiting traders than prestige goods from Rome or the Indian subcontinent. This goes to show, as Avanzini (2002b: 23) had previously indicated that as far as the Indian route is concerned, the role played by Rome though important, is overestimated. Particular preferences of specific forms like cooking and storage vessels could indicate a small South Asian population in Arabia. This led to the small-scale manufacture of imitation Indian vessels in Arabia as a means of the local economy adapting to the needs of the visiting traders. Moreover, there is a marked increase in the size of Indian cooking vessels during this period, indicating communal cooking practices of a perhaps small Indian merchant population in Arabia. These Indian merchants brought with them not only material goods, but also information networks. This includes introduction of new pottery styles, food items or bringing a variety of cultural influences into Arabia. The study therefore concludes that the Arabian Gulf was more than an intermediary of Indo-Roman trade and was a direct participant in the Indian Ocean trade networks.

POSSIBLE FUTURE GOALS AND RESEARCH ACTIVITIES IN INDO-ARAB STUDIES

In terms of possible future goals and objectives, the current research on Indo-Arab trade could be integrated into the conceptual framework of 'Project Mausam' and other such macro-level projects (Ray, 2014). Second, the aspect of Indo-Arab or Indo-Gulf trade should go beyond the focus on the Harappan or Indus connection, and successfully link the third millennium BC with the maritime trade of the early historic period. This could be achieved by addressing gaps in the present research on trade routes and historical exchange between India and the Gulf. Moreover, maritime-related industries like traditional ship-building and related products must be revived or enhanced by research scholars and government organizations alike.

It is essential at this stage to first establish strict documentation and research

methods. This is particularly due to the disparity in the methodology used to document trade mechanisms across the Indian Ocean. This then creates difficulties in compiling and relating the evidence for a coherent narration of trade relations. Once these research standards are established, they could lead to more successful international collaborations. Finally of course, one has to remember that it is not possible to create such cosmopolitan links if important data is not published. So publication must be an essential part of all future research activities.

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Melting Pots of Culture: The Archaeology of Early Medieval Ports on the West Coast of India

RUKSHANA NANJI

Braudel defined the term 'seascape' as a view of the maritime space, the 'liquid plains of the sea' (Braudel, 1972: 65). The Indian Ocean is perhaps one such liquid plain which has been traversed by humans since antiquity, motivated by both commerce and circumstance. Lapped by the waters of this fluid expanse, histories of the littoral regions from Africa to China have been shaped and influenced by the ocean just as surely as their geographies have been defined by it. The Indian peninsula, projecting into the maritime space and marking almost the halfway point in its east-west expanse, has been a focal point for merchants, mariners and migrants throughout history, the advantages offered by its strategic location enhanced by hospitable coastlines, abundant resources and rich produce. The western seaboard of the Indian subcontinent has been one of the most active coastlines in the Indian Ocean from proto-historic times to the present. Large and busy ports where ships loaded and unloaded their precious cargoes are recorded in literary, historical and archaeological sources. Changing sea-levels and fluctuating political fortunes may have defined the life-spans and natures of these ports, but the attraction that the subcontinent held for seafarers remained constant through the centuries. The intensity of human interactions and cultural interfaces between the far-reaches of the Indian Ocean are manifest in the archaeological record. This paper attempts to interpret the archaeological evidence of such interactions and interfaces found at Early Medieval port sites and settlements along the western seaboard of India, with special reference to the excavated site of Sanjan. The term 'Early Medieval', in the context of this paper, refers to the period from the seventh century CE to the thirteenth century CE.

In many ways, the seventh century CE may be seen as one of the most important turning points in history. Undoubtedly, the advent of Islam in Arabia and its rapid expansion in all directions changed forever the social, cultural, religious, political and economic configurations that existed in the ancient world. In the post-Hellenistic and pre-Islamic centuries, the imperial

Sasanian Empire of Persia was the predominant power, not only exerting political and military authority over vast territories, but also controlling the east-west routes over both land and sea. Trade contacts between Persia and India had existed from the time of the Achaemenids, but it was during the Sasanian period that these connections intensified and were developed into regularized networks. Determined to extend Sasanian control over both sides of the Persian Gulf, Ardeshir established 18 port towns in the Persian Gulf and along the rivers of Khuzistan and Mesopotamia. He is also credited with transplanting large numbers of the Azdi tribe from Oman to the Kirman-Makran coast. These were Arab sea-faring merchants who were Zoroastrian until the advent of Islam. Other Sasanian kings are known to have established close contacts with kings in India. Bahman V who made annual hunting trips to Kachchh is believed to have married an Indian princess and received Debal or Bambhore in Sind as dowry. The exchange of envoys and emissaries between the courts of the Chalukyas and Sasanians were to underline the connections between the subcontinent and the Persian Gulf. It was also during this period that Nestorian Christians, Jews, and Zoroastrians of Persian extraction had established colonies on the Arabian coast in the Gulf, in south India and Sri Lanka and even further east. The Chinese mention the Persians as 'Po-se' or 'Po-la-se' (Wink, 2002: 48-9). From all accounts it is clear that the Persians preceded the Arabs in the maritime trade with Southeast Asia and China. The participation of Arabs in the maritime trade of the Hellenistic period had been considerable. But it declined almost completely in the face of Sasanian domination. Control over land routes by the Sasanians and exclusion of the Arabs, Byzantines and Ethiopians from the lucrative trade of Asia led to several conflicts. After the fourth century CE, the Byzantines, in partnership with the Ethiopians, became active in the Indian Ocean in an attempt to circumvent the Sasanian monopoly of the India trade. But this partnership was to find itself restricted by Sasanian presence in the ports of the Indian Ocean littoral, particularly those of western India and the Gulf. The struggle between the two imperial powers, Byzantine and Sasanian, was particularly vigorous in Arabia. The advent of Islam ended this rivalry and replaced it with a single political power that controlled both the Mediterranean as well as the Indian Ocean and linked the two. Weakened by internecine wars, the Sasanian Empire fell to the invading Arab armies and by 641 CE a new world order had been established.

Andre Wink describes the phenomena of Islam well when he says 'the startling symmetry of Islamic expansion reinforced the idea of an elemental outburst of energy, an explosion or volcanic eruption' (Wink, 2002: 7). This outburst or explosion, as Wink describes it, reverberated through the maritime networks and defined the nature of settlements along the shores of the Indian Ocean. The intensity and dynamism of commercial and socio-cultural interactions in the Indian Ocean saw an unprecedented increase in these early

centuries of Islam. Not only did goods and traders traverse the ocean, but populations and communities trans-located themselves, carrying their cultures to distant shores. The interactions of host cultures and migrant communities of diverse ethnic or cultural origins are often described in the documented accounts of mariners, merchants, geographers and writers of this period. Archaeological data from excavated sites along the active coastlines of the Indian Ocean provides corroborative evidence for these historical records. The west coast of India, being one of the most active and strategically located seaboard, has provided rich archaeological data to corroborate the information provided by historical and literary sources. Ports such as Khambat/Cambay, Bharuch/Barygaza, Sanjan/Sindan, Thana/Tana, Chaul/Saymur, etc. find frequent mention in Arabic and Persian records of this period as important centres of maritime trade with multicultural demographic profiles. Some of these sites have been explored and a few have been excavated in the recent past. This paper draws upon the archaeological evidence provided by the excavated site of Sanjan/Sindan and interpretation of its ceramic assemblage.

Sanjan has a well-documented history which can be found in literary, epigraphic, epistolary and historical sources. The *Kisse-i-Sanjan* or 'Story of Sanjan', a Persian poem written in 1599 CE by Dastur Bahman Kaikobad, remains a prime source (Paymaster, 1915; Eduljee, 1996). The Persian Zoroastrians, or Parsis as they came to be called, still regard this text as their history and derive their ethno-cultural identity from it. Other than the *Kisse*, many other sources refer to Sanjan. Indian epigraphic sources refer to it by variations of its name – 'Sanjayapura', 'Sanjana', 'Samyanamandala', 'Samyanapattana', etc. (Konow, 1982 (rpt): 144-52; Bhandarkar, 1925: 252; Sircar, 1962: 45-76; Sircar, 1963: 197-204; Sankalia, 1983: 209-13; Nanji 2011: 3-5). Persian and Arab mariners, traders and geographers of the ninth and tenth centuries like Al Biladuri, Al Ishtikhri, Al Idrisi, Buzurg Ibn Shahiyar al-Ram-Hurmuzi, Ibn Haukal, and others mention the importance of the port and describe it in considerable detail, referring to it as 'Sindan' (Minorsky, 1937; Elliott and Dawson, 1952; Janaki, 1969: 56-8; Sachau, 1983: 208-9; Hourani, 1951). From all accounts, it is clear that Sanjan/Sindan was an extremely important commercial hub and entrepot on the western coast of India, having extensive trade with the Persian Gulf on the one side and the South China seas on the other. Epigraphic records of this area also provide evidence for the cosmopolitan and multi-cultural profile of the port. Arabs, Persian Zoroastrians, Jews, Modha Baniyas, Panchagauda Brahmins and Koli-Mahars are all mentioned as prominent components of Sanjan society.

Sanjan (District Valsad, Gujarat), North latitude 20° 12' and East longitude 72° 52' (*Gazetteer of the Bombay Presidency*, vol. XIV 1882 (rpt. 2000): 301) is located on the western seaboard of the Indian subcontinent. The ancient site is situated on the northern bank of the river Varoli which has its origins in the hills of Thana and debouches into the Arabian Sea at Umbargaon-

Nargol. Sanjan is located about 4 km upstream from the mouth of the river. This part of the north Konkan is a long, flat alluvial strip of land following the profile of the coastline and flanked on the interior by hills. The area, however, is rich in deep and navigable creeks with secure berthing facilities for sea-going, coasting and riverine vessels. Sanjan provides one such workable facility (Nanji, 2011:1). With simultaneous access to both the hinterland and the sea, Sanjan was ideally located as an active port. The formation of sandbanks at the mouth of the river, siltation and changed course of the Varoli make it impossible for boats to approach Sanjan Bandar today. Small- to medium-sized fishing crafts can still be seen moored opposite the site on the southern river bank at Palgam. However, the area falls within the tidal zone and it is more than possible that in the past the entire estuarine area from Nargol to Sanjan functioned as one unit with multiple berthing facilities. Geological explorations suggest that sea-level changes may have affected the site (Rajaguru and Deo, 2005: 93-8).



PLATE 2.1: SATELLITE IMAGE SHOWING SANJAN BANDAR (CIRCLED) ON THE NORTH BANK OF RIVER VAROLI (2)

The ancient site of Sanjan is highly disturbed by human occupation, cultivation, modern construction and human activity, severely limiting the archaeological work which can be undertaken. Erosion of the peripheral areas of the ancient settlement due to the altered course of river can also be seen. Despite the non-contiguous nature of the excavations and their limitations, the three seasons of work at Sanjan (2002-4) brought to light a large settlement

with well-constructed brick structures and features such as walls, floors, ring-wells, platforms, wells, funerary complex, Dokhma/Zoroastrian Tower of Silence, etc. The settlement itself covered an approximate area of 1.5 × 1.5 km. A large number of antiquities such as beads, bangles, stone and metal objects, glass, coins, terracotta objects, etc., were retrieved, all indicating a prosperous and robust economy (Gupta et al., 2002: 182-98; 2003: 26-34; 2004: 93-106; 2005: 55-61; Nanji and Dhalla 2007: 35-58; Nanji, 2014: 1-33). However, the most important material to be found at Sanjan is the ceramic assemblage. This single component of archaeological material has helped provide a chronological structure and narrative for the site. The following note on the ceramic analysis of the Sanjan assemblage draws upon the author's doctoral research and published thesis (Nanji, 2011).

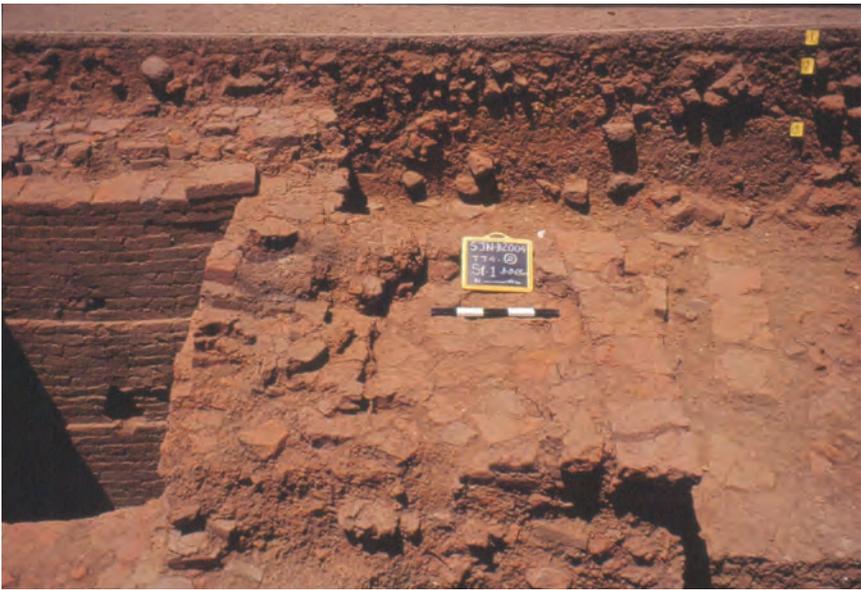


PLATE 2.2: BRICK PLATFORM AND WELL IN TRENCH TT4, SANJAN BANDAR (2)

Traditional methodology does not prove adequate for port site assemblages of the Early Medieval period which frequently include a varied range from West Asian and Far Eastern wares along with indigenous classes. At Sanjan, a new comprehensive and flexible methodology was formulated to address the requirements of this versatile assemblage, most of which had never been reported or studied in India prior to the Sanjan excavations. The morphology, statistical analysis and petrographic study of the assemblage made it possible to build up a ceramic micro-stratigraphy for the habitation deposit of the site so that chronology could be established and the site could be interpreted on the basis of it.

The habitation deposit of the site was almost 4m in depth. The disturbed nature of the site made it difficult to identify the layers in a large part of the excavated area. Hence construction of the ceramic micro-stratigraphy was extremely useful and necessary. Three main levels and one sub-level of occupation could be identified and co-related to the structural activity and Radiocarbon dates in the index trench, TT4. The ceramic composition of each level provided an insight into and expanded the narrative of the site. This morphological and statistical analysis could then be placed alongside other literary and historical sources so that a more complete picture of the functioning of the port emerged.

Level I was the lowest level, representing the earliest phase of occupation. It extended from approximately 3.79 to 2.03 m. Two categories of ceramics were seen prominently in this early period of the occupation – indigenous utilitarian wares and West Asian unglazed storage vessels and amphorae. The indigenous component was naturally greater than the West Asian. However, the significance of these transportation and storage vessels at such low levels cannot be understated. The import of goods and materials contained in large torpedo jars or Persian Gulf amphorae and in storage vessels is apparent. Soon after, the first glazed sherds appeared and continued alongside these unglazed ware classes. Turquoise Glazed Ware (TGW) is one of the most common trade ceramic found from Indian Ocean sites, having a history that goes back to the Parthian-Sasanian times. Other unglazed wares from West Asia continued to make their appearance through the sequence of Level I. These included Large Incised Storage Vessels (LISV), Buff Ware, Eggshell Ware, etc., almost



PLATE 2.3: TORPEDO JAR BASE (LEVEL I)



PLATE 2.4: TURQUOISE GLAZED WARE (LEVEL I)



PLATE 2.5: EGGSHELL WARE (LEVEL I)

all of which have a pre-Islamic antiquity. The ware classes conservatively suggest a chronology which extends from the middle/late seventh century CE to the middle/late eighth century CE, a period when the traditions of Sasanian wares were still current and glazed ceramics had not yet gained the importance which they enjoyed in the later centuries. The ceramic composition clearly indicates a direct and sustained contact with the Persian Gulf region from the earliest occupation at the Sanjan Bandar site.

Level I(a) extended from a depth of 2.02 to 1.25 m. The ceramic assemblage of Level I continued without too much change in this sub-level. The most important change was the appearance of early Chinese wares such as Changsha Underglaze Painted Ware, Dusun jars, early stoneware vessels and Yueh wares as well as Longquan and Qinbai porcelain, and their continuous presence from this point onward. The ceramic composition of this level was indicative of both a quantitative as well as qualitative change in the nature of trade. The West Asian wares of Level I continued along with these new entrants, indicating



PLATE 2.6: CHANGSHA UNDERGLAZE PAINTED WARE (LEVEL I A)

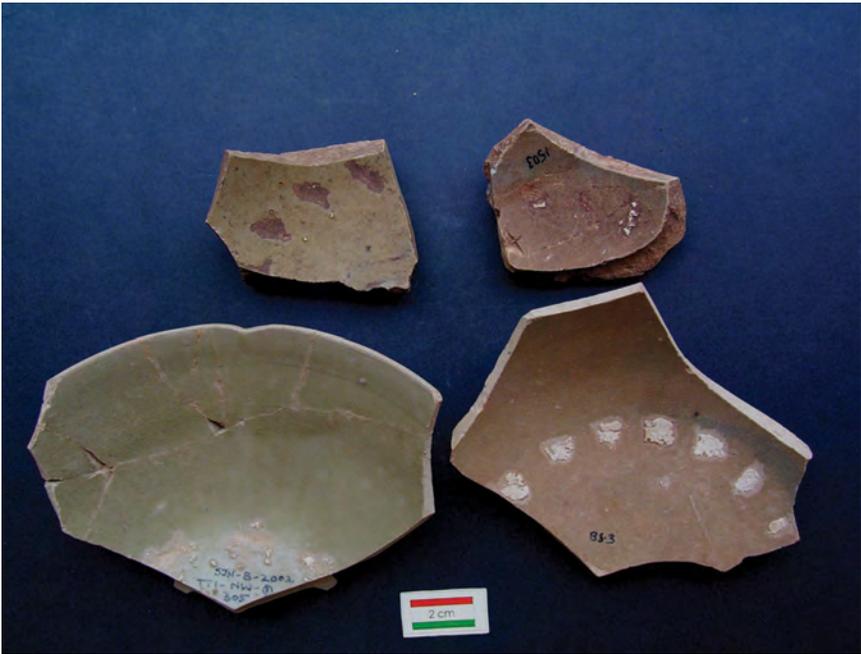


PLATE 2.7: CHINESE STONEWARES (LEVEL I A)

that the port was now expanding its sphere of maritime activities. Trade with the Persian Gulf appeared to be direct and the intensity of the contact had undergone a noticeable change. Indigenous pottery showed a similar increase both in quantity and in variety. However, components of the assemblage continued to be utilitarian, storage and transportation vessels. The suggested dates for this level are middle/late eighth century CE to early/middle ninth century CE. The earliest structural remains, represented by a brick feature, are associated with this level at a depth of 2.02 m. The Radiocarbon date procured from a sample (SB 0401) associated with it suggests *c.* 830 CE.

Level II extended from 1.24 to 0.39 m. This level was marked by the appearance of Samarra Horizon ware classes, sgraffiato classes and several glazed wares. The Samarra Horizon refers to those wares which emerged and were in circulation during the occupation of Samarra as the Abbasid capital. They are chronologically specific to the period between 836 and 892 CE. The wares are marked by the innovation of Persian potters with new glazing techniques, particularly the use of white glaze with or without decoration. The influence of Chinese Tang imports into the Persian Gulf by the ninth century CE is seen in the form and glaze of these West Asian earthenwares. However, the experiments and techniques developed by the Persian potters became established forms with unique characteristics of their own. At Sanjan,

these Samarra Horizon wares were prominently represented and distinctly marked the level where they appeared. These include White Glazed Ware, Cobalt Painted Ware, Splashed White Glazed Ware, Lustre Painted Ware, Cuerda Secca Ware, Sgraffiato and Hatched Sgraffiato Wares. Most of these are considered as elite wares as they would have been expensive to produce. In this level, a sharp increase in the variety as well as quantity of pottery was observed. Chinese wares continued to show a relative increase. The West Asian ware classes of the previous levels continued until the later part of this level, when they began to taper off and eventually end. The Samarra Horizon classes also continued through the level, tapering off and ending in the later part of the level. Sgraffiato wares continued a little longer. Level II was the most prosperous phase of occupation when trans-oceanic trade appears to have become the mainstay of the port as its contacts with the eastern and western Indian Ocean intensified. The fine tablewares and elite wares of the Samarra Horizon repertoire suggest a wealthy clientele and a consumer base which could well afford these luxury goods. It also suggests a sophisticated lifestyle. The Samarra Horizon wares, being chronologically specific, help to date this level with some accuracy. The overall quantum and range of pottery indicated intense and sustained trade which continued for a long period of time. Level II was the most prosperous and commercially active phase of occupation at the site. The dates suggested for this level are early/middle ninth century CE to middle/late twelfth century CE. Sample no. SB 0404 from TT4 NE depth 0.55-0.50 m provides the Radiocarbon date *c.* 1210 CE.



PLATE 2.8: COBALT PAINTED WARE (LEVEL II)



PLATE 2.9: WHITE GLAZED WARE (LEVEL II)



PLATE 2.10: LUSTRE PAINTED WARE (LEVEL II)



PLATE 2.11: HIGH-NECKED JAR, TURQUOISE GLAZED WARE

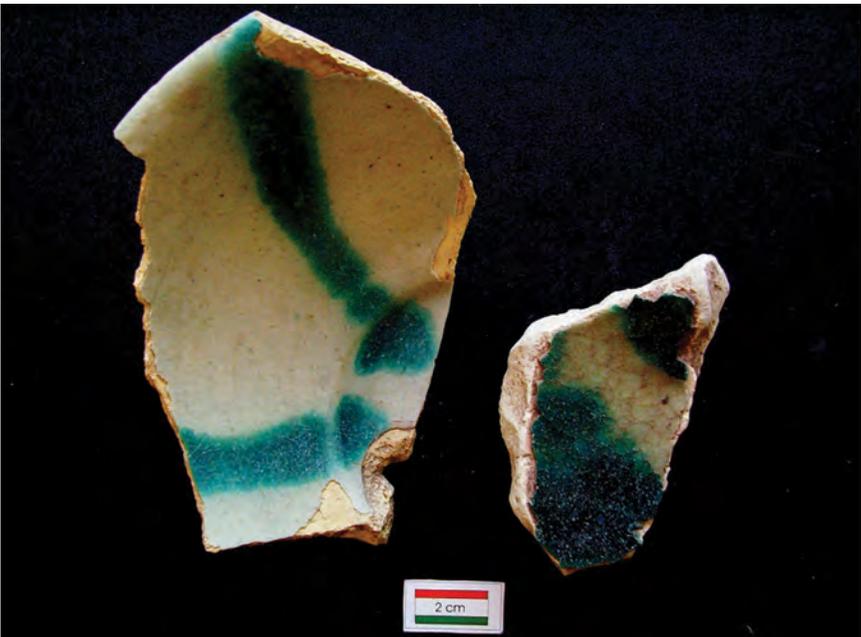


PLATE 2.12: SPLASHED WHITE GLAZED WARE (LEVEL II)



PLATE 2.13: SGRAFFIATO WARE (LEVEL II)

Level III extended from 0.38 m to surface. A decline in the quantity of pottery and a marginal decrease in the West Asian wares was the only change seen. Hatched Sgraffiato ware was the only ceramic type to continue through this level, while all other ware types had stopped occurring. A simultaneous marginal increase was seen in the Chinese wares. The most noticeable decrease was seen in the indigenous wares. There was no evidence to suggest occupation on the Bandar after middle thirteenth century CE.

The occupation at Sanjan Bandar shows evidence of being a continuous one. The site provides evidence of an extensive and constant contact with West Asia and a less intense contact with China and the Far East. However, when the ceramic analysis is viewed in the light of epigraphic, literary and historical sources for the site, a far more complete picture emerges. A brief overview of these would be in order, at this point.

Several epigraphic sources speak of Sanjan in some detail. The Nagarjunakonda inscription of Abhira Vasusena, dated by D.C. Sircar to *c.* 278 CE mentions Sanjan as 'Sanjayapura' (Sircar 1963: 197-204). While no evidence of such an early occupation can be seen in any of the excavated trenches, it may be mentioned that two sherds of Red Polished ware were recovered from a disturbed context, indicative perhaps of an early settlement or level in the vicinity. The Sanjan copper plates of Buddhavarsa were found at Umbargaon, a short distance from Sanjan. Buddhavarsa claims to be the younger brother

TABLE 2.1: SUGGESTED CHRONOLOGY FOR SANJAN AND CERAMIC COMPOSITION OF EACH LEVEL OF OCCUPATION

<i>Level</i>	<i>Period</i>	<i>Ceramic Assemblage</i>
Level III (0-0.38 m)	Middle/Late 12th century CE To Early 13th century CE	PORC-1, PORC-4, PORC-5, STONE-4, STONE-5, STONE-6, CEL-1 HsG(B) BSGW, BSRW-1, RSGW, SBW-1, RW-1, RW-2 RW-3, GRW
Level II (0.39-1.24 m)	Early/Middle 9th century CE To Middle/Late 12th century CE	STONE-2, STONE-6, PORC-1 BSGW, BSRW-1, RSGW, RSRW-1, RSRW-2, SBW-1, SBW-2, RW-1, RW-2, RW-3, GW-1, GW-2 TGW-1, TGW-2, TGW-3, TGW-4, TGW-5, CPW, WGW, LPW-1, SWGW, BiGP, WGPW, HsG(P), HsG(B), HsG(M), HsG(W), MGP, MGB, UGPW, ESW(W), ESW(P), BW, BW(TJ), BW(SV), WSPW-1, WSPW-2, WSPW-3 MISC-1, MISC-4, MISC-6, MISC-7, MISC-8, MISC-9, MISC-10, MISC-11
Level I(a) (1.25-2.02 m)	Middle/Late 8th century CE To Early/Middle 9th century CE	STONE-3, PORC-2, PORC-3 BSGW, BSRW-1, BSRW-2, RSGW, RSRW-1, RSPW-1, RW-1, RW-2, GW-2, MRW-1 TGW-1, TGW-2, TGW-3, TGW-4, BW, BW(TJ), BW(SV), WSPW-1, WSPW-2, ESW(W), LISV-1, LISV-2, LISV-5 MISC-4, MISC-6, MISC-7, MISC-9
Level I (2.03-3.79 m)	Late 7th/Early 8th century CE To Middle/Late 8th century CE	BSGW, BSRW-1, BSRW-2, RSGW, RSRW-1, RSRW-2, RW-1, RW-2, GW-1, SBW-2, SBW-4 TGW-1, TGW-4, TGW-3, TGW-5, BW, BW(TJ), BW(SV), BW(SPOT), WSPW-1, WSPW-2, LISV-3 MISC-2, MISC-3, MISC-4, MISC-5, MISC-6, MISC-7, MISC-9

of Pulakeshin II. This grant establishes the control of the Western Chalukyas in this region in 671 CE (Konow, 1982: 144-52). This is relevant in the light of the cordial and close relations maintained by the Sasanian king Naoshirwan and Pulakeshin II, as is reported in historical sources (Wink, 2002: 105; Karmerkar and Dhanjisha, 2003: 13). More importantly, the ceramic composition of Level I and the chronology suggested by it are corroborated by this inscription. The presence of wares from West Asia which are datable to the terminal Sasanian and Early Islamic period are indicative of trade between the Persian Gulf and Sanjan, which appears to be a small port in the second half of the seventh century CE.

The copper-plate grants of Amoghavarsha are dated to 871 CE and establish the rule of Rashtrakutas over 'Sanjana' or 'Sanjjana' (Bhandarkar, 1925: 252). The relevance of this grant is underscored by the description of Sanjan as part of a group of 24 villages or a *chauvisi*. The extent of its administrative jurisdiction can be identified by the several villages mentioned within it. The growth of the settlement in terms of its geography, political control and commercial viability from the time of the Chalukyas to the time of the Rashtrakuta king Amoghavarsha is reflected in the archaeological record. The ceramic composition of Level II which corresponds to the rule of the Rashtrakutas indicates the most prosperous phase of occupation at the port. The quantitative and qualitative increase in the ceramic assemblage is both sudden and substantial. The most striking feature is the large quantity of tableware such as bowls, dishes, platters, cups and saucer lamps. The predominance of these shapes continues alongside the transportation and storage vessels. Clearly, in the ninth century and after, the fine and expensive lifestyle wares from the Persian Gulf were as much in demand as goods contained in amphorae and large jars. The presence of these elite wares at Sanjan in relatively large numbers is an unusual occurrence. Arabic and Persian records often list details of items exported and imported at these ports of the west coast. None of these accounts mention ceramics or glazed earthenwares as import items, nor do they suggest that there may be a demand for such goods. The demand for Chinese porcelain and celadon, particularly in the Caliphate, is described in great detail. But no such demand is noted in the Indian context for West Asian pottery. One may surmise then that these wares were being brought into Sanjan to cater to the tastes and lifestyles of niche clientele within the port. This hypothesis is further supported by the fact that hinterland sites have not yielded these wares to date. A large number of these table-wares suggest community eating, feasting and food habits which would probably have differed from those of the local communities. Traditions of food consumption by indigenous communities were subject to several religious, caste and socio-cultural restrictions. The ceramic types being imported into Sanjan would not suit the requirements of their food habits hence there must

have been a section of the population within the port with a different lifestyle and the elite expensive wares of the Samarra Horizon catered to their requirement. The question that logically follows is – who were the people using these imported ceramics? An answer may be found if one turns to another set of copper-plate grants which belong to the tenth and eleventh centuries CE.

The Chinchani copper-plate grants are some of the most important sources of information for Sanjan. They number nine in total and consist of three separate grants made by the Silahara kings between 926 and 1053 CE. The first of these grants belongs to the time of King Indra III and is dated 926 CE. Sanjan is referred to as 'Samyanamandala'. This territorial division was given by Krishnaraja II sometime between 878 and 915 CE, to a Tajik general, Mohammed Sugatipa, a.k.a Madhumati, who was appointed governor in appreciation of his success in bringing all the neighbouring harbours under the control of his king. Madhumati Sugatipa patronized a monastery founded by Aunaiya, and two temples, and gave the villages of Kanaduka and Devihara as grant towards the upkeep and repairs of this monastery and for the offering of *naivedya* to Goddess Dasami. Amongst the local communities mentioned as residing in Sanjan are Panchagauda Brahmanas, Modha Baniyas who had brought their deity Bhillamaladeva or Madhusudana from Rajasthan, Tajikas or Muslims and Hamjamanpaura or the Persian Zoroastrians, as several scholars believe (the word 'Hamjamana' deriving from the Persian 'Anjuman' or community). The largest population appears to be Koli and Mahar and in fact one administrative unit was called the Koli-Mahar Vishaya. The relevance of this inscription lies not only in the mention of a Tajik or Arab governor of the region but also in the information it provides regarding the demographic composition of the settlement, cosmopolitan nature of the town and prominent trading communities (Sircar, 1962: 45-71; Sankalia, 1983: 209-13). While the actual identity of Mohammed Sugatipa remains nebulous, it is not improbable that he may well have been either a powerful merchant-prince with considerable control over the ports of the region or a mercenary who could consolidate some hold over the harbours of the area. The specific mention of foreign traders settled within the port is of great importance since Arab and Persian sources corroborate the same information. The fact that an Arab governor was appointed for the port indicates that the foreign component of the settlement was extremely prominent. These foreign demographic components would have had customs and lifestyles different from the local communities. The luxury ceramics from the Persian Gulf could well be seen as supporting the demand from this faction of Sanjan society. This grant provides invaluable insight into the cosmopolitan nature of the settlement and the important communities of merchants within it.

The second grant in the Chinchani set belongs to Chamundaraja, the subordinate of the Silahara king Chhinturaja. It is dated to 1034 CE and

pertains to an oil mill which was granted to his subordinates, officers and other members of the local community. This last group also consists of the *mukhyas* or elders of the 'Hamyamana' or Zoroastrian Persians or Persians of other faiths and Arab Muslims or Tajiks (Sircar 1962: 45-71).

The third grant is of the time of Vijjala, dated to 1053 CE. 'Samyanapattana' is mentioned as a district consisting of 4,000 *drangas* and extending up to Akasika, which has been identified as Agashi near Virar. The reference to Sanjan 700 refers to the 700 villages of the region. But D.C. Sircar is of the opinion that the interpretation of 4,000 *drangas* as towns or cities would be an error and that the reference is in fact to the annual revenue or tax of 4,000 *drammas* (ibid.: 45 -76). The term *pattana* is used for the settlement of Sanjan. The relevance of this is underlined by the fact that the term was used to indicate a market centre as well as a riverine settlement or river-port (Ray, 2003: 20).

The growth of Sanjan, from a *chauvisi* in the ninth century to a *mandala* in the tenth century and a *pattana* in the eleventh century CE is reflected in the ceramic record with the intensification and changes in the trade of ceramics. The information derived from epigraphic sources finds corroboration in Arab and Persian accounts, most of which extend from the late eighth/early ninth century CE to the twelfth century CE, after which the information becomes repetitive. The writings by geographers, mariners and merchants of this period refer to Sanjan as 'Sindan'.

Al Biladuri mentions that he was informed by Mansur, son of Hatim, that Fazl, son of Mahan, a slave of the Samma house, subdued Sindan in 820 CE and sent to Khalifa Al Mamun (813-33 CE) the gift of an elephant. He built a Jama Mosque. He was succeeded by his son Muhammad who was overthrown briefly by his brother while he was fighting the Medhs in Saurashtra. However, he retrieved his throne and sent to the Khalifa the gift of the longest log of teak ever seen. The people of Sindan overthrew Muslim rule but spared the mosque where the Muslim residents continued to worship (Elliott and Dawson, 1952: 129). If this account is factual, then the dynamics of governance in the area during the eighth/ninth centuries need to be looked at afresh. While there is some debate about the location of 'Sindan' being in Kachchh or Konkan in this account, it is pertinent to point out that other writers also attest to the Jama Mosque in Sanjan and as V.K. Jain points out, the mention of teak indicates that it was the port town of the Konkan which was famous for its teak and bamboo exports (Jain, 1990: 135). Al Biladuri also locates Sindan between Bharuch and Sopara, about 200 miles from Debal.

Ibn Haukal describes Sindan as a vibrant and great city with a Jama Mosque and a place where Muslims are respected. He notes that mangoes, coconuts, lemons and rice grow there (Janaki, 1969: 58). In his work *Hudad al-Alam* or *Regions of the World* written in 982 CE, he gives details of the different countries and regions of the ancient world in startling detail and notes that

Sindan was under the rule of the king 'Ballaharay' or 'Ballahara' who was the most powerful king in India, clearly an indication of the Rashtrakuta rulers. He further mentions:

Samur, Sindan, Subara, Kanbaya, four towns on the coast, in which live Muslims and Hindus (*Hinduwan*). In that locality is a Friday-Mosque (*mazgit-I adhina*) and an idol temple. The people of these towns have long hair and at all seasons wear only an izar . . . The climate (of these parts) is hot. The government (*padshahi*) there belongs to Ballah-ray. Near these (towns) there is a mountain on which grows much bamboo (*khaizuran*), rotang (*nayza*, spelt: *nira*), pepper, and coconut. (tr. Minorsky, 1937: 88)

Al Ishtakhri says Sindan is five days' journey from Surbaya and Saymur while Al Idrisi gives the location as one and a half miles from the sea and five days' journey from Saymur. Al Ishtakhri says it is rich and populous with people noted for industry and intelligence. They are rich and war-like in temper and the town has extensive commerce in imports and exports. Al Biruni places Sindan 200 miles from Debal, between Broach and Supara (Elliott and Dawson, 1866-77: 27, 66; Sachau, 1983: 208-9). Buzurg Ibn Shahiyar al-Ram-Hurmuzi, a Persian sailor who collected stories of voyages from mariners and sailors on the waterfronts of Siraf, Basra and other ports in the tenth century describes the adventures of sailors making the journey to China and India from the Persian Gulf. His *Kitab Ajaib al-Hind* or the *Wonders of India* narrates the incident of a voyage undertaken by three ships from Siraf to Saymur (Chaul) in the year 919 CE and the misfortune that befell them as they tried to come into harbour at Saymur (Hourani, 1951: 119-20). The coasting route taken by the ships via Surbaya, Sindan and Tana is clearly described. Most of these accounts mention the presence of mosques, idol temples, fire-temples, synagogues and occasionally churches at these ports. Almost all of them speak of the presence of Arab and Persian traders settled at these ports.

The *Kisse-i-Sanjan* or the *Story of Sanjan*, as mentioned earlier, presents a community-specific history of the settlement. Although the text is focused on the migration, settlement and subsequent abandonment of Sanjan by the Zoroastrian Persians or Parsis, it is a valuable source of information. Some of the contents of this quasi-historical text can be corroborated with archaeological and historical data. That a large community of Persian Zoroastrians was settled in the port of Sanjan is clearly attested to by the presence of the Dokhma or the Tower of Silence, a funerary complex specific to this community. The genealogical tables or *disa-pothis* traditionally maintained by the Sanjana priests also support the early date of settlement at the site. Whether it were the migrants who established the settlement, as the text claims, remains a matter of great speculation. It may not be improbable that a merchant group could have set up a small settlement or trading outpost in the terminal Sasanian or very early Islamic decades and larger migrations could have followed. The

presence of Persian Gulf amphorae and storage vessels from the lowest levels may be indicative of such a settlement. This remains a hypothesis. However, the text describes the prosperity of the port, the arrival of more migrants from the Persian Gulf and the movement of these groups from Sanjan to other settlements along the coast. The mention of the 'hamjamanapura' in the Chinchani copper plates further supports the details mentioned in the *Kisse*, as do historical sources for other settlements such as Navsari, Bharuch, Khambat/Cambay, Variav and Randher, all of which find mention in the text. The archaeological evidence for the occupation of the site and the literary record of the migration and settlement of Persian Zoroastrians at the settlement during the same period substantiate their presence at the site. The mainstay of these early migrant groups appears to have been maritime trade or occupations which supported maritime trade. One may surmise this from the fact that the movement of these groups and settlements were concentrated almost completely along the west coast, particularly the Gujarat coast, with no attempt to settle in the hinterland.

The multi-cultural and cosmopolitan nature of settlement at Sanjan does not appear to be unusual. Chaul or Saymur also appears to have had a similar profile (Gogte, 2003: 1-8; Gogte et al., 2006: 62-80). Another important port in south India, Kollam or Quilon provides invaluable information regarding the working of ports and the demographic composition of port sites in the mid-ninth century CE. The Kollam copper plates in the Malabar are an important record for the mercantile communities settled along the coastline of India. Dated to 849 CE these plates document a grant made by the Chera king to a Christian church. Following the convention of having grants attested by prominent groups, the Kollam copper plates bear three sets of witness signatures in Arabic, Middle-Persian or Pahlavi and Judaeo-Persian in Hebrew script. There are 25 such signatures of West Asian witnesses who, as recent research suggests, were group testimonials, with each signature representing a whole group (Cereti, 2009: 31-50). Two trading guilds are also mentioned – Manigramam and Ancuvannam, the latter being an association of merchants from West Asia. The powers vested in these guilds by the king are detailed and provide insights into the administration of the port as well as the powers these guilds exerted. The West Asian signatures attest to different faiths – Muslim, Zoroastrian, Christian and Jew. This document corroborates the multi-cultural nature of port settlements and the prominence of West Asian merchants settled there.

The port of Khambat or Cambay was one of the most prominent centres of commercial activity in the Early Medieval period, after Nagara was rendered unviable due to sea-level changes. Almost every Arab and Persian record speaks of it in detail. Al Masudi (915 CE), Al Ishtakhri (951 CE), Ibn Hawkal (968-96 CE), Al Biruni (970-1040 CE) and later writers like Al Idrisi and Abdullah

Wassaf provide details about this important port. Khambaya or Khambayat, as it was referred to, was the point of convergence for several major land routes bringing the rich produce and resources from the hinterland to the coast for trade with the ports of the Persian Gulf and East Africa. Records also speak of the large numbers of West Asian merchants residing in the port, a number of who were wealthy horse traders. Amongst the numerous item of import and export listed by the Arab and Persian sources, specific mention is made of leather sandals which have great demand in Baghdad and of a particular type of emerald called 'Makkan' which was exported to Aden and Mecca (*Gazetteer of the Bombay Presidency*, 1880: 214). A similar demand is noted for leather sandals from Sindan or Sanjan as well. Masudi notes that the Brahmins of Khambaya were on friendly terms with the Arab traders. The *Kisse-i-Sanjan* also mentions Khambat as one of places where the early Persian Zoroastrians settled. Several foundation stones of old mosques, gravestones and a few old structures still stand testimony to the presence of these Arab and Persian settlers in the town. However, no excavation work has been undertaken to establish the Early Medieval levels of occupation at Khambat. One important discovery made by Prof. Kuldeep Bhan through surface exploration in the Lashkar Shah area of the present settlement was the presence of a manufacturing centre for glazed pottery (Bhan, 2006: 90-5). This ware has the typical red, sandy, coarse fabric of the clay in this area but it imitates the shapes and glazing of the monochrome bowls being imported into Indian ports during the twelfth and thirteenth centuries CE. These wares have been reported from several sites in Southeast Asia, East Africa and the Persian Gulf. Their provenance remained a matter of speculation until the discovery of this manufacturing centre. It is quite possible that the technology was imported, just as it is possible that the demand for glazed tableware was so great within the port that it may have been more feasible to set up a manufacturing centre within the settlement itself. Thus, the production could cater to local demand as well as export the surplus. More archaeological work is required to study this site and to understand the culture and nature of the Early Medieval port.

Early Medieval coastal sites in India have yet to become the focus of archaeological investigations. It is only in the recent past that interest in this period of history has been generated. It is hoped that further work will not only uncover the material culture but will also help in understanding the complex, multilayered and multicultural nature of these settlements through interpretation of the archaeological evidence.

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3

Provincializing the Littoral in Indian Ocean Heritage: Coastal Connections and Interior Contexts of the Southern Deccan

ANDREW M. BAUER

[I]n this same Dekkan there are two preeminent trading-centres, – Paithana, indeed, distant from Barugaza twenty days by road toward the south, and another very great city, Tagara, about ten days towards the east from that; from them, there are brought down to Barugaza, – by wagon-roads, and through vast places that have no proper roads at all, – from Paithana, a great quantity of onyx-stone, and, from Tagara, a plentiful supply of fine linen cloth, and all kinds of muslins, and mallow-coloured stuffs, and several other kinds of merchandise, pertaining to various places, which are taken thither from districts bordering on the sea. (*Periplus Maris Erythraei* as cited in Fleet [1901: 538])

In his identification of the *Periplus Maris Erythraei*'s 'great city' of Tagara as the modern site of Ter (Osmanabad district, Maharashtra), J.F. Fleet, a colonial-government-appointed epigrapher of the late nineteenth century, cited a long passage from the *Periplus* that both described the ancient town's location and some of the many materials that were taken to the coastal port of Barugaza, likely modern Bharuch (e.g., Abeydeera, 1998; Casson, 1983; Palmer, 1947; Ray, 1994). Fleet's (1901) identification of Ter as the ancient town of Tagara has generally been accepted, having been reproduced by numerous scholars and supported by subsequent archaeological excavations that have identified substantial Early Historic Period (c. 500 BCE-CE 500) occupation at the site and a number of artifacts that suggest it was well connected with coastal trading ports in antiquity (e.g., IAR, 1958 to 1975; Ray, 1994). Regardless of Ter's ancient toponym, I begin this essay with Fleet's citation because it indicates that a variety of 'merchandise' was 'brought down' to coastal locations as part of the vast network of Indian Ocean trade that had developed by the time of the *Periplus* in the first or second century CE. In short, it suggests that the broad linkages of commerce and culture that would develop throughout the Indian Ocean were clearly not limited to coastal regions.

This is not a new observation. Scholars have long pointed out that many

of the trade items that circulated throughout the Indian Ocean in antiquity were not limited to coastal origins or destinations (e.g., Denbow et al., 2015; Ray, 1994). Indeed, a number of researchers have highlighted connections between inland and coastal inhabitants on the western side of the Indian Ocean, where occupants of interior southern Africa and the Zimbabwe plateau were integral to trade networks that would develop along the Swahili coast, supplying ivory, gold, and salt in return for glazed ceramics, glass beads, and cloth, among other things (cf. Denbow et al., 2015; Huffman, 2009; Wood et al., 2012). Yet as the network of historical Indian Ocean trade has increasingly received attention as a world heritage phenomenon, highlighting interregional interactions that have shaped culture and commerce for millennia (e.g. ENSEM/DAC-OI 2011, 2014; IIC-AP, 2015; MOC-GOI, 2014), most emphasis has been focused on the coastal linkages and port towns that facilitated this historical process. While this is understandable – after all, a great number of ‘[f]ishermen, sailors, and merchants’ (MOC-GOI, 2014: 5) travelled the waters of the Indian Ocean in producing long-term interregional connections – it potentially risks neglecting the role of interior relations and activities that were also critical to this historical phenomenon. For instance, the UNESCO synthesis of the *Outstanding Universal Value* of Kilwa Kisiwani, a port near the southern end of the Swahili coast that flourished in the early second millennium CE, highlights the site’s historical ‘control of Indian Ocean trade’ without a single reference to the African interior beyond its implicit treatment as the ‘hinterland’ from which Kilwa’s critical gold and ivory trade items originated.¹ Yet by way of contrast, a comparable UNESCO synthesis for Great Zimbabwe, an interior site contemporary to Kilwa, stresses the site’s connections to coastal Kilwa and long-standing trade with ‘the outer world’.² In short, the orientations frame Kilwa as active and central in its ‘control’, while Great Zimbabwe is cast as peripheral, mere ‘hinterland’ to an ‘outer world’ of transoceanic activity.

In this paper I will reorient this emphasis on trans-regional heritage by calling attention to some interior contexts that were significant in shaping commerce and culture throughout the ancient Indian Ocean world. If one accepts, for instance, that part of what constitutes the place-specific character of coastal trading locales is the distinctly ‘nonlocal’ materials and things that create them through their circulation and transformation, then research on coastal heritage must necessarily encompass connections to interior contexts as well as the vast network of other ports, merchants, ocean currents, and winds that facilitated the movement of people, objects, and ideas. Here I draw on a variety of archaeological and historical evidence about coastal connections to the southern Deccan region and other interior regions of south India during the Neolithic Period (c. 3000-1200 BCE), Iron Age (c. 1200-500 BCE), and

Early Historic Period (*c.* 500 BCE–CE 500). I do so by calling attention to a number of materials that moved between India's littoral and interior locales during these periods. The limitations of space and current archaeological research do not make it possible to detail the nature and full range of all of the interactions addressed below; however, the current state of evidence nevertheless implies that an argument can be made for 'provincializing' the littoral in ancient Indian Ocean trade – a point that I return to in the discussion that follows.

LINKING THE COAST AND THE INTERIOR IN PREHISTORIC AND EARLY HISTORIC SOUTH INDIA

A long history of archaeological research on the southern Deccan provides a firm basis to evaluate connections between coastal and interior inhabitants of south India over much of the last 5,000 years. The region's late prehistoric and early historic archaeological record is typically divided into three rather lengthy periods of occupation, all of which include evidence that coastal materials were incorporated into interior social contexts: the Neolithic Period (*c.* 3000–1200 BCE), wherein social relations of small agro-pastoral communities appear to have been relatively egalitarian; the Iron Age (*c.* 1200–500 BCE), during which evidence for inequalities and marked social distinctions and affiliations among agro-pastoral communities is present; and the subsequent Early Historic Period (500 BCE–CE 500) when archaeological and textual evidence indicate that settlement concentrated in some locations and urban centres emerged within regional dynastic polities. A variety of changes in agro-pastoral production and consumption, craft specialization (e.g., metallurgical technologies), exchange relations, landscape histories, ideologies, and institutionalized religious practices have been considered as both causes and consequences of these broad socio-historical transformations (e.g., Bauer, 2015; Bauer et al., 2007; Chakrabarti, 1995; Heitzman, 1993; Johansen and Bauer, 2015; Morrison, 1997; Ray, 1986, Ray and Salles, 1996; Sinopoli, 2001). Here I necessarily begin by reviewing some of the archaeological and textual evidence that link inland inhabitants with Indian Ocean trade during these periods. In doing so I draw heavily on my own long-term collaborative research as part of the Maski Archaeological Research Project (MARP) (e.g., Bauer et al., 2012; Johansen and Bauer, 2015; Johansen and Bauer, 2013) and the Early Historical Landscapes of the Tungabhadra Corridor Project (EHLTC) (e.g., Morrison et al., 2009; Sinopoli, 2009), both situated in interior northern Karnataka (Figure 3.1). I then return to a discussion of how social and historical contexts in the interior helped shape the broader network of Indian Ocean interaction in antiquity.

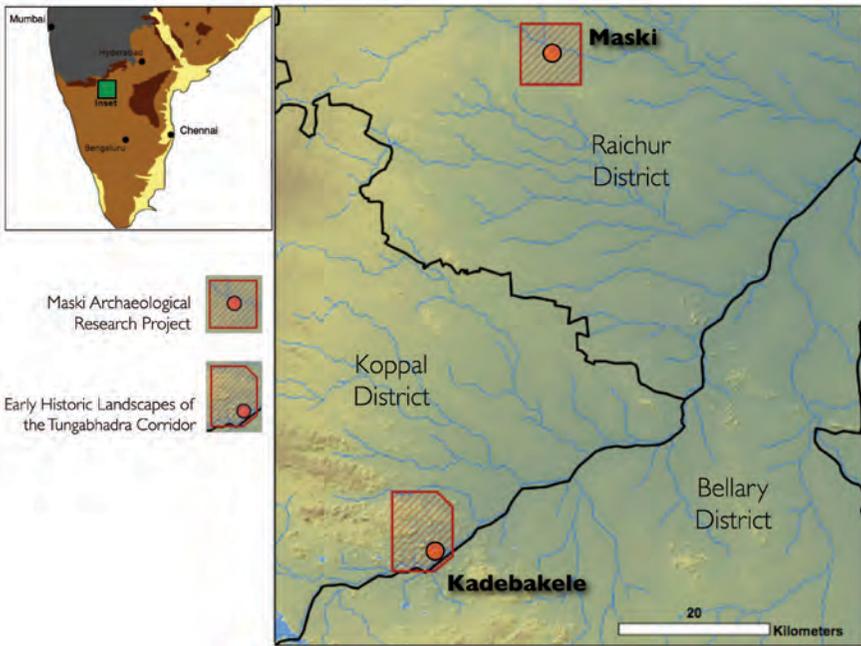


FIGURE 3.1: INTERIOR LOCATION OF THE SURVEY AREAS OF THE MASKI ARCHAEOLOGICAL RESEARCH PROJECT AND THE EARLY HISTORIC LANDSCAPES OF THE TUNGABHADRA CORRIDOR PROJECT (INCLUDING SEVERAL OF THE SITES DISCUSSED IN THE TEXT)

Coral, Conch, and Coins

Perhaps the most straightforward evidence for coastal connections from south Indian interior contexts in the Prehistoric and Early Historic Periods is the presence of marine materials such as conch shell, cowries, and coral. These materials have been found in the form of bangles, beads, or pendants in both burial and habitation contexts on a variety of Neolithic, Iron Age, and Early Historic Period sites in interior portions of southern India (e.g., Deveraj et al., 1995; Kelly, 2013; IAR, 1958, 1975; Sastri, 1984; Thapar, 1957; Wheeler, 1948). In addition to these clear indications that coastal materials moved inland, ceramics that were also likely produced in coastal areas, such as Early Historic Rouletted Ware, and Roman coins demonstrate the movement of items from coastal trading areas to interior regions of the subcontinent (Gogte, 1997; Morrison, 1997; Ray, 1986). The distribution of these materials eliminates any doubt that interior regions of south India were in some way connected to the trading networks that developed along the Indian Ocean coasts, though the intensity and nature of those connections to interior regions requires considerably more examination.

At archaeological sites that have relatively well-documented stratigraphy it is possible to evaluate how coastal-interior connections intensified throughout the periods of interest. At Maski, for instance, artefacts made of shell and

coral increase in frequency from Neolithic through Early Historic Period deposits. Only seven beads made of marine materials were reported in Neolithic Period contexts; but 25 were identified in Iron Age deposits and 58 in Early Historic Period levels. Furthermore, shell bangles occur in only Iron Age and Early Historic levels at the site, of which the later period has a considerably higher quantity (n = 35) than the earlier period (n = 3) (cf. Figure 3.2; Thapar, 1957; see also Bauer and Johansen, 2015 on the chronology at Maski). Although it is hard to draw broad conclusions from such simple frequencies (as opposed to measures normalized by small find recovery or the volume of excavated material), it is noteworthy that similar patterns have been recorded on other interior sites. At Brahmagiri, for example, marine shell bangles are largely confined to the Early Historic Period deposits (Thapar, 1957; Wheeler, 1948). Moreover, other excavated Iron Age and Early Historic Period interior sites, such as Kadabakele in northern Karnataka and Kodumanal in north-western Tamil Nadu, when taken together suggest a comparable pattern of increased interaction with coastal areas in the Early Historic Period. Kelly (2013: 158) reported the presence of only one shell bangle fragment in Iron Age deposits at Kadabakele and that just over 5 per cent (10 of 179) of beads were made of marine shell. However, at Kodumanal, a site of primarily Early Historic Period and later deposits, nearly 10 per cent (41 of 429) of the beads from habitation areas are marine shell, a figure that is even higher when one includes coral beads and cowries (Kelly, 2013: 180; see also Rajan, 1994 and 1996). Kodumanal habitation deposits also include a high number of shell bangles (n = 136) (Kelly, 2013), further suggesting that the material became important in interior contexts during the Early Historic Period.

The production of shell bangles at sites such as Maski and Kodumanal further underscores the apparently larger-scale and systemic character of interaction between coastal and interior regions by the Early Historic Period. The small number of marine materials found in Neolithic and Iron Age contexts of southern Deccan sites might have resulted from ‘down-the-line’ interactions, in which coastal materials were transported inland through a

Period / Material	Neolithic	Iron Age	Early Historic	Medieval
Coral Beads	2	8	20	1
Shell Beads	5	17	38	2
Shell Bangles	0	3	35*	0*
Total	7	28	93	3

FIGURE 3.2: FREQUENCIES OF SMALL FINDS MADE OF MARINE MATERIALS AT MASKI (BASED ON DATA REPORTED BY THAPAR [1957]). *NOTE THAT THAPAR (1957) DOES NOT SPECIFY THE NUMBER OF SHELL BANGLES THAT WERE RECOVERED FROM MEDIEVAL PERIOD CONTEXTS, BUT SUGGESTS THAT THERE WERE NONE

series of individual social exchanges among intermediate occupants (e.g., Kelly, 2013; Renfrew, 1975). However, by the Early Historic Period it is clear that marine materials were being crafted into finished objects at interior places and that the nature of interaction was carried out on a scale that likely exceeded the exchange of single objects. At both Maski and Kodumanal there is evidence that whole conch shells were regularly cut into bangles. Shell waste from craft production is evident in many levels at Kodumanal, including whole shells, sawn columella fragments, and chipped pieces of shell body that collectively indicate that many bangles were crafted locally at the site, particularly in the later stages of occupation (Kelly, 2013: 259-66). Thapar (1957: 112) has made a similar argument at Maski, where he reported production waste as evidence of bangle manufacturing from shells. MARP has further noted several complete conch shells on the surface of Maski's Early Historic Period site as additional evidence that shells were brought into the region as unfinished artefacts and potentially crafted locally for distribution. It thus appears that craft producers at Maski and Kodumanal had a relatively regular supply of marine shells, given that inhabitants or itinerant craftspeople were clearly familiar with techniques for working the material inland. In fact, Thapar (1957) further stressed that the variety of design motifs found on Early Historic Period bangles at Maski could be considered evidence of an 'advanced and distinctive' industry at the site during the period (111).

Much more work must be carried out on the scale and degree of such production activities in the southern Deccan region. Nevertheless, taken together the archaeological evidence presented above suggests that by the Early Historic Period material circulation between coastal and interior inhabitants was almost certainly not small-scale 'down-the-line' exchange. Indeed, the archaeological evidence largely corroborates historical scholarship that has identified the emergence of a variety of producer and merchant guilds that coalesced during the period and facilitated the movement of materials across broad regions, including the Deccan (e.g., Ray, 1986; 1994). Hence, it should not be surprising that the *Periplus*, as a Greek account of Indian Ocean trade routes and 'all of the items that could be bought or sold at the various ports of call' (Casson, 1983: 165), identifies locations of the Deccan interior as the source of a variety of materials that moved overland to coastal ports in bulk (e.g., Casson, 1983, Fleet, 1901; Palmer, 1947), further strengthening arguments that coastal and interior connections were well established through systematic trading activities by the Early Historic Period.

Pepper, Cultigens, and Cloth

If the presence of coral, conch, and Mediterranean coins in interior contexts is one clear corpus of evidence for connections with coastal regions, then the

distribution of botanical remains and cultigens is another. Although less ostensibly indicative of connections with the coast than artefacts made of marine shell, a variety of botanical remains reveal that some form of interaction between coastal regions and the interior can be rooted in the Neolithic Period. For instance, domesticated millets that were initially cultivated in eastern Africa are found at a number of interior southern Deccan sites dating to the latter portion of the Neolithic Period. *Sorghum bicolor* (sorghum/jowar), *Pennisetum glaucum* (pearl millet), and *Eleusine coracana* (finger millet/ragi) – all considered to be ‘traditional’ dry-farmed crops of semi-arid regions of interior south India today – originated in Africa and arrived in interior south India by at least the end of the second millennium BCE, probably as a result of coastal exchange (e.g., Boivin and Fuller, 2009; Fuller et al., 2011). Moreover, pulses such as *Vigna radiata* (mung bean) and *Macrotiloma uniflorum* (horsegram), that were initially cultivated in interior south India during the Neolithic Period were transported to the coasts, showing up on the Malay Peninsula by the end of the first millennium BCE (cf. Castillo and Fuller, 2010; Fuller et al., 2001, 2011). Lastly, based on evidence for *Musa sp.* starch grains in Iron Age deposits at Kadabakele, it appears that bananas were also part of the botanical assemblage of some prehistoric Deccan sites (Morrison et al., 2015); the cultigen probably spread from islands of the Western Pacific (e.g. New Guinea, Philippines) where they were initially domesticated (cf. Denham and Donohoe, 2009; Fuller et al., 2011).

To make the point more strongly it is worth stressing that several of the most significant things that the Early Historic Period ocean vessels carried away from Indian ports were *both* organic and from more interior reaches of the subcontinent. Pepper is the most well-known example; it figured prominently as one of the more important imports of the Mediterranean region from Indian Ocean trading endeavours (e.g., Abeydeera, 1998; Fitzpatrick, 2011; Fuller et al., 2011; Morrison, 2002). Yet peppercorn is endemic to only the wet upland forests of a relatively small region of south-western India. Based on a variety of evidence, including an assessment of long-term archaeological occupation, the distribution of coastal trade items (e.g., Roman coins), and textual references, Morrison (2002) has convincingly suggested that forest products such as pepper ‘were collected by upland groups at least partially specialized toward gathering and trading of forest produce’ (Morrison, 2002: 109). In other words, pepper as a significant trade item of southern Indian coastal ports was procured only through interactions with inland inhabitants.

A similar argument might also be made for the ports situated along the northern stretches of the Deccan. As noted above, the *Periplus* identifies a variety of textiles and objects that were transported over great distances with ‘no roads at all’ (Fleet, 1901: 538) from highland Deccan sites to coastal

merchants (see also Casson, 1983: 175; Palmer, 1947). Moreover, later historical records, including Chinese sources of the Sung period (CE 960-1279) and the accounts of Marco Polo continue to suggest that the Deccan was a significant source of textiles around the end of the first millennium CE (Ray, 1994: 117). Thus, it seems likely that many of the cloth materials referenced in the *Periplus* originated among various Deccan agricultural and pastoral communities who, based on a limited number of systematic regional surveys (e.g., Bauer, 2015; Johansen and Bauer, 2015; Kadambi, 2011; Sinopoli and Morrison, 2007; Sugandi, 2008; Suvrathan, 2014), probably occupied large portions of the interior region during the Iron Age and Early Historic Periods. Not surprisingly, spindle whorls or loam weights have been found on many interior Iron Age and Early Historic Period sites that have been excavated, including Maski (Thapar, 1957; see also Kelly, 2009). While the suggestion that interior Deccan communities were the source of a variety of textiles that were incorporated into Early Historic Period Indian Ocean trade remains somewhat speculative on archaeological grounds, given that textiles are rarely preserved on archaeological sites and are difficult to source, it is nevertheless clear that the movement of materials and objects among coastal and interior contexts was not unidirectional during the period. While shells, coral, and coins moved inland from the littoral, for instance, a variety of materials appear to have also gone the other direction with varying degrees of certainty – including definite forest products like pepper and other spices from upland areas of south-western India, and probably products of agro-pastoral communities in the Deccan, such as textiles. Moreover, inorganic materials might have also been among the things that moved from inland to coastal locations during the period.

Gold

There is a variety of evidence to suggest that interior regions of south India were also a significant source of at least some of the gold that was distributed through the broad trading networks that developed by the Early Historic Period. It is worth noting at the outset of this discussion that historically attested large-scale gold mining has been carried out in only a few locations in India, with the well-known locales around Hutti in northern Karnataka and Kolar in south-eastern Karnataka figuring prominently in most nineteenth- and twentieth-century accounts of gold extraction (e.g., Allchin, 2011, Foote, 1888, Maclaren, 1906; Rice, 1897). Hence, it should not be surprising that previous scholars have pointed to interior regions of south India as the likely source of gold for a variety of prehistoric artefacts from across the subcontinent. Indeed Marshall (1931) suggested that gold finds at Mohenjodaro originated in Karnataka, a suggestion that Allchin (1962) later supported by highlighting the distribution of contemporaneous southern Neolithic Period settlements in gold mining areas of the state. Such associations alone are weak lines of

evidence to argue that Karnataka's gold deposits were incorporated into Indian Ocean exchange systems in prehistory (see also Nath et al., 2014; Ray, 1994: 13); however, stronger evidence exists for their mining and distribution in later periods.

The Precambrian igneous and metamorphic rocks of interior south India have concentrations of gold-bearing quartz veins that were probably mined by at least the Early Historic Period (e.g., Radhakrishna and Vaidyanadhan, 1997). A high number of ancient gold 'workings' have been observed by a variety of scholars, including colonial geologists and administrators who reported numerous open-cast facilities and in-filled mineshafts into gold-bearing quartz veins in Karnataka, particularly around Kolar, Gadag, Hutti and Maski (cf. Allchin, 1962; Foote, 1888, Maclaren, 1906) (Figure 3.3). It is hard to know the age of many of these 'ancient workings' from surface remains and colonial reports. However, it is noteworthy that wood samples from excavations of an ancient mineshaft near Hutti and Maski were submitted for radiocarbon assessment by the Director of Mines and Geology of the Government of Hyderabad by the time of Allchin's writing in the early 1960s. As reported by Allchin (1962), two samples from approximately 75 m in depth yielded radiocarbon ages of 1890 ± 70 and 1810 ± 70 (Allchin, 1962: 205-6). Although there is little additional contextual information with which to evaluate these assessments, current calibrations of these radiocarbon results nevertheless suggest that the mineshaft was open and likely in use during the Early Historic Period (Figure 3.4). Moreover, Allchin (1962) reported that Early Historic Period artefacts were recovered from the excavated fill of similar mineshafts in the region.

Additional archaeological evidence from Maski implies that gold mining was occurring in the southern Deccan during the Early Historic Period. MARP



FIGURE 3.3: DURGADA GUDDA GRANITIC OUTCROP OF MASKI

OxCal v4.2.4 Bronk Ramsey (2013); r:5 IntCal13 atmospheric curve (Reimer et al 2013)

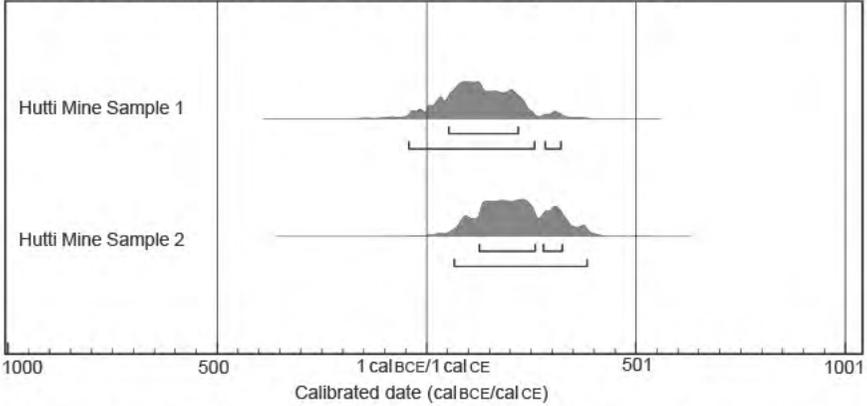


FIGURE 3.4: CALIBRATED DISTRIBUTION OF RADIOCARBON ASSAYS REPORTED BY ALLCHIN (1962) FROM A MINESHAFT NEAR HUTTI (RAICHUR DISTRICT). (THE RESULTS, CALIBRATED WITH OXCAL V4.2.4 TO THE INTCAL13 ATMOSPHERIC CORRECTION CURVE, SUGGEST THE MINESHAFT WAS IN USE IN THE EARLY HALF OF THE FIRST MILLENNIUM CE.)

has documented several archaeological features and surface deposits of highly fractured quartz as part of archaeological sites that were almost certainly produced by gold ore beneficiation (processing) activities. These sites include crushing stones and broad grinding surfaces with inset depressions in association with outcropped gold-bearing quartz veins (Johansen and Bauer, 2015 and 2013; Figure 3.5). The MARP sites are similar to those described by earlier



FIGURE 3.5: CLUSTER OF GRINDING SLICKS AT GOLD ORE BENEFICIATION SITE (MARP-8) NEAR MASKI, SIMILAR TO THOSE NOTED BY OTHER GEOLOGISTS AT ANCIENT GOLD-WORKING SITES (PHOTO COURTESY PETER JOHANSEN).

geologists as gold-working facilities (cf. Maclaren, 1906; Munn, 1934), and thus add some weight to earlier assessments of the high number of ancient mineral extraction and processing facilities in interior Karnataka. Moreover, MARP's largest such processing site (MARP-8) appears to have been active during the Early Historic Period occupation of the study area, given the site's close proximity to the region's largest documented Early Historic Period settlement, an associated Ashokan edict less than 150 m away, and preliminary assessments of the ceramic assemblage associated with the facilities. While it is possible that these facilities were produced and used in other periods as well, the contextual associations suggest an Early Historic Period age for the site, and thus seemingly also corroborate the radiocarbon assessments of in-filled mineshafts elsewhere in the region.

Given the geological distribution of gold-bearing deposits in south India and the archaeological evidence above, a relatively strong argument can be made that interior Karnataka was an established source of gold extraction in pre-colonial periods; however, that the material found broad distribution away from its source is more speculative. As already noted above, there can be little doubt that the region was systematically connected to trading networks that extended much farther afield (see above). It is also worth noting that textual evidence supplies some weak support that Karnataka gold was traded throughout the subcontinent. For example, scholars have cited inscriptional references to Suvarnagiri (the 'golden mountain') in Ashokan edicts of the southern Deccan to strengthen arguments that interior Karnataka was a principal source of the material during the Early Historic Period (cf. Allchin, 1962; Fleet, 1916). Moreover, the *Arthashastra* suggests that gold, gemstones, and conch shells were several of the materials that were acquired in northern India from southern locales during the period (also see discussion in Allchin, 1962). However, it remains speculative whether such southern sources of gold included interior portions of south India. Other textual sources, such as the Sangams and the *Periplus*, suggest that gold was one of the significant materials that passed through southern ports, such as Muziris on the Malabar Coast (possibly modern Pattanam, Ernakulam district, Kerala); yet these sources generally reference the material as having been imported in the form of Mediterranean coins, rather than having been exported or obtained from elsewhere on the continent (e.g., Abeydeera, 1998; Fitzpatrick, 2011; Hart and Heifetz, 1999). In short, none of this evidence provides firm indications that Karnataka gold was distributed across the broader reaches of Indian Ocean trade networks in antiquity. However, collectively it is suggestive that the material was systematically extracted by at least the Early Historic Period in the interior, which by that time had well-established connections with coastal towns and merchants. Hence, it would not be surprising if some of the gold that passed through Indian Ocean ports was indeed derived from south India's interior contexts.

COASTAL CONNECTIONS AND INTERIOR CONTEXTS:
PROVINCIALIZING THE LITTORAL

The archaeological and textual evidence presented above suggests that there were systematic modes through which materials were exchanged and transported from coastal and interior regions of southern India by at least the Early Historic Period. Merchants and producers that availed themselves of the great variety of materials and objects that passed through Indian Ocean ports were clearly not limited to products that were derived from the littoral. To the contrary, some of the more important trade items, such as spices, textiles, gemstones, and perhaps gold, were obtained from upland and interior reaches of southern India. Thus, coastal traders appear to have been as dependent on relationships with interior inhabitants as they were with the network of shippers and other port merchants that facilitated commerce across the broad reach of the Indian Ocean. Put in other terms, interior inhabitants were anything but peripheral to Indian Ocean trade; rather, they were the source of many of the diverse materials and goods that passed through coastal ports and constituted them as viable trading places.

My point in drawing attention to the degree to which interior inhabitants were involved in Indian Ocean trade is not simply to demonstrate that inland areas were connected to the coast through a network of merchants and exchange relationships; rather, my point is to more critically emphasize the role that interior inhabitants played in shaping the course of Indian Ocean commerce and cultural practices in antiquity. For instance, the historian Matthew Fitzpatrick (2011) has recently called attention to the need to ‘provincialize’ Rome in historiographical treatments of ‘archaic globalization’ that occurred throughout the ancient Indian Ocean world (p. 30). Rome and other Mediterranean centres were anything but the ‘centre’ of economic activity that connected Asia, Europe, and Africa during the early first millennium CE. In Fitzpatrick’s (2011) words, ‘Rome at no point controlled Indian Ocean trade, even if its demand for Eastern commodities provided a massive stimulus to it’ (p. 53). Here I would like to extend Fitzpatrick’s argument even further. To provincialize Roman influence on Indian Ocean commerce is an important historiographical point; to decentre the ports and coastal locations that facilitated Indian Ocean exchange is another entirely.

Interior reaches of southern India were not simply ‘hinterland’ to coastal towns. Inhabitants of inland areas were necessarily situated within their own unique socio-political and historical contexts that influenced how inhabitants engaged Indian Ocean trade and, consequently, how Indian Ocean trade was shaped through that engagement. It appears that during the Neolithic Period, a time when social relationships were relatively egalitarian, objects that were imported from coastal locations were largely subsistence related – such as the

incorporation and dispersion of a variety of cultigens that are now considered to be the ‘traditional’ crops (e.g., millets) of associated foodways for many regions of the interior (Figure 3.6). Although other coastal and non-locally produced objects are present in southern Deccan Neolithic contexts, it is only in the later Iron Age and Early Historic periods that the importation of these materials intensified. There is archaeological evidence for the emergence of pronounced social differentiation during these later periods, particularly evident in the monumental mortuary practices that developed during the Iron Age and continued into the Early Historic Period (cf. Bauer and Johansen, 2015; Bauer and Trivedi, 2013; Brubaker, 2001; Haricharan et al., 2013; Moorti, 1994). As agro-pastoral communities of the southern Deccan became increasingly differentiated along axes of production and consumption activities, settlement configurations, and mortuary traditions (e.g., Bauer, 2015; Bauer et al., 2007; Johansen, 2011; Sinopoli, 2005), there is also archaeological evidence for an increased use of a variety of personal adornments, such as beads, bangles, earrings and pendants, that likely both constituted and represented aspects of social distinction. Indeed some of the more elaborate monumental mortuary features of these periods include unique quantities of such small finds – 33 gold beads recovered from a single megalithic burial at the site of Brahmagiri (Wheeler, 1948: 196) and more than 2,000 imported carnelian beads in a single megalith at Kodumanal (e.g., Kelly, 2013; Rajan, 1994). Thus it appears that the emergence of salient socio-political distinctions



FIGURE 3.6: EXAMPLE OF A ‘TRADITIONAL’ MILLING STONE (MARP-209) NEAR MASKI THAT HAS FALLEN OUT OF USE AS HISTORICAL CROPPING AND PROCESSING REGIMES HAVE CHANGED

among inland communities of southern India during the Iron Age and Early Historic periods was related to an expanding material assemblage that meaningfully incorporated non-local trade items.

In short, many Indian Ocean trade items, such as shell and coral, appear to have been intensively and extensively exchanged with interior inhabitants only as material assemblages became politically salient and began to socially differentiate interior inhabitants – ranging from architectural distinctions at settlement and ritual places to personal adornments and consumption differences. Prior to the development of this socio-historical context interior occupants had seemingly less use for such coastal objects, given evidence for the long-term availability of at least ‘down-the-line’ marine materials in the Neolithic Period. Similar to how the cultural anthropologist Marshall Sahlins has critiqued historiographical treatments of the emergence of the modern world system as considering “‘peripheral’ people’ as ‘the passive objects of their own history’ (Sahlins, 1988: 2), inhabitants of the southern Deccan were not simply drawn into a vast network of Indian Ocean trade; they participated in culturally and historically specific ways. Indeed, interior inhabitants during the later Iron Age and Early Historic periods also apparently crafted coastal materials into locally significant objects, cutting conch shell into a variety of bangles at sites such as Maski and Kodumanal. I stress this latter point because it underscores the limitations of considering interior regions of the Indian Ocean world as mere ‘hinterland’ or periphery to a broader world of Indian Ocean commerce.

Common models of trans-regional commerce, such as the world-systems theory (e.g., Algaze, 1989; Frank, 1993; Wallerstein, 1974), or dependency theory (e.g., Frank 1967), often characterize ‘peripheral’ contexts as those that are caught in asymmetrical exchange relations with ‘core’ centres, typically supplying raw materials to the core in exchange for more profitable manufactured products or ‘luxury goods’ (though see also Ekholm and Friedman, 1982). Yet in the case of the Deccan, textual and archaeological evidence demonstrate that raw materials and craft objects moved in both directions. While interior inhabitants incorporated a variety of non-locally produced objects, such as etched-carnelian beads, coral beads, and Roman coins into their material assemblages, they also transformed non-local materials into culturally significant things – modifying shells into bangles, beads, and other adornments. Some of these objects were possibly traded farther afield, along with raw materials such as gold. Other craft items like textiles – hardly untransformed ‘raw’ organic materials – were also probably traded from interior production locales to littoral merchants. It is unclear if these trade relations can be accurately characterized as structurally asymmetrical or hierarchical in either direction; however, what is clear is that coastal traders or merchant guilds and the viability of coastal ports were probably as significantly tied to inhabitants of interior locales as to a network of other ports and people. In fact, the *Periplus* itself

explicitly suggests that emergent dynastic rivalries in the Deccan greatly affected merchant activities at coastal ports by disrupting inland routes and diverting significant trade goods (see Casson's [1983] discussion of 'Sakas versus Andhras').

Thus, as the network of historical Indian Ocean trade has rightly received attention as a world heritage phenomenon it is important to emphasize trans-regional connections between interior and coastal areas as well as those that linked littoral inhabitants and merchants from Asia to Africa. Clearly more research is needed on how occupants of the southern Deccan participated in shaping the network of commerce and interaction that would develop across the Indian Ocean in antiquity. Here I touched on just a few of the many materials and objects that likely moved between interior and coastal contexts in prehistoric and early historic south India. Additional historical and archaeological research, particularly the use of archaeology's rich repertoire of material science techniques for sourcing objects, could surely shed additional light on the variety of 'merchandise' that was 'brought down' to the coastal ports from the Deccan in the Early Historic Period. Such analyses and additional research on Deccan archaeological sites might also significantly alter the way we imagine the spatial geography of the Indian Ocean trade. While it may appear that coastal locales 'controlled' an 'outer world' of trade and commerce, there can already be little doubt that the specific historical and social contexts that constituted interior places greatly affected the variety of materials and objects that passed through coastal ports and shaped them as interactive spaces. This is not to say that the coasts should be recast as peripheral to inland centres, but rather to stress that interior regions were anything but passive hinterland to Indian Ocean coastal commerce and cultural activities.

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NOTES

1. <http://whc.unesco.org/en/list/144>, 'Ruins of Kiwa Kisiwani and Ruins of Songo Mnara', accessed on 28 July 2015.
2. <http://whc.unesco.org/en/list/364>, "'Great Zimbabwe" National Monument', accessed on 28 July 2015.

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4

Contested Sea Spaces: Of Piracy and Sea Battles Along the West Coast of India

HIMANSHU PRABHA RAY

Traditionally the Indian coasts have been portrayed as inhospitable regions in secondary writing, lacking natural harbours and afflicted with a shallow continental shelf and turbulent swells of waves. Did this deter travel across the Ocean and attempts to control the waters? Based primarily on architectural and archaeological evidence and inscriptions, this paper presents an overview of maritime activity in the period from the second century BCE to fourteenth century CE and underscores the contested aspects of sea spaces, especially those involved with piracy and sea battles. An analysis of the textual accounts of traditional sailing together with the ethnographic data confirms that the same watercraft was used for multiple purposes such as cargo carrying, carrying of passengers, and taking on protective roles in times of attack. Two issues are highlighted here: one the attempted control of the seas that is mentioned in royal inscriptions from peninsular India dating from the beginning of the Common Era onwards, as also references to sea battles in the period prior to fourteenth century CE; and the second relates to the location of urban centres, markets and forts along the coast that were prone to attacks and hence had to be fortified and defended.

Monumental architecture along the coasts served dual functions, as these were also used as major orientation points by watercraft while approaching land, for example, the Muslim mausoleums in the Gulf of Kachchh. Several examples may be added from the east coast, such as the Narsimha Temple at Bhemunipatnam on the Andhra coast, and the Konarak Temple in Orissa (Deloche, 1994: 199). Perhaps the most relevant example for this paper is the Buddhist monastery at Nagapattinam popularly known as the Chinese Pagoda, which was a major landmark on the Tamil coast from the seventh to the nineteenth centuries CE, when it was demolished to build a Jesuit college. Sir Walter Elliot (1803-87), a Scottish civil servant in India visited the Chinese Pagoda in 1846 on board the government steamer *Hugh Lindsay*, which travelled down the coast, and described it as a 'four-sided tower of three stories

constructed of bricks closely fitted together without cement' (Ray, 2015: 56). The larger issue addressed here underscores the need to include coastal structures such as wharfs, forts, shrines, archaeological sites, etc., as a part of the country's maritime heritage and to aid in their preservation for posterity.

This paper is divided into two sections: one dealing with the ocean as contested space; and the second focusses on urban centres, forts and other structures along the west coast of India.

THE OCEAN AS CONTESTED SPACE

By the second-first century BCE, royal inscriptions initiate the practice of defining the domain of a king. On the back wall of the veranda in Buddhist Cave 3 at Nasik, above the entrance is the record of Balasiri, the mother of Gotamīputa Siri Sātakani, the ruler of the Satavahana dynasty. The caves are known as Pandulena and are situated 8 km west of Nasik town about 60-70 m above the level of the plain below and are connected to the west coast through Thalghat, a pass in the Sahyadri range (Figure 4.1, Ray, 2013: 44-59). The region around Nasik was occupied as early as the prehistoric period and settlement is known to have continued. The primary purpose of the inscription is to record a donation by the queen to the Buddhist Sangha. But while recording the gift the inscription also contains an eulogy of her son Gotamīputa whose honorific titles indicate his sovereignty over a vast territory stretching until the three oceans. The king is described as a unique brahmana, equal in prowess to the epic heroes Rama, Kesava, Arjuna and Bhima. Thus the inscription is valuable as the earliest evidence for royal control of the oceans,

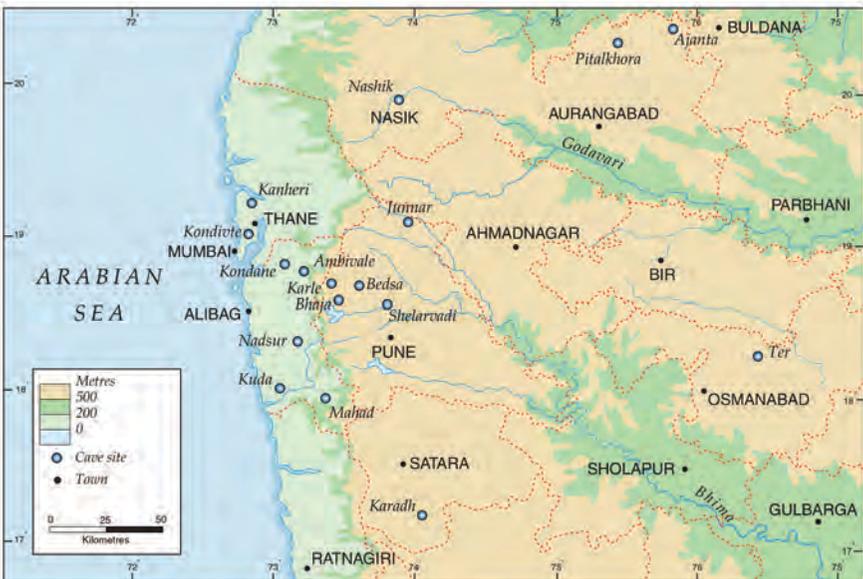


FIGURE 4.1: MAP SHOWING NASIK AND OTHER CAVE SITES

but what is intriguing is its location in a Buddhist *vihāra* and the inclusion of epic heroes as role models for the king.

No doubt Cave 3 (Figures 4.2 and 4.3) was an unusual setting for the queen's inscription. It consists of a large hall with eighteen cells around it, five to the left, six at the back and seven to the right. There are two additional cells in the veranda in front. A well-preserved relief of a stupa was cut in the back wall of the hall between doorways to the third and fourth cell. There are three additional royal inscriptions engraved in the veranda. Unlike many of the other rock-cut caves in the western Deccan, the two *vihāras*, numbers 3 (Gotamīputa cave) and 10 (Nahapana cave) stand out as well-laid out and intricately carved residences with elaborately sculpted pillar capitals showing animals with human riders, as also a wealth of inscriptional data.

These records accord a special place to the Buddhist monastic centre at Nasik and to Satavahana claim for control of the three oceans. How is this



FIGURE 4.2: FAÇADE OF BUDDHIST CAVE 3 AT NASIK (COURTESY: AMERICAN INSTITUTE FOR INDIAN STUDIES, GURGAON)

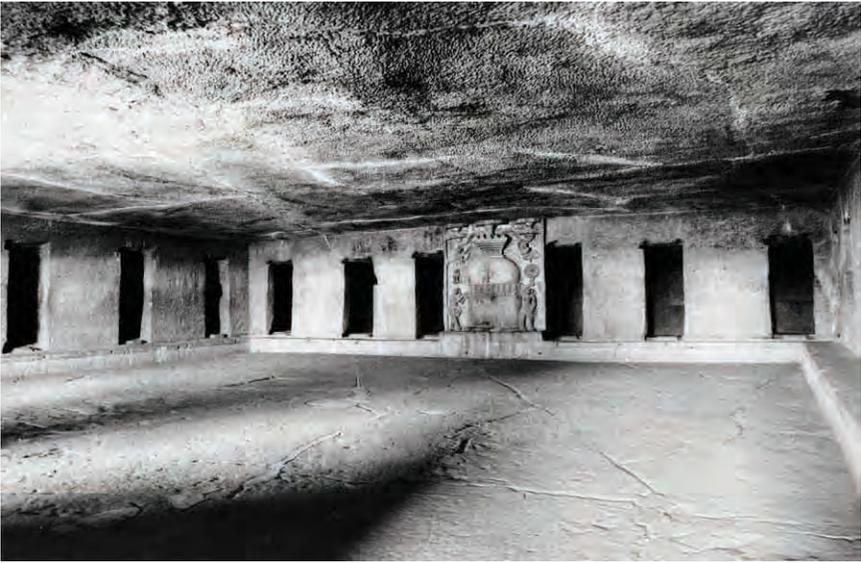


FIGURE 4.3: INTERIOR VIEW OF CAVE 3 AT NASIK SHOWING THE STUPA SCULPTED IN THE BACK WALL, WITH A HALL IN FRONT

royal power of control over the oceans represented? No visual depictions are to be found in the caves at Nasik, though this is not the case elsewhere in the western Deccan. The Simhala Vijaya narrative figures prominently in its somewhat later fifth-century representation at Ajanta Cave 17, a cave 'fit for the king' and elaborates the concept of royal control of the oceans. The art historian Walter Spink has suggested that the bulk of the work of rock-cutting and painting at Ajanta dates from 462 to 480 CE during the reign of Harisena of the Vakataka dynasty, though there was an earlier phase, as evident from caves 9, 10, 12, which were excavated in the first phase and dated from first century BCE to the first-second centuries CE (Spink, 2005: 5).

The Simhala Vijaya story celebrates a previous birth of Sakyamuni Gautama when he was born as Simhala, a merchant who led 500 others on a seagoing venture to Tamradvipa or Sri Lanka. They were ship-wrecked, but eventually saved from the man-eating ogresses by the horse Balaha or Valaha (Figures 4.4 and 4.5), who rose majestically into the sky with Simhala on his back. The ogresses, however, followed him back to his kingdom. Simhala once again rose to the occasion and saved the kingdom from being destroyed by them. Simhala was crowned king and Tamradvipa was renamed Simhaladvipa (Holt, 1991: 49-50).

The practice of claiming control of the seas is a practice that continued into later periods, the only difference being that the inscriptions were now written on copper plates or stone-slabs. Thus, while describing the history of the early Chalukyas, the seventh-century inscription refers to King Mangalīśa, whose army was powerful enough to invade all islands and who crossed the



FIGURE 4.4: REPRESENTATION OF VALAHASSA JATAKA ON A PILLAR FROM BHUTESHWAR MOUND AT MATHURA SHOWING MERCHANTS IMPRISONED IN A TOWER



FIGURE 4.5: REPRESENTATION OF VALAHASSA JATAKA ON A PILLAR FROM BHUTESHWAR MOUND AT MATHURA SHOWING BODHISATTVA AS HORSE SAVING MERCHANTS FROM THE DEMONESS

ocean by bridges of boats and effected the plundering of the island of Revati (Fleet, 1879: 13). Or the following verse in praise of the eleventh-century Western Chalukyan ruler Tribhuvanamalla: ‘May the king Tribhuvanamalla, by the ocean of whose spotless fame the world is encircled, render subject to his control the bride, which is the earth girt about as if by a zone, with the ocean, which is marked with sea-monsters, both male and female resembling elephants (Fleet, 1879: 11).’

The Silahara kings who ruled over the region around the present city of Mumbai from 810 to 1240 regularly referred to themselves as lords of the Western Ocean and rulers of the Konkana region and prided themselves on defeating the attacking foreigners termed Mlecchas and Yavanas (Figure 4.6;

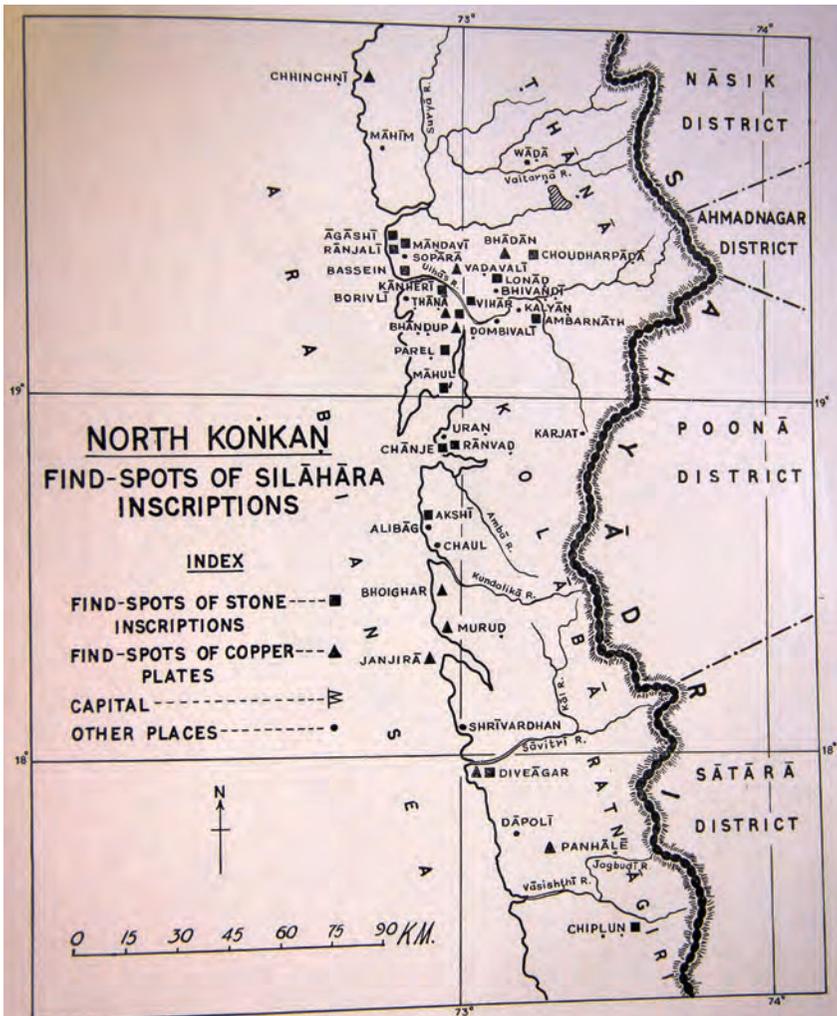


FIGURE 4.6: MAP SHOWING FIND SPOTS OF SILAHARA INSCRIPTIONS IN NORTH KONKAN

Mirashi, 1977: 127-30). Inscriptions from north Konkan dating to the reign of the Silahara ruler Aparadityadeva in the twelfth century graphically portray an active engagement with the sea. In the Panhale plates, Aparadityadeva is described as having bathed in the western ocean at the holy place of Marut on the occasion of a lunar eclipse and gifted the village Khairadi together with orchards of areca-nut trees and all royal privileges to a learned brahmana (Mirashi, 1977: 133-42, no. 23). The Thana stone inscription of Aparaditya II refers to him as having bathed in the excellent *tirtha* of the great sea, donated a share of four drammas out of the proceeds of an orchard in Sthanakiya-pattana and in addition twenty-four drammas out of the produce of the whole rice-field for the worship of the divine Somanathadeva in Saurashtra (Mirashi, 1977: 158-61, no. 31). As I discuss in the next section, some of these visits either ended in disasters or in attacks.

THE *VIRAGALS* OR HERO STONES

To what extent did attempts to enforce political authority lead to conflict across the ocean? A response to this issue is evident from an examination of *viragals* or hero stones found in Maharashtra and Karnataka on the west coast of India. These were raised in memory of those who lost their lives in sea-battles and are dated from twelfth to fifteenth century CE. Three of the hero stones are known from Eksar, Borivali near Mumbai and show 'well ordered lines of vessels crowded with warriors armed with bows and spears, propelled by banks of oars' (Deloche, 1987: 165-84). Though the stones carry inscriptions these are now illegible.

Four more hero stones are housed in the Archaeological Museum of Goa. These are dated from the tenth to fourteenth century and depict double-ended vessels propelled by oars, very similar to those known from the region at present. The ships show armed soldiers engaged in battles (Figure 4.7).

There are several references in inscriptions from the west coast to the local polity such as that of the Kadambas of Goa who ruled from the tenth to the fourteenth century being involved in sea-battles. The kingdom of the Kadambas extended to the south of the island of Goa including a part of Salsette and perhaps a strip of land extending towards the Western Ghats. The ruling family had marital relations with the Silaharas further north. The inscriptions speak of King Guhalla Deva of the Goa Kadambas undertaking a pilgrimage to Somnath in Saurashtra, but hardly had he reached halfway, when the mast of his ship broke and he was forced to take shelter with a ruler friendly to him. This was the port of Goa where a rich Muslim merchant by the name of Madumod of Taji origin and the wealthiest of all the seafaring traders, came to the help of the king. In return the king gave him much wealth.

Clearly then maritime space formed an integral part of political thinking and conceptualization of the inhabited world – a world that was certainly



FIGURE 4.7: TWELFTH-CENTURY HERO STONE FROM SALSETTE GOA, NOW IN THE ARCHAEOLOGICAL MUSEUM, GOA

claimed, but not always controlled. Another aspect of contestation at sea was the practice of piracy and attacks on sea craft carrying cargoes and passengers.

PIRACY IN THE WESTERN INDIAN OCEAN

Agatharcides writing in the second century BCE mentions piracy in the Red Sea and attempts to suppress it by the Ptolemies, while Pliny refers to ships carrying archers as guards (Casson, 1989: 46, 63, 146). The historian Diodorus of Sicily reports how a certain merchant named Iamboulos was captured by robbers off the coast of Ethiopia, while travelling to the spice-bearing regions of Arabia (Schneider, 2014: 1-28). The *Periplus Maris Erythraei* written in the first century CE refers to most of the Arabian coast of the Red Sea as being inhabited by primitive fishing communities who eked out a meagre living mainly from profits from piracy. Another region infested by pirates was the south Konkan coast and the islands located off peninsular India, such as the Isle of Kaineitoi and White Island. In addition to piracy, the *Periplus Maris Erythraei* (sec. 44) refers to a pro-active involvement of the ruling dynasties in incoming traffic and use of force if necessary: ‘. . . local fishermen in the king’s service [who] come out with crews of long ships, the kind called *trappaga* and *kotymba*, to the entrance as far as Syrastrane [Saurashtra] to meet vessels

and guide them up to Barygaza [Bharuch or Broach]'. The reference to pirates in the *Periplus* is significant as this association with piracy continued into the later period as well.

The Judeo-Arabic texts recovered from the Geniza chamber of the Ben Ezra synagogue in Fustat, Old Cairo provide fascinating insights into the maritime links between Aden and the Kanara coast and the recently translated 459 documents (comprising 523 shelf marks of the India Letters from the Cairo Geniza dated from CE 1080 to 1160) are crucial to this discussion (Goitein and Friedman, 2008). Aden has been termed a 'maritime city' from the eleventh to thirteenth century and was also the hub of Jewish activity in the Indian Ocean (Margariti, 2007). Several prominent Jewish business families are represented in the documents. Madmun b. Hasan b. Bundār was a ship owner and representative of merchants in Aden and Nagid or prince of the land of Yemen. One of the letters refers to pirates seizing a ship involved in trade with India and casting ashore the traders and crew on the Gujarat coast (Figure 4.8; Goitein and Friedman, 2008).

Another intrepid traveller was the Moroccan Ibn Battuta (1304-1368/9) who left his home in 1325 at the age of 21 years for pilgrimage to Mecca, but travelled extensively for the next 24 years. He journeyed to Africa, Arabia, South and Southeast Asia, as also to China. He came from a family of judges and during his sojourns in foreign lands was often able to gain the position of a qazi or judge and adviser of Islamic law. An institution of tremendous support to Ibn Battuta in his travels was the Sufi Order and the chains of Sufi rest-houses and schools across the Arab world and India. In 1341, he left the court at Delhi and travelled down the west coast of India to Sri Lanka and the east coast of India. However, he lost all the pearls and rubies that he had received from the king of Sri Lanka to pirates on the Malabar Coast who attacked in 12 small ships. The pirates took everything from the travellers and then left them on the shore at the mercy of the local merchants and the mosque (Ibn Battuta, *Travels*, vol. 3: 865; Gordon, 2008: 113-14).

The Gujarat coast was also prone to attack from the sea. The first Arab raids on Thana and Bharuch were launched in the seventh century from Bahrain. The Kavi plate of Jayabhata IV dated 736 CE eulogizes the ruler as one who vanquished the Tajikas or Arabs who greatly oppressed all the people in the city of the lord of Valabhi (Mirashi, 1955: 96-102, no. 23). Though these proved to be unsuccessful, later attacks on Valabhi in the eighth century destroyed the town. As the Persian Muslim scholar Alberuni (973-1048 CE) wrote in the eleventh century: 'So he [lord of al Mansura] made a night-attack upon the king Vallabha, and killed him and his people, and destroyed his town. People say that still in our time there are such traces left in that country as are found in places which were destroyed by an unexpected night-attack' (Sachau, 1983: 193).

It is suggested that attacks on Valabhi resulted in the shifting of the coastal centre to Cambay or Stambhatirtha at the head of the Gulf of Khambat, as it was considered safe from attacks (Jain, 1990: 130).

Writing in the seventeenth and eighteenth centuries, Capt. Alex Hamilton referred to the 'lair of the Vagher pirates of Okhamandel', who 'admit no trade but practice piracy . . . they being confident in their numbers, strive to board all ships they can come at by sailing' (1727). During a visit to Kathiawar in Gujarat, James Hornell described the memorial set up by the Vaghers, a lawless and turbulent tribe:

By far the most interesting of the memorial stones set up to bygone heroes in Kathiawar is one of a small group outside the walled town of Aramra, once of much importance as the last halting place of Hindu pilgrims on their way to the holy shrine of Krishna across the channel of the Beyt Island. On this stone, instead of the conventional horseman there is carved in strong relief, the representation of a square-rigged vessel, evidently of considerable tonnage and well-armed, for a row of rectangular gun-ports are conspicuously shown, extending from stem to stern along the side.

The vessel has all the distinguishing characteristics of an East Indiaman of the latter half of the seventeenth century. On enquiring from the headman what is the significance of this sculpted ship, so unlike any ordinary type of Indian sea-craft, he summoned a villager of the boat-building caste, people who serve also as seamen on coasting vessels. The villager stated that the hero commemorated was a pirate of great renown in his day, the captain of a great pirate ship manned by kinsmen of the Vagher tribe; he met his death during an attack upon a large European ship. Whether the foreign ship was taken or the attack beaten off he could not say; he maintained, however, that the ship represented was the identical one commanded by his ancestor. (Hornell, 1942: 296-7)

Thus the sea as a space of war is evident from the overview provided here. In his book, *The Production of Space* (1958), Henri Lefebvre argues that space is not an inert, neutral, and a pre-existing given, but rather, an on-going production of spatial relations. Space is where people locate themselves; it is dynamic and fluid and does not have a fixed boundary, as it is created through intersections and mobility; space can be used as an analytical tool to think historically. In the next section, I move to a discussion of the social space or lived space on the coast located between the ocean and the hinterland.

URBAN CENTRES ALONG THE WEST COAST OF INDIA

This section highlights the centrality of the community in the study of the past and continuity in the settlement pattern as evident from archaeological records. There were no doubt, shifts, gradations and growing complexity in the variety of settlement types over time, but few or no ruptures. For example, the lower Shetrunji Valley and the area around Padri and Hathab in Bhavnagar district of Gujarat emerged as the core region of the early Maitraka rulers in the fifth century CE, as evident from inscriptions. This was by no means a

'new beginning' since archaeological exploration in the region has provided evidence for 22 early historic sites located in a linear pattern along the river and a multi-tier settlement hierarchy.

The site of Hathab was the largest site, located close to the sea with an area of over 40 ha, while the largest number of sites (11) fall in the category of 3-12 ha in expanse. It is significant that while 13 sites were located in the black cotton soil zone, 6 were situated close to the coast. The site of Padri, situated 3-4 km inland, was known for extraction of salt (Paul, 1999-2000: 99-105). Amreli is another important archaeological site located upstream of the survey area on the Thebi, a tributary of the Shetrunji and excavations conducted here yielded continuous occupation of the site from the first century BCE to the eighth century CE (Rao, 1966). Both at Hathab and Amreli, mud ramparts were constructed and the meander in the river used for purposes of protection. Archaeological exploration in Gujarat has resulted in the discovery of nearly a thousand sites, of which forty-seven have been excavated (Kumaran, 2014: 580-8).

Similarly, the site of Valabhi first occurs in inscriptions from the sixth century onwards, though archaeological excavations at the site date the earliest settlement located on a small island between the two arms of the Ghelo River to the first-second centuries CE. The settlement gradually expanded in a linear pattern along the river (Mehta, 1963-4: 240-51). This complex settlement pattern is further supported by information from inscriptions. While the second-century CE inscription of Rudradaman refers to the threefold division of town, market and rural space (*nagara-nigama-janapada*), Maitraka epigraphs (493-776 CE) mention a diverse variety of territorial sub-units (*palli, padraka, grama, dranga, bhukti, bhumi, patta, petha, visaya* and so on) (Virji, 1952: 234-5).

Bharuch, Sopara and Kalyan were important outlets for trade in the early centuries of the Common Era, but gave way to Valabhi around the middle of the first millennium CE, when it became prominent under Maitraka rule. Contemporary Sanskrit literature such as the *Daśakumāracaritam* by Dandin describes Valabhi as a prosperous trading centre (Kale, 1986: 164, 332). One of the stories in the text is set in the city (*nagarī*) of Valabhi in Saurashtra where the chief of the sea-traders lived. He possessed immense wealth like the deity Kubera. References to its wealthy residents and travelling communities of traders are found in the copper plate donations from Toramana's reign dating to the late fifth and early sixth centuries CE (Mehta and Thakkar, 1978).

In the seventh century, the Arab rulers of Sind sacked Valabhi, ending the rule of the Maitrakas (Jain, 1990: 7). There was the consequent rise of Stambhatirtha, or Cambay, mentioned in the Kavi grant of the Rastrakuta ruler Govinda III (827 CE). By the mid-fourteenth-century Cambay had become inaccessible to ocean-going vessels and goods had to be loaded on to

smaller boats, which were able to ply through the shallows to the coast. From the eighth to the tenth century, the Rashtrakutas maintained their hold over the region.

Gujarat was ruled by the Chaulukyas from 941 to 1297 CE with the capital at Anahilavada or Patan, a trading and commercial centre located 78 miles north-west of the present city of Ahmedabad in north Gujarat. Bhadresvara was an early site on the coast of Kachchh in Gujarat. It was also the site of a twelfth-century Jain temple 32 km from Mundra and an inscription refers to it as a *velākūla* or harbour (Burgess, 1874-5: 206-7). Bhadresvara is at present a small village and a site of pilgrimage, but in ancient times it was a fortified coastal centre. The Sanskrit text *Jagaducarita* records that the town was a city-state run in the eleventh and twelfth centuries by a council of Jain merchants under the suzerainty of the Chaulukyas of Gujarat. Jagadu is said to have built a mosque here for the Ismaili sect and the local Muslim community with the permission of the Jain Council, but the most notable structure is the shrine of Ibrahim dated on the basis of an *in situ* inscription to 1159-60 CE, i.e. nearly half a century earlier than the Islamic monuments at Delhi or Ajmer.

The island of Piram situated about 10 km in the south-east direction of Gogha on the west coast of the Gulf of Khambat is an important landmark and at present is approached by boats plying from Gogha. It is also rich in archaeological remains and explorations onshore and the intertidal zone of the island has yielded stone anchors and glazed ware. A fort was built on the island around the fourteenth century (Gaur and Bhatt, 2008: 111-14).

Another important coastal centre was Mangrol, known at present for its fishing industry and for a fourteenth-century mosque (Figures 4.9 and 4.10). An inscription dated to 1145 CE during the reign of the Chaulukya ruler Kumarapala records the foundation of a temple by a subordinate chief of the Guhila family. There are references to a *śulkamandāpikā* or customs house, and trade in grain, betel-leaves and salt (Burgess, 1885: 179-80). Further south, the main coastal centres on the north Konkan coast were Sopara, Sanjan, Chaul and Thane. An inscription of the Silaharas of 1094 CE refers to Sopara, Chaul and Thana or Srasthanaka as *velākūla* or harbours and important centres for import and export.

Of interest to this paper is the rule of the Kadambas of Goa. As mentioned earlier, the original kingdom of the Kadambas of Goa was the country to the south of the island of Goa including a part of Salsette and perhaps a strip of land extending towards the western Ghats. The earliest chieftain of the Goa Kadambas was Kantakacharya as mentioned in the Marcella plates who is described as one 'whose fame went beyond the seven seas' (Moraes, 1995: 174-5). In addition to urban centres along the coasts, there is also evidence of forts and fortified areas.



FIGURE 4.9: ENTRANCE TO THE MOSQUE AT MANGROL, GUJARAT



FIGURE 4.10: CEILING OF THE MOSQUE AT MANGROL, GUJARAT

COASTAL FORTS

Forts played a major role in the demarcation of visual topography in the Indian Ocean though there are few vestiges that date to the early period. There are nevertheless references in the first century CE Greek text, the *Periplus Maris Erythraei*, to several coastal centres such as Kalyan, Sopara, Chaul, Bankot, Dabhol, Jaigarh, and Vijayadurg, some of which would no doubt have been fortified (Casson 1989: section 53, pp. 83, 297).

Lionel Casson, one of the translators of the *Periplus* has identified the following names of coastal centres on the Kanara coast (Table 4.1).

Many of these are repeated in the writings of Cosmas, the sixth-century native of Alexandria who travelled to India and Sri Lanka. Cosmas Indicopleustes in his *Christian Topography* (Book XI, pp. 367-8) mentions a series of coastal centres on the west coast of India: 'The most notable places of trade in India are these: Sindu, Orrhotha (Saurashtra), Calliana (Kalyan), Sibor (Simylla of Ptolemy identified with Chaul), and then the five marts of Male which export pepper: Parti, Mangarouth (Mangalore), Salopatana, Nalopatana, Poudopatana.'

An early site on the west coast was Chandor or Chandrapura on the river Paroda leading to the sea. Archaeological excavations conducted at the site of Chandor (ancient Chandrapura) in district South Goa, have exposed the complete plan of a brick temple complex datable from the fourth to the eleventh century CE. The site was fortified and three phases of fortification have been identified through archaeological work (*Indian Archaeology – A Review 2000-2001*: 19-29).

One of the characteristic features of maritime trade from the ninth and tenth century onwards was the location of markets in fortified settlements along the Indian Ocean littoral, as also in the interior. Rules governing the payment of taxes and regulating the functioning of the markets were often

TABLE 4.1: COASTAL CENTRES ON THE KANARA COAST AS MENTIONED IN THE *PERIPLUS*

<i>Name</i>	<i>Location</i>	<i>Latitude</i>	<i>Distance in nautical miles to the next port and details</i>
Byzantion	Vijayadurg	16° 34'	40 – well-sheltered roadstead which large boats drawing 3.5 m could enter at all seasons.
Sesekreienai Islands	Vengurla rocks	15° 52'	35 – good coastal site protected by small islets and reefs.
Isle of Aigidioi	Goa	15° 28'	40 – between two rivers; the entrance to the river has adequate depth to allow vessels of up to 2,000 tonnes to ply upstream.
Isle of Kaineittoi	Oyster rocks	14° 49'	50
White Island	Pigeon Island	14° 1'	75 – pirate haunt in 1801.
Naura	Mangalore	12° 52'	135 – located at the confluence of two rivers in an extensive alluvial plain.

inscribed on copper plates and provide useful insights into the organization of the trade network. The Quilon or Kollam copper plates of Sthanu Ravi are important in connection with trading rights granted to the Syrian church. A market was located within the precincts of the fortified settlement at the port of Quilon, while the church was situated outside the fortification wall (Abraham, 1988: 110). Similarly, along the Konkan coast, there are references to the fortified market centre of Balipattana. The Kharepatan plates of Rattaraja dated to CE 1008 list out gifts to the temple of Avvesvara built by Rattaraja's father and situated inside the fortification. Also located within the fortification were settlements of female attendants, oilmen, gardeners, potters, and washermen, as also some land (Mirashi, 1977: 185).

Unfortunately there is very little that remains of these earlier fortified settlements and a majority of the present forts date from the thirteenth century onwards, though most of these are at present in a poor state of preservation (Naravane, 1998: 127). As Table 4.2 indicates, there is no uniform representation of forts across the Indian coast; instead there is greater concentration in some regions, such as in Maharashtra and Daman.

The large number of coastal forts along the Konkan coast is striking, and similarly remarkable is the fact that these formed 15.33 per cent of the total number of forts in Maharashtra (Naravane, 1995: 269 also Table 4.3). It is significant that rather than being dispersed along the Konkan, these forts are found in nine clusters extending from Dahanu in the north to the Ratnagiri cluster in the south. Nor is this an isolated phenomenon as discussed above. Thus even though many of the present coastal forts perhaps have earlier beginnings, in their present state they date to the Maratha or later periods.

Over 20 places on the west coast of India are mentioned in the Geniza records and each ship or convoy had its pre-allocated landing place and was labelled accordingly, such as the 'one bound for Broach' or Tana or Kulam (Goitein and Friedman, 2008: 24). Often merchants tried to bypass the officially designated landing places. The travels of Joseph Lebdi, one of the

TABLE 4.2: CONCENTRATION OF FORTS IN INDIA

<i>States</i>	<i>Coastline length</i>	<i>No. of large forts</i>
Gujarat and Diu	1,270	3
Maharashtra and Daman	560	19
Goa	30	3
Karnataka	220	3
Kerala	530	4
Tamil Nadu	850	4
Andhra Pradesh	960	3
Orissa	480	1
West Bengal	200	1
Total	5,100	41

TABLE 4.3: NATIONALLY PROTECTED FORTS (UNDER MUMBAI CIRCLE, ASI)
OF THE MARATHA PERIOD (SEVENTEENTH-NINETEENTH CENTURY CE)
ALONG THE KONKAN COAST

<i>Sr. No.</i>	<i>Year of Final Notification</i>	<i>Name of Monument</i>	<i>Location, District</i>
1.	26.05.1909	Fort of Raigad. (19th century CE) Fort of Raigad was termed 'Gibraltar of East' by the British. It was capital of Shivaji in 19th century CE. It is located 2,850 ft above MSL on the highest peak of the Sahyadri. Historically, it has many periods of Bahmani, Marathas, Mughals and Britishers. It has many structures inside it as follows: 1. Maha Darwaja, 2. Palakhi Darwaja, 3. Takmak tok (Execution Point) 4. Gangasagar Lake 5. Shivaji Samadhi 6. Nagarkhana 7. Diwankhana 8. Sihasan 9. Ranivas 10. Ashtpradhan Niwas 11. Dhanya Kothar 12. Bajrapeth 13. Jagdishwar Mandir	Raigad
2.	03.04.1916	A precipitous hill near Raigad Fort containing one rock-cut cistern of water. It was formerly used as a jail for prisoners.	Kadasari Lingana, Raigad
3.	26.05.1909	Fort of Shivneri. Birthplace of Shivaji It was also occupied for sometime by Bahmani ruler Malik-ul-Tujar. It consists of 7 gates and other structures like Ambarkhan, mosque, tomb with minaret, Idgah and cisterns.	Junnar, Pune
4.	17.06.1912	Bhuikot, Sholapur Fort. Built by Adi Shah in 1656, later occupied by the Marathas in 1668. It has double fortification, ramparts and 30m-wide moat surrounding the fort on three sides. It has many structures like well, tank and temples.	Sholapur
5.	24.03.1914	Kolaba fort containing 18 structures: (i) Manik Chawadi, (ii) Nanisahib's Palace, (iii) North Causeway, (iv) Padmavati Shrine, (v) Reservoir Apsaras, (vi) Sarja Kot, (vii) Shrine of Maruti, (viii) Shrine of Bhawani, (ix) Shrine	Alibag, Raigad

(contd.)

TABLE 4.3 contd.

<i>Sr. No.</i>	<i>Year of Final Notification</i>	<i>Name of Monument</i>	<i>Location, District</i>
6.	26.05.1909	<p>of Yashvantadari, (x) South Causeway, (xi) Talghar, (xii) Temple of Bopdeo, (xiii) Temple of Ganpati-pen-Chyaten, (xiv) Temple of Gulabai or Mahtshuri, (xv) Temple of Kanoba, (xvi) Temple of Mahadev, (xvii) Thorle Wada, (xviii) Tomb of a Mohammadan Saint.</p> <p>Lohgad Fort 14th century CE. Built by Nana Phadnis, but it also has some Buddhist caves and cisterns. With a strong line of fortifications comprising inner and outer line of defence, it has many gates, viz., Ganesh, Narayana, Hanuman and Maha gates. Each gate is flanked by double bastions, one over the other.</p>	Lohgad, Pune
7.	02.01.1954	<p>Panhala Fort Built in 1178-1209 CE It is a Yadava fort built by Bhoja II. It is strategically located overlooking the pass in the Sahyadri Mountain range which was a major trade route from Maharashtra to Bijapur. Subsequently, occupied by Bahmani rulers and then by Shivaji for a long period of time. It consists of the following structures: (i) Ambarkhana, (ii) Andhar Bav, (iii) Dharma Kothi, (vi) Naikinicha Sajja, (v) Tatabadhi together with bastions, (vi) Teen Darwaja, (vii) Wagh Darwaja</p>	Panhala, Kolhapur Dt.
8.	26.05.1909	Visapur Fort	Khanapur, Sangli
9.	21.06.1910	<p>Suvarnadurg Built by the Bijapur kings in the 16th century CE, later occupied and strengthened by Shivaji in 1660 CE. It is one mile away from the shore built on irregularly shaped island covering an area of 8 acres. It consists of structures like guard rooms, reservoirs, foundations of buildings, etc.</p>	Harnai, Ratnagiri
10.	21.06.1910	<p>Sindhudurg, sea fort. Built by Shivaji in 1668 CE. The low fort wall has 24 semi-circular bastions with fine embrasures for canons. The fort has many temples inside, viz., Maruti temple, Bhavani temple, Mahadeo temple and one temple dedicated to Shivaji.</p>	Sindhudurg

(contd.)

TABLE 4.3 contd.

<i>Sr. No.</i>	<i>Year of Final Notification</i>	<i>Name of Monument</i>	<i>Location, District</i>
11.	19.03.1910	Mahuli Fort Built by Mughals, it encloses ruins of mosques and tombs. In 1661, it was occupied by Shivaji and it remained with the Marathas till 1870, later occupied by the British under the treaty of Pune. It consists of wall, bastions and gates. It is located on three peaks viz., Palasgad in the north, Mahuli in the centre and Bhandargad in the south.	Mahuli, Thane
12.	03.04.1916	Birwadi Fort	Birwadi, Raigad
13.	03.04.1916	Ghosalgad Fort	Ghosale, Raigad
14.	02.01.1954	Kasa (Kamsa Fort)	Murud, Raigad
15.	26.04.1909	Rajmachi Fort Occupied by Shivaji in 1648 CE. Later surrendered to Angre in 1713 CE.	Maval, Pune
16.	13.12.1916	Vijaydurg fort Built by Bahamani ruler and later strengthened by Shivaji. The triple line of fortification has a total of 27 bastions. It was made capital by Angre and district headquarters by the Peshwas.	Sindhudurg

prominent merchants who appears in the Geniza papers are indicative of maritime voyages of eleventh-twelfth century. Lebdi left Fustat for India around June 1099 (Goitein and Friedman, 2008: 222, I, 20) and returned after an absence of one year and ten months (ibid.: 237, I, 25-9). One of the reasons for further complication in the case of Joseph Lebdi was his avoidance of landing at Aden, both on the way out to India and on the way back. Instead he preferred to land at Mirbat on the south-eastern tip of the Arabian peninsula and at Dahlak on the west coast of the Red Sea.

The city of Aden was surrounded by watch towers and small forts, which were used to keep track of incoming vessels and the first information of this was conveyed to the governor of the town. In the case of cargo ships, officials boarded the vessel and made preliminary enquiries about the origin of the ship, its merchandise and the nature of commercial goods on board. After inspection the quantum of duty was calculated and the officials removed the masts, sails, rudder and anchors from the ship to ensure compliance with the rules. These were returned only when the duty had been paid. There are references to a duty of one-tenth of the goods being levied by the Sultan of

Oman in 317/929 (Agius, 2008: 227-8). It is significant that the only harbour installation that finds mention is the lighthouse, which consisted of wooden posts driven into the sea-bed to assist navigators in approaching the coast. Lanterns with lights enclosed in glass were often placed on these posts (Agius, 2008: 217-18).

The World Heritage site of Qal'at al-Bahrain inscribed in 2005 is best described as an artificial mound on the north coast of Bahrain with multiple layers of human occupation starting as early as the third millennium BCE and continuing into the sixteenth century. A valuable resource of the site is the availability of fresh water and perhaps this explains the continued occupation of the site. Geological investigations indicate changes in the sea-level over time and also transformations in the shoreline. The earliest occupation of the site dates to the Dilmun period, which has provided extensive evidence of trade with Mesopotamia as also with the Harappan civilization as discussed earlier. The Greeks referred to Bahrain as Tylos, which was the centre of the pearl trade as described by Nearchus in the fourth century BCE. A coastal fortress was built on the island around the third century CE, as recorded by a French team, and continued in use intermittently until the thirteenth century CE. The fortress is a square building approximately 50 m on each side with three-quarter cylindrical towers at each corner and provides an important link in the Indian Ocean coastal network (Kervran et al., 2005: 179-201).

There were several changes in the second half of the twelfth and early thirteenth centuries, both in the global context as also along the west coast. The fall of the Abbasid Caliphate in 1258 following attacks by the Mongols adversely affected trade links with India. Ghurid invasions into north India from 1192 to 1206 and the establishment of the Mamluk dynasty in Delhi at the beginning of the thirteenth century had reverberations for political stability across the Indian subcontinent. Qutbuddin Aibak made the first successful attack on western India in 1197 and mainland Gujarat was annexed to Delhi in 1298.

The thirteenth century saw a Mongol mission despatched to Quilon and participation of the Malabar coast in maritime networks of the Bay of Bengal (Malekandathil, 2007: 265). Somewhat later naval fleets were sent by the third Chinese emperor of the Ming dynasty Yong-le (1403-25) to more than 20 countries in Southeast Asia, as well as to Bengal, Malabar coast and Aden, popularly known as the voyages of Zheng he. Accounts of these voyages are available in the *Mingshi* (History of the Ming Dynasty), which is considered the most elaborate and complete history of the Ming dynasty.

The Moroccan adventurer Ibn Battuta's account of his travels along the west coast of India in the fourteenth century provides interesting details for our study and also indicates shifts in coastal centres. After leaving Cambay in Gujarat, Ibn Battuta's four ships made good speed along the Konkan coast

bypassing the coastal centres of Chaul, Sandapur or Goa and other busy ports which lay on little bays or estuaries of rivers flowing from the mountains. The fleet finally put in at Honavar, a town on the north Kanara coast, which was a flourishing centre in the fourteenth century. Jamal al-Din Muhammad, the ruler of the town was a Muslim under the vassalage to the Hindu king of the Hoysala kingdom. Ibn Battuta describes him as one of 'the best and most powerful rulers' on the coast possessing a fleet of ships and a force of horsemen and infantry so impressive that he could command annual tribute from the ports of Malabar as protection against sea-borne attacks. Further south at Calicut on the Malabar coast, Ibn Battuta saw 13 Chinese junks wintering. These junks were said to have been built exclusively in the southern Chinese port of Canton, though the owners and big merchants were often Muslims of Indian, Arab or Persian descent (Dunn, 1986: 221-4).

The kingdom of Vijayanagar (1336-1565) emerged in the aftermath of the expansion of the Delhi Sultanate in the Deccan. The Vijayanagar kings referred to themselves as 'Lords of the Eastern and Western Oceans' and emphasized the importance of maritime trade in their inscriptions:

A king should improve the harbours of his country and so encourage its commerce that horses, elephants, precious gems, sandalwood, pearls and other articles are freely imported. . . . Make the merchants of distant foreign countries who import elephants and good horses attached to yourself by providing them with villages and decent dwellings in the city, by affording them daily audience, presents allowing decent profits. Then those articles will never go to your enemies. (Sarasvati, 1925: 69 and 72)

There is, however, little evidence to suggest that the Vijayanagar kings controlled centres on the Kanara coast, which had traditionally been in the hands of local chiefs, such as the Jain chiefs of Bhatkal (Asher and Talbot, 2006: 78-80). Horses, copper and gold were imported into Bhatkal from West Asia, while the exports included sugar, pepper and textiles. These goods were taxed while in transit through the territory of Vijayanagar kings, but revenues from collections at coastal centres went to the local chiefs. In the sixteenth century, the Portuguese established their base at Goa and in the seventeenth century, the coast from Vijayadurg to Goa was marked by Maratha forts.

As the brief survey presented here shows, there is no denying the fact that archaeological sites, shrines and forts form a part of India's maritime heritage and need to be carefully documented and preserved for future generations along with several other architectural features that dot the Indian coastline. In the context of the sea, this is even more important since coastal features along the shore provided visibility and were used as markers by sailing vessels. It was these that defined the sailing world in antiquity and produced a distinctive maritime milieu.

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Malam-Ni Pothis: Exploring the Essence of the Navigational Manuals

CHHAYA GOSWAMI

Our present understanding of the sailing tradition of the Gulf of Kachchh continues to be under-researched and little known. Though Kachchhi mariners (*malams*) are known to have used sailing logs, very few scholars have taken interest in undertaking a comprehensive study of these (Schwartzberg, 1992). There are nevertheless exceptions and these rarely tapped pilots' manuals have been consulted by Manubhai Pandhi (1976-7), B. Arunachalam (1987, 1996), and Samira Sheikh (2009). Their works in understanding the contents of the *pothi* throw considerable light on the nature of the document. Manubhai Pandhi as an amateur historian and anthropologist has closely probed the *malam's* inherent understanding about the sea. His personal examination of the *pothis* and subsequent derivations are authentic and credible. Arunachalam's paper has made a comparative study of the indigenous navigational technique in the Indian subcontinent. In that attempt he also incorporates the work of the *malams* of the north-west coast of India. Sheikh made a detailed case study of a single *pothi* available at St. John's College, Oxford. My work is a treatise on various *pothis* written between 1655 and 1900. This paper attempts to historically contextualize the importance of such nautical logs.

By far, the earliest of captains' log available is of the period 1665 written in the seventeenth century after the development of Mandvi port in the late sixteenth century. *Pothis* of the seventeenth and eighteenth centuries were written by *Malam* Vasram Farani (1665), Madhavji Jiwani (1756) *Malam* Somaji and Hiren Govaji (1780) and Suro Dhanani (1781). There were other *malams* such as *Malam* Taamb bin Bhadar (an Arab), Sadho Surani *Malam*, Govakis Vani, *Malam* Ladho Surani, *Malam* Hardasani, *Malam* Keshav Jivani, *Malam* Ladho Visram, *Malam* Mavji Bhimani, Kharva Mawji Champani, who contributed in the later period. These manuals authored by the *malams* of the ship set out compendiums of maritime activity. Each of the manuals was written at different times and periods and thus helps us to comprehend two and half centuries of study on oceanic navigation of the period. Also the Asian sailing season can be gleaned from such sources. Their maritime calendars

were then commonly referred by the navigators of the northern Indian Ocean to affix the seasonality of seafaring. These manuals contain the earliest piece of advice relating to sailing across the Indian Ocean. Their degree of clarity of the directions and landmarks gives an idea of their knowledge of the sea and the art of navigation. It is certainly true that the *malams* possessed a deep knowledge of maritime affairs. Their personal experience of seafaring according to their tradition was vast and comprehensive. We therefore know that like their European and Arabian counterparts these sailors possessed far greater knowledge of seamanship and the marine environment of the western Indian Ocean. This is evident through the voluminous information, charts and drawings of landmarks that they incorporated in their work. These mariners definitely recommended when to put to sea and if we compare the seamanship of the west, Kachchhi navigators stand as equals.

During the age of the sail, the profit derived from Indian Ocean trade was considerable. The enterprising merchants of the Gulf of Kachchh, who established their big business houses in the Indian Ocean littoral societies, were navigated by skilled navigators, who were chosen because of their knowledge and experience. They were among those who competently manoeuvred mercantile cargoes around the Indian Ocean. These navigators convoyed the sailing ships, whose hold contained high-value commodities such as pearls and other precious jewels, coffee, cloves, gum copal, dates, and ivory, which would eventually earn impressive fortunes. In that capacity the navigators were the custodians of the goods and fortunes. For trading to continue throughout the trading season, it largely depended on the captain and crew of the sea, who could safely escort the merchants and their merchandize across the sea. More specifically, the trading network of the Gulf of Kachchh could expand because of the seafarers' command over course-plotting. Historically speaking it was the captain's techniques, entrepreneurship and foresight that made perilous voyages successful and profitable. For their maritime role, Captain Postans rightly identified them as 'a most useful and deserving race of people' (Postans, 1840: 175).

The intriguing subject of the history of seafaring and nautical navigation, including the development of sailing devices, nautical charts and direction, has received considerable attention from maritime scholars in many countries. The earliest surviving sailing manual called *Regimento do Estrolabio* was printed in Lisbon in c. 1509. Subsequently we have several such navigators' logs of tables and sailing directions. The eighteenth century is marked by a rich range of collections, which comprises *The English Pilot*, *A Pilot for the West Indies*, *American Coast Pilot*, and *The British Mariner's Guide*. It also includes the unconventionally titled digest *Seaman's Bible*. Originally published as *The New Practical Navigator*, this John Hamilton Moore-authored work was however discovered to contain several errors. Nathaniel Bowditch, who was experienced as a ship's clerk and later master, identified errors in Moore's calculations. In

1802, the American publisher asked Bowditch to correct the errors and eventually reprinted the book as *The New American Practical Navigator*. The next corrected edition encompassed charts, instructions on how to navigate, survey direction, collected wind data, and calculated high tides, and information about currents, the ship's log, marine insurance, bills of exchange, and the responsibilities of the owners, masters, factors, and agents.

Another interesting piece of work is *The Sailor's Sea-Book: Rudimentary Treatise on Navigation*. This work authored by James Greenwood was published in 1850. The handbook was written with the objective to preserve one simple method throughout and to lay down everything necessary to navigate a vessel to any part of the globe. It deals with directions for great sailing circle, essays on the law of storms and variable winds and explanation of terms used in shipbuilding. In sum, we have highly informative literature available on the subject of maritime navigation and the knowledge of the sea in the West.

In the entire historiography of sea manuals the contribution and writings on sailing by seamen from South Asia had been missing till date. Those writings have not sufficiently unearthed the importance of sea manuals written by South Asians. We do have studies on Zheng He of China and his voyages. Arabs too are credited as skilled navigators. However, *malams* of the Gulf of Kachchh or a host of such key maritime players from South Asia are not directly included in studies on maritime navigation. *Malam ni pothis* written during the seventeenth and eighteenth centuries are one such example of less explored literature on mariners. One of the intriguing features or the integral component of the *malam ni pothis* were free noting of logs or tables. These tables contained longitude and latitude which determined the sailing directions. In fact, it was used as the key in each stage of the sailing. This suggests that the *pothi* literature did not lack documented knowledge of celestial and scientific navigation like that of the west. In effect, the sailing literature of Kachchh calls for a deserved place in nautical history.

TEXTUAL EVALUATION OF THE *POTHIS*

With the combined efforts of National Museum, Delhi and Darshak Itihas Nidhi the *pothi* manuscripts were converted into a published work. It is a collective transcription of the pilots' manuals from old Gujarati to the Devanagari script used in the present times. Along with the transcription of the *pothis*, Ashok Rajeshirke notes the content of the *pothis* in the introduction to the volume. He has also drawn a broad relevance of such a work in studying oceanic history. The study is in two volumes and acquaints the reader with the writing of that period. In fact, Rajeshirke has quite successfully deciphered most of the script of the *pothis*, which facilitated my summarized explanation of it in English. Along with comprehending the importance of such manuals and other information, I have tried to provide transliteration of some of the

passages of the *pothis* to understand the nature of the content. This transliteration is nearly exact, but not completely, for it has taken the liberty of adding punctuation between the sentences. It also avoids repetition of the sentences. The chief rationale of the research work is to make the reader aware about the writing of the *pothi* and the invaluable information it contains about sea navigation, which was rigorously documented by the experienced *malam* or the pilot of the ship.

The *pothis* are often incoherent and miscellaneous in nature, but encompass exhaustive nautical knowledge penned by first-hand nautical theorists. Broadly speaking these underline the importance of taking a safe passage by passing location-specific information that provided spot guidance to the navigator to avoid dangers, hurdles and risks on the one hand and to take advantage of specific local attributes of the sea, on the other. The fundamental information about various trading ports of the Indian Ocean and exact distances in between, the sailing routes, weather patterns, coastal and oceanic depth and situation at the sea add to the content of the *pothis*. Since the writers did not follow any format, the writing of the *pothi* is unorganized in nature. It takes random note of what occurred to the mind of a writer. Thus, it flashes out calendar, nautical calculation, sketches and sets of ideas in a random order. Though it appears as a fragmented compilation, it is hugely important as a nautical manual, which summarizes voyages across the Indian Ocean. Except one *pothi* of 1665, these *pothis* mainly belong to the eighteenth and nineteenth centuries. Some of them carry the date of copying from an earlier work in regional chronology (Goswami, 2015).

For our understanding of the maritime navigational history, the *malamni/mulallimni pothi* is a significant primary source for comprehending Indian navigation techniques and seafaring traditions of the early modern period. The very fact that navigators themselves took note of navigational technology in their own dialect and script increases the value of this first-hand source. This nautical manual is packaged with navigators' expertise and nautical acumen which was essential for manning the ship from familiar to unknown waters. The content of such interesting manuals contains a host of details on the sailing direction for navigating the deep blue sea or shallow waters near the coastal belt to the in-depth astrological knowledge specifically about following pseudoscience, which claims divination by the positions of the planets and sun and moon. Celestial navigation was the selling point of open-sea sailing, where the movements of the Sun, Polaris and Moon were gauged and comprehended. The mariners used mental maths and handy calculating tricks to quickly count the distance and fix the longitude and latitude. With the help of *vedha* or finger-width the average of frequent measurements taken throughout the day proved to be a highly accurate reflection of how fast a ship was moving (Goswami, 2015).

From the text of the *pothis* it chiefly appears that navigation was based on

the measurement, description and mapping of the surface waters of the earth. The content of the *pothis* portrays the *malam* as a multifaceted seaman, explorer, naturalist, writer and mariner. It thus highlights several significant contributions these *malams* made to the science of navigation, seamanship, language, and literature. Since most of the time they were required to calculate and stay observant, sharp logic and understanding were their key assets. The captain's task was to constantly calculate the distance a vessel covered by keeping the sun as a guideline during the day and the North Star or *Dhruv* or *Daru* for night sails. The mariner who set to sail the ocean would simply calculate the latitude of Polaris as he commenced a voyage. Captain Postans, who received most of the information on *malams* from his friend Virji, explains in detail how skilful these *malams* were:

. . . the skill of the pilots of Mandvie, who with their rude instruments fearlessly stretch out into the Indian Ocean, have procured them, and deservedly, a great name amongst Asiatic. These Muallims (pilots) are a most intelligent and communicative class of men. My friend Veerjee for instance, to whom I am indebted for much of the information contained in this paper, would with greater advantage of education have proved himself a second Anson. He shews you his nautical tables (rude though they be) in his own tongue; his log is as strictly kept as an Indiaman's; he can determine latitude, and by dead reckoning, his longitude. As he unrolls, an antiquated chart of the world on Mercator's projection, 'he exultingly points to England, and offers to pilot you there'. (Postans, 1840: 175)

It was also essential for ships to be able to cast anchor at night even under hazardous conditions. In such situations, the crew largely banked on the captain's sense of orientation and knowledge of the sea, which enabled him to fix the position of the vessel using a number of encoded signs such as topographical features and identifiable landmarks. These features were often noted on old coastal maps of India. Edifice that presented striking features also served as an orientation point – for instance, the Dwarkadhish Temple on the Okhamandal coast. Similarly, creeks, hummocks and other coastal structures located on the west coast of India served as ready landmarks for sailors. Recognizing landmarks was an essential skill for these seamen. The *pothis* note on the landmarks or step-by-step description of the Sri Lankan waters and coast indicates that the Kachchhi navigators had developed coast-wise sailing strategies for most of the descriptions attest that point. Those tramping voyages along with the trading from inter-coastal communities buying and selling cargo as they went, necessitated coast-wise sailing that kept both shelter and markets close to hand. The literary evidence for the voyages from Kachchh deals almost exclusively with coastal journeys and hence landmarks prominently feature in the *pothi* literature. Alexander Burnes wrote in 1835 that it would strike a European with some surprise when he found those distant voyages performed by such vessels, and more so, perhaps, when they were navigated with precision and no small skill by pilots who had acquired the use of quadrant and steered by charts (as quoted in Postans,

1840). Mrs. Postans presented similar views in 1837 when she wrote, ‘. . . are a most fearless and enterprising race, trading as their forefathers have done for centuries, to all the ports of the Red sea, and even stretching out to the eastern coast of Africa, Ceylon, and the Chinese sea. . . . The Kutch Moallims or pilots are singularly intelligent and well informed; they understand the use of the compass and navigate by charts’ (Postans, 1839).

Coming back to the *pothi*, it graphically and at times pictorially describes the relevant direction and degrees with names of the places. It also offers relative positions of key landmarks, indicating the degrees and positions in context. Indian Ocean was the region of steady winds and seasonal monsoons. K.N. Chaudhari rightly identified that ships from Masulipatam to the Red Sea followed the same rhythm as those of Surat. However, he remarked that ‘the voyages to the East Indies and China were far more critical in point of timing. Ships could get down to Bengal and as far as Malacca up until March, when the south-west wind set in. The return of voyage from Manila or China called for at least two reverse changes of wind, and the Surat shipping often had to take shelter in the straits of Malacca during the months of contrary wind’ (Chaudhari, 2006: 201). This adverse wind pattern must have instigated *malams* to jot down at length the coastal shipping directions and landmarks from the western Indian coast to Sri Lanka and further down to Southeast Asia. *Malams*’ consistent showing of the directions and the landmarks gives an idea of their knowledge of the sea and the art of navigation. Their personal experience of seafaring according to their tradition was vast and comprehensive. The following discussion lists out more on *malam*’s knowledge of the sea.

KNOWLEDGE OF THE SEA

In addition to navigation and nautical astronomy, a ship’s master was expected to have some knowledge of a wide range of subjects, mostly having a scientific and engineering basis to naval architecture/ship construction, ship stability, marine propulsion, magnetism, meteorology (weather forecasting), oceanography, cargoes, ship’s business and law. The knowledge expected of the mariner was derived from marine auxiliary systems, maintenance and repair. The *pothis* also include navigational notes by detailing about trade, weights and measures. They then move on to talk about some remedial measures to heal a wound or cure an illness.

The navigators could never be sure that the vessel was moving on their plotted course line just because they were steering in the correct direction. A current could sweep the vessel off course, and a sailboat always made some leeway (side-slipping downwind). The *pothis*, therefore, explained the basics of determining whether a vessel was affected by a current, and how to compensate for the drag in order to avoid potential hazards. When in sight of land, they mapped and checked their current position at all times, by using

navigation aids such as the sighting of *mareja*, a snake-shaped fish. Experienced sailors often wagered on spotting the *mareja* first. Interestingly enough, this sighting was so crucial for the captain, that he would declare prize money of a rupee or so to the crew member who saw the *mareja* first. In fact, in the *pothis* under study, several details concerning the *mareja* are shared for the prospective sailors or navigators to understand (Rajeshirke, 2015). Such dependence on the *mareja* while mid-sea was very different than following green and red buoys, or the flash of a lighthouse or a lighted buoy, and taking compass bearings to prominent shore features. Carsten attests the use of *mareja*,

The passage between Arabia and India was formerly thought very dangerous. Ships were carried on by so rapid a current, that they could neither keep their reckoning, nor distinguish the coast during the rainy season: several were consequently lost on the low coasts to take place, since on observation was made which has been thought new, although Arrian speaks of it as being known to the Ancients, in the Indian Ocean at a certain distance from land, a great many water serpents, from 12 to 13 inches in length, are to be seen rising above the surface of the water. When these serpents are seen, they are an indication that the coast is exactly two degrees distant.

We saw some of these serpents for the first time, on the evening of the 9th of September; on the 11th we landed in the harbour of Bombay; and on the 13th entered the city. (Niebuhr, 1774: 373)

The accounts in the *pothis* also credit experienced seamen with being able to discern coastal and marine features with far greater clarity and understanding than appears possible to non-mariners. On the strength of their vision, even in conditions of reduced visibility, such men were often capable of navigating vessels. Understanding the significance of sailing with reference to following the coastal silhouette, the lookout or *Panjari* held a position of great importance on board, placed just below the steersman or *Sukani* in the shipboard hierarchy. ‘The lookout was to maintain a close watch on the coastal topography while also attempting to detect any hazards such as rocks and shoals, which might be ahead. Even following the widespread introduction of increasingly sophisticated navigational instruments during the medieval and modern periods, it was still ‘proverbial among seamen to trust a good lookout than a bad reckoning’ (ancient sailing).

Marine resources were, thus, put to use in course plotting and locating the coast. The nature of the sea foam was analysed to predict a storm. The nature and colour of sea water too were used to predict the future action beneath the sea. Other than that the motion of currents, tides and waves were engagingly gauged to judge smooth sails. This was mainly because wind current, coastal topography continuously influenced travel in the ocean. As in all of sailing, predictions improve with experience gained. The high waves often obstructed the sail, but were not necessarily dangerous. With the help of *vedha* or finger the average of frequent measurements taken throughout the day proved to be a highly accurate indication of how fast a ship was moving. The data was used

to help them navigate by dead reckoning, the method used before the advent of modern instruments. This method is popularly recorded in the navigational manuals available worldwide. Sailors could more or less figure a ship's north-south position by gauging the angle of the Pole star or the midday sun against the horizon. However, this mainly helped to situate how far north or south a navigator reached and thus gave the idea of latitude. As Arunachalam rightly draws the comparison that the entire arc of the Coromandel, Malabar and Lakshadweep seamen, the *isba* of the Arab and Omani sailors and the *angadi* of Gujarati, Kachchhi seafarers all refer to a finger unit used as a measure of the spherical arc in a linear manner. The finger unit, *isba* or *viral* is the same as *angadi* or *vedha* in Gujarati and Kachchhi respectively.

THE DEVELOPMENT OF THE SAILING TRADITION

What made the seafaring and shipping of Kachchh unique? From the latitude and longitude table of the various ports charted by the mariners of the Gulf of Kachchh some of the inferences are clearly authenticated. The development of larger, stronger and more sophisticated ships and the growing understanding of the coasts and seas of the Indian Ocean; the increasing port-to-port connectivity and the availability of larger number and size of harbour facilities along the host of littorals; the greater basic and material demand of grain, textile, and other high-value commodities from larger commercial centres and during the Jadeja central rule (between 1540 and 1948) at least, more settled political conditions in the lands surrounding the Gulf of Kachchh were all developments in the centuries following Khengarji's initiation in the sixteenth century, which left a profound effect on maritime activities and provided later generations of seafarers with a wide scope for expanding sailing practices. To believe that the sailing and maritime practices stayed in effect unaltered across the broad span of the pre-modern period, therefore, appears improbable given such significant trade and industrial and political developments. It, in sum, impacted upon the maritime planning of seafaring communities in the long centuries.

Additionally, the writings of the period suggest that seamanship was well developed. The art and science of sailing was deeply embedded in the maritime culture of Gulf of Kachchh. There was this close acquaintance developed with the sea. The sea was an integral part of their way of lives and therefore the Kharavas and Bhadas identified themselves as the *dariya choru*, i.e. the children of the sea. Most remarkable development of Kachchhi shipping took place during the reign of Rao Desalji I. The royal patronage of Rao Lakhpatji and Rao Godji and technical and engineering expertise of Ramsinghji Malam acquired in the Netherlands furthered the ship-building activities of Kachchh, which raised the maritime status and activities of the state. The shipyard or *jahajwado* of Mandvi was/is embedded on both the sides of bank of the river

Rukmavati. Tuna, Mundra and Jakhau were also significant centres for ship-building activities.

The numerous deep-sea vessels plying the monsoon routes consisted mainly of *Kotia*, *Navadi*, *Machhava*, *Dhan*, *Tar* and *Hodi* from Kachchh; *Padav*, *Konkani*, *Fatehmari* and *Valsadi Batela* from Bombay; and also the popular Baghelas and Arabian *Dhows*, which were lateen-rigged sailing vessels. Some of the boats employed in East African and Mocha trade were of the largest and best variety. According to Postans, 'many are decked and some carry four carronades, with which they do not fail to announce their arrival when near the Port'. The ships were owned by a range of merchants and seafarers. They were traversed by Muslim Bhadala *Nakhwas*, Kharwa *Malam* and a range of other people. There were Hindu as well as Muslim Kharwas. The etymology of the term *Kharwa* is traced from the Sanskrit meaning 'carrier of salt'. The vessels were mainly engaged in coastal ferries and deep-sea trading and were well-equipped with ammunition for protection. The coastal sails connected Sindh, Kachchh, Kathiawar, Surat, Daman, Bombay and Malabar in one long arc. From the numbers of vessels sailing back and forth to Kachchh it appears that Kachchh's mercantile fleet was quite large in the late eighteenth century. The navigators of Kachchh possessed deep insight of the sea and therefore to avoid the nautical hazards in the Gulf of Kachchh they diverted the ships to different parts of the coast of Kachchh. For instance, at Mandvi vessels were docked at *Bharakanthe* or eastern waters. There was a western bastion too for the arrival of ships from East Africa. Seafarers certainly formed a major group in the maritime society of Kachchh.

In the second half of the eighteenth century, when the Kachchh fleet comprised more than 400 ocean-going ships, the demand for these seamen to man the ships plying in the western Indian Ocean waters naturally increased. A sailor's job was demanding and laborious as they not only manned the vessel but also acted as stevedores. The ironical feature of the Kachchh littoral society was the glaring economic disparity among the people. Living standards of the people offer two extremes of haves and have-nots. While Mandvi, for instance, was abode of very affluent merchants, wealthy monasteries and shipowners, there were groups of seafarers and others who were poor. A similar cultural landscape represented the littoral societies of Muscat, Mocha and Zanzibar. These littoral societies were characterized by a capitalist milieu where they, being the commercial terminus, generated opportunities, but, with its disproportionate distribution of wealth showcased the existing gulf. Consequently, those who subsisted on maritime trade were framed into different classes.

SEASONALITY, SAILING AND MARITIME CALENDAR

Climatically, the south-western moisture-laden winds from the Indian Ocean sweep the South Asian subcontinent up to the Himalayas from June through

September. Around September, with the sun rapidly retreating south, the northern land mass of the Indian subcontinent begins to cool off rapidly. This causes the cold wind to rush down towards the vast spans of the Indian Ocean. This is known as the north-east monsoon winds or 'Retreating Monsoon'. That is why the actual business season opened up by September.

The maritime calendars were commonly referred by the navigators of the northern Indian Ocean to decide the seasonality of the seafaring. The sailing seasons were set down for the ships and navigators and were divided into post-monsoon months, i.e. September/October to mid-spring March and then it was the closing of the season in April and May. The opening of navigation was known as *Mausam Khulvi* and the closing was known as *Aakhar Mausam* or *Chheli Ghosh*. From the digest of local customs it is evident that the sailing season was considerably longer, i.e. of 281 to 301 days. In Arabic, 280 days of the season was known as *Takbeera*. The movements of prevailing winds relying on the astronomical and climatic orders were grouped into north-east (called *Kaskazi* in Swahili and *Saji Mausam* in Gujarati) and the closing time of the season was announced with the beginning of south-westerly winds from April (*Kusi* in Swahili and *Aakhar Mausam* or *Chheli Ghosh* or *Safar* in Gujarati). From November till April the dry and strong wind facilitated speedier sailing of the ships.

The fifteenth day of Bhado, i.e. September commenced the trade season and closing was reckoned as the fifteenth of Jeth, i.e. May/June. The greatest number of *Suwallie* (Swahili) boats arrived at Mandvi from Zanzibar just before the setting in of the south-west monsoon because from May to mid-August winds were highly detrimental for high-sea trading or sailing as the sea became volatile. In consequence, when the southerly winds started to blow, the sailing masters pitched the compass to refit the Kotias in their home ports.

These manuals, thus, contain the most basic piece of advice relating to the sailing season of the Indian Ocean. Sailing was more concentrated in the open season while springtime was the transitional period of the maritime year when voyages might be coming to an end. Taken at face value, the seafaring practices demonstrate the active sea lanes of the Indian Ocean during the monsoon winds and present a picture of the seasonality of the maritime operations.

These seasons were not only imperative for trading across the sea but also for fixing the rate of marine insurance. During the *naroj* 281 to 301 days of insurance was executed. To make the claims, thus, the merchant was compelled to secure the insurance within the open season. The monsoon fixation made insurance a highly speculative business. Further, the bazaar rates governed the profitability of the insurance.

The *malam* aptly followed the wind pattern and set the course plotting accordingly. For the sailors the southern winds facilitated the complete opening of the sails, which without doubt geared up the speed of the vessel. Those return sojourns from Africa needed much more caution than the sailing at

the start of the season. Towards the end, especially from 15 March, the northerly wind usually slowed down and from the south the vessels faced cross boisterous sweep, which evidently hindered sailing. Practically, by all means the vessels had to time their return by 15 June or else stormy winds awaited their way back along with mountainous waves. In addition, if the north-east wind blew then none of the ships could sail (Pandhi, 1976-7: 159).

The *sukani* of the boat, i.e. steersman knew the techniques of variously opening the sails. Small *hodis* were kept in the vessels to be used as life boats. The usage of a few words on the ship signalled quick actions. For instance, the use of the word 'sail down' in a stormy situation triggered quick action from the *khalasi* who would then bring the sail to the middle of the mast. It was essential that the sea be free from strong gales and tempestuous weather so the risk of shipwreck was less. Fair weather was more essential to the navigators as they did not use modern techniques and were guided by bearings from the land, by the sun and the colour of the water by the day; the moon by night; and they had developed comprehensive familiarity with the sea. The sailors harnessed these winds to set sail from Mandvi towards the western Indian Ocean. The coastal trade was briskly carried on at this period, especially, flow of perishable goods was accelerated to avoid any losses. Thus north-east winds fostered the criss-crossing of merchants' ships in the ocean.

The advice put forward by the seafarers in the *pothi* certainly presents a seafaring calendar for modern navigation. It is the most compelling textual evidence in support of the theory that there were a variety of sailing calendars in existence at the same time in different regions of the Indian Ocean. The South Asian maritime calendar was influenced by the religious almanac and celestial bodies. The movements of planets and constellations dominated the Vikram Samvat calendar which was popularly used. It meant counting 56/7 years ahead of the present calendar used worldwide. This maritime calendar considers movements of the both the moon and the sun. Of the various maritime festivals that were celebrated, the principal one is *Nava Naroj*, which literally means 'from the new day'. During this festival, both mariners and merchants worship the sea, entering the waves to anticipate wealth and seek blessing for the forthcoming trading year. At this time, the account books of the previous years are settled and the various financial documents are replaced with the new one. These documents are religiously kept as a record of their bread earning endeavour. The *Nava Naroj* usually falls in the month of August.

Kachchhi new year celebrations of *Chatri Chandar* in April and on *Ashadhi Bij* in July notified the beginning and close of the trade seasons respectively and were significant in keeping with trading pursuits. Since these festivals were fixed on the basis of the Hindu calendar, which was essentially governed by the movements of the moon from one zodiac sign to the other, the dates of the festival varied. Though relatively long, Niebuhr's narrative on the use of Arabic and Egyptian almanac gives some interesting insights into variation

of the dates of the festivals and about the usage and parallels in Arabia and India. He notes,

At Constantinople, the Sultan's astronomer composes every year a portable almanac of which there are at least several copies made. But, in Egypt and Arabia, this mode of acquainting the people with the return of the festivals and the progress of the seasons, has not been thought of; and so ignorant are they on this head that the same festival is sometimes two days earlier, and sometimes as much later than the just time and often on different days and different places. A cloud hiding the new moon from one city, while she is seen by another, will be sufficient to produce these irregularities. It is not for want of a passion for astronomy that the Arabians have made so little progress in this science. But they want books and instruments. I found some of their learned men passed whole nights with me in examining the heavens. They have the work of Abdarachman upon the constellations and the tables of Ulugh Beigh. . . . Their instruments are a celestial globe of copper. Be studded with golden stars, which they well know how to use and astrolabe of brass and a quadrant of wood, to take altitudes and to determine the hour for prayer. I was told that Persians, but particularly the Brachmans (Brahmins), were more skilful astronomers than the Arabians; yet, to judge from the instruments and conversation of a Persian Astrologer whom I met at Surat, and of a Brachman with whom I was acquainted at Bombay, these two nations are equally unskilful as the inhabitants of Arabia. In making calculations, the Persian used the tables of Ulugh Beigh, and Brachman (Brahmin) a book which called Grola Go, and its another Gunnis, the Indian's instruments were a bowl, which served a hole in the bottom, set in water, which served him for a pendulum with an indifferent solar circle. (Niebuhr, 1792: 270-1)

The observation of Niebhur allows us to examine the common usage of lunar almanacs in Egypt, the Persian Gulf, Arabia and western India. Without doubt, in each region considerable variations are evident in framing the calendar, but it is safe to infer that there existed regional uniformity in following the lunar and celestial calendars. At another point, it also indicates adaptation and that following of the almanac had cross-cultural influences. Only an in-depth study of these almanacs can uncover the fact which culture influences which.

The Kachchhi *malams* and merchants conscientiously followed the almanac in each of their endeavours at sea and on land. For Niebuhr,

The Arabians are seen to study astronomy solely with a view to their success in the cultivation of astrology, a science highly esteemed and very lucrative in the east. When I told the first astronomer in Kahira of the contempt in which we hold astrology in Europe, he replied that it was a divine science, the depth of which man could not fathom. He at the same time acknowledged to me the uncertainty of his calculations; but, added he, people desire only to know what my books say of their affairs and that I honestly tell them. (Neibhur, 1792)

The same is the derivation of the *pothis* when a *malam* prophesied many things on board. It also indicated how astrology impacts their work. They start their sailing at an auspicious time to get a rewarding journey for both the merchants and the mariners. In that context, they sort of counselled mariners about the

sea voyages through the astrological counts of constellations. The counselling was also applicable to merchants too, for very often *pothis* also referred to whether a particular oceanic trip will be profitable to the merchants or not. They also advised them about investments, partnerships and prospective dangers involved in a mercantile dealing. For instance, when they refer to the sight of different seabirds on the deck they press on successful conjecture by unusual insight indicating good or bad luck. For them the sea was a mysterious mass of water. To solve the mystery what was sought was the cosmic harmony in sync with the divinity. The belief and following of such kind of science of time is strongly evident through the constant repetition of the content. The invariable use of the byword in the *pothis*, *sabi sachu dhani a surv jane che, bija badha bhama chhe*, i.e. 'the true Master of the universe knows everything and others are naïve' explains that a condensed but memorable aphorism embodied some important fact of experience that was taken as true by many navigators of the age.

The *pothis*, thus, had an expressive style that used charts, maps and events to describe some subject by suggestive resemblances or an extended metaphor. This usage of prophecy and its penning down in the *pothis* made them stand out as navigational accounts when compared to the Western manuals. The scope of research is much more here in terms of finding out similar usage in the navigators' manuals written in Arabic. The maritime timetables that were compiled more than 300 years ago had greater application well until the beginning of the twentieth century. And in the vocabulary and daily practices of the coastal people it is still alive. The fishing activities still follow such terminology. If the wind pattern would not have been comprehended by the sailors, high-sea sailing would not have been a reality; sailing would have been restricted to the coast. It was a compendium of incredible voyages that the intrepid captains undertook.

There are, however, a number of problems associated with these *pothis*. They do not often directly discuss about sea storms and the steps to be taken to sustain through the volatile sea. Those matters are orally transmitted though. Despite the fact that the nautical literature of the period presents rich navigational history of the Kachchh, the region failed in developing any formal school of navigational training like that of the West. When the text of the *pothis* will be subjected to close critical analysis, we will get to know the accuracy of the charts used in setting the course of the vessels.

CONCLUSION

The *malams' pothis* were written at a period when the Kachchhi seafaring practices had developed considerably. Thus, it is not a slip-up to directly compare the seafaring activities of the Kachchh with seafaring elsewhere. The

span of voyages that the mariners of the Kachchh covered across the regions of the Indian Ocean itself attests the mobility and their knowledge of the physical science. It is explicit from the pages of the *pothis* that the art of navigation on the high sea was up to date. It greatly increased our knowledge of the commercial ships that sailed the Indian Ocean in the early modern period. There is a great deal in the way of literary evidence relating to methods of navigation, while the surviving *pothis* also provide enough clues to the skills and navigational knowledge in use on the seas because the semi-literate *malams* of the early modern period paid considerable attention to the art being practised by their contemporaries in the seafaring community. For long our studies of South Asian navigation suffered from a paucity of evidence. Thus, our understanding of Kachchhi and Kathiawari navigation can greatly increase by identifying the nature of navigational problems, many of which are not specific to the region, culture or time, by integrating the documentary evidence. With the help of *pothi* literature it has become possible to make reasoned study about early navigational and pilotage techniques. A mishmash of the descriptive anthropological evidence and other information that can be teased from the *pothi* literature may, consequently, give the foundation for an understanding of some of the navigational techniques practised by Kachchhi seamen and the extent to which such methods would have allowed seafaring to take place across the Indian Ocean rim.

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Navigation Wisdom of Arabs and Portuguese in Pre-Modern Kachchhi Navigation: An Observation

ASHOK B. RAJESHIRKE

The *malam ni pothis* or navigational manuals of the Kachchhis were discovered by Shri Harilal Mankad, a teacher of Aliyabada village, Jamnagar district of Gujarat, sometime during the second half of the last century. Later on as suggested by Umakant Shah, an Indologist from Baroda, they were shifted to the National Museum, New Delhi, and remain there as part of the indigenous manuscript collection (Figs. 6.1 to 6.3). This paper highlights some features of the *pothis*.

Being essentially sailors' manuals, *pothis* were kept in the sailing vessels, and were attended by all the risk of circumstances such as pages getting jumbled or detached, or getting damaged or disfigured through contact with water which resulted in obliteration of parts of the text and created information gaps in crucial areas. Second, the vocabulary of the text poses difficulties by virtue of its ambiguity in specialized terminology and practice of *malams*, the navigators, of the preceding centuries, and *malams* of present days are no longer familiar with certain key terms related to navigation. Apparently, the collection of *pothis* at the National Museum covers three distinct categories, namely (i) navigational knowledge and techniques, (ii) the accounts of day-to-day sailing within the ports of India and the Persian Gulf, the Red Sea, Africa and Southeast Asia, (iii) names and abode of *malams* and their *muqadams*. The *pothis* are written in the Kachchhi dialect of the Gujarati language, at times exhibiting a degree of affinity with Rajasthani alphabets along with a marginal influence of the *Modi* script. Recently, these *pothis* have been transcribed and published under title *Pre-modern Kutchi Navigation: Techniques and Voyages* (Rajeshirke, 2014, henceforth RS).

OVERVIEW OF THE *POTHIS*

The *pothis* of the first category encompassed a huge mass of materials replete with astronomical notions of the Kachchhi *malams*, the navigators, and their

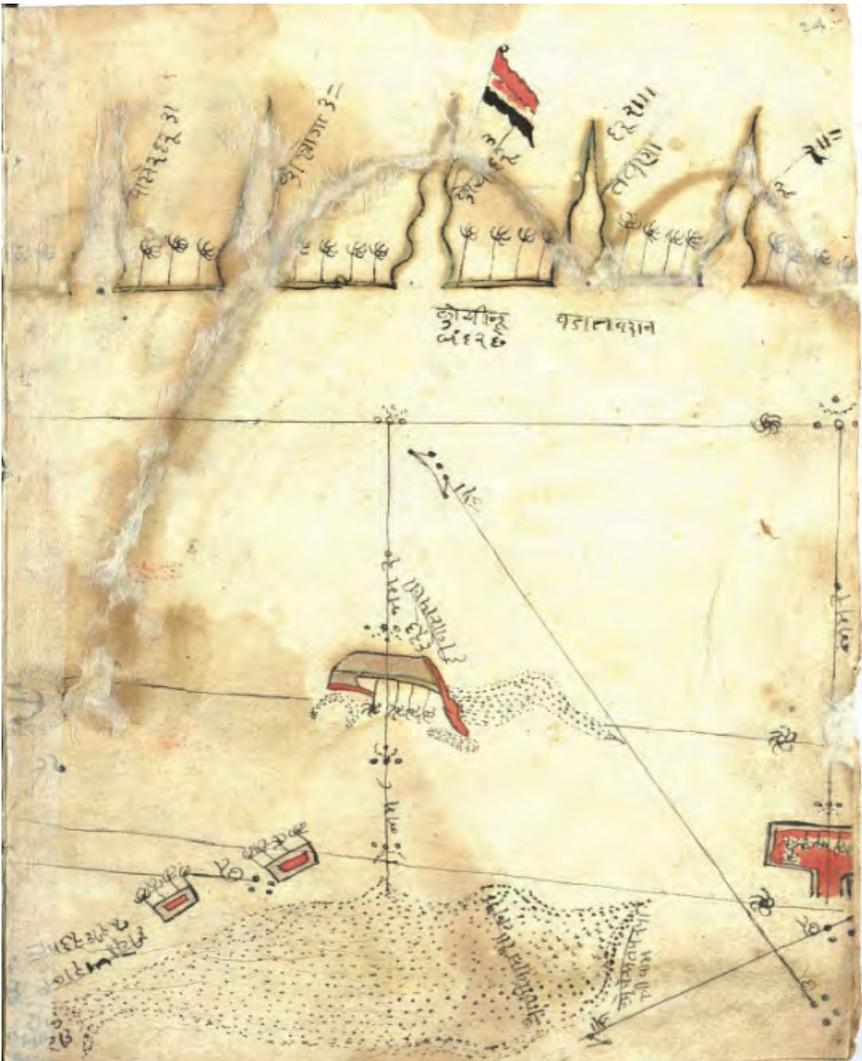


FIGURE 6.1: A SEVENTEENTH-CENTURY SKETCH SHOWING PERILOUS LOCATIONS ALONG THE MALABAR COAST (COURTESY: NATIONAL MUSEUM OF INDIA, NEW DELHI)

socio-mental landscape. Specifically, these *pothis* provide evidence concerning traditional navigational insights of the Kachchhis on the one hand and concepts and techniques of other seafaring groups of the Indian Ocean realm on the other hand. As far as traditional navigation is concerned, *pothis* reveal celestial mode of navigation, various perilous locations along the sea routes between Khambhat and Surat, Gogha and Khambhat, Bhatkal and Ceylon, Gujarat and Malacca, Aden and Pegu and so on, and the guidelines for crossing them safely (RS, 01.04, 01.06, 01.31, 01.57, 01.89). These hazardous locations

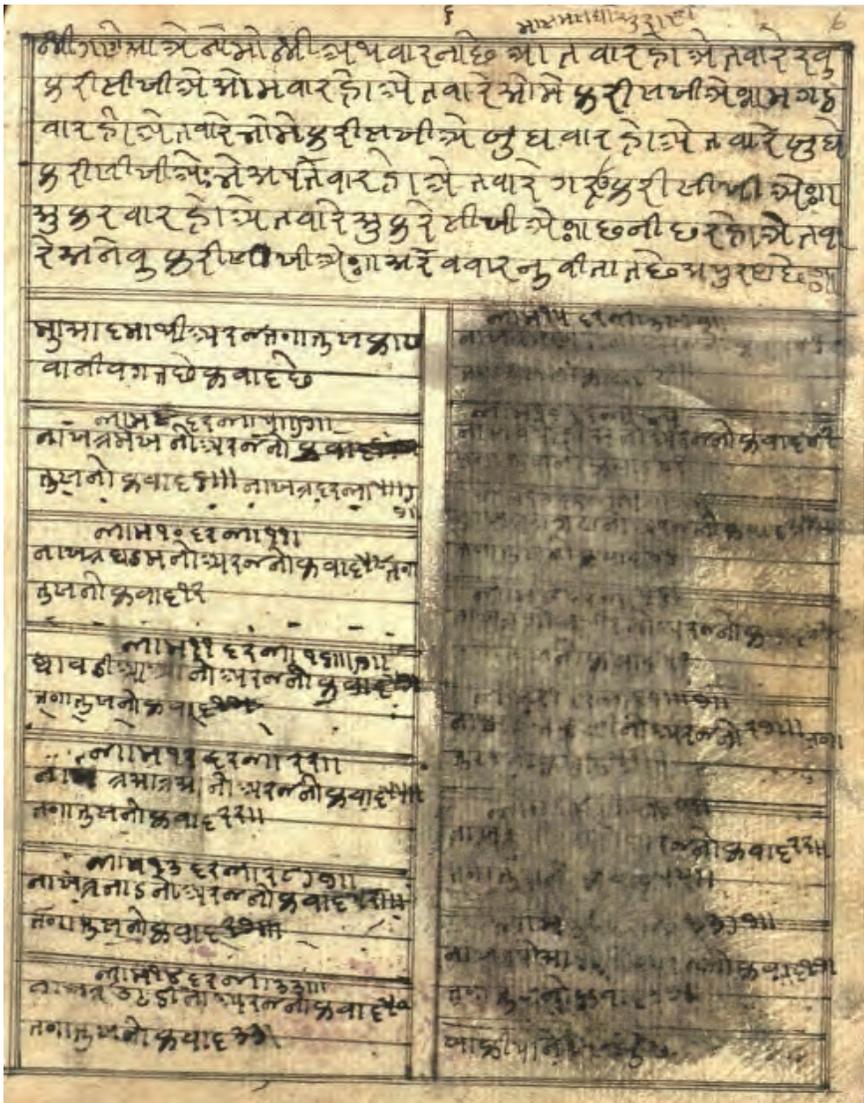


FIGURE 6.2: FACSIMILE OF A FOLIO FROM POTHİ (COURTESY: NATIONAL MUSEUM OF INDIA, NEW DELHI)

were named by the Kachchhis as *Ravankotho*, *Kasarkotadi*, *Zazmehar*, *Zugar*, *Chhog*, *Dant*, etc., which were observed scrupulously by several Kachchhi *malams*, who then added new pieces of information to the existing corpus of details. Identification of these locations was based on water depths, their currents and colourations, movements of aquatic creatures and birds, etc. In addition, the Kachchhis had profound knowledge regarding a specie of fish bearing resemblance to the snake, called *moreja*, and established conjecture

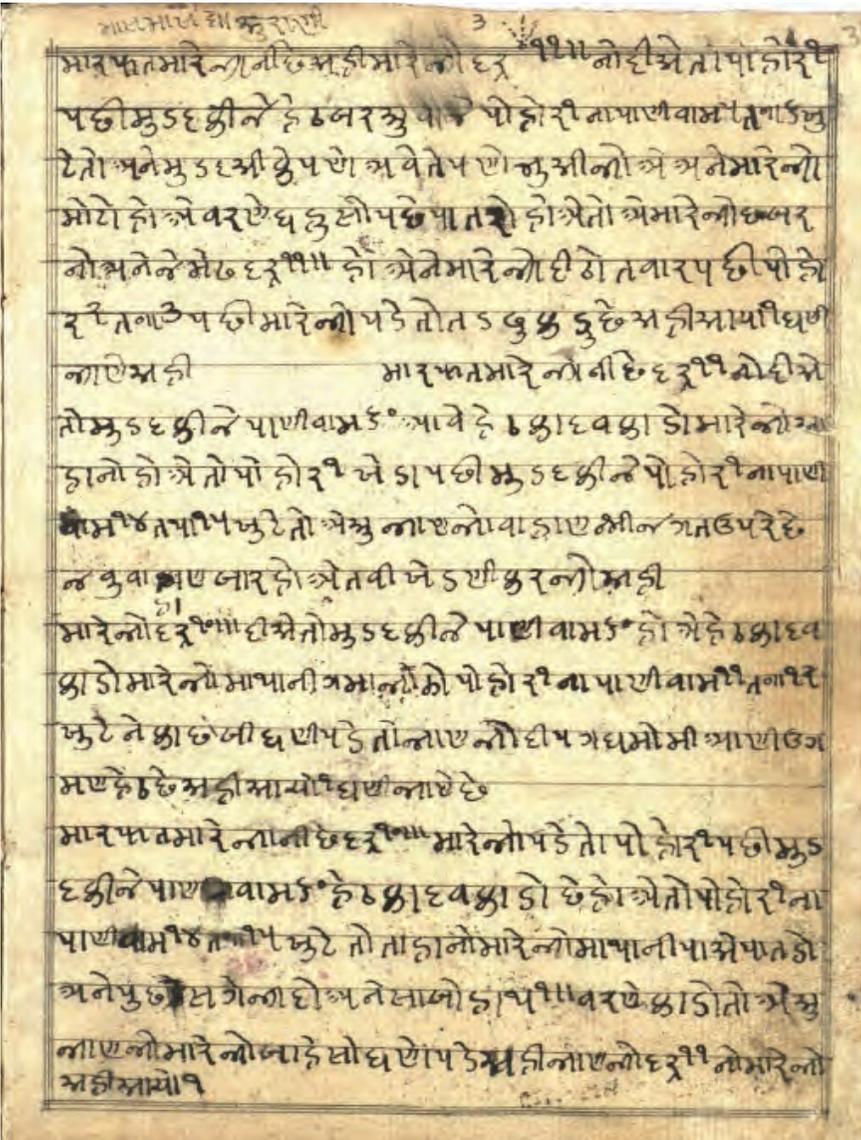


FIGURE 6.3: FACSIMILE OF A FOLIO FROM POTHİ (COURTESY: NATIONAL MUSEUM OF INDIA, NEW DELHI)

about measuring the distance between a ship and the coast on the basis of its size, colour and movement at different nautical quarters along the coast (RS: 1.56, 01.91-93, 01.105, 01.125, 01.163).

In addition, *pothis* reveal certain concepts and techniques of the Arabs and Portuguese, and disclose how they were entrenched into the pre-modern Kachchhi navigation. Evidences indicate that Muscat was an important

destination for the navigators of Europe, Asia and Africa. Nearly all Kachchhi *pothis* were composed and revised at Muscat; however, certain navigational concepts and practices of other navigators were integrated in the *pothis* without any perceptible modification of the original texts, terminologies and specifics of device formats. And, it gives us clear clues of the possible source of such navigational techniques.

Although the *pothis* of first category are the copies of original manuals, compiled or revised between 1665 and 1896, information that they contained may well date back to earlier centuries (RS: 01.50, 01.110). The Kachchhi had extended tradition of navigation, kept a mental note of their observations and experiences which they memorized and wrote into *pothis*. To cite an example, on the day *sud* 6 of the month Shraavan of Samvat 1836 (1779 CE), certain essential details were copied from *malam* Somaji's *pothi* to the *pothi* of Hiren Govji, although original details were part of the *pothi* belonging to Kharva Mavji Champasi (RS: 01.110, 01.121).

Thus, such procedures can be regarded more appositely as *corporate enterprise*, resulting from continual and incremental processes of exchange, assimilation and integration of the navigational ideas and techniques that flowed across generations of Kachchhi *malams* and their networks in the Indian Ocean. Presumably, this process of observations and communications persisted across centuries, and eventually crystallizing what one may term as *community insights* and the formation of a genre of Kachchhi navigational practices.

The *pothis* of the second category are original navigational manuals. They are log-books or day-to-day accounts that the Kachchhi *malams* maintained during voyages as part of their daily seafaring routines. The log-books provide a wealth of data, which the *malams* found handy and pertinent. It includes direction and velocity of winds, water currents and their colouration at particular depths or stretches of the sea, and so on. In addition, these *pothis* record the instructions for putting the necessary details in order for effective use during navigation. It has been analysed that the first and second categories of the *pothis* are inter-linked and complementary to each other. While the first category discloses broad theoretical environs of Kachchhi navigation, the second category records how the principles were actually practised in navigation as operative devices. The third category, although comprises details regarding twentieth-century Kachchhi *malams*, it was found to be useful from either a statistical or socio-anthropological point of view.

NAVIGATIONAL INSIGHTS OF THE ARABS AND PORTUGUESE

As elucidated in the *pothis*, the Arabs used the 12 zodiac planets for the estimation of directions in the Indian Ocean, and possessed astronomical data

on their declination degrees that marked height below or above the equator. It is certain that this data was compiled by the Arabs. The names of planets inscribed in Kachchhi *pothis* are unmistakably of Arabic origin, but written in the Gujarati script and having phonetic affinity with Arabic pronunciation.

Based on the leap year phenomena, data on declination degrees of the planets was classified into four years, and when it came into the hands of the Kachchhis, the years began to be named as *pelu* (first), *biju* (second), *tiju* (third) and *chothu* (fourth) numerically. This method was known to the Kachchhis as *hamal*, and explained in *pothis* in following manner:

Method 01 . . . details for obtaining *hamal* through *samvat* of Raja Veer. Place figure 54 below *Samvat* 1820 [Although just an illustrative example. There is an error; instead of 1820, it should have been 1815 as the appropriate year], and deduct from it. The balance would come to 1766 [Error, i.e. 1761]. Then put number 75 below the total and subtract it. The balance would come to 1686 [Error was rectified]. Figures come into view should be called as the year. Make subtraction of 509 from 1686, balance would come to 1177. You call this as the year of Hazrat. Subtract 436 from the year of Hazrat, balance would come to 741. Divide figure 741 by four which will give you *kismat* of 185, and figure one remains as the fraction. This means 185)1. Consider fraction one as *pelu* year . . . (RS: 01.133)

The calculations start from a base figure given, the year in which they were being made, and then advances through a series of prescribed deductions, divisions and constructions of fractional matrix through which the final figure is located. For Kachchhis, the current year of the Vikram Samvat era was their chosen point of reference that provided the base figure. Subtractions were made from it, of the numbers 54, 75, 509 and 436 in four consecutive steps, although the reasons for proceeding in this sequence are not yet known. The balance resulting after deductions was divided by four which yielded a whole number and a fraction. The latter provides the matrix for determining the particular *hamal* year in the following way:

- 00-25 determines *hamal* year first
- 26-50 *hamal* year second
- 51-75 *hamal* year third, and
- 76-99 *hamal* year fourth

Data on declination degree of the planets was classified into four units, and placed separately with reference to each planet. Each set consisted of 48 sections, and disclosed daily fluctuations of the degrees of 12 zodiac planets in the units of four *hamal* years. The first column of each section indicated duration of each planet in day/night matrix while the second and third columns recorded declination degrees with reference to the first column. Table 6.1 is a compendium that demonstrate the details concerning each planet (RS: 01.72, 01.168).

TABLE 6.1: HAMAL YEAR CHARTS

Day	<i>Hamal</i> (21 March-20 April) Years				<i>Saur</i> (21 April-20 May) Years			
	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>
01	00)22	00)16	00)10	00)04	11)58	11)53	11)48	11)43
02	00)46	00)40	00)34	00)28	12)18	12)13	12)09	12)03
03	01)09	01)04	00)57	00)51	12)38	12)34	12)29	12)23
04	01)32	01)27	01)21	01)15	12)58	12)53	12)49	12)43
05	01)56	01)50	01)45	01)39	13)18	13)13	13)08	13)03
06	02)20	02)14	02)08	02)02	13)37	13)32	13)28	13)22
07	02)43	02)37	02)32	02)26	13)56	13)52	13)47	13)42
08	03)07	03)01	02)55	02)49	14)15	14)11	14)06	14)01
09	03)30	03)24	03)19	03)12	14)34	14)29	14)25	14)20
10	03)53	03)48	03)42	03)36	14)52	14)47	14)43	14)38
11	04)17	04)11	04)06	03)51	15)11	15)06	15)02	14)57
12	04)40	04)34	04)29	04)22	15)28	15)24	15)20	15)14
13	05)03	04)58	04)52	04)45	15)46	15)42	15)38	15)33
14	05)26	05)20	05)15	05)08	16)04	16)00	15)55	15)50
15	05)49	05)43	05)38	05)31	16)21	16)17	16)13	16)08
16	06)12	06)06	06)00	05)54	16)38	16)34	16)30	16)25
17	06)34	06)29	06)23	06)17	16)54	16)51	16)47	16)42
18	06)57	06)51	06)46	06)40	17)11	17)07	17)03	16)58
19	07)19	07)14	07)09	07)02	17)27	17)23	17)19	17)15
20	07)42	07)36	07)31	07)25	17)43	17)39	17)35	17)31
21	08)04	07)59	07)53	07)47	17)58	17)55	17)51	17)47
22	08)26	08)21	08)15	08)09	18)13	18)10	18)06	18)02
23	08)48	08)43	08)37	08)31	18)28	18)25	18)21	18)17
24	09)10	08)04	08)59	08)53	18)43	18)40	18)36	18)32
25	09)31	09)26	09)21	09)15	18)58	18)54	18)51	18)46
26	09)53	09)47	09)42	09)36	19)11	19)08	19)05	19)01
27	10)14	10)09	10)04	09)58	19)25	19)22	19)19	19)14
28	10)35	10)30	10)25	10)19	19)38	19)35	19)32	19)27
29	10)56	10)50	10)46	10)40	19)51	19)48	19)45	19)41
30	11)17	11)12	11)07	11)01	20)04	19)09	19)58	19)54
31	11)38	11)33	11)28	11)22	20)16	20)13	20)10	20)07

Day	<i>Juza</i> (21 May-20 June) Years				<i>Sartan</i> (21 June-20 July) Years			
	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>
01	20)28	20)25	20)22	20)19	23)31	23)31	23)31	23)31II
02	20)40	20)37	20)34	20)31	23)30	23)30	23)30	23)31
03	20)51	20)49	20)46	20)43	23)29	23)29	23)29	23)30

04	21)02	21)00	20)57	20)54	23)27	23)27	23)28	23)28
05	21)12	21)10	21)08	21)05	23)25	23)25	23)26	23)26
06	21)23	21)20	21)18	21)16	23)22	23)23	23)23	23)24
07	21)33	21)30	21)28	21)25	23)19	23)20	23)20	23)21
08	21)42	21)40	21)38	21)35	23)16	23)17	23)17	23)18
09	21)51	21)49	21)47	21)44	23)13	23)13	23)14	23)15
10	22)00	21)58	21)56	21)53	23)09	23)09	23)10	23)11
11	22)08	22)06	22)04	22)02	23)04	23)04	23)05	23)07
12	22)16	22)14	22)12	22)10	22)59	22)59	23)00	23)02
13	22)24	22)22	22)20	22)18	22)53	22)54	22)55	22)57
14	22)31	22)29	22)28	22)25	22)46	22)48	22)50	22)51
15	22)38	22)36	22)34	22)33	22)41	22)42	22)44	22)45
16	22)44	22)43	22)41	22)39	22)35	22)36	22)37	22)39
17	22)50	22)49	22)47	22)45	22)28	22)29	22)30	22)32
18	22)56	22)54	22)53	22)51	22)20	22)22	22)23	22)25
19	23)01	23)00	22)58	22)57	22)12	22)14	22)16	22)18
20	23)06	23)05	23)03	23)02	22)04	22)06	22)08	22)10
21	23)10	23)09	23)08	23)07	21)55	21)57	21)59	22)02
22	23)14	23)13	23)12	23)11	21)46	21)49	21)51	21)53
23	23)18	23)17	23)16	23)15	21)37	21)39	21)42	21)44
24	23)21	23)20	23)19	23)18	21)28	21)30	21)32	21)35
25	23)23	23)23	23)22	23)21	21)18	21)20	21)22	21)25
26	23)26	23)25	23)25	23)24	21)07	21)10	21)13	21)15
27	23)28	23)27	23)27	23)26	20)57	20)59	21)01	21)05
28	23)29	23)29	23)29	23)28	20)46	20)48	20)51	20)54
29	23)30	23)30	23)30	23)30	20)35	20)37	20)40	20)43
30	23)31	23)31	23)31	23)31	20)23	20)25	20)28	20)31
31	23)31II	23)31II	23)31II	23)31II	20)11	20)13	20)16	20)19
32	23)31II	23)31II	23)31II	23)31II				

Day	<i>Asad</i> (21 July-21/22 August) Years				<i>Sumbula</i> (20/23 August-22 September) Years			
	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>
01	19)58	20)01	20)04	20)08	11)11	11)16	11)21	11)26
02	19)45	19)48	19)51	19)55	10)50	10)55	11)00	11)06
03	19)32	19)35	19)38	19)42	10)29	10)34	10)39	10)45
04	19)19	19)22	19)25	19)29	10)08	10)13	10)18	10)24
05	19)06	19)08	19)11	19)15	09)47	09)52	09)57	10)03
06	18)51	18)54	18)58	19)01	09)26	09)31	09)36	09)42
07	18)37	18)40	18)43	18)47	09)04	09)09	09)14	09)21
08	18)22	18)24	18)29	18)33	08)43	08)47	08)53	08)59
09	18)07	18)10	18)14	18)18	08)21	08)26	08)31	08)37
10	17)52	17)55	18)59	18)03	07)59	08)04	08)09	08)15

11	17)37	17)40	17)43	17)48	07)37	07)42	07)47	07)53
12	17)21	17)24	17)28	17)32	07)15	07)20	07)25	07)31
13	17)05	17)08	17)12	17)16	06)53	06)58	07)03	07)09
14	16)49	16)51	17)56	17)00	06)30	06)35	06)41	06)47
15	16)32	16)35	16)39	16)44	06)07	06)13	06)18	06)24
16	16)15	16)18	16)22	16)27	05)45	05)50	05)55	06)02
17	15)58	16)01	16)05	16)10	05)22	05)27	05)33	05)39
18	15)40	15)44	15)48	15)53	05)00	05)04	05)10	05)17
19	15)22	15)26	15)30	15)35	04)36	04)42	04)47	04)53
20	15)04	15)08	15)12	15)17	04)13	04)19	04)24	04)31
21	14)46	14)50	15)54	15)00	03)50	03)56	04)01	04)08
22	14)27	14)32	14)36	14)41	03)27	03)32	03)38	03)45
23	14)08	14)13	14)17	14)24	03)04	03)09	03)15	03)21
24	13)50	14)54	13)59	14)04	02)41	02)46	02)52	02)58
25	13)31	13)35	13)39	13)45	02)17	02)23	02)28	02)35
26	13)11	13)16	13)20	13)26	01)53	01)59	02)04	02)12
27	12)51	13)56	13)01	13)06	01)30	01)36	01)41	01)48
28	12)32	12)36	12)41	12)47	01)07	01)13	01)18	01)25
29	12)12	12)16	12)21	12)27	00)43	00)49	00)55	01)01
30	11)52	11)57	12)01	12)07	00)20	00)26	00)31	00)38
31	11)32	11)36	11)49	12)47	00)04	00)02	00)08	00)14

<i>Day</i>	<i>Mizan (23 September-22 October) Years</i>				<i>Agrab (23 October-21 November) Years</i>			
	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>
01	00)27	00)21	00)16	00)09	11)51	11)44	11)39	11)34
02	00)51	00)44	00)39	00)33	12)12	12)05	12)00	11)55
03	01)14	01)08	01)03	00)56	12)31	12)26	12)21	12)15
04	01)38	01)32	01)26	01)20	12)51	12)47	12)42	12)36
05	02)01	01)56	01)50	01)43	13)12	13)07	13)02	12)56
06	02)25	02)19	02)14	02)07	13)32	13)27	13)22	13)17
07	02)48	02)42	02)37	02)31	13)53	13)47	13)42	13)37
08	03)12	03)06	03)00	02)54	14)12	14)07	14)02	13)57
09	03)35	03)29	03)24	03)17	14)31	14)27	14)22	14)16
10	03)58	03)53	03)47	03)40	14)51	14)46	14)41	14)36
11	04)22	04)16	04)11	04)04	15)10	15)05	15)00	14)55
12	04)45	04)39	04)34	04)27	15)28	15)24	15)19	15)14
13	05)08	05)03	04)57	04)51	15)47	15)42	15)38	15)33
14	05)32	05)26	05)20	05)14	16)05	16)00	15)56	15)51
15	05)55	05)49	05)43	05)37	16)23	16)18	16)14	16)09
16	06)18	06)12	06)07	06)00	16)41	16)36	16)32	16)27
17	06)41	06)35	06)29	06)23	16)58	16)54	16)50	16)45
18	07)03	06)58	06)52	06)46	17)15	17)11	17)07	17)02

19	07)26	07)21	07)15	07)09	17)32	17)28	17)24	17)19
20	07)49	07)44	07)38	07)32	17)49	17)44	17)40	17)36
21	08)12	08)06	08)01	07)55	18)05	18)01	17)57	17)52
22	08)34	08)29	08)23	08)17	18)21	18)16	18)13	18)08
23	08)56	08)51	08)45	08)39	18)36	18)32	18)28	18)24
24	09)18	09)13	09)08	09)02	18)51	18)47	18)44	18)40
25	09)40	09)35	09)30	09)24	19)06	19)02	18)59	18)55
26	10)02	09)57	09)52	09)45	19)20	19)17	19)13	19)10
27	10)24	10)19	10)13	10)08	19)35	19)31	19)28	19)24
28	10)46	10)41	10)35	10)29	19)49	19)45	19)42	19)38
29	11)07	11)02	10)57	10)51	20)02	19)59	19)55	19)53
30	11)29	11)22	11)48	11)12	20)15	20)13	20)09	20)05

<i>Day</i>	<i>Quntur (22 November-20 December) Years</i>				<i>Jadee (21 December-20 January) Years</i>			
	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>
01	20)28	20)25	20)22	20)18	23)31II	23)31II	23)31II	23)31II
02	20)40	20)37	20)34	20)31	23)31	23)31	23)31	23)31II
03	20)52	20)49	20)46	20)43	23)30	23)30	23)30	23)31
04	21)04	21)01	20)57	20)55	23)28	23)29	23)29	23)29
05	21)15	21)12	21)09	21)06	23)26	23)27	23)27	23)28
06	21)26	21)23	21)20	21)17	23)24	23)25	23)25	23)26
07	21)36	21)33	21)31	21)28	23)21	23)21	23)22	23)23
08	21)46	21)43	21)41	21)38	23)17	23)18	23)19	23)20
09	21)55	21)53	21)51	21)48	23)13	23)15	23)16	23)17
10	22)03	22)02	22)00	21)58	23)10	23)10	23)12	23)13
11	22)11	22)11	22)09	22)07	23)05	23)06	23)07	23)08
12	22)19	22)19	22)17	22)15	22)59	23)01	23)02	23)03
13	22)26	22)27	22)25	22)23	22)54	22)55	22)56	22)58
14	22)33	22)35	22)33	22)31	22)47	22)49	22)51	22)52
15	22)40	22)42	22)40	22)38	22)41	22)42	22)44	22)46
16	22)47	22)48	22)47	22)45	22)34	22)35	22)38	22)39
17	22)54	22)54	22)53	22)51	22)26	22)28	22)30	22)32
18	23)01	23)00	22)59	22)57	22)18	22)20	22)22	22)24
19	23)07	23)05	23)04	23)03	22)10	22)12	22)14	22)16
20	23)12	23)10	23)09	23)08	22)01	22)03	22)05	22)08
21	23)16	23)14	23)13	23)13	21)51	21)54	21)56	21)59
22	23)19	23)18	23)17	23)16	21)42	21)44	21)47	21)49
23	23)22	23)21	23)20	23)20	21)32	21)34	21)37	21)39
24	23)25	23)24	23)24	23)23	21)21	21)24	21)27	21)29
25	23)27	23)27	23)26	23)25	21)10	21)13	21)16	21)19
26	23)29	23)28	23)28	23)27	20)59	21)02	21)05	21)08
27	23)30	23)30	23)30	23)29	20)47	20)51	20)53	20)56

28	23)31	23)31II	23)31II	23)30	20)35	20)38	20)41	20)44
29	23)31III	23)31II	23)31II	23)31	20)23	20)26	20)29	20)32

Day	Dalw (21 January-19 February) Years				Hoot (20 February-20 March) Years			
	First	Second	Third	Fourth	First	Second	Third	Fourth
01	20)11	20)13	20)16	20)19	11)16	11)21	11)26	11)32
02	19)58	20)00	20)03	20)06	10)54	11)00	11)05	11)12
03	19)44	19)46	19)50	19)53	10)33	10)38	10)44	10)49
04	19)29	19)32	19)36	19)39	10)17	10)16	10)23	10)27
05	19)14	19)18	19)22	19)25	09)49	09)54	10)00	10)05
06	18)59	19)03	19)07	19)11	09)27	09)32	09)38	09)43
07	18)44	18)48	18)52	18)56	09)04	09)10	09)16	09)21
08	18)29	18)33	18)37	18)41	08)42	08)48	08)54	08)59
09	18)13	18)17	18)21	18)25	08)19	08)25	08)31	08)36
10	17)57	18)01	18)05	18)09	07)57	08)02	08)08	08)14
11	17)41	17)45	17)49	17)53	07)34	07)39	07)45	07)51
12	17)24	17)28	17)32	17)37	07)11	07)17	07)23	07)28
13	17)07	17)11	17)16	17)20	06)48	06)54	07)00	07)05
14	16)50	16)54	16)58	17)03	06)25	06)31	06)37	06)42
15	16)32	16)36	16)41	16)45	06)02	06)07	06)14	06)19
16	16)14	16)19	16)23	16)27	05)38	05)44	05)50	05)56
17	15)56	16)00	16)05	16)09	05)15	05)21	05)27	05)33
18	15)37	15)42	15)47	15)51	04)52	04)57	05)04	05)09
19	15)19	15)23	15)28	15)33	04)29	04)34	04)40	04)46
20	15)00	15)04	15)09	15)14	04)05	04)10	04)17	04)22
21	14)41	14)44	14)50	14)55	03)41	03)47	03)53	03)59
22	14)21	14)26	14)30	14)35	03)17	03)23	03)30	03)35
23	14)01	14)06	14)11	14)16	02)54	03)00	03)06	03)12
24	13)41	13)46	13)51	13)56	02)30	02)36	02)42	02)48
25	13)21	13)26	13)31	13)36	02)06	02)12	02)19	02)24
26	13)01	13)06	13)11	13)17	01)43	01)48	01)55	02)01
27	12)40	12)45	12)51	12)56	01)19	01)25	01)31	01)37
28	12)20	12)24	12)30	12)35	00)55	01)01	01)07	01)13
29	11)58	12)04	12)09	12)14	00)32	00)38	00)44	00)49
30	11)37	11)42	11)48	11)53	00)08	00)14	00)20	00)26
31								00)02

According to Professor Tibbetts, the Arabs developed methods of measuring latitudes through their constant use of stellar navigation, but had no accurate way to measure longitude at sea (Tibbetts, 1969). Interestingly, *pothis* explicitly explained the methods of Arabs for measuring not only latitudes but also longitudes as well as longitudinal measurement without taking help of any

instrument. These methods are based on simple arithmetic calculations which the *pothis* have illustrated in the following examples:

1. . . . if one wants to get *tūl* from *arāj* and *mūsad*, ask him to put *tūl* *dakika* below *mūsad* *dakika* 20, and thereafter deduct *arāj* *jārab* from *mūsad* *jārab*; the figure 325 comes as balance. Ask him its *jūjar* which set to figure 18, to which call *tūl* 18 . . . ' (RS: 01.136).
2. . . . if one require *arāj* from *tūl* and *mūsad*, ask him to take *mūsad* 20 and *tūl* 18. Thereafter, put eighteen below eighteen and make their *jārab*, which would come to figure 324. Again, put *mūsad* below *mūsad* which would come to figure 400. Now subtract *jārab* 324 from *mūsad* *jārab* 400, the figure would come to 76. Ask him to make *jūjar* of 76, which would come to 8111. Call it as *arāj* . . . ' (RS: 01.135).
3. . . . if someone is making for obtaining *mūsad* from twenty *arāj* *dakika* and thirty *tūl* *dakika*, tell him to put *arāj* below *arāj* and ask him to make their *jārab* which would come to figure 400. Likewise, put *tūl* below *tūl* and make their *jārab* which would come to 900. Ask him to make *hasal* of both, and it would come to 1300. Make *jūjar* of 1300 which would come to figure 36. It is the *mūsad* . . . ' (RS: 01.134).

These methods contain Arabic nautical and mathematical terms. The Arabic term *tūl* signifies longitude in English while *arāj* or *arāj* means latitude. The term *mūsad* is a corrupt Gujarati version of the Arabic term *masafat*, which signifies longitudinal measurement. The *pothis* cite the Arabic mathematical term *darb* or *jārab* for multiplication, *hasal* for total and *jazr* or *jūjar* for under-root. On the basis of above methods, experienced Kachchhi navigators prepared nautical tables of different ports, places and visible landmarks in the Indian Ocean, and requested other navigators to verify them (RS: 01.84, 01.87, 01.130-1, 01.144, 01.159).

Moreover, the *pothis* revealed the working of another device in Kachchhi navigation, the chart of declination degrees of the sun, known to the Kachchhis as '*Juner*' year. We know that the Portuguese had compiled astronomical data on the sun, and introduced it in actual course of navigation in the Indian Ocean.

Table 6.2 disclosed daily fluctuations in degree of the sun in the units of four *Juner* years (RS: 01.115-21).

TABLE 6.2: JUNER YEAR CHARTS

Date	January				February			
	Years				Years			
	First	Second	Third	Fourth	First	Second	Third	Fourth
01	23)02	23)03	23)04	23)05	16)58	17)03	17)07	17)11
02	22)56	22)58	22)59	23)00	16)40	16)45	16)49	16)54
03	22)50	22)52	22)53	22)55	16)22	16)27	16)31	16)37
04	22)44	22)46	22)47	22)49	16)04	16)09	16)13	16)19
05	22)37	22)39	22)40	22)43	15)46	15)51	15)55	16)01
06	22)30	22)32	22)33	22)36	15)28	15)32	15)37	15)42
07	22)22	22)24	22)26	22)29	15)09	15)13	15)18	15)23

08	22)14	22)16	22)18	22)21		14)49	14)54	14)59	15)04
09	22)05	22)07	22)09	22)12		14)30	14)35	14)40	14)45
10	21)56	21)58	22)01	22)03		14)10	14)15	14)20	14)26
11	21)47	21)49	21)51	21)54		13)51	13)55	14)00	14)06
12	21)37	21)39	21)42	21)45		13)31	13)35	13)40	13)46
13	21)26	21)29	21)31	21)35		13)10	13)15	13)20	13)26
14	21)15	21)18	21)21	21)25		12)50	12)55	13)00	13)05
15	20)04	21)07	21)10	21)14		12)29	12)32	12)39	12)45
16	20)53	20)56	20)58	21)03		12)08	12)14	12)18	12)24
17	20)41	20)44	20)48	20)51		11)47	11)52	11)57	12)03
18	20)29	20)32	20)35	20)39		11)26	11)31	11)36	11)42
19	20)16	20)19	20)22	20)26		11)05	11)09	11)15	11)21
20	20)03	20)06	20)09	20)13		10)43	10)48	10)53	10)59
21	19)49	19)52	19)56	20)00		10)21	10)26	10)32	10)38
22	19)35	19)39	19)42	19)47		09)59	10)04	10)10	10)16
23	19)21	19)24	19)28	19)33		09)37	09)42	09)48	09)54
24	19)06	19)10	19)14	19)19		09)15	09)20	09)26	09)32
25	18)51	18)55	18)59	19)04		08)52	08)58	09)03	09)09
26	18)36	18)40	18)44	18)49		08)30	08)35	08)41	08)46
27	18)21	18)24	18)28	18)33		08)07	08)13	08)18	08)24
28	18)05	18)09	18)12	18)17		07)45	07)50	07)56	08)02
29	17)48	17)54	17)56	18)01					07)39
30	17)32	17)38	17)40	17)45					
31	17)15	17)21	17)23	17)28					

<i>Date</i>	<i>March</i>				<i>April</i>			
	<i>Years</i>				<i>Years</i>			
	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>
01	07)22	07)27	07)33	07)16	04)46	04)40	04)35	04)52
02	06)59	07)04	07)10	06)53	05)09	05)04	04)58	05)15
03	06)36	06)41	06)47	06)30	05)32	05)27	05)21	05)38
04	06)13	06)18	06)24	06)07	05)55	05)49	05)44	06)00
05	05)49	05)55	06)01	05)44	06)17	06)12	06)07	06)23
06	05)26	05)32	05)38	05)21	06)40	06)34	06)30	06)46
07	05)03	05)09	05)14	04)57	07)03	06)57	06)52	07)09
08	04)39	04)45	04)51	04)34	07)25	07)20	07)14	07)31
09	04)16	04)22	04)27	04)10	07)48	07)42	07)37	07)53
10	03)52	03)58	04)04	03)47	08)10	08)04	07)59	08)15
11	03)29	03)34	03)40	03)23	08)32	08)26	08)21	08)37
12	03)05	03)11	03)17	02)59	08)54	08)48	08)43	08)59
13	02)41	02)47	02)53	02)36	09)15	09)10	09)05	09)20
14	02)17	02)23	02)29	02)12	09)37	09)32	09)27	09)41
15	01)54	02)00	02)06	01)48	09)58	09)53	09)48	10)02
16	01)30	01)36	01)42	01)24	10)20	10)15	10)10	10)23

17	01)09	01)12	01)18	01)00		10)41	10)36	10)31	10)46
18	00)43	00)49	00)54	00)37		11)02	10)57	10)51	11)07
19	00)19	00)25	00)31	00)13		11)22	11)17	11)11	11)27
20	00)05	00)01	00)07	00) 03		11)43	11)37	11)32	11)48
21	00)28	00)22	00)17	00)34		12)03	11)57	11)53	12)08
22	00)52	00)46	00)40	00)58		12)23	12)18	12)13	12)28
23	01)16	01)09	01)04	01)21		12)43	12)39	12)33	12)48
24	01)39	01)33	01)28	01)44		13)03	12)59	12)53	13)08
25	02)03	01)57	01)51	02)08		13)23	13)18	13)13	13)27
26	02)26	02)20	02)15	02)32		13)42	13)37	13)33	13)46
27	02)50	02)44	02)38	02)55		14)01	13)57	13)52	14)05
28	03)13	03)08	03)02	03)19		14)20	14)16	14)11	14)24
29	03)36	03)31	03)25	03)42		14)39	14)35	14)31	14)43
30	04)00	03)54	03)48	04)05		14)57	14)53	14)48	15)01
31	04)23	04)17	04)12	04)28					

<i>Date</i>	<i>May</i>				<i>June</i>			
	<i>Years</i>				<i>Years</i>			
	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>
01	15)15	15)11	15)07	15)20	22)10	22)08	22)06	22)12
02	15)33	15)29	15)25	15)37	22)18	22)16	22)14	22)20
03	15)51	15)47	15)42	15)55	22)26	22)24	22)22	22)27
04	16)08	16)04	16)00	16)12	22)33	22)31	22)29	22)34
05	16)25	16)21	16)17	16)29	22)39	22)38	22)36	22)41
06	16)42	16)38	16)34	16)46	22)46	22)44	22)43	22)47
07	16)57	16)55	16)51	17)03	22)52	22)50	22)49	22)53
08	17)15	17)11	17)07	17)19	22)57	22)56	22)54	22)58
09	17)31	17)27	17)23	17)35	23)02	23)01	23)00	23)03
10	17)47	17)43	17)39	17)50	23)07	23)06	23)05	23)08
11	18)02	17)59	17)55	18)06	23)11	23)10	23)09	23)12
12	18)17	18)13	18)10	18)21	23)15	23)14	23)13	23)16
13	18)32	18)29	18)25	18)36	23)18	23)18	23)17	23)19
14	18)47	18)43	18)40	18)50	23)21	23)21	23)20	23)22
15	19)01	18)57	18)54	19)04	23)23	23)24	23)23	23)25
16	19)15	19)11	19)08	19)18	23)24	23)26	23)25	23)27
17	19)28	19)25	19)22	19)32	23)26	23)28	23)27	23)29
18	19)42	19)34	19)35	19)45	23)27	23)29	23)29	23)30
19	19)55	19)51	19)48	19)58	23)28	23)30	23)30	23)30
20	20)07	20)04	20)01	20)10	23)31	23)31	23)31	23)31
21	20)19	20)16	20)13	20)22	23)31	23)31	23)31	23)32
22	20)31	20)28	20)25	20)34	23)31	23)31	23)31	23)31
23	20)43	20)40	20)37	20)45	23)31	23)30	23)30	23)30
24	20)54	20)51	20)49	20)50	23)30	23)29	23)29	23)29

25	21)05	21)02	21)00	21)07		23)28	23)28	23)28	23)28
26	21)15	21)13	21)10	21)18		23)26	23)26	23)27	23)26
27	21)25	21)23	21)20	21)28		23)24	23)24	23)25	23)24
28	21)35	21)33	21)30	21)37		23)21	23)22	23)23	23)21
29	21)44	21)42	21)40	21)47		23)18	23)19	23)20	23)18
30	21)53	21)51	21)49	21)56		23)15	23)15	23)16	23)14
31	22)02	22)00	21)58	22)04					

<i>Date</i>	<i>July</i>				<i>August</i>			
	<i>Juner Years</i>				<i>Juner Years</i>			
	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>
01	23)11	23)12	23)12	23)10	18)02	18)06	18)10	17)59
02	23)07	23)07	23)08	23)05	17)47	17)51	17)54	17)43
03	23)02	23)03	23)04	23)00	17)38	17)35	17)39	17)27
04	22)56	22)58	22)59	22)55	17)15	17)19	17)23	17)11
05	22)51	22)52	22)54	22)49	16)59	17)03	17)07	16)55
06	22)45	22)46	22)48	22)43	16)43	16)47	16)51	16)39
07	22)39	22)40	22)42	22)37	16)23	16)30	16)34	16)22
08	22)33	22)34	22)35	22)30	16)09	16)13	16)17	16)05
09	22)25	22)27	22)28	22)23	15)52	15)56	16)00	15)47
10	22)17	22)19	22)21	22)16	15)34	15)38	15)43	15)30
11	22)10	22)12	22)13	22)08	15)16	15)21	15)25	15)12
12	22)02	22)04	22)05	22)00	14)58	15)03	15)07	14)53
13	21)53	21)55	21)57	21)51	14)40	14)44	14)49	14)36
14	21)44	21)46	21)48	21)42	14)21	14)25	14)31	14)17
15	21)34	21)36	21)39	21)32	14)03	14)07	14)12	13)58
16	21)25	21)27	21)29	21)21	13)44	13)48	13)53	13)39
17	21)15	21)17	21)19	21)12	13)25	13)30	13)34	13)20
18	21)04	21)07	21)09	21)01	13)05	13)10	13)15	13)01
19	20)53	20)56	20)58	20)51	12)45	12)50	12)55	12)41
20	20)42	20)45	20)47	20)39	12)26	12)30	12)35	12)21
21	20)31	20)33	20)36	20)28	12)06	12)10	12)15	12)01
22	20)19	20)22	20)25	20)16	11)45	11)50	11)55	11)41
23	20)07	20)10	20)13	20)03	11)25	11)29	11)35	11)20
24	19)54	19)57	20)00	19)51	11)05	11)09	11)15	11)00
25	19)41	19)44	19)47	19)38	10)44	10)49	10)55	10)39
26	19)28	19)31	19)34	19)25	10)23	10)28	10)34	10)18
27	19)14	19)18	19)21	19)11	10)02	10)07	10)13	09)57
28	19)01	19)04	19)07	18)57	09)41	09)46	09)51	09)36
29	18)46	18)50	18)53	18)43	09)20	09)25	09)30	09)14
30	18)32	18)35	18)39	18)28	08)58	09)03	09)08	08)52
31	18)17	18)21	18)25	18)14	08)36	08)41	08)47	08)31

<i>Date</i>	<i>September</i>				<i>October</i>			
	<i>Juner Years</i>				<i>Juner Years</i>			
	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>
01	08)14	08)19	08)25	08)09	03)18	03)12	03)07	03)24
02	07)52	07)58	08)03	07)47	03)41	03)35	03)30	03)47
03	07)30	07)35	07)41	07)25	04)05	03)59	03)53	04)10
04	07)08	07)13	07)19	07)03	04)28	04)23	04)17	04)34
05	06)46	06)51	06)57	06)40	04)51	04)47	04)40	04)57
06	06)23	06)29	06)34	06)18	05)14	05)10	05)03	05)30
07	06)01	06)06	06)12	05)55	05)38	05)33	05)26	05)43
08	05)38	05)44	05)49	05)32	06)01	05)55	05)49	06)06
09	05)15	05)21	05)26	05)10	06)24	06)18	06)12	06)29
10	04)52	04)58	05)04	04)47	06)46	06)41	06)35	06)52
11	04)30	04)35	04)41	04)24	07)09	07)04	06)58	07)15
12	04)07	04)12	04)18	04)01	07)32	07)27	07)21	07)38
13	03)43	03)49	03)55	03)38	07)55	07)49	07)44	08)00
14	03)20	03)26	03)32	03)15	08)17	08)12	08)06	08)22
15	02)57	03)03	03)08	02)52	08)40	08)34	08)29	08)45
16	02)34	02)40	02)45	02)29	09)01	08)56	08)51	09)07
17	02)11	02)16	02)22	02)05	09)22	09)19	09)13	09)29
18	01)47	01)53	01)59	01)42	09)44	09)41	09)35	09)51
19	01)24	01)30	01)35	01)18	10)06	10)02	09)57	10)13
20	01)00	01)06	01)12	00)55	10)28	10)24	10)11	10)35
21	00)37	00)43	00)48	00)31	10)50	10)45	10)41	10)56
22	00)13	00)19	00)25	00)08	11)12	11)07	11)02	11)18
23	00)10	00)04	00)01	00)16	11)34	11)29	11)23	11)39
24	00)33	00)28	00)22	00)40	11)55	11)50	11)45	12)00
25	00)57	00)52	00)46	01)03	12)16	12)11	12)05	12)21
26	01)21	01)15	01)09	01)26	12)36	12)32	12)26	12)42
27	01)44	01)38	01)33	01)50	12)57	12)52	12)47	13)02
28	02)08	02)02	01)57	02)13	13)17	13)12	13)07	13)22
29	02)31	02)25	02)20	02)37	13)37	13)32	13)27	13)42
30	02)54	02)48	02)43	03)00	13)57	13)52	13)46	14)02
31					14)16	14)12	14)07	14)22

<i>Date</i>	<i>November</i>				<i>December</i>			
	<i>Years</i>				<i>Years</i>			
	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>
01	14)36	14)31	14)27	14)41	21)57	21)55	21)53	22)00
02	14)55	14)51	14)46	15)00	22)06	22)04	22)02	22)09
03	15)14	15)09	15)05	15)19	22)15	22)13	22)11	22)17
04	15)33	15)28	15)24	15)37	22)23	22)21	22)19	22)25
05	15)51	15)47	15)42	15)56	22)31	22)29	22)27	22)33
06	16)09	16)05	16)00	16)13	22)38	22)36	22)35	22)40

07	16)27	16)23	16)19	16)31		22)44	22)43	22)42	22)46
08	16)45	16)40	16)36	16)49		22)51	22)50	22)48	22)52
09	17)02	16)58	16)54	17)06		22)57	22)56	22)54	22)58
10	17)19	17)15	17)11	17)23		23)02	23)01	23)00	23)04
11	17)35	17)32	17)28	17)40		23)07	23)06	23)05	23)09
12	17)52	17)48	17)44	17)56		23)12	23)11	23)10	23)13
13	18)08	18)04	18)00	18)12		23)16	23)15	23)14	23)17
14	18)24	18)20	18)16	18)28		23)19	23)19	23)18	23)20
15	18)39	18)36	18)32	18)43		23)22	23)22	23)21	23)23
16	18)55	18)51	18)47	18)58		23)25	23)25	23)24	23)26
17	19)09	19)06	19)02	19)13		23)27	23)27	23)26	23)28
18	19)24	19)20	19)17	19)27		23)29	23)29	23)28	23)29
19	19)38	19)34	19)31	19)41		23)30	23)30	23)30	23)30
20	19)51	19)48	19)45	19)55		23)31	23)31	23)31	23)31
21	20)05	20)02	19)59	20)08		23)31	23)31	23)31	23)32
22	20)18	20)16	20)12	20)21		23)31	23)31	23)32	23)31
23	20)31	20)29	20)26	20)34		23)30	23)30	23)31	23)30
24	20)43	20)41	20)38	20)45		23)29	23)29	23)30	23)29
25	20)55	20)53	20)49	20)57		23)28	23)28	23)29	23)28
26	21)06	21)04	21)01	21)09		23)26	23)26	23)27	23)25
27	21)17	21)15	21)12	21)20		23)23	23)24	23)24	23)22
28	21)28	21)25	21)23	21)30		23)20	23)21	23)21	23)19
29	21)38	21)35	21)33	21)40		23)16	23)17	23)18	23)15
30	21)48	21)45	21)43	21)50		23)12	23)14	23)15	23)11
31						23)08	23)09	23)10	23)06

It were the Portuguese that were the source since the names of the months written in the charts have phonetic affinity with Portuguese pronunciation. The first Portuguese table on the sun's declination was made public in Portugal, and on the basis of it, another quadrennial solar table for the years 1497-1500 was compiled by José Vizinho. It was used by Vasco da Gama and Pedro Alvares Cabral during their voyages to India. Pedro Gaspar Nicholas prepared another table for the years 1517-20, which remained in use throughout the sixteenth century. Pedro Nunes compiled a table for the years 1537-40 which was used by the Governor Dom João de Castro during his 1538 voyage to India (Mathew, 1988: Chapter I).

IMPLICATIONS OF *HAMAL* AND *JUNER* DEVICES IN KACHCHHI NAVIGATION

A number of log-books provide evidence for working of these devices. In every log-book, the days in Kachchhi voyages were enumerated with reference to *dariyai* or sea year calendar which is of 365 days. For every voyage, a year is mentioned in the *Vikram Samvat* while the date and month of the Gregorian

calendar are also quoted. These details were indispensable in actual course of navigation.

Days in *dariyai* calendar became a handy reference to know the total days that passed in a current voyage, while the year in the Samvat era remained an important apparatus to obtain precise year from the units of four *hamal* or *juner* years through Method 01 illustrated earlier. Once the concerned year was obtained, the navigator used to refer concerned *juner* year charts in order to acquire declination degrees of the celestial object appositely for a current day of voyage, and recorded it in the log-book under the category of *juner darja*. Thereafter, he reckoned degrees of the celestial object with the help of an instrument called *kaman*, and degrees obtained through which were then recorded as *kaman darja*. These two *darjas*, i.e. *juner* and *kaman*, were factored into subtraction and addition as per the position of the sun in *janobi* or *sumali*, at the northern or southern hemisphere (RS: 01.64). On the basis of the position of the sun, simple arithmetic calculation was made which enabled the navigator to obtain *naki darja* or exact latitude through two modes. If a voyage was carried out between 21 March and 23 September, the *naki darja* obtained by adding *kaman darja* to the *darja* of *juner*, and if it was to be undertaken between 24 September and 20 March, *naki darja* was fixed up by subtracting *juner darja* from the *darja* of *kaman* (RS: 01.64, 01.99).

Thus, for instance, in a voyage between Calcutta and Maldives beginning on 1 December (day *sud* 8 of month Margasar) of Samvat 1938, the *juner darja* 21)55 was subtracted from *kaman darja* 43)40 whereby the *naki darja* 21)45 was fixed. In another voyage between Calcutta and Gali (a port on the Ceylon coast) on 17 September (day *vad* 10 of month Vaishakh) of Samvat 1939, the *juner darja* 02)05 was added to *kaman darja* 04)15 thereby obtaining, *naki darja* 06)20 (RS: 02.01, 02.02).

Thus, handy references of the Arabic and Portuguese charts remained operative devices in Kachchhi navigation during pre-modern times. The Arabic *hamal* device had been used by the Kachchhis before they could get the *juner* device from the Portuguese. In a wider perspective, the Kachchhi navigation was influenced by the Arab navigators.

SOCIO-MENTAL LANDSCAPE OF THE NAVIGATORS

The Kachchhi seafarers believed in the power of the Almighty and sought his blessing for strength and courage to overcome adverse circumstances in the sea and to return to land safely. The *pothis* are richly laden with symbolic and ritual materials, and revealed the mariners' faith in deities, evocatively addressed as Sri Ratnakarsagar, Dariyalal, Pir Khadriyat and Dariyai Pir. Their devotion and submission found expression in utterances like *Allāh alām Khūda malam*, i.e. 'Allah is everywhere, and he is *malam*, the guide' (RS: 01.53). They assumed that adherence to popular suppositions and superstitious notions would reduce

the gravity of crisis in the sea, and took discretion to act in accordance with the prevalent situation. The *pothis* contain a number of textual sequences relating obscure rituals in seemingly bizarre details; one among such sacrament was performed by the Arabs, and then obtained by the Kachchhis. It is found in *Malam Vasram Farani's pothi*, compiled in the year 1665. This tangible evidence is reproduced in Figure 6.4.

س

و	و	و	و		س	س	س	س	س
ا	ح	و	و	आ तावीद वनी	س	س	س	س	س
ی	و	و	و	लखी ने गाल [ठ]	س	س	س	س	س
ا	و	و	ا	बाघी छे	س	س	س	س	س

FIGURE 6.4: ARAB SACRAMENT ADOPTED BY THE KACHCHHIS

It is an amulet or *taweej* made by drawing a chart with four horizontal and four vertical lines that create sixteen boxes on the left and right sides of the axis. Between the two sets of boxes an instruction in Gujarati says ‘after inscribing [these letters] in *taweej*, we make a knot of it’. Given the amulet’s inscription and textual format, one may be almost certain that it was derived from the ritual practices of the Arab seafarers.

During my field research at Mandvi, Salaya and other places of Kachchh and Saurashtra, I was fortunate to know more about this ritual. An elderly Kachchhi *malam*, Baba Malam, described this ritual he had learned from some elderly Kachchhi *malams* when he was a boy. According to it, when a ship got stranded in the sea with no wind to set it on sail, the Kachchhi *malams* performed this ritual. The *malam* of a stranded ship assembled his crew and passengers, and asked them to recall names of seven one-eyed males and females of their respective ports of residence. He then took in his hand a cotton thread and began tying knots, one after another, for each name that the audience pronounced loudly. Thereafter, he took seven dried chillies and a pinch of salt, and put them along with the knotted thread. Next, he took a copy of a *taweej* inscribed in Arabic letters. All these materials were then put together in a piece of cotton cloth and wrapped tightly. Finally, this small bundle was tied to the ship’s mast at a particular height. It is believed that within 24 hours winds of a requisite velocity set in, blowing exactly at the same level at which the bundle was affixed to the mast. Baba Malam confidently affirmed the working of this ritual. This anecdote was confirmed by another *malam*, Shivji Fofandi, who runs a shop at Mandvi (Kachchh) that makes and sells replicas of ships.

Malam Shivji Fofandi recalled another superstitious notion which he had been personally subjected to when he worked as *pitrodia* [unpaid labour who received only food and clothing] in his uncle's ship. The ritual-anecdote is regarding a particular bird [a type of owl found off the African coast. He did not recollect the name of it]. It was believed among sailors that if this bird sat atop a ship's mast, it was certain to break up, although the bird was not bulky. To avert this catastrophe, the Kachchhis had to scare away the bird from the ship, and the only way this could be achieved was by exposing the bird to a nude human body. As a young boy, some 10 to 12 years old, Shivji Fofandi was made to remove his clothes, expose himself to the bird in complete nudity and then approach it while beating a tin box until the bird had fled the ship. This ritual was common among the sailors in the Indian Ocean.

To conclude, the process of broadening the frontier of traditional navigational knowledge was achieved by assimilation of concepts and techniques of other seafaring groups, and this development continued across generations of Kachchhi *malams* over several centuries. The community insights were enhanced with continual and incremental processes of observations and experiences, which led to a formation of professional competency. Hazards and uncertainties were staples of sea voyages; hence the Kachchhis sought help from invisible and unseen powers and performed rituals to overcome the gravity in the sea. And, such were deeply enmeshed with more overtly practical, empirical and theoretical bearings of the seafaring activities during pre-modern times.

ACKNOWLEDGEMENTS

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UNESCO World Heritage and the View from Asia

LYNN MESKELL

with contributions by

CLAUDIA LIUZZA AND NICHOLAS BROWN

UNESCO and its World Heritage programme form the centerpiece of this paper because together they represent aspirations of the international community, limitations of world government, concerns for protection and rights, and notions of the global good. At the heart of this mission has always been archaeological and cultural heritage, and to a lesser degree, natural heritage. UNESCO is one of the most powerful arenas where archaeology achieves worldwide attention and yet archaeologists themselves seem largely invisible in the political processes, governance, and public profile of the organization. That seeming invisibility, however, masks a substantial global archaeological network of field projects and practitioners, consultants, site evaluators, conservators, training projects, university courses and so on. India has long held an important place in the World Heritage system and has recently played a high-profile role on the World Heritage Committee (Meskell, 2012; 2013).

While I have always had an interest in the politics of archaeology globally, this specific research into World Heritage began in 2010 during meetings at UNESCO headquarters in Paris and since 2011 I have been granted official observer status at World Heritage Committee sessions each year. From a qualitative perspective, I have conducted interviews with the UNESCO secretariat, officials from all three advisory bodies (ICOMOS, IUCN, ICCROM), ambassadors and members of national delegations, archaeologists and conservators involved in site nominations, as well as independent evaluators, consultants, and academics. This work has also taken me to Myanmar, Peru, India, Thailand, Turkey, France, and Cambodia to follow UNESCO's mission in-country. And as an archaeologist I have conducted fieldwork at World Heritage sites in Egypt, South Africa and Turkey.

On the more quantitative side, we have ongoing collaborative research with cultural economists using econometric analyses to trace the international

political pacting, economic interests and voting patterns that shape today's World Heritage agenda (Meskell et al., 2015; Bertacchini, Liuzza, and Meskell, 2015). Both modes of analysis are necessary and being trained as an archaeologist provides a unique vantage that, I believe, is different from other scholarly approaches to the organization. Archaeologists are interested in the long term, in patterns of change, issues of scale and we tend to work at multiple field sites and return to do so over many years. In this instance we are also deeply embedded in the knowledge and practices surrounding archaeological and cultural sites, their histories, multiple and contemporary uses, interpretations, politics and conservation.

RESEARCH BACKGROUND

There is a vast outpouring of work on UNESCO now, especially after the 1972 Convention and World Heritage, from various disciplines including international law, economics, policy, tourism studies, international relations and anthropology on topics from governance and bureaucracy (Schmitt, 2009; 2012; Bertacchini, Saccone, and Santagata, 2011; Logan, 2012), to list credibility (Askew, 2010; Zacharias, 2010), global strategy and representation (Labadi, 2005; Labadi, 2007; Willems and Comer, 2011; Schmitt, 2008), the politics of culture and rights (Logan, 2012; Berliner, 2012; De Cesari, 2010; Eriksen, 2009) and cultural economics (Bertacchini, Saccone, and Santagata, 2011; Frey and Steiner, 2011; Frey, Pamini and Steiner, 2011; van Blarcoma and Kayahana, 2011). Much has been written about UNESCO, however, especially in archaeology that fails to capture the complexity or even structure of the organization or the shifting power brokers on the World Heritage stage. Many researchers rely solely on the documents or online sources, the result being that substantive political issues are often masked as technical ones.

In Figure 7.1 you can see a very typical snapshot from a document being drafted at a World Heritage Committee meeting. Here just one decision is being taken – you can see the number of countries intervening, many with differing positions, amendments, deletions and so on. It is also being done simultaneously in French on another vast screen with all the problems and arguments over proper translation. And you can see the countries that align and those that diverge repeatedly on a very important issue – conflicts of interest. This is entirely the work of the individual national representatives, rather than bureaucrats from UNESCO.

So one has to consider the relationships and the hierarchies among those who produced the texts and the difference between fully capturing the discussions in the room and what was formalized into a record for posterity. As archaeologists, we need to understand how organizations like the UNESCO have global impacts, albeit in often unexpected and unpredictable ways that

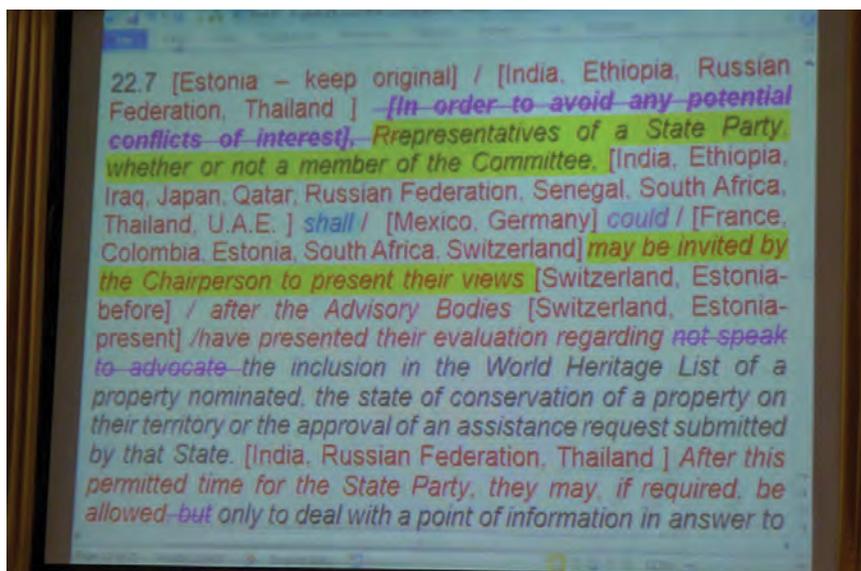


FIGURE 7.1: TYPICAL SNAPSHOT FROM A DOCUMENT BEING DRAFTED AT A WORLD HERITAGE COMMITTEE MEETING

are not always revealed in official agendas. I believe that archaeologists need to study up since the fate of our sites, and the people around them, is being decided (Müller, 2013; Bendix, 2013). ‘Being there’ is essential to track the global machinations playing out today in the new order of things.

One common mistake is that archaeologists typically presume that power largely resides with UNESCO’s Paris headquarters and have critiqued the organization in the most general of terms. As an inter-governmental agency and part of the UN family, it is the States Parties or nation states that are signatories to the Convention that are the most powerful decision makers in World Heritage (Askew, 2010).

Moreover, since the United States has withdrawn its financial support to the UNESCO after Palestine’s admission as a member, the World Heritage Center has been crippled, facing the worst financial and staffing crisis in its history. Although this is not the first time the US has withdrawn support, the lasting damage to UNESCO this time is proving to be the most dramatic (Meskell, 2013). About 20 people are now permanently employed in Paris, and many have been sent to regional offices so only a shell of the organization remains. When I started there were over 70 people and even that was a reduction from previous years. The World Heritage Center instead of being an independent entity is now essentially managed from within the Culture Sector, with senior staff now overseeing numerous international conventions, rather than focusing their efforts solely on World Heritage.

So States Parties are the most powerful decision makers, particularly the

21 nations that have representation on the Committee. Securing a seat on that Committee is seen by many countries as one way to effectively raise their profile across the UN more generally. Today state-appointed ambassadors and politicians, rather than cultural or natural heritage experts dominate their national delegations. This Committee is the actual body responsible for the implementation of the 1972 World Heritage Convention. It has the final say on whether a property is inscribed on the World Heritage List. The Committee also examines reports on the state of conservation of already inscribed properties and asks States Parties to take action if it is deemed necessary. It also takes decisions about the inclusion or deletion of properties on the List of World Heritage in Danger, so it is immensely powerful.

Given UNESCO's ethos of recognition and reconciliation, cultural diversity, and protection of minority lifeways, it is not surprising that the World Heritage Convention has emerged as the only structural avenue to global governance and promotion of the world's heritage. And the desire for recognition and inscription on the World Heritage List has only increased as time has gone on and now almost all the nations of the world want their sites to be included in the list.

We need to ask why have the stakes become so high today for so many countries? Why should India, the US, Russia, China or even Myanmar, for that matter, care about getting onto the World Heritage List? The notion that World Heritage sites are commodities that mobilize national and international flows should not be surprising to any of us. As archaeologists we have all seen that UNESCO site recognition accrues direct tourist and other economic revenues for the state.

WORLD HERITAGE DECISION-MAKING

The annual World Heritage Committee sessions take place for ten days each year, days filled with meetings, side-meetings, events and receptions as well as endless diplomacy, lobbying and political negotiation. During the last few years, state agendas have come to eclipse substantive discussions of the merits of site nominations *in tandem* with issues raised over community benefits, the participation of indigenous stakeholders, or threats from mining, exploitation or infrastructural development (Meskell, 2014). Indeed, several prominent ambassadors on the Committee explained that the real focus of sessions is solely site inscription and branding, and that only those three days of decision-making out of the ten were paramount. The ancillary effects of listing, indeed the supplements to heritage, according to these diplomats, outweigh the outmoded, Eurocentric notions of universal value, authenticity and integrity.

Another notable trend is that collective decision-making and the over-

arching responsibility for the conservation of sites, once the remit of national delegates with heritage expertise, has been replaced by excessive backstage lobbying by politicians and the bargaining power of nations with geo-political alliances based on geography, religion, trade partnerships or anti-Western sentiment. Thus the ideal of collective responsibility, both ethical and fiscal, once so central to the ideals of the Convention is losing ground. States Parties petition aggressively for support before and during the meetings and international alliances are cemented prior to properties being presented for debate.

To track these political developments, we wanted to see if any trends emerged from the last decade of UNESCO Committee meetings, specifically the nominations of properties for inscription on the World Heritage List. To that aim, it is important to employ both qualitative and quantitative approaches to analyse patterns in decision-making processes during those critically important World Heritage sessions. Notably, there are only four decisions that can be taken for any nominated site – to Inscribe, Refer, Defer and Not Inscribe.

In terms of qualitative data, we draw from observations from Committee sessions and interviews with senior UNESCO officials and representatives of national delegations over the past few years. On the quantitative side we work closely with cultural economists Enrico Bertacchini and Donatella Saccone, and have collected data from our records as observers and official UNESCO documents from the last decade or more. For each nomination, we tracked various kinds of data over more than a decade: we noted the Advisory Bodies' initial recommendation and then the final decision that was adopted by the World Heritage Committee; we recorded the number of delegates sent by each country; how many years a country has served on the Committee and the number of times each country intervened or took a particular position during the sessions. This is the sort of unfuzzy data that works very effectively for network analysis.

This methodology provides detailed information on the procedural aspects of the decision-making process, namely how so-called 'expert' recommendations and States Parties actions in the World Heritage Committee relate to each other in the final selection of sites. In other analyses it can show how high profile certain countries are, how influential and well resourced and so on. These types of techniques can provide an effective statistical measure of the tensions we see emerging in the World Heritage arena.

In Table 7.1 we can see the polarity of positions by comparing the Advisory Bodies recommendations (on the left side) and final World Heritage Committee decisions in 314 cases from the last decade. Here it is worth noting that in only seven cases the final Committee decision is more negative (or you could say lower) than that of the Advisory Bodies.

TABLE 7.1: ADVISORY BODIES RECOMMENDATIONS AND FINAL WORLD HERITAGE COMMITTEE DECISIONS 2003-13 (FROM MESKELL ET AL., 2015)

		<i>Committee Decision</i>				
		<i>Inscribe</i>	<i>Refer</i>	<i>Defer</i>	<i>Not Inscribe</i>	<i>Total</i>
AB Rec	Inscribe	170	3	2	0	175
	Refer	27	5	1	0	33
	Defer	33	23	27	1	84
	Not Inscribe	1	3	9	9	22
	Total	231	34	39	10	314

Then when we examine recent decision-making from 2008 to 2013 in Table 7.2, it is clear that the final decisions taken by the World Heritage Committee have been more divergent for nominations recommended by the Advisory Bodies for Referral, Deferral and Non-Inscription. If we focus on the left hand column with very high percentages – 97 per cent, 91 per cent – we see that sites that should have been deferrals or referrals are now slated for inscription. In 2014 around 47 per cent of ICOMOS and the IUCN’s recommendations were overturned by the Committee’s members with a record 81 per cent of all nominated sites inscribed on the list this year, taking the total to 1,007 properties.

So we hope to have demonstrated quite clearly that the overall trend in recent years has been to push all final decisions toward the category of Inscription – from Referral to Inscription, from Deferral to Referral or even Inscription and so on. In almost every case there is complete agreement between the Advisory Bodies and the Committee when the recommendation is to inscribe a property. So in this graph if we just look at all of those other expert recommendations instead to Refer, Defer and not Inscribe a property, we observe a dramatic decline over the past decade or so. Then we can see the real level of divergence and disagreement between the Committee and ICOMOS and the IUCN.

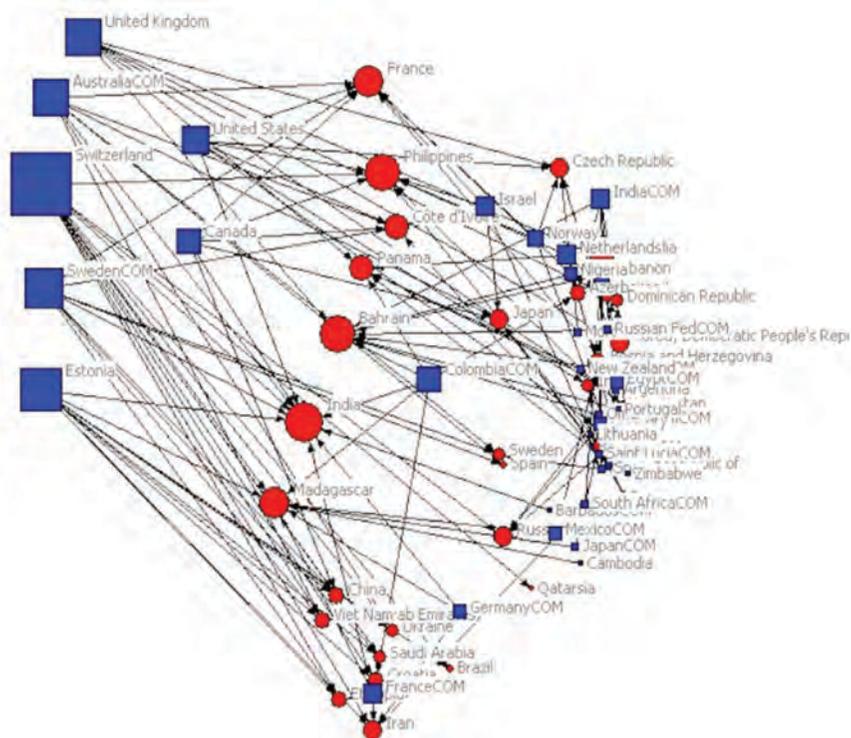
In our network analysis we map the relationships between countries nominating sites to the List and the responses offered by members of the

TABLE 7.2: ADVISORY BODIES RECOMMENDATIONS AND FINAL WORLD HERITAGE COMMITTEE DECISIONS 2008-13 (FROM MESKELL ET AL., 2015)

<i>2008-13</i>		<i>Committee Decision</i>			
		<i>Inscribe</i>	<i>Refer</i>	<i>Defer</i>	<i>Not Inscribe</i>
AB Rec	Inscribe	97.26%	2.74%	0.00%	0.00%
	Refer	91.67%	8.33%	0.00%	0.00%
	Defer	46.81%	31.91%	21.28%	0.00%
	Not Inscribe	12.50%	37.50%	25.00%	25.00%

World Heritage Committee over the last decade (Bertacchini, Liuzza, and Meskell, 2015). In this chart we are specifically looking at all the instances where the Advisory Bodies have decided to defer a dossier in the last decade.

In Graph 7.1 the red circles represent the countries nominating their own properties. You can see that India, France, the Philippines, and Bahrain have large circles meaning that they have many ties, or many other nations that have intervened about their nominations during the discussions. The blue squares represent members of the Committee who have intervened and, in this particular analysis, these are the countries that have agreed with experts from the Advisory Bodies and their evaluations and do not want to support the inscription of these properties at this time. So you might say they are the rule followers. Interestingly they are sometimes also called the ‘neutral countries’, these include Switzerland, Sweden, Estonia, Australia and the UK. When these countries serve on the Committee they adhere to the rules of procedure, not put forward their own sites during their mandate, they only serve on the Committee for four years and so on. Actually the Scandinavians follow a self-imposed regional rule where only one Scandinavian country at any one time serves on the Committee. The Swiss also usually tend to fund internal reports on the organization and coordinate meetings such as any



GRAPH 7.1: NETWORK ANALYSIS OF STATE NOMINATIONS AND COMMITTEE RESPONSES

revision to the Convention's Operational Guidelines. But as you can also see these nations are few in number.

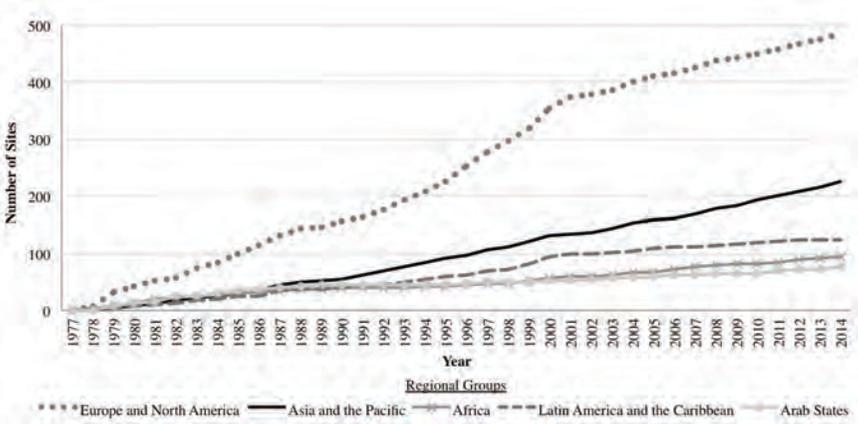
It is another reminder that most signatories to the 1972 Convention seeking site inscription are not happy with the work of ICOMOS and the IUCN and are also critical of the World Heritage Center. Indeed the whole notion of expertise, who has it and where it can be secured from, is now being fiercely debated. You could also say that World Heritage status and recognition is about much more than preservation and that inscription might now be conferred before conservation and management plans are finalized. Indeed, listing might actually enable and facilitate those processes and is thus required beforehand in some cases, as is often argued by developing and emerging nations. World Heritage listing has different meanings for individual nations and one could argue that a broad suite of benefits attached to sites represents the most tangible and beneficial expressions of UNESCO's original intent for the Convention.

Most nations desperately want World Heritage status, perhaps more than ever before. After these findings, from my own observations and the statistics, we wanted to see why there was so much dissatisfaction with the World Heritage process to date. Perhaps most importantly, it is not difficult to uncover regional bias within the World Heritage framework. Of the 1,007 sites on the World Heritage List as of 2014, 48 per cent are from the 'Europe and North America' group, a figure that is more than twice the next highest region, which is 'Asia and the Pacific' with 23 per cent of sites. Even lower are 'Latin America and the Caribbean' with 13 per cent, 'Africa' with 9 per cent, and 'Arab States' with 8 per cent (Meskell, Liuzza, and Brown, 2015).

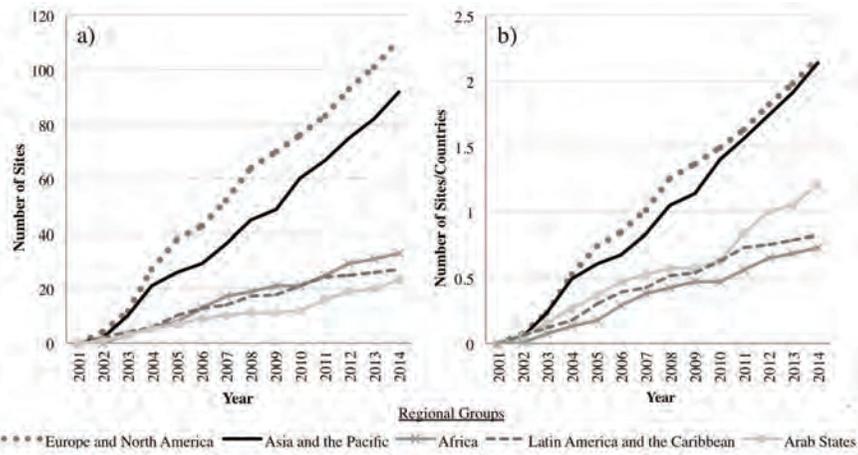
BETWEEN EUROPE AND ASIA

The inequity of this distribution, with Europe and North America on top as shown in Graph 7.2, goes back to the very beginnings of the World Heritage List in the late 1970s. As a result, entire programmes like the Global Strategy and the more recent 'upstreaming process' have been initiated by UNESCO Headquarters to address the structural imbalance in regional listings and profiles. States Parties have long been vocal critics of this regional imbalance that continues to favour the listing of European properties. This dissatisfaction is mirrored in an outpouring of scholarly criticism about Eurocentrism plaguing the World Heritage Convention.

However, there is some evidence that things are changing, especially as a result of the Cairns Decision that prohibits nations from putting forward more than two sites per year. If we look at patterns of inscription on the World Heritage List from 2001 onwards and correcting for the size of each region as shown in Graph 7.3, the gap between Asia and the Pacific and Europe and



GRAPH 7.2: CUMULATIVE NUMBER OF SITES INSCRIBED ON THE WORLD HERITAGE LIST FROM 1977-2014 BY REGIONAL GROUP



GRAPH 7.3: CUMULATIVE NUMBER OF SITES INSCRIBED ON THE WORLD HERITAGE LIST FROM 2001-14 (A) BY REGIONAL GROUP; (B) CORRECTED TO ACCOUNT FOR THE SIZE (NUMBER OF COUNTRIES) OF EACH REGIONAL GROUP

North America closes, with both regions exhibiting the same level of inscription activity. In terms of World Heritage outcomes, Asia and the Pacific clearly rival Europe and North America as a dominant regional group (Meskell, Liuzza and Brown, 2015).

This trend is paralleled in regional participation at Committee meetings and within the Committee itself. All States Parties to the Convention, regardless of whether they have a mandate to the World Heritage Committee itself or not, are permitted to send a national delegation to the annual meetings. Delegations from States Parties that are not Committee members have ‘observer’

status and maintain indirect involvement in World Heritage decision-making processes. However, this does not mean that observer delegations are unimportant. On the contrary, their presence is essential for lobbying and consultation with Committee members, especially when a State Party has a nominated property.

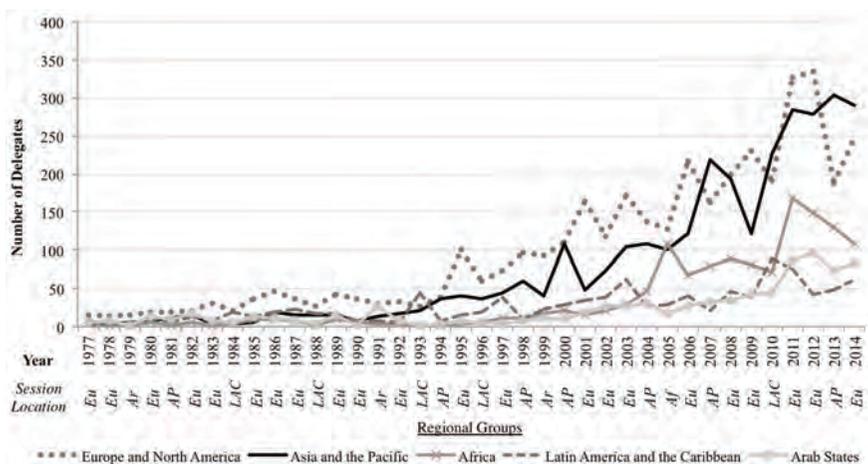
Delegation size varies considerably, as shown in Graph 7.4. If we examine the distribution for the 38th session of the World Heritage Committee in Doha, Qatar in 2014, on one end there are many nations that send no representatives, while on the other there are countries with large diplomatic teams. It is striking that in terms of global participation in the Convention, 77 nations did not send a single representative to the 2014 Committee sessions. Of the current signatory parties to the Convention, this means that 40 per cent were absent, which has serious implications for global representation (Table 7.3).

TABLE 7.3: REGIONAL INSCRIPTION PROFILES. NUMBER OF SITES INSCRIBED ON THE WORLD HERITAGE LIST

<i>Regional Groups</i>	<i>Europe and North America</i>	<i>Asia and the Pacific</i>	<i>Latin America and the Caribbean</i>	<i>Africa</i>	<i>Arab States</i>
# of States Parties	51	43	33	45	19
a. Total sites (1978-2014)	479	231	131	89	77
b. Sites inscribed (2001-14)	111	92	27	33	23
c. Rate of inscrip. (sites/year) (2001-14)	8.5	7.1	2.1	2.5	1.8
d. Average # of sites per state (2001-14)	2.2	2.1	.8	.7	1.2
e. Average rate of inscrip. per state (2001-14)	.17	.17	.06	.06	.09

The largest delegation ever sent was from China in 2012 with 91 individuals. In the context of the UN generally, the size of diplomatic missions, together with the presence of experienced diplomats, is necessary for attaining status in larger political negotiations. In our analysis we use delegation size as a proxy for interest and investment in the World Heritage process, since sending a larger delegation is an expensive and complex undertaking to coordinate.

So in Graph 7.4, national delegations were tallied together within their regional group for each year from 1998 to 2014 in order to facilitate comparisons in World Heritage participation at the regional level. For each regional group, there is a rise in delegation size over time. This general increase in participation in World Heritage may reflect changing practices and 'politicization', which necessitates larger delegations for more complex negotiations. This increase at the organizational level is underpinned by



GRAPH 7.4: NUMBER OF DELEGATES SENT TO THE WORLD HERITAGE COMMITTEE SESSIONS PER REGIONAL GROUP FROM 1977-2014

dynamics at the regional level. The most striking change is the rise of Asia and the Pacific, first coming to prominence in the early 2000s, and then dominance by the late 2000s: it now surpasses the participation of Europe and North America (Meskell, Liuzza and Brown, 2015). In four out of the last eight sessions of the World Heritage Committee, Asia and the Pacific has supported the largest regional delegation, the other four seeing a majority from Europe and North America.

So to summarize, regional categories lie at the heart of debates over global representation and equity in the World Heritage Committee. The ‘Europe and North America’ regional group has historically been the most dominant region and, as I’ve shown here, continues to be so despite measures such as the Global Strategy which has been operative since 1994 – more than twenty years with very limited success. In the last decade, however, the ‘Asia and the Pacific’ regional group has a growing presence in many aspects of World Heritage and this is the region to watch in future if we are to see any measure of balance.

The 1972 Convention World Heritage Concerning the Protection of the World Cultural and Natural Heritage is considered a near universal instrument for the preservation of global patrimony. Inscription on the List is increasingly regarded a viable driver for development, peace, and intercultural dialogue, despite the fact that World Heritage properties have been embroiled in conflicts including in Cambodia, Iraq, Mali and Syria (Meskell, 2015).

Although the Convention is facing challenges on a number of fronts from its funding to expert credibility, it remains one of the most powerful mechanisms for countries and communities to showcase their particular historical achievements on a global stage. These threats, in conjunction with

mounting pressure on the World Heritage Center from some members of the Committee and other States Parties, comes at the very time when those same nations are pushing more vigorously for site listing. This escalating desire for recognition and inscription has, over the past decade, shaped the World Heritage agenda and recast UNESCO as an agency for global branding and recognition.

CONCLUSION

World Heritage sites – their nomination, inscription, monitoring and conservation – further leverage and consolidate international relationships, strategic partnerships and world-views. Today heritage is less important for what it *is*, than for what it can *do* (Meskell, 2015). None of this today exists outside the frame of global politics at large and for archaeologists: this is perhaps the greatest and most daunting platform upon which our work reaches the world.

Since the end of the Second World War the international community has sought to establish and maintain institutions that govern its common affairs. The arena of global heritage is no different. While such institutions take many forms, by far the most important have been formal international agreements through which countries bind themselves, under international law, to negotiated commitments. The competing political and economic interests that we witness today over issues as broad as climate change or nuclear proliferation are no different from those of the 1972 Convention for the nations of the world.

Over the past forty years at UNESCO, cultural heritage has been part of an elusive hope for a better world. Yet the World Heritage Convention is not simply about protection anymore, but also about development, branding and promoting new types of nominations within a new heritage economy. While many observers might be critical of the changes that are occurring in the arena of UNESCO, we need to understand the reasons behind the dissatisfaction of so many nations. ‘Europe and North America’ continues to dominate World Heritage notwithstanding UNESCO’s many efforts and initiatives such as the Global Strategy and ‘upstreaming processes’ (Labadi, 2014; Terrill, 2014). Yet how can World Heritage be understood as constituting a global patrimony that purports to showcase ‘outstanding universal value’ (Labadi, 2007; 2013) when participation and power continue to be so imbalanced? Participation is also clearly connected to the possibilities of involvement and influence in the World Heritage Committee itself, being successfully elected as a new member and the necessary lobbying for support now commonplace. As the main decision-making entity within World Heritage, Committee membership confers considerable prominence not only at UNESCO, but also across other high-profile UN platforms.

Today World Heritage recognition and status symbolizes far more than site protection, indeed conservation and management issues are increasingly marginalized. Listing provides an index of other wide-ranging concerns that reinforce modernity and good governance, international legitimation, tourism and development, political and economic partnerships and so on. A new suite of states, particularly Asian nations that now comprise approximately one-third of the World Heritage Committee, is thus reframing the centrality of heritage. New Committee members, with their own political commitments, are systematically challenging prevailing 'Western' notions of monuments and their management, as the role and understandings of World Heritage is refashioned to serve expansive, contemporary, and more inclusive global goals. Being attendant to regionalism, how it has been constructed by international agencies and how it is being performed today, is key in understanding current developments in the World Heritage arena.

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India's Plundered Heritage

K.L. MANKODI

India's Constitution enjoins upon its nationals to preserve and protect the country's heritage. The Antiquities and Art Treasures Act of 1972 was enacted to regulate the illegal export of ancient art from the country. This presentation briefly considers just a few sculptures that were illegally exported from India; two of these are from a site that has now been declared a World Heritage monument.

THE RANKI VAV, PATAN, GUJARAT

Temples and other religious monuments, palaces, forts, etc., exist all over the world. However, stepped wells as commemorative monuments with religious connotations are unique to India. Water always had prime importance in this country's religious life, and therefore the creation of all forms of reservoirs, wells and stepped wells, lakes and drinking fountains was considered meritorious. Hundreds of such watering places were built throughout the centuries, especially in the western states of Gujarat and Rajasthan, where rainfall is scarce and the soil sandy.

Stepped wells are subterranean reservoirs – deep circular wells where one quadrant is opened up; a long stepped corridor, often with multiple landing stages, leads down to the edge of water, whose level is very low in the hot summer months. Sometimes they accommodated a small pool between the well and the end of the corridor to collect the well's surplus water.

Queen Udayamati, widow of the Solanki emperor Bhimadeva of Gujarat, excavated her stepped well as a memorial for her departed husband in the second half of the eleventh century. Being the enterpriser of the dowager queen of a great dynasty, it had imposing dimensions (220 ft in length, 60 ft in width), and with a long stepped corridor attached to a well that was 100-ft deep. The queen decorated it with hundreds of sculptures. The queen's step well, which is by far the largest and most ornate of all, still possesses some 300 sculptures, although less than half of the original monument is preserved.¹



FIGURE 8.1: RANKI VAV STEP WELL, PATAN, GUJARAT, GENERAL VIEW FROM EAST

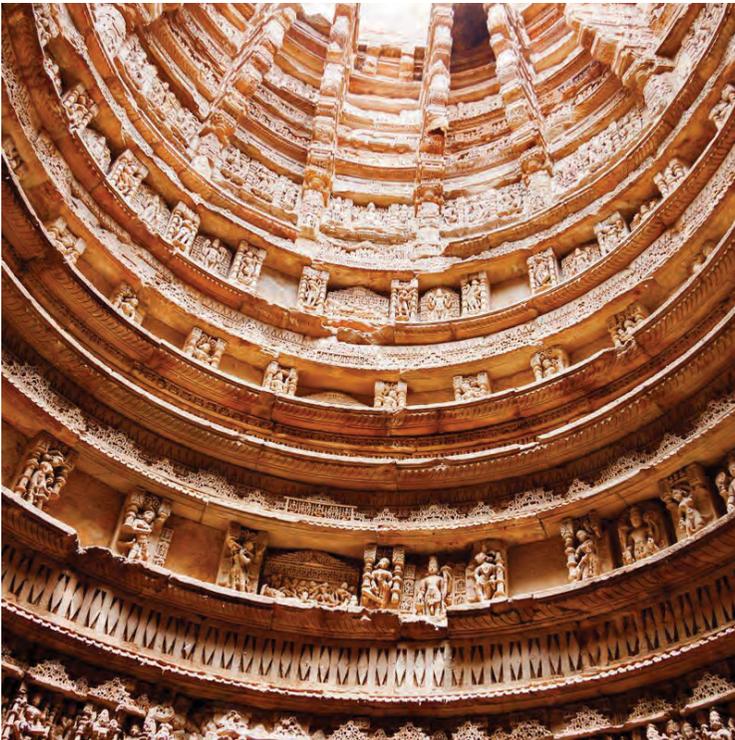


FIGURE 8.2: RANKI VAV STEP WELL, INTERIOR OF THE WELL



FIGURE 8.3: GANEŚA STOLEN FROM RANKI VAV OR THE QUEEN'S STEP WELL, PATAN, GUJARAT

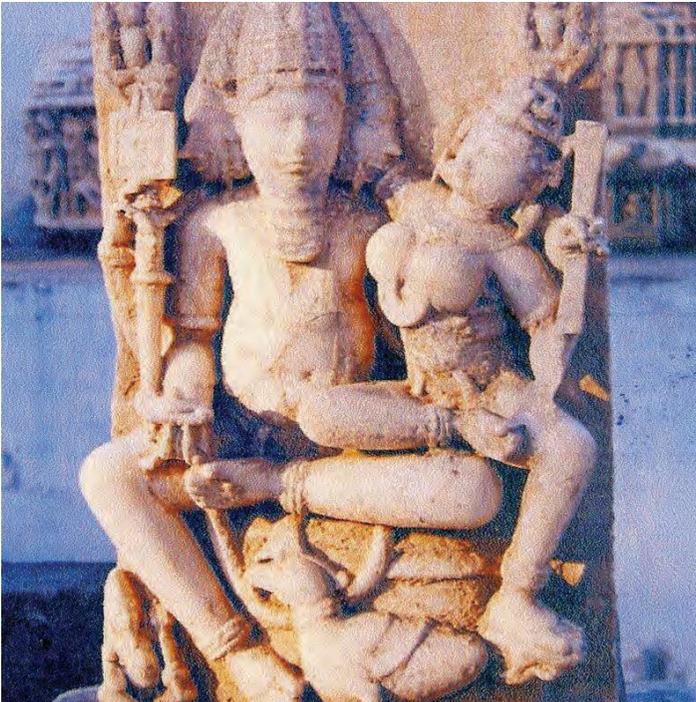


FIGURE 8.4: BRAHMĀ WITH HIS CONSORT FROM THE RANKI VAV OR THE QUEEN'S STEP WELL, PATAN, GUJARAT

THEFTS FROM RANKI VAV: JEREMY KNOWLES

In 2001, about the time that India was submitting its first proposal about the Ranki Vav (incorrectly named 'Rani ki Vav' in official records) to UNESCO for a Heritage status, vandals stole a large Gaṇeśa from the stepped well, which was on display in the walled but open-air site museum on the premises. The sculpture was 1 m high and its weight must have been 250-300 kg. Those who are familiar with the layout of this extensive site at Patan that comprises in addition to the stepped well, the Sahasraliṅga or 'Thousand Liṅga' reservoir and stretches right up to the banks of the Sarasvati River, can imagine how hard it must have been to take it out from the site. Beyond the dry river on the west, there is just vast expanse of sand, no road and no town. Outside the premises on the east is the now disused railway line. One would have to transport the sculpture over 2 km, then exit the town and reach its final destination, probably Delhi a 1,000 km away.

Gaṇeśa was a known piece, having been published before, and it was unique, with its trunk in a double bend, identifiable at a glance.



FIGURE 8.5: BRAHMĀ WITH HIS CONSORT, ILLEGALLY EXPORTED AND ADVERTISED BY JEREMY KNOWLES, A LONDON ANTIQUE DEALER

What was more shocking was that Gaṇeśa was not the only sculpture vandalized from Ranki Vav. During the *same night*, a marble Brahmā, the Hindu god of the Veda and sacred knowledge, with his consort, was also stolen from the *same* location. Both sculptures were carried away together; 500 kg of heritage material disappearing in the dead of the night.

Gaṇeśa and Brahmā-Brahmāṇī would have once adorned 2 out of the 365-odd niches of the stepped well.

When this writer learnt about the thefts in 2012, he alerted museums, scholars and international security agencies by e-mail, and circulated their photographs, as has been his practice, and posted the information with the sculptures' descriptions and other details on www.plunderedpast.in where they can be seen by anyone.

The reason for following this practice is that if information about thefts remains buried in first information reports lodged at some remote police stations, chances of recovery are dim; but if it is disseminated widely, someone may take notice eventually. The same thing happened in this case. Vijay Kumar Sundaresan, host of www.poetryinstone.in, who has himself been chasing illegally exported art to help its restoration, saw an illustrated advertisement by the antique dealer Jeremy Knowles of London, and noted that it matched the sculpture reported on www.plunderedpast.in.

A query was sent to Jeremy Knowles to explain the striking similarity between the two sculptures and to reveal how he obtained this sculpture from a protected Indian monument in violation of the Antiquities and Art Treasures Act of 1972. No acknowledgement was ever received.

In September 2014, the L.D. Institute of Indology in Ahmedabad organized a public lecture to mark the inclusion of the Ranki Vav among the World Heritage monuments. Gaṇeśa and Brahmā-Brahmāṇī both were shown in the lecture, as also the published Jeremy Knowles advertisement. Ahmedabad newspapers reported all this, including the fact that the Brahmā-Brahmāṇī had surfaced in London five years after the theft. With such a specific lead provided to the official agency protecting the Ranki Vav, by then already a World Heritage monument, the right course would have been to compel the antique dealer to reveal his source and to alert international security agencies. According to the available information, this was not done. (This writer did personally inform the US Homeland Security Investigations (HSI) in August 2014.)

Do we care enough about the protection of our monuments; even those that are part of the whole World's Heritage, and not just India's? To what extent will the 'World Heritage' tag help the queen's memorial?

Archaeological Survey of India sent an official team to London in November 2015 to examine a marble Brahmā-Brahmāṇī sculpture in the possession of the Art Loss Register. The team reported that the Art Loss Register Sculpture is not the one stolen from Patan and that it is not 'original', implying in fact

that it is a fake. The writer has contested the official team's report giving several grounds.

THE NAGAPATTINAM BUDDHA: SUBHASH KAPOOR

Major South Indian dynasties such as the Pallavas, the Coḷas and the Pāṇḍyas, their subordinates and other minor kings erected temples and other monuments in their territories. These were dedicated to the gods of the Brahmanical pantheon Śiva and Viṣṇu or to the Jinas. But there are a few Buddhist remains in the port town of Nagapattinam. This town on the coast of Tamil Nadu was during the Coḷa period an important port for maritime trade with the countries across the Bay of Bengal. Buddhist sculptures and bronzes from the eleventh century are well known. The site is under the protection of the Tamil Nadu Directorate of Archaeology.

In the course of correspondence during the second half of 2012, Special



FIGURE 8.6: SEATED BUDDHA, NAGAPATTINAM. PHOTOGRAPH: US HOMELAND SECURITY INVESTIGATIONS

Agents of the US Homeland Security sent to this writer a photograph of a large seated Buddha in the Nagapattinam style dateable to the eleventh century.

Homeland Security had recovered the Buddha from the prominent antique dealer of Indian origin Subhash Kapoor in New York whom they had been investigating for some time. The date of the sculpture's theft and its export to the US were not known. The Special Agents also forwarded an article from the *Hindu* of 11 November 2012. The article illustrated a Nagapattinam stone Buddha, which, according to it, that same dealer and his accomplices had marked out but which they could not actually steal and export. The dealer from New York and his accomplices from Tamil Nadu, all known persons allegedly in the business of illegal export of antiquities, were actually named in the article. Homeland Security had before them the sculpture seized by them and the newspaper photograph; this writer only had the two photographs, which resembled each other closely. The Buddha of the *Hindu* matched the HSI Buddha in all respects. It was a curious case, the newspaper claiming that the figure was still in Tamil Nadu, though it was intended for theft, and HSI declaring that it was already in its own possession in New York.

It does not need great reflection that Homeland Security's Special Agents would contact a non-official individual such as this writer only after trying all official agencies first. The New York dealer was already in the custody of the Tamil Nadu police in Chennai itself, having been extradited to India in July 2012 for his allegedly illegal activities, hence his role in exporting the Nagapattinam Buddha could have been entrusted to the Idol Wing of that state's police, but it was apparently not done. This writer sent an e-mail and then a letter to the local archaeological authorities in Tamil Nadu, but no acknowledgement was ever received from the Commissioner of Archaeology. The Buddha still rests in the HSI warehouse with no claim pressed by this country so far, with no first information report of its theft on official records to back up any claim, as per the information available to this writer. And the dealer remains in the Chennai prison facing litigation – facing litigation about *other* antiques that he is accused of smuggling, but *not* the Nagapattinam Buddha. Without the Government of Tamil Nadu and the central government making out a case, there is little hope that the Nagapattinam Buddha will ever be repatriated. (It can be assumed that the Buddha must have been exported before the Antiquities Act came into force.)

There are sinister implications in this case as a whole and about this particular antique dealer's activities, as follows:

1. The case of the Naṭarāja in the Australian National Gallery (ANG) is now well known. After close research by www.poetryinstone.in of the similarities between the sculptures acquired from Subhash Kapoor and documented sculptures when they were still in India, ANG was persuaded to return the Naṭarāja and another sculpture to India in 2014 as illegally exported

antiquities. The Australian prime minister personally brought them when he visited India. But these are just two out of the many sculptures that Subhash Kapoor has sold (and gifted) to museums and collections all over the world. Many of them were published in books and are in the archives of the Institut français d'indologie at Pondicherry. The question to ask is, would India follow-up those cases, establish their ownership/provenance and compel those who have illegally acquired them to repatriate them; or would the authorities rest content congratulating themselves on the recovery of just a couple of sculptures, without following-up on other cases?

2. Second, so far the authorities have focussed only on Subhash Kapoor's illicit activities in Tamil Nadu. That state, with its treasures of Coła sculptures and bronzes housed in small village shrines, is fertile ground for art thieves and smugglers. However, an ambitious dealer would not be satisfied with operating in one state alone. The authorities have not investigated his possible operations in other parts of the country, although the Tamil Nadu police has a dedicated Idol Wing. The following shows that Kapoor had spread his tentacles beyond Tamil Nadu and into Madhya Pradesh, which has been subject to heritage theft just as Tamil Nadu, even though such things being part of the 'black economy' cannot be quantified.

BHARHUT: SUBHASH KAPOOR

Alexander Cunningham, the first Director-General of the Archaeological Survey of India, discovered as far back as 1873, or over 140 years ago the ruins of the great Buddhist Stupa of Bharhut of the second century BCE, about 20 km to the south of Satna. While some remains of the Stupa still survived at the deserted site, away from any road, many others had been carried away during past times to surrounding villages – Batanmara, Uchehra, Pataora and Bharhut itself. Cunningham removed all the remaining pieces, the massive gateways, the railing that had encircled the Stupa, the figure sculptures most of which were inscribed, to the Indian Museum at Calcutta, where they are displayed in a special gallery. Cunningham published a detailed account of his work in 1879 under the title *The Stupa of Bharhut* (Cunningham, 1879).

Cunningham's book illustrated all the remains that he found, and the inscriptions, which numbered two hundred and sixteen. It was a massive operation, as the gateways of the Stupa were 20 ft tall, many sculptures larger than life, and the railings huge. In order to transport all this to Calcutta, the Great Indian Peninsula Railway/East India Railway built a station at the village of Lagargawan 6 km from Bharhut. The station still exists, though few trains halt.

Cunningham's account of Bharhut is so exhaustive that little was published after his book on what is India's earliest indigenous art in the durable material of stone.

Long after Cunningham, some 54 pieces of Bharhut went to the Allahabad Museum, a few to the Ramban Museum near Satna, and two to the Freer Gallery of Art in Washington, DC (in the 1930s). Two of Bharhut's sculptures ended up in the Norton Simon Museum at Pasadena in the early 1970s under circumstances that are not clear (as is the case with this man's Indian acquisitions generally).

Cunningham photographed the human and divine figures, Yakṣas, Yakṣīs, Devatās from the Stupa, but he could not photograph one major sculpture; it has remained unpublished from 1873 to the present day. A local family in their private shrine was worshipping this 6.5-ft-tall, inscribed female. Cunningham therefore copied the inscription, which recorded that it was a goddess named Mahākokā, donated by a Buddhist monastic functionary. Kokā means the bird Sārasa (Anas Casarca), 'Mahākokā' therefore means Great Bird Goddess, or we may say the Great Bird-Voiced Goddess, in human form. Cunningham had earlier found another inscribed sculpture, Culakokā, the 'Little Bird-Voiced Goddess', Mahākokā's sister so to say, at the Stupa and



FIGURE 8.7: BHARHUT, DEVATĀ MAHĀKOKĀ.
PHOTOGRAPH: US HOMELAND SECURITY INVESTIGATIONS

sent it to the Indian Museum. Since 1873 down to the present, Mahākokā remained a mere name known only from the conscientious archaeologist's eye copy of the donor's record. Every writer, from Cunningham himself to H. Lüders, E. Waldschmidt and M.A. Mehendale, etc., reproduced Cunningham's reading.²

Mahākokā always covered from head to foot in her shrine, was only photographed when the Antiquities Act came into force in the 1970s, and the wise devotee got it registered.

Then, during one rainy night in July 2004, Mahākokā was stolen from the unoccupied mansion on the village outskirts, and was illegally exported to the US. The owner lodged a report at the local police station, also informing the Archaeological Survey of India, as a responsible citizen. No progress was made during the following eight years, and the matter rested there. The owner of the precious sculpture reconciled himself to his loss.

In July 2012, the US HSI, already knowing about this writer's interest in the recovery of illegally exported art, sent him several photographs of a six-foot six-inch tall female figure standing under a tree. They had seized it from a well-known New York antique shop 'Art of the Past' owned by Subhash Kapoor, and they requested help in identifying it and in any other manner possible with the view to restoring it to its rightful owner. The declared provenance of the figure, heavily laden with primitive ethnic jewellery and tattoos, was Khartoum in the Sudan, and the date of the import into the US was claimed to be 1954, long before the Antiquities Act. The photographs showed an inscription on the trunk of the tree. Close-ups of the inscription were obtained and read. The record clearly says that the supervisor of a monastic kitchen donated this figure of the goddess Mahākokā. It turned out that what HSI had recovered was the same figure discovered by Cunningham as early as 1873 whose inscription he had copied. Although the sculpture, alone among all of Bharhut, had never been published, Cunningham's meticulous documentation a century and a half ago and the owner's wise choice of registering his figure one century after Cunningham, and lodging a police report after its theft, resulted in establishing ownership.

In order to fulfil the US security agency's request, all documentation – Cunningham's report of 1873/9, registration certificate of 1977, FIR of 2004 – were furnished to HSI, who have acknowledged ownership of the sculpture. Commercial value of the sculpture, as conveyed by HSI, is US \$15 to 18 million, that is Indian ₹90 crore or more; its heritage value of course is incalculable. All this has been supplied to the Archaeological Survey of India as well.

Kapoor is on trial in India, a process which may take a long time. If convicted, he may have to undergo a jail sentence, after which he will face court action in the US for his illegal exports to that country. All this also may take time. Homeland Security was therefore requested to isolate the Mahākokā

theft from all others, since its theft and export have been established, and restore the sculpture to India. Hopefully, in due time, Bharhut's Mahākokā Devatā shall return to India and to her shrine, provided our government makes serious efforts.

The Stupa of Bharhut, the earliest indigenous art in durable material, had already suffered greatly when Cunningham discovered it. We can judge from its surviving pieces that had it come down to us intact, Bharhut too would have been worthy of being among World Heritage monuments, like Sanchi.

THEFTS AT BILHARI AND KARI TALAI

From the above it is clear that Kapoor has been active in Madhya Pradesh. It is necessary to explore if he had any connection with other thefts in that state. Within two years of Mahākokā's theft in 2004, more vandalism was committed at Bilhari and Kari Talai in the adjoining Katni district; at Kari Talai, the



FIGURE 8.8: GANEŚA SIMILAR TO THE KARI TALAI GANEŚA IN THE INTERNATIONAL ART MARKET

daring vandals plundered as many as nine sculptures from the locked and secure sculpture sheds in the course of just one night in August 2006. A Viṣṇu-Vaikuṅṭha from among the illegally exported images has been recovered by INTERPOL and is in the possession of the US HSI. Other pieces from Kari Talai have turned up in dealers' catalogues, and Homeland Security has recovered one more. Normally, all these pieces would be returned to India after following due process; but this country must first initiate that process. (Letters were written to the Bhopal Circle, and an application has been made under the Right to Information Act, but it is not known to this writer if the ASI took any action.)

www.plunderedpast.in illustrates a Gaṇeśa stolen from Kari Talai in 2006 under the caption 'Kari Talai 1 Alert'; another Gaṇeśa was brought to this writer's attention by the host of www.poetryinstone.in placed in the international art market after the theft; the resemblance between the two photographs is striking.

ATRU: JOHN ESKENAZI

One monument in Rajasthan of great heritage value is the ruined temple on a mound known as Gadgach, 'Disorderly Heap', at Atru in Baran district, where the borders of that state meet Madhya Pradesh. D.R. Bhandarkar briefly reported on Atru over one hundred years ago, but thereafter no research was done. Atru may have remained unknown to scholars, but vandals have been exploiting it with impunity over the years. State boundaries are particularly susceptible to movement of contraband, as it makes it convenient to smuggle antiques from one state to another. Since 1984 alone, when the Jaipur Circle of the ASI was formed after bifurcating the Vadodara Circle, thieves have stolen at least eight sculptures from this site protected by the Archaeological Survey of India. Around 1984, just before this writer visited there for the first time, thieves stole two sculptures within the space of one week. Other pieces that can be attributed to Atru on grounds of the distinctive purple stone and the style of carving are in some prime museums in the West, but are without proper attribution, labelled simply as 'coming from eastern Rajasthan'. Illegal antique dealers and exporters obviously avoid declaring the true provenance of their merchandise even if they know it.

Atru is located in the Malwa region that formed part now of one kingdom and now of another. The ruined structure that was visible on the top of the mound belonged to the last quarter of the tenth century when the Paramāras of Malwa had been ruling here; but scattered on the mound were architectural remains of an earlier date.

In 2007, this writer was associated with the ASI in the clearance of the Gadgach mound, located on the outskirts of the town, to reveal what lay beneath the late tenth century structure. A large plinth of a structure dateable

to the early tenth century, when the Pratīhāras of Kannauj were ruling in north India, came to light, exposing four amorous couples, about 4-ft 6-inches tall with their crowning pediments. They were perfectly preserved, since they had remained buried for many centuries. The exposed plinth confirmed the context of the other loose pieces that were lying scattered all around the mound.

In April 2009, one of the four amorous couples was stolen from the plinth. Local officials lodged a police report. In September 2009, another couple was stolen. Within six months, the sculpture that had been stolen in September was advertised in the journal *Arts of Asia* of Hong Kong in March 2010, as being in London/New York. This fact was brought to the notice of the Indian High Commission in London through the ASI in New Delhi. By way of opening a second front for tracing and recovering the sculpture, personal e-mail alerts with photographs of *both* figures were circulated by this writer, worldwide. Scotland Yard, INTERPOL, then US HSI were involved, and HSI seized both, which had made their way into the US. After following up with the international security agencies since 2010 onwards, both pieces were handed over to the Indian Consul General in New York on 14 January 2014. As per available information, they will soon be brought back from the US.³

At present when an Indian antique appears in the art market, there is hardly any means for potential buyers to find out its source, whether it is a stolen and illegally exported piece or a legally owned one which left India's shores before 15 August 1947. There is the Art Loss Register in the USA where a buyer can search if the antiquity he is intending to acquire was illegally placed on the market, and for someone who suffered loss of his antiquity to report it to the Register to warn potential buyers. The Art Loss Register, however, is not perfect: John Eskenazi wrote to this author that he had queried with the Register for any listing of the Atru amorous couple, but had found no record of its theft. (The reason for this may be because there may be no coordination between the ASI and the Art Loss Register.) Dealers create false provenance papers to mislead buyers and the authorities. This happened, for example, with Bharhut's Mahākokā. The declared provenance of this second-century BCE over-life-size sculpture was Khartoum in the African Sudan and the date of acquisition by its 'owner' was 1954, well before the Antiquities Act came into force.

ASI is not an investigative agency, and it cannot stop thefts from all of its 3,500 monuments; but it can start a page on its own website www.asi.nic.in or open a special website where it can post photographs and FIRs of stolen antiques. When a theft occurs, the fact could moreover be publicized through the media with photographs, for wider dissemination of the news. And when a stolen piece is recovered, that fact should also be recorded on the website, as is being done on www.plunderedpast.in.

Many of the thefts recorded on www.plunderedpast.in have happened from

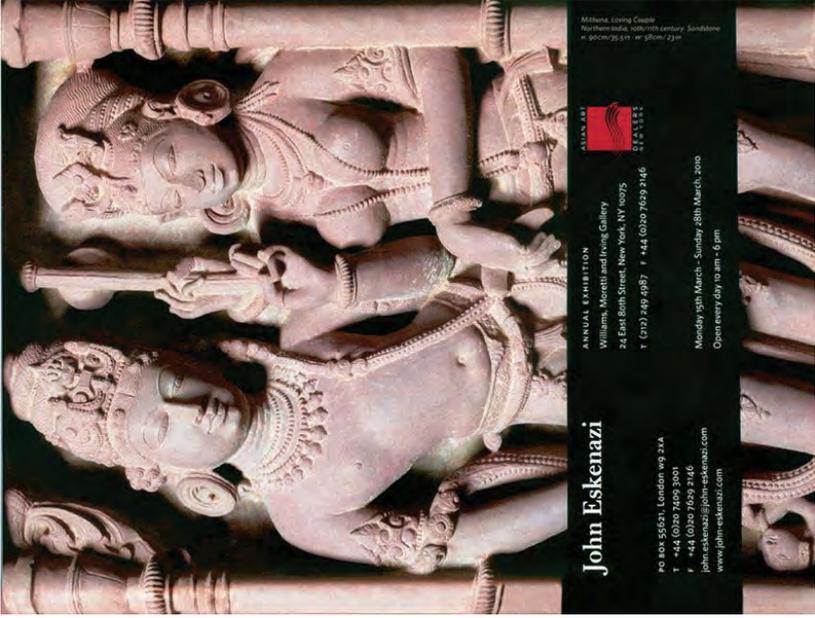


FIGURE 8-9: JOHN ESKENAZI'S ADVERTISEMENT OF THE ATRU AMOROUS SCULPTURE STOLEN IN SEPTEMBER 2009



FIGURE 8-10: ATRU AMOROUS COUPLE, STOLEN IN APRIL 2009

sculpture sheds of the ASI. At present, photography in the sheds is difficult for scholars, and their contents remain unknown and unpublished. The concerned ASI Circle has photographic documentation, but this is rather limited, with just one photograph of the sculpture. In this situation, when some stolen antiquity is recovered by security agencies, its match may be hard to establish in the absence of high-resolution photographs taken from different angles, with a graphic scale, etc. One solution may be to allow photography in the sculpture sheds at the sites, as also for the ASI to put up such photographs on its website for everyone interested.

Photographs not only of sculptures in the sheds should be on the ASI website, but a general documentation of sculptures on the monuments, especially removable sculptures in niches, and female figures crowning the columns in temple *mandapas*, usually numbering eight, should be a priority. This author suspects that the hundreds of beautiful celestial females that we admire in the collections in India and especially abroad have suspect sources. Consider the fact that a temple *mandapa* has as many as eight columns, each crowned by a heavenly female figure. As an example, the Bahu Temple at Nagda near Udaipur in Rajasthan had eight such females, of which seven remained until 1994. Between 1994 and 2004 all seven were stolen. This writer obtained old photographs from the Jaipur Circle of the ASI and the American Institute of Indian Studies in Gurgaon and circulated them and then also posted them on www.plunderedpast.in. According to information, which is on record with the ASI, two Western dealers volunteered to return them to this country since their ownership had been demonstrated beyond doubt. As another example, attempts were made to loot all eight figures from the Solar-Śaiva shrine at Toos near Udaipur, Rajasthan, during the last few years; their present location is not known (www.plunderedpast.in). Yet another example of such female figures being stolen, one of them that crowned the *mandapa* of a temple at Baroli in Rajasthan ended up in the collections of the Denver Museum of Art in the US. For information about this piece, see www.plunderedpast.in.

However, for placing photographs of sculptures on their websites, first the central and state agencies charged with protecting the monuments will need to build up good documentation of sculptures from several angles, and make them accessible on their websites. The National Mission of Monuments and Antiquities set up in 2007 has been collecting documentation; but it is yet not accessible to interested persons.

Many smaller nations are pursuing their illegally exported heritage for restoration. In India, on the other hand, where the stringent Antiquities and Art Treasures Act of 1972 is in force, attempts are being made to dilute the Act! An article, 'To Catch an Idol Thief', in the *Times of India* on 16 August 2015, discusses this question. The passage 'Whose Patrimony Is It?' speaks of the 'debate whether nations are right to be so possessive about their heritage'.

Some in the Western museum world are said to reject the ‘nationalistic-retentionist’ arguments of nations. It is the world’s collective heritage we are talking about – we of the cosmopolitan museums are better equipped to preserve and display it – therefore you (poor nations!) give it up and we shall look after it. Imagine that those who come into ‘possession’ of Indian sculptures by breaking India’s laws are turning around to ask Indians not to be possessive! Many of the dancing Śivas, Gaṇeśas, celestial women, Mahākokās, amorous couples, and thousands of others are ending up in these cosmopolitan museums, and private collections, after they are clandestinely removed and exported from this country.

The chain of scout-picker-handler-exporter-auction house works under the surface. The curator or private collector who acquires the Naṭarāja can hardly be ignorant about the ways of the antiquities market, of what happens before the sculpture comes to his collection. It was very likely violently wrenched from its niche, brutality was committed on the monuments and on men. The priest of the Devī shrine at Khekshu on the Sutlej in Kullu was reportedly killed when the sculpture was stolen some years ago; the caretaker of the temple at Bhachunch in Shimla district was killed two years ago. And the ASI attendants at Kari Talai barely saved their lives when robbers took away nine sculptures in 2006.

India’s past is indeed the whole world’s heritage. Then let it remain intact where it is, without violating its sovereign laws. Shun the sophistry. Shun the Christie’s and Sotheby’s and men like Jeremy Knowles and Subhash Kapoor – and all who enjoy bonhomie with them; and let all who value the past and its art come to admire it in its home.

Note: Christie’s, Sotheby’s and Jeremy Knowles are named as auction houses who never responded to queries. Visit www.plunderedpast.in for a look at some of these people’s handiwork.

NOTES

1. For a fuller consideration of all aspects of the stepped well, Mankodi, 1991, *passim*.
2. For more details on this absorbing question of Mahākokā, see Mankodi, ‘The Case for Goddess Mahākokā’ (in press).
3. This author had written to Prime Minister Narendra Modi on 10 September 2014, ‘Would you consider personally carrying our own [Atru] heritage back when you visit the US this month and earn our appreciation?’ It gives him great satisfaction that the Prime Minister will carry these two sculptures with him when he returns from his forthcoming US visit this month, as reported in the *Mumbai Mirror* on 1 June 2016.

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Contributors

ANDREW BAUER is an Assistant Professor of Anthropology at Stanford University. He is an archaeologist whose research focuses on human-environment interactions and the politics of spaces, places, and landscape histories. Andrew has previously conducted fieldwork in Turkey, Iran, and the United States, but his primary field research is based in south India, where he co-directs a project investigating the relationships between environmental history and emergent social inequalities during the region's Iron Age and Early Historic periods. He has published papers in many journals and edited books, including the *Journal of Archaeological Method and Theory*, *Asian Perspectives*, *Antiquity*, *Paleorient*, and *Geoarchaeology: An International Journal*.

NICHOLAS BROWN is a graduate student at the Department of Anthropology, Yale University. He has participated in archaeological projects across Peru, as well as in Turkey, Mauritius, and the United States. He is interested in contemporary heritage geopolitics, particularly within UNESCO's World Heritage and Intangible Cultural Heritage programmes, along with the use of archaeological ethnography to understand points of contention within emergent tourism and development frameworks in Peru.

CHHAYA GOSWAMI received her Ph.D. in History from the Department of History, Mumbai University. Her thesis focused on a comprehensive study of triangular trading relations developed between Kachchh, Muscat and Zanzibar and was published under the title *The Call of the Sea: Kachchhi Traders in Muscat and Zanzibar, c. 1800-1880* (2011), which was awarded the Hira Lal Gupta award by the Indian History Congress in 2015. Her recent book *Globalization Before Its Time: The Gujarati Merchants from Kachchh* (2016), is published by Penguin books and is a part of a series on the Story of Indian Business. At present Dr. Goswami has taken up post-doctoral research on the 'Impact of Piracy on the Trade of Western Coast of India', with reference to the Northern Pirates of Kathiawar and Qwasimi Pirates from the Persian Gulf. She is an honorary university fellow at the Institute of Arabic and Islamic Studies, University of Exeter and former lecturer in Elphinstone College, Mumbai.

ANJANA LINGAREDDY received her Masters and Ph.D. from Deccan College, Pune. Since 2009, she has been working in the Historic Environment Department of Abu Dhabi Tourism and Culture Authority, Abu Dhabi. In 2008, she participated in the excavation of the third millennium BCE site of

Bat in Oman under Field Director late Prof. G. Possehl. She was also a part of the excavation team that included the members of the French Archaeological Expedition in the UAE during the 2011 season of work at Mleiha (Sharjah), under the field directorship of Dr. Michel Mouton (CNRS - Paris). She is currently engaged in a research project with Dr. Mouton involving the documentation of Indian pottery from Mleiha.

CLAUDIA LIUZZA holds a Laurea cum Laude in Conservation of Cultural Heritage and a dissertation in Egyptology from the University of Pisa and she is currently pursuing her Ph.D. in anthropology at Stanford University. Her interests lay in the intersection between global philanthropic and private sector involvements with conservation and development-based heritage projects, with a specific focus on the UNESCO 1972 World Heritage Convention.

KIRIT MANKODI received his M.A. and Ph.D. in Archaeology from Deccan College Post-Graduate and Research Institute, Pune University. He worked at the American Academy of Benares, and since 1978 has been attached to the Project for Indian Cultural Studies founded by Franco-Indian Pharmaceuticals Pvt. Ltd., Mumbai. Mankodi is the author of the much acclaimed *The Queen's Stepwell at Patan* (1991). In addition he hosts the website www.plunderedpast.in.

LYNN MESKELL is Professor of Anthropology and Director, Stanford Archaeology Center, Stanford University. She received her Ph.D. from Cambridge University in 1997 and her current research and teaching interests span a broad range of fields, including ethnography in South Africa, Egyptian archaeology, identity and socio-politics, gender and feminism, and heritage ethics. As founding editor of the *Journal of Social Archaeology*, she has attempted to forge a vehicle for interdisciplinary dialogue, bringing together a wide range of scholars from diverse fields to constitute the editorial panel. Her new research focuses on the role of UNESCO in terms of heritage rights, sovereignty and international politics.

RUKSHANA NANJI is a double postgraduate having completed her Masters in English Literature from Pune University and in Ancient Indian History, Culture and Archaeology from the Deccan College (Deemed University), Pune. Her doctoral thesis was published under the title *Merchants and Mariners: A Study of Early Medieval Ceramics in India, with Special Reference to Sanjan*, vol. 1: *Sanjan Excavation Reports* (2011). She has also co-authored *Buddhist Sites in Gujarat* with K. Krishnan and Atusha Irani. She is based in Pune and works as an independent researcher. Her present research is a continuation of her work on Early Medieval port sites on the western sea-board of India and interactions across the Indian Ocean as reflected in the archaeological records.

ASHOK B. RAJESHIRKE has a Ph.D. from M.S. University, Vadodara and Diploma in Portuguese Language and Culture. His publications include *Pre-modern Kutchi Navigation: Techniques and Voyages* (2014). The book is a depiction and transcription of *Malam-Ni Pothis* – a collection of Gujarati manuscripts which describe the pre-modern navigation technology of Gujarat. The book describes expeditions undertaken by the *Malams* (navigators) of Kachchh. The original *Pothis* are dated from the seventeenth to nineteenth centuries.

HIMANSHU PRABHA RAY is Chairperson, Academic Committee, Project Mausam, Indira Gandhi National Centre for the Arts, former Chairperson of National Monuments Authority, New Delhi, and former Professor, Centre for Historical Studies, Jawaharlal Nehru University, New Delhi. Her research interests include Maritime History and Archaeology of the Indian Ocean, the History of Archaeology in South and Southeast Asia and the Archaeology of Religion in Asia. Her books on maritime contacts include *Beyond Trade: Cultural Routes of India's Ocean* (2015); *The Archaeology of Seafaring in Ancient South Asia* (2003), as also edited volumes, Satish Chandra and Himanshu Prabha Ray (eds.), *The Sea, Identity and History: From the Bay of Bengal to the South China Sea* (2013); H.P. Ray and E.A. Alpers (eds.), *Cross Currents and Community Networks: Encapsulating the History of the Indian Ocean World* (2007); H.P. Ray and J.-F. Salles (eds.), *Tradition and Archaeology: Early Maritime Contacts in the Indian Ocean* (1996, rpt. 2012).

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