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March 2nd - 3rd, 2020
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P. MOORTHY

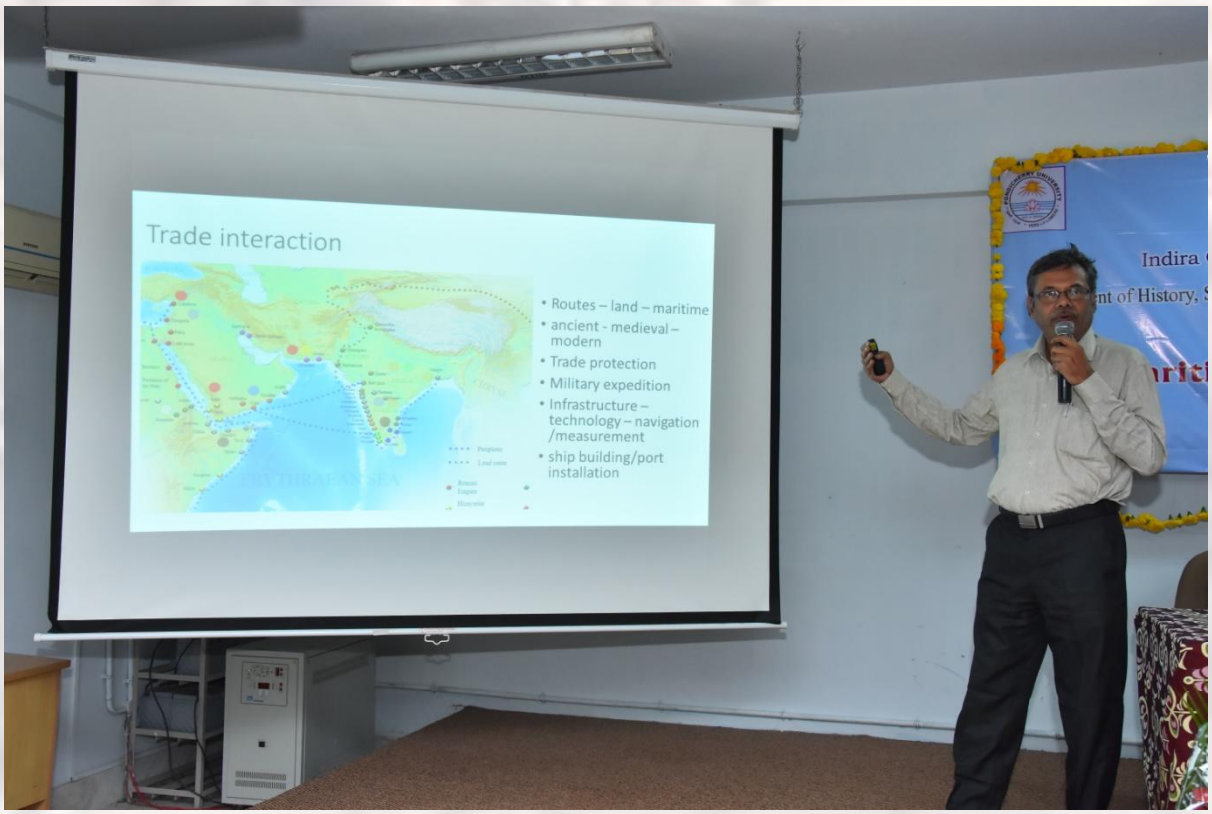
ABSTRACTS

Rajan Gurukkal

Early Maritime Technology in the Indian Ocean

This paper seeks to have a fresh look at the nature of maritime technology in the Indian Ocean during the turn of the Common Era – first century BCE and third century CE, to be precise. It proposes to have a special focus on the regional difference in maritime technology of the period. At the outset, the attempt is to discuss the merchant mariners, their regions, maritime routes, ports, seaboards, forms of exchange, and the peoples as well as cultures involved. Who owned and controlled the vessels and voyages is examined in the context. Then the uneven levels of technology in different parts and routes of the ocean are analyzed. What account for the unevenness in technology by way of the varying height of the mast, its number, the type of the sail, the size of the hull and the method of rigging; is examined. What needs and compulsions justify the technological variation is also examined. A comparative study of the seafaring technology of coasting by the Arabs and the cross-oceanic voyages by the Eastern Mediterranean mariners is attempted. Similarly, exchanges with the West Coast of the peninsular India are analyzed in the same way. In the process, the paper presents a set of new arguments.

K.M. Sivakholundulu



The role of Marine Geomorphology in the study of Coastal evolution and Ancient Ports

During last two millennia, the share of Indian wealth contribution in terms of GDP to the global economy was estimated to be of the order of 30% till recent times - up to 17th century. This was accompanied by a vibrant trade between known worlds in those periods. Evidences of cultural, linguistic and religious spread has been discovered at numerous locations in west and east of the Indian subcontinent especially in coastal and port sites. Though the sustenance of the port depends on aspects that include social, political and economic which are manmade, often the natural causes do overwhelm the human efforts to maintain. This presentation attempts to describe the process of coastal evolution in long terms (Marine Geomorphology) that made sea ports either viable or difficult to maintain and fell in disuse.

Through the study of Marine Geomorphology we can understand "how", "when" and "why" a coast has behaved in a certain way and affected a port to help us reconstruct the evolution. The natural forcing factors like tide, current, climatic changes, episodic events like floods, earth quakes and tsunami contributes to the final shape of the coast. The studies on morphologic evaluation relies on geologic, geophysical surveys and numerical simulation of hydrodynamic and sedimentation patterns. With the advent of numerical model schemes that

permit accelerated morphological evolution over large time periods, it is feasible to simulate 100s of years of gradual changes of a coastal stretch. This may be used to augment the efforts to reconstruct the history of a sea port along with evidences from other domains of study.

Ravindra Singh Bisht

Maritime Trade and Extended Contacts of Protohistoric India during third and second millennium BCE

The seafaring Harappan traders sailed their ships laden with merchandise and other necessary items to distant lands of Mesopotamia, Elam, Bahrain, UAE and Oman, where there are found tangible objects in the archaeological records of the respective regions. Such records comprise seals, one or two sealings, cubical weights, etched carnelian beads, long cylindrical barrel beads of carnelian, some art forms, ivory combs, and pottery in certain regions along with the representation of Indian animals such as *Brahmani* bulls, elephants, water buffaloes, rhinoceros, carved on seals and stone vessels. What perishable materials form part of the mercantile wares is a matter of guess work. Similar may be the case in respect of raw materials, what may have been transformed or fabricated into finished forms in many ways.

However, there comes to help the Mesopotamian texts, which significantly supplement and compliment with solid archaeological objects, based on the premise that Harappan territory (Harappania) could be the 'Meluhha', among the three foreign lands in the region of lower sea (the Gulf) and beyond. These were Dilmun (mostly identified with Bahrain and the neighbouring coast of south Arabia), Magan (perhaps comprised part of Iranian Makran and upper parts of Oman peninsula) and the geographically farthest was Meluhha, beyond the lower sea. In particular, the Sargon of Akkad boasted that the ships of these countries were used to anchor at the quay site of his capital city of Akkad, which was somewhere situated up on the Tigris, not yet identified. Dilmun has a long history of contacts with Mesopotamia and in the latter half of third millennium BCE/early half of second millennium BCE, it was an emporium and a transit point between the eastern and northern trade. This is the area which is known for its typical circular Persian Gulf type seals that have been found from Susa, Mesopotamia and in the Harappan territory. Some of such seals which depict *Bos Taurus* (hump less bull), sometimes with the legend in Harappan script have been found in Bahrain, as well as in Harappania, although very few in number from the latter. It is often seen as a seal related to external trade of the Harappans. Besides many Harappan items, even Harappan types of funerary monuments have been found in recent decades from this region. Magan seems to be a very important source of copper as the central ridge of Oman peninsula running across east-west, is phenomenally rich in copper ores, and bearing evidence of copper smelting in which the typical bun shaped ingots were prepared for export to Harappania, Mesopotamia and Elam. This area has brought to light many archaeological sites yielding Harappan pottery, some with inscriptions in Harappan script, besides many other items like weights, ivory comb, beads, although very few in number. Most interestingly, this land of Magan never reached a stage of civilization or urbanity. The archaeological

materials indicate that in the late fourth millennium BCE it was under the influence of Mesopotamia; in the first half of third millennium BCE, it was connected to southeastern Iran and in the latter half of third millennium and in the early centuries of next millennium with the Harappan materials. All these evidences point to a situation in which it always remained a colony exploited by foreign powers. Meluhha is the farthest and the last Harappan site in Makran coast, i.e. Sutkagen-dor, is located on the coast and more than700 nautical miles

(1300 kmfrom the Mesopotamia shores, 615 and 720 km from Arabian Sea and Persian Gulf respectively). Meluhha does not occur in the Indian texts, but for the mention of a term Mahiluka in the Rigveda, but for once. Meluhha may be coterminous with Harappania or Harappan Civilization, which is the land of seven rivers and equivalent to the Zend AvestaHaptaHandaiva.In the cuneiform texts of Mesopotamia, much useful information is found as to what items of trade were sent to Mesopotamia.

There are many sundry items, which show some connection between Mesopotamia and Harappania, some of which are ideologically influenced. This paper intends to sum up all such archaeological, artistic, textual and ideological evidences.

K. P. Rao

Chinese and Southeast Asian Ceramics found at Peninsular Coastal sites: Evidence of maritime trade across Bay of Bengal

Recent field research suggests that there was intense trade between Southeast Asia, east Asia and South India since very early period. Such evidence is evident right from the Iron Age, which could be roughly dated from 1000 BCE. These contacts continued into the medieval times. Contacts with East Asia and Southeast Asia are evident in the form of ceramics found on some of the south Indian coastal sites. The Southeast Asian contacts can be well perceived in the characteristic stamped or paddle impressed ware, which is found in abundant quantity

at some of the south Indian port sites. The characteristics of the material and design match well with the Southeast Asian parallels. So far near about 70 different designs have been detected on such pottery. The parallels could be traced in the sites from Malaysian peninsula, Singapore and Indonesia. Apart from the Stamped ware, glazed ceramics are also found in substantial quantity. Most of the Glazed ceramics seem to have come from Chinese manufacturing centers. The Celadon ware is the main import from Chinese regions, though there is also evidence of Thai, Burmese and Vietnam wares. Brisk trade in the Glazed wares persisted during 9th to 16th Century. The paper mainly focuses on the evidence of ceramics found on east coast peninsular India and other evidence on some of the important port towns dealing with this trade.

K. Rajan

Churning the Ocean: Early Historic Maritime Trade of Peninsular India

India, particularly peninsular India, experienced a vibrant maritime trade both with the East and the West. The ideal location of the peninsular India paved a way for greater commercial

and cultural interactions with Indian Ocean Rim countries. The Coromandel Coast (*cōḻmaṇṭala kaṭaṟkarai*), Malabar Coast (*malaimaṇṭalam*) and Konkan coast of peninsular India played a vital role in the transoceanic trade from the times of Early Historic. Though we had an established maritime trade with the West as early as Harappan times from Gujarat coast, the continuous trade activities could be witnessed only from the time of Early Historic. The trans-oceanic trade contact had two implications. One is commercial and another is commercial-cum-cultural. The commercial based impact is more visible in the West whereas the cultural influence is more in Sri Lanka and Southeast Asian countries. The growing body of evidences, both epigraphical and archaeological, clearly suggests that the trans-oceanic activities were initiated in 6^{th} - 5^{th} century BCE or still earlier. The Indian contacts exposed in recent excavations conducted in China, Philippines, Vietnam, Thailand, Malaysia, Indonesia, Sri Lanka, Oman and Egypt provide a new dimension to our understanding on the nature of maritime trade in Indian Ocean. The archaeological sites strategically located on trade routes and in the midst of resource zones suggest that human occupation and interaction are widespread transcending different ecological and resource zones. The continuous human occupation leads to resource mobilization and subsequently to resource transactions through trade and trade networks. The findings under discussion point to a vibrant trade that carried out with extensive and reliable trade networks. The long survival of trade centres and port towns located in potential economically viable resource zones are the fine indicators of its natural growth and expansion. The exploitation of natural resources like iron ore, pearl, gemstone, cotton, spices, forest products, glass, through the induction of new technology in the area of production and commerce led to vibrant industrial activities. The growth of these industries transformed the cultural matrix of the region of contacts. The state protection, felicitation and the formation of trade guilds had an indirect impact on the development of port, port towns, industrial centres, trade, trade networks and other cultural aspects such as language, script, religion and other cultural items. These multiple factors played a crucial role in maintaining these commercial activities over a period of time. The paper attempts to highlight recent evidences encountered in Indian Ocean Rim countries.

Arati Deshpande Mukherjee

From the Arabian seashore to the Himalayas: The internal shell trade exchange networks in ancient India

In the Indian subcontinent, the use of shell objects like bangles, beads, inlays and their manufacture was first introduced nearly 4000 years ago during the Indus valley civilization. Initially while shell working was actively carried out in Gujarat during the Harappan period, it was further extended to peninsular and Northern India from the Early Historic period onwards being continued till the medieval times. Simultaneously shell working also developed in south India particularly in Tamil Nadu from where it also spread to Srilanka. The shell industry had specifically utilized shells of the large marine gastropod *Turbinellapyrum* which were sourced from the Arabian Sea (Gulf of Kachchh) and the South Indian east coast. A good number of shell working centres developed across the subcontinent such as Dwarka, Nagara, Vadnagar, Junnar, Paithan, Ter, Maski, Eran, Maheshwar, Sanghol, Agroha, Korkai, Alagankulam, Kanchipuram, etc. With time shell objects were not items for adornment but came to attain a special status with considerable socio- religious significance attached to them especially due to the influence of Buddhism. The overall shell evidence has indicated the existence of vibrant internal shell trade networks in ancient India through which shell objects were produced and traded as far as the higher Himalayas.

Suchandra Ghosh

Ports, Ship-wrecks and Commodities: Weaving a tale of three centuries in the Bay of Bengal Interaction Sphere (9th century CE to 11th century CE)

The Bay of Bengal Interaction Sphere which includes the eastern sea board of the Indian subcontinent and Sri Lanka on its western side and Myanmar, coastal Thailand, coastal Malayasia and Indonesian island of Sumatra on its eastern side witnessed brisk maritime contacts—commercial and cultural since early centuries CE. This is well attested by field archaeological, textual and epigraphic sources. There is a rich body of literature which traces the nature of this longue dure´e interaction. In this presentation however the focus would be on the three centuries beginning from the 9th to the 11th when one could locate vigorous activities in and around the Bay. Ports like Samandar, Vishakhapattinam and Nagapattinam in the eastern sea board emerged as ports of prominence with strong hinterlands and forelands during this time frame. These ports had a connected history with a few ports of Sri Lanka and Southeast Asia. These three centuries also saw large scale movement of commodities ranging from ceramics to forest products which included spices and aromatics along with travel of religious artifacts. The ship wreck evidences, epigraphic records and art historical materials bear testimony to this. Interestingly in an inscription of ninth century found from Ahadanakaram we have reference to five *mahanavikas* or master mariners which underscore the presence of master mariners in the eastern coast thereby evoking vibrant maritime connections. Keeping these facts in mind it is perhaps apparent that one can talk of a common mercantile world of Bay of Bengal where sojourning merchants from various places found their way. Over time continuing interactions forged cultural commonalities that could be

identified with the entire network. Thus sifting through the variety of sources the presentation desires to weave a broad narrative which indicates a distinctive maritime profile of the Bay.

Pius Malekandathil

Dynamics of Ports and Port-Towns in Pre-Modern India

The various ports and port-towns of India acting as doors for movement of commodities, ideas and people from its rich hinterland to overseas world and back began to acquire new meanings and logic with the entry of the Europeans from 1500 onwards. The circulatory processes in the Indian Ocean used to revolve around the ports and nodal points in India in a hierarchical way, giving rise to some sort of port- hierarchy along the coast, and causing subsequently a gradation to evolve in their urbanization processes. This was caused by the varying degrees of content and value attached to each port in a region on the basis of frequency of movements, nature of cargo traded, the nature of the availability of the commodities in demand and the type of political control with which one was made to emerge as pivotal port while others were made to remain dependent on them as satellite feeding ports in their vicinity in varying degrees.

The Portuguese who re-structured the format of port-hierarchy in maritime India with the help of their tools of coercion, added a new meaning to maritime India by developing interconnectedness on the one hand between Goa and other ports under their control in a graded way through the frequent movements of vessels both for administrative and commercial purposes (connected either with spice trade or with ancillary trade for financing their spice trade). On the other hand with the ever increasein demand for cargo, there was a correspondingly continuous process of integration of more and more production centres and hinterland with the maritime centres of exchange, which intensified the flow of cargo to the

ports and ultimately provided the material base for the urbanization process of Portuguese towns and native towns in and around the ports of Cochin, Quilon, Cranganore, Cannanore, Chaul, Daman and Bassein. These port-towns had a pattern of dual urbanization with a lower city exclusively for the habitation of the Portuguese settlers and an upper city for the habitation of the natives and they evolved in a graded way, subordinate ultimately to the city of Goa which as their power centre was made to evolve as an exclusively Lusitanian city after having erased there mnants of past native culture and memory from the old port-town. In the seventeenth century with the increasing demand for textiles in Europe and Asia, the nature and meanings of trade circuits got changed, also changing the social content and value of the towns. The ethnic exclusiveness of sixteenth century Portuguese towns slowly started dwindling in the seventeenth century and increase in textile trade was followed either by the necessity of incorporating more and more native artisans and financiers for running the business. This was evidently seen in the absorption of native artisans and collaborators into the cities controlled by the Dutch or in the absorption of native financiers and bankers into the European city like Goa or in the absorption of specialized native traders of Muslims and banias into the European cities like Daman and Diu respectively or in the incorporation of Indo-Portuguese partners into the Dutch enterprises of Cochin, Quilon and Cranganore. The changing social character of these port towns are also indicative of the changing roles that were ascribed to them and the type of meanings that the new power wielders inscribed onto their urban spaces around the ports. In the transition phase of eighteenth century, the English towns of Bombay, Madras and Calcutta, which had a large number of Indo-Portuguese population and were relatively lying on the commercial periphery in the second half of seventeenth century, emerged as principal maritime exchange centres and port- towns in maritime India attracting traders, artisans, and financiers from the countryside and other economic enclaves of India. The Luso-Indians and Portuguese descendants living in these presidency towns were made to become the partners of English colonial process by drawing out of them wives for the English men as well as trading and fighting collaborators for the English in the port-towns of Bombay, Madras and Calcutta. The possible hold and control that the Portuguese continued to exercise over the Luso-Indians of these English Presidency towns through the Padroado institution and its Catholic missionaries was cleverly done away with by the English by inviting the Propaganda missionaries from Ireland, Belgium , Germany and France to work among them and by encouraging them to participate in the cultural project of introducing English education and Anglo-Saxon cultural practices among them ,which ultimately helped to anglicize them and to mutate the Luso-Indian identity of the urban dwellers and get them transformed into Anglo-Indians. The end result of this process was the creation of a supportive social base for the emerging Presidency towns of the English facilitating their colonial processes along maritime India in the eighteenth century. However this was done through a long and constant churning and re-defining process done on earlier economic players, particularly the Portuguese descendants, whose identity they mutated into Anglo-Indians with the increasing hold of the English over the exchange activities in the Indian Ocean and over its resourceful geographies. The long thread of connectivity extending from 1500 to 1800 and binding together the different types of socio-economic groups that evolved as beneficiaries of the circulatory processes, kept on experiencing considerable transformation, defining, re-defining and integrating them to be a part of the newly evolving system in the urban spaces of the English that grew up in their port -towns, but adding distinctiveness and uniqueness of their own to maritime India.

Ajit Kumar

An Appraisal into the emergence of Vizhinjam and Kollam as international Entrepots along the Indian Ocean

Vizhinjam and Kollam are two ports that rose to prominence in the southern parts of Kerala under the reign of Ay and Venad rulers' respectively.Vizhinajm, the capital city of the Ay dynasty had an earlier establishment. Vizhinjam it has been suggested could be village Balita mentioned in the *Periplus of Erythraean Sea* or Blinca mentioned in Peutinger table. Explorations and three seasons of excavation at Vizhinjam brought to light an array of artefacts which pushed back the antiquity of maritime trade from Vizhinjam to the early Christina era and its continuation to around 10th century before being destroyed by the Cholas. Pottery shard of Torpedo jar, turquoise glazed ware Chinese porcelain etc.indicates of the trade between West Asia and China, impacting the activities at Vizhinjam, politically and culturally.

Kollam acted as a feeder port to Vizhinjam during its peak period of activity. Consequent to constant attacks of Vizhinjam by Pandyas and Cholas, the trade activity came to be fostered from Kollam, which were under the Venad chieftains under the Ay dynasty. Consequent to fall of second Chera Empire and the Ay dynasty, The Venad lineage of Kings establish Kollam as their capital and Entrepot. Due the honest trade practiced and the patronage extended by Venad rulers, Kollam became the most sought after port for transhipment in the long distance trade between Persian Gulf and China.

The Venad rulers, who extended their sovereignty across to Madurai plains and throne for a brief while, were given special status by Chinese emperors and diplomatic missions were sent to Kollam to secure trade and goodwill. The Venad rulers kept up the status of Kollam port till the arrival of the Portuguese and the development of Cochin port. Artefacts collected from explorations at Kollam reflect the various phases and facets of unwritten and written history. This paper is brief reappraisal of the archaeological finds from Vizhinjam and Kollam and its importance.

Joy Kuriakose

Port town of Kochi: A brief investigation into its social composition

Various port towns were developed in India on the western coast and eastern coast. Each port town had its own characteristic features, taking into account the products it had to export, the traders involved and the nature of foreland and hinterland. The nature of transportation of products as well as the agents of transportation too played a crucial role in the development of each port town. Merchants, brokers and many specialized group of people related to trade from different parts of India, viz., Gujarat, Maharashtra, Karnataka, Tamil Nadu, etc. and traders from different countries started living in the port area of Kochi. Institutions catering to such peoples' needs were established, irrespective of the interest in it of the local people at Kochi, and irrespective of caste and creed. This paved the way for a special kind of society in the marine part of Kochi, totally different from that of in the hinterlands of Kerala. On 12 March, 1527, when the Portuguese King issued a Charter, making 'Kochi' equal to the Portuguese town of 'Evora', it acquired all the privileges of a Town or Municipality. By and

by, Kochi developed as a major centre of trade and now its social composition is unique and distinct from rest of Kerala and rest of India.

Vasant Shinde

National Mission on Showcasing India's Maritime Heritage at Lothal

In spite of the fact that India is endowed with around 7500 km of coastline having thriving rich and varied ancient and modern heritage, no efforts were made to showcase these at one place. The Ministry of Shipping, Government of India has initiated a development of a National Maritime Heritage Complex at Lothal, in collaboration with the Ministry of Culture and Government of Gujarat, where the entire maritime tangible and intangible ancient and modern heritage will be showcased. The proposed project has conceived to build a main complex consisting of 14 galleries beginning with the science of sea and movement of people from the Prehistoric times besides showcasing India's trade through sea from the Harappan to the modern times, ship building activities, development of naval power and India's cultural and economic impact from the early times on the countries of Indian Ocean rim. These galleries will display some original objects from explored and excavated archaeological sites and also a few life-size ships of different era. It is also proposed to explain some of the events with the help of digital technology. The main complex will also house IMAX theatre, library, children's area, and research Institute. As it is proposed to develop Lothal as an important tourist destination, the complex will also have a theme park, hotels, restaurants, etc. The presentation will explain the entire concept plan and academic contents of the complex at Lothal.

S. Srinivasalu

Blue Economy integrated Sustainable Coastal Management

Blue economy has become a popular concept for the sustainable industrialisation of the oceans to the benefit of all, which is a low polluting, resource-efficient and circular economy that rely on sustainable consumption and production patterns, enhancing human well-being and social equity, generating economic value and employment, and significantly reducing environmental risks and ecological scarcities. Importantly, the definition itself requires collaboration across borders and sectors through various partnerships and stakeholders. Yet, different stakeholders will favour particular focuses or interpretations of the definition to meet their own purposes. It implies that some potential conflicts or problems may arise due to different stakeholders' preferences or interests. However, More recently Blue Economy" has emerged as a term referring to a healthy ocean, supporting higher productivity. It simultaneously allows preserving healthy marine and coastal ecosystems and ensures the continuous delivery of goods and services for present and future generations.

Advancement towards an effective blue economy relies on the sustainable development of key socioeconomic activities like fisheries; aquaculture; tourism and recreational activities; maritime transport and port activities; bio prospecting or exploitation of biological resources; exploitation of renewable energy sources. However, blue economy sits in two competing ways—opportunities of growth and development and threatened and vulnerable spaces in need of protection. The contribution of blue economy to the overall economy has been impressive for a number of countries in the recent past with signs of robust performance in the future. Even the largest economies of the world including the United States and China recognize the importance of enormous marine resources for economic growth, social development, restoration of environment, and protection and conservation of marine habitat. This ocean-based economy has been projected as a new frontier for economic development and could more than double its contribution to world GVA between 2010 and 2030.

In blue economy, ocean ecosystems can bring social and economic benefits that are efficient, equitable and sustainable. Through appropriate management, the presence of such ecosystems mitigates against coastal erosion, and flooding from storms and increasing sea levels and wave actions. Additionally these ecosystems are well known for their efficiency in carbon sequestrations and long-term storage. This particular role of coastal ecosystems further re-emphasizes the importance of maintaining, and where possible rehabilitating, such ecosystems as an opportunity for ecosystem climate mitigation and to also including them in carbon trading mechanisms. According to ecosystem services approach, the marine ecosystem's structure and processes produce services that benefit humans. Hence it is very much essential to address the challenges and identify opportunities for future inquiry.

Alok Kumar Kanungo

Indo-Pacific Bead Technology at Papanaidupet: The Last Nucleus of Maritime Trade and Heritage Crafts Centre

In field of bead studies Indo-Pacific glass beads has become synonymous with the Papanaidupet and maritime trade. Till recent past Arikamedu in south India was considered as the earliest production site of Indo-Pacific beads and operated for the longest period, until the work of the present author at Kopia revealed that such beads were also produced in north India before Arikamedu, perhaps following the same technology.

Blow pipe invention which led to a glass use revolution in the west is well known. However, prior to invention of this blow pipe a technological leap in glass technology in the Indian subcontinent which revolutionized the glass bead world has not got its due credit. Some 2500 years ago, Indians figured out how to pass air through a 3 mm diameter tube of glass measuring about 10 meters or more before broken manually to pull continuous tubes. That is the specialty of the most popular, most produced and most important bead of all time, the Indo-Pacific beads. Since then these have been traded to more places than any other glass products anywhere, proving to be one of the greatest maritime trade items of all time. Evidence suggests IP beads travelled by both land and sea. They are found in coastal and riverside settlements, as well as in inland and hinterland areas.

The paper discusses the transformation, spread and evolutionary cycle of this bead industry and its product though time and space. However, the only surviving traditional Indo-Pacific bead industry for at least last two hundred year is at Papanaidupet, Chittoor district, Andhra

Pradesh, India. The industry at Papanaidupet having retained many traditional ways has been crucial in answering many archaeological puzzles relating to glass in general and glass beads in particular. It still holds the key to many problems of glass, bead, technological development and trade contacts.

Sunil Gupta

Archaeological Artefacts as Cultural Markers in Early Indian Ocean Trade (5th century BC- 3rd century AD)

The early Indian Ocean world in the period under review (5th century BC - 3rd century AD) saw rapid expansion of maritime exchange networks in the eastern and western ocean spheres. Coastal and deep sea routes between India and Southeast Asia had become operational in the last centuries BC. In the west, the Roman outreach from Egypt (1st century AD) triggered a major surge of men, material and ideas across south Arabia, east Africa and peninsular India. Archaeological prospections along the Indian Ocean rim since the nineties have thrown up copious and rich evidence of early Indian Ocean trade. This includes several diagnostic potteries (amphorae, Red Polished Ware), beads, coins, art objects and inscriptions. Much of the academic focus has been to study the archaeological material in terms of trade contacts and exchange of goods. My presentation focuses on a cultural interpretation of trade artefacts, highlighting syncretic techno-cultural traditions (adaptation

of Roman cameos to Indian themes) and explaining how parts of material culture would yield embedded thoughts.

Sundaresh

Underwater archaeological sites along Indian coast

Identification of ancient ports helps to understand maritime trade, the trade route, material exchange and the socio economic condition of the contemporary period. Many such ports were existed along the Indian coast that helped to establish the trade contacts between the countries. Marine archaeological research during last two and half decades has revealed a number of sites along the Indian coast, which include ancient ports, jetties, and shipwrecks. The extensive explorations of the Saurashtra coast revealed several ancient ports and jetties. Interestingly, archaeological discoveries suggest that natural phenomena like tidal variations have been very effectively used in the Gulf of Kachchh and the Gulf of Khmabhat in the past. Due to changes in the coastline, a number of sites originally on the coast are now lying far into the hinterland, suggesting topographical changes. Similarly, a few sites originally on land are now submerging in intertidal zone such as Pindara and Bet Dwarka.

The discovery of amphorae sherds and lead anchors from Bet Dwarka also suggest that the island was a focal point of maritime trade and commerce during the early centuries of the Christian era. Similarly, Dwarka, Somnath, Miyani, and Visawada were important port towns during the historical and the medieval period.

The ancient ports on Tamil Nadu coast have played a dominant role in the transoceanic trade and commerce with the Mediterranean and the Southeast Asian countries since early times. Important ports such as Kaveripoompattinam, Mahabalipuram, Mylapore, Nagapattinam, Korkai, Alagankulam, Arikamedu, Periyapattinam, Kayalpattinam, Kulasekharapattinam, are noted not only for brisk maritime trade but also for the establishment of Hindu kingdoms and spread of the Indian culture in the Southeast Asian region from the beginning of the Christian.

Coastal archaeological explorations on the Maharashtra coast yielded stone anchors at Dabhol, Vijaydurg and Sindhudurg, which indicate that these were active port during the medieval period. Interestingly, Dabhol has a temple dedicated to an anchor. Stone anchors of different sizes continue to be found in Goa, Kerala, Lakshadweep and on the Tamil Nadu coast in the context with the historical and the medieval periods. In the absence of the remains of port installations, stone anchors could be the indicator of the anchorage point close to the port and also the size of boat.

The results of underwater archaeological research carried out along Indian coast will be discussed to understand the importance of our underwater cultural heritage.

Sila Tripathi

Maritime Archaeology of Odisha, Eastern littoral of India

The present state of Odisha (formerly known as Kalinga, Utkal, Odra, Orissa) lies on the eastern littoral of India. In ancient times, Odisha was extended from the River Ganges to the Godavari. Along the littoral zone of Odisha, there were many ports and trade centres, and archaeological, epigraphic, art and sculptural evidence corroborate maritime contacts of Odisha, with Southeast Asia, Red Sea, the Persian Gulf and other countries in different periods of history. The recent archaeological explorations and excavations at Manikapatana, Palur, Radhanagar, Sisupalgarh, Jaugada along the coastal region, similarly, many sites of western Odisha have brought to different light types of pottery, coins, beads, terracotta Roman Bullae, lamps, which suggest the contacts of Odisha with other countries since the Early Historical period. Similarly, the Indian literature, inscriptions, and contemporary texts such as *Periplus of the Erythraean Sea (Periplus Maris Erythraei)* ((60-100 CE) and Geographia of Ptolemy 150 CE, mention about the ports and maritime contacts of Odisha with overseas countries. In addition to varieties of beads, textiles, other commodities such as gems, ivory, ivory products, shell bangles, ornaments, metals, plants and forest products were traded to Southeast Asia and other countries.

Among other communities, Buddhism played a significant role in maritime trade, and this has reflected in the Jataka stories, Buddhist literature, paintings and stupas. Further, the study shows that mariners were aware of monsoon winds and the maritime trade was seasonal. The talk details the archaeological findings of Odisha which suggest the maritime contacts of Odisha with other countries and maritime traditions have been preserved in the culture and legends of Odisha. The *KhudarkuniOsha* and *Boita Bandana* of Kartika Purnima are commemorative traditions of ancient Kalingan maritime heritage.

Keywords: Maritime trade, Buddhism, Ports, Monsoon winds, Southeast Asia

U. S. Moorti

Situating the colonial cultural landscape of Tulunadu region, South West Karnataka: Survey of some significant movers

Maritime contacts and travels from Europe to Mangaluru region first resulted in trade relations and eventually ended up in the establishment of political hegemony of the Europeans over the region. Political influence and dominance of the Europeans varied in nature and extent over the period of time. The time period from 1526 to 1799 saw Europeans exerting their economic and political influence in one way or the other depending upon the military power balance and the contemporary European political scenario. From 1799 to 1947, however, the British took total control of the administrative machinery and annexed the region completely. This long lasting political influence has impacted Mangaluru's cultural landscape in myriad ways. There are studies that have dealt on the role played by each

European county on this geographic area of India, but none on the lives and efforts of several European individuals keeping in view the entire historical undercurrents of those times. The present paper endeavours to open up fresh vistas of understanding from that research angle and throws up new insights.

The proactive role(s) played by individuals assumes great importance in any historical study that investigates the shaping of a cultural landscape through politico-economic and socio-religious leverages. Maritime contacts and trade as well as the associated influences and impacts have changed the cultural landscape of many a coasts around the world in the human history: And, the Mangaluru region has not been an exception in this far reaching historical process. Based on the available textual records as well as other forms of archaeological and historical information, this research paper focuses on some of the prime movers, mostly Europeans but some Natives too, who played a significant role in not only shaping the cultural landscape of Mangaluru and the surrounding area but its long term destiny itself.

The Europeans who played a role belonged to different categories: They could be broadly categorized as below for our understanding:
A) Travellers; B) Invaders, Mercenaries, Army Commanders and Military leaders; C) Missionaries and Priests/Bishops; D) Teachers and Educators; E) Healthcare professionals; F) Pioneer Industrialists; G) Administrators and Officers of the European Powers; H) Native pioneers; I)Miscellaneous, details of which will be presented in the Lecture.
Some of them were benevolent individuals while others were ruthless aggressors. Some were scholars and professionals in the field of education and healthcare, while others were administrators. Some came with a single-minded zeal to spread their avowed religion while some others strived to improve the lives of the people of this land. They were all wishful children of the circumstances that brought them here and played their roles: Self-assigned or Mandated to them in the all-encompassing drama of European Global Colonial Enterprise.


Trade and Technology
March 2nd - 3rd, 2020
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PU/CC/SH/Podi/1