

Early Maritime Activities of Orissa on the East Coast of India: Linkages in Trade and Cultural Developments

Sila Tripathi

Marine Archaeology Centre
National Institute of Oceanography
Dona Paula, Goa 403 004
India

Abstract

In the maritime history of India, Orissa (ancient Kalinga) played a significant role in spreading Indian culture to other parts of the world, including Africa, Rome and Southeast Asia. Archaeological findings, explorations and excavations at various sites, epigraphical and numismatic evidences of different periods, and literary records, enabled the reconstruction of the maritime history of Orissa. In this paper an attempt has been made to trace the nature of trade and cultural contacts between Orissa and other countries of the world from various sources. Besides attacks by neighbouring kingdoms, and unsound economic condition, the geological processes like tectonic activities, sea level changes and sedimentation were also equally responsible for the decline of ports of Orissa. However, the maritime traditions are preserved in the cultural festivals of Orissa, which are celebrated as commemorative traditions.

Introduction

In ancient and medieval times, the present geographical landmark of modern Orissa was at times much larger and passed under the names such as Kalinga, Utkala, and Odra Desa. The Okkala or Utkala, the Kalinga and the Odra or Oddaka were mentioned in literature as tribes. Before and after the birth of Christ, Orissa (Kalinga) was a formidable political power, extending from the Ganga to the Godavari River. Approximately from 11th to 16th century the name fell into disuse; instead the name Odra Desa was gradually transformed into Uddisa, Udisa or Odia and finally it became Orissa in English.

Orissa has passed through various phases of development since the early centuries of Christian era. The geographical setting of Orissa has also played a vital role in the progress of maritime activity. The Bay of Bengal adjacent and the Indian Ocean beyond helped the developing international trade and commerce as well as foreign relations. The littoral region provided suitable facilities to set up ports and the deltas served as natural harbours of Orissa. Besides, the navigable rivers like the Ganga, Mahanadi, Vamsadhara, Godavari and others helped develop hinterland trade and commerce. The hill tracts of Western Orissa provided precious and semi-precious stones for overseas trade. It was easy for traders of north India to reach the ports of Orissa without any hindrance. From the available literary, inscriptional, numismatic and archaeo-

logical findings it is possible to locate the ancient ports and reconstruct a picture of the maritime history of Orissa.

Coastal Geomorphology of Orissa

The physical features of the coastal regions of India are a sort of *terra incognita*. The coastal plains of Orissa are narrow in the north, wide in the middle, and narrow in the south (Sinha 1971). Coastal Orissa is characterised by wide deltas. The monsoons are a great force in shaping the shore features. The ports on the east coast of India such as Ganjam, Kalingapatnam and others are protected by spits. The ports owe their existence to the projection afforded by bars and spits. The beach features work as natural breakwaters, providing relatively sheltered anchorage to these ports (Ahmad 1972). Further, the rivers of Orissa have created large deltas at their confluence with the Bay of Bengal. The Mahanadi delta starts its projection on north east of Chilka lake. The sediments brought by longshore drifting from the southwest during the Southwest monsoon, and currents or drifts are arrested in the Chilka lake. Starting from east there is a straight shoreline for about 120 km between the Mahanadi delta and Srikakulam. There are only two marine inlets within these long stretches, one at the narrow mouth (400-600 m) of the Chilka lake and the other on the mouth of the Rushikulya river. Chilka lake is located on the southwest corner of the Mahanadi delta and connected with the sea through a tidal inlet. It has wide sandy beach ridges and barrier spits which separates it from the Bay of Bengal.

Ports of Orissa

Ptolemy's Geography of Ancient India, (2nd Century A.D.), mentions that major and prosperous ports of Orissa such as Nanigaina (Puri), Katikardama (Kataka or Cuttack), Kannagara (Konarak), and river mouths Manada (Mahanadi), Tyndis (Brahmani), Dosaron (Baitarani ?), Adams (Subarnarekha ?), Minagara (Jajpur ?) and Kosamba (Pipili or Balasore) had overseas trade relations (McCrindle 1985). However, Ptolemy did not refer to the other ports of Orissa namely Manikapatna, Palur, Che-li-ta-lo, Kalingapatnam, Pithunda, Khalkatapatna, which also played a dominant role in the maritime history of Orissa (Fig. 1). Subsequently, Arab and Persian writers of the 9th and 10th centuries A.D. throw valuable light on the sea borne trade and seaports of Orissa. Ibn Khurdahbin, Ibn Rasta and the anonymous author of the *Hadud-al-*

Alam mention the main places and ports of Orissa under the Bhaumakara dynasty namely Mahisya (Midnapore), Jharkharo (hilly tracts), Orissa (Orissa proper) and Ganjam (South Orissa). In the Andhra region (a part of the Telugu speaking territory) the main ports were Kalinganagar, Keylkan, Al-Lava and Nubin of which last three have not been identified (Panigrahi 1981). The other post 15th century ports were Balasore, Pipili, Ganjam, Harishapur, Chandabali and Dhamra which are worth mentioning here due to their role in the maritime activities of Orissa during the colonial period (Tripathi 1997). Out of all these ports, some were active and continued to be so for long periods. Some ports became prominent during a particular period and perished or lost their significance subsequently. Many ports were used for export of commodities to far off countries, while some ports were meant only for internal trade and transport by boats.

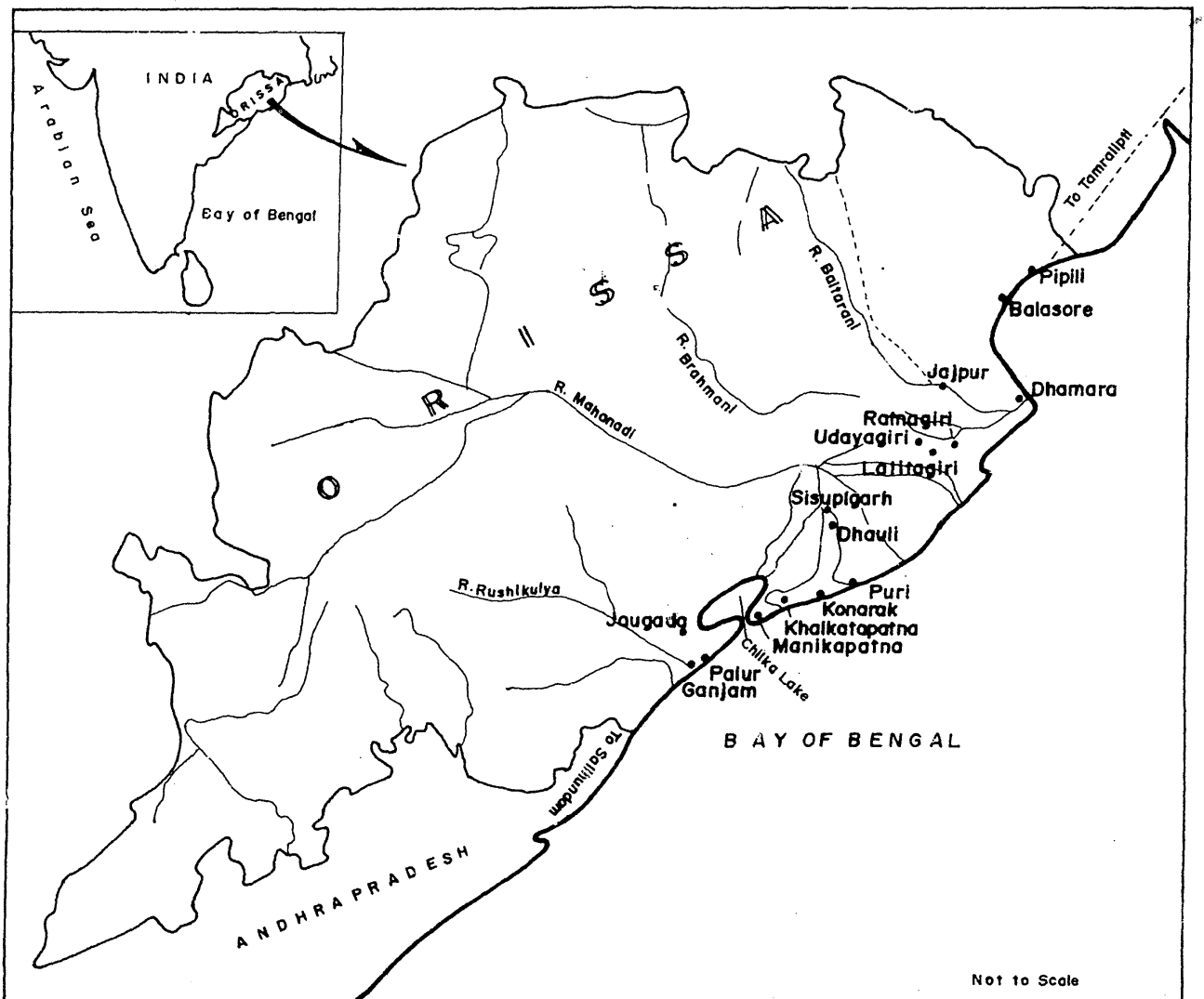


Fig. 1: Ports and excavated sites along the Orissa coast

Archaeological Evidence

The archaeological excavations at Sisupalgarh, Jaugada, Tamralipti, Palur, Manikapatna, Khalkatapatna, Kalingapatnam have yielded evidences of foreign contacts during early centuries of the Christian era. The excavations at Sisupalgarh (Fig. 2; Lal 1984) Manikapatna, Radhanagar of Orissa, Chandraketurgarh and Tamralipti in West Bengal, Salihundam and Dharanikota in Andhra Pradesh, and Arikamedu, Poompuhar, Korkai and Algankulam in Tamil Nadu have brought to light the evidence of Rouletted Ware which is datable to 2nd-1st century B.C. Moreover, Rouletted Ware is also reported from Buni Complex in North Java, Sembiran in north coast of Bali, Buu Chau Hill and Tra-Kieu in central Vietnam, Kantarodai and Jaffna in Sri Lanka and Mahastan in Bangladesh. This ware was manufactured at Salihundam, Satanikota, and Kesarapalle of Andhra Pradesh and distributed to the places located on the west and northeast of Andhra Pradesh. The presence of Rouletted Ware in Bali, Anuradhapura and Java indicates that it might have come from Arikamedu or some other sites of Andhra Pradesh (Nigam 2001). Begley (1983) has suggested that Arikamedu was the main centre for the production of the Rouletted pottery in large quantity for trade and domestic uses. It is believed that the Rouletted

Ware is the evidence of Indo-Roman trade, and was imported from the Roman Empire. The coarser varieties were made in India. The XRD diffraction analysis (Gogte 2000) of Rouletted ware of South India and Southeast Asia shows that the mineralogical contents and the soil samples from coastal Bengal are the same. Rouletted Ware of Manikapatna is similar to that of Sisupalgarh and Arikamedu as far as the mineral content is concerned.

Knobbed Ware has been reported for the first time from Sisupalgarh in Orissa, then at Jaugada, Lalitagiri, Manikapatna, and Radhanagar (Mishra 2000). Subsequently, knobbed vessels have been reported from northern Andhra Pradesh, coastal Bengal and Assam (Glover 1990). This ceramic is concentrated in the Early Historic Period. Further Glover (1996) has emphasised that this pottery is associated with Buddhist rituals. Knobbed vessels occur in different fabrics such as fine grey ware, Red and Black ware. Knobbed ware has a boss or a projection at the centre of the base. The time range of this ware is early centuries of Christian era. Similarly, the finding of Northern Black Polished (NBP) ware at the port sites and some other sites along the coastal Orissa, Andhra Pradesh and Tamil Nadu has provided evidence of coastal trade on the eastern Indian littoral. The occurrence of Punch Marked Coins (PMC) and the NBP at Gedige and Anuradhapura came to light during the Mauryan period. The recent excavation at Anuradhapura and Mantai in Sri Lanka (Sarma 1990-91) shows the contact of Orissa with Sri Lanka during early centuries of Christian era.

Semi-precious stone beads have been reported from various excavation sites of Orissa and Southeast Asia. About 180 beads of camelian, agate, chalcedony, glass and terracotta have been reported from Sisupalgarh (Lal 1984). Evidences of manufacturing of beads have been reported from Jaugada and Asurgada in Orissa (Mohapatra 1986). Further, Ban Don Ta Phet, Ban Chiang, Karbi, Khao Sam Kao of Thailand, Tanjong Pawa, Kalum Pong in Malaysia, Salebabu island in Indonesia, Beikthano in Burma, and Palawan island of Philippines have reported semiprecious stone beads (Glover 1990). The earliest site to have yielded evidence of Indian contact is the Ban Don Ta Phet in Thailand where a number of agate and carnelian beads have been reported. These beads belonging to 2nd to 3rd century B.C. appear to be introduced from India (Higham 1989). The bronze bowls with a knob in the centre of the base found in the burials of Thailand give an indication of Indian contact. The shape of these bowls is similar to those found in coastal Orissa and Bengal (Ray 1989). India has plentiful source of carnelian (Glover 1996) so that this semi precious stone and glass were imported from India to Southeast Asian countries in order to manufacture beads, and the same were exported again after the final production. Further there is evidence that bronze bowls with a high tin content found at Ban Don Ta Phet were certainly

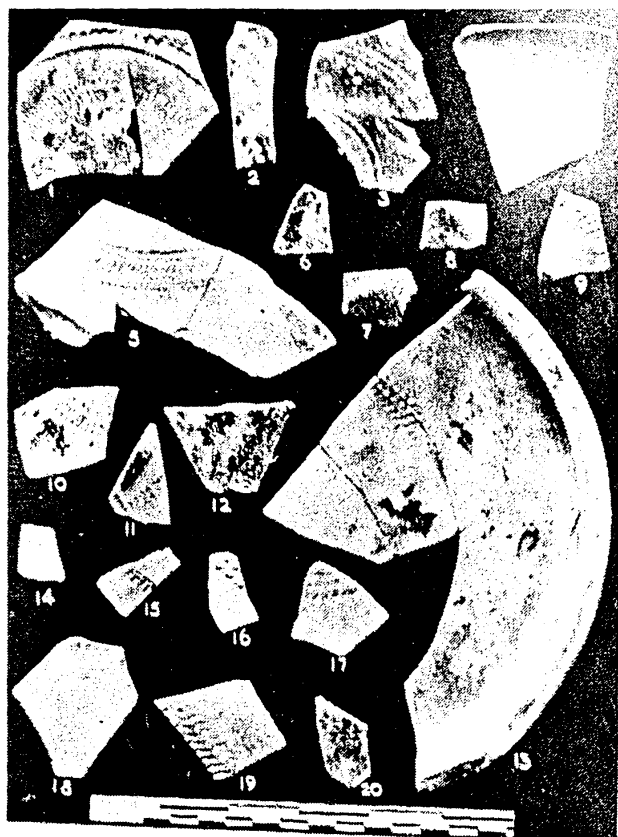


Fig. 2: Rouletted ware from Sisupalgarh, Orissa

exported from Thailand. The Satavahana rulers had issued bronze coins with high tin content (23%) and it appears that the tin was imported from Thailand.

Numismatic Evidence

The finding of coins along with other archaeological artefacts indicate trade contacts between one region and another. A unique type of punch-marked coins with ship symbol are found from the earliest levels at Chandraketugarh in West Bengal which are similar to boat symbol coins issued by the Satavahana kings. Such coins were also found on the Andhra coast. In Northern Sri Lanka a single mast boat coin in conjunction with a donatory inscription of 1st century B.C. is found. The ship symbol is noticed on the terracotta sealings and in the graffiti on pottery found from the coastal regions, as well as the trade centres along the Ganga. Similar types of objects from Vaisali depict a boat with a prow, stern, oar, passenger decks and a female standing in the boat (Ray 1991).

The Satavahana coins depict both single and double mast ships anchored in mid sea. Gautamiputra Yajnasri (A.D. 184-213) issued these type of coins prominently. The 'ship' coins have been found at Buddham, Vidyadharapuram, Guntur, Chebrolu and other places on the east coast of India (Sarma 1980). The double mast ship type coins were also issued by the Salankayanas (Vijaya Devavarman, circa 280-293 A.D.) who succeeded the Satavahanas in the Vengi country (Sarma 1989). The Roman coins of Tiberius (A.D. 14-37) were found during excavations at Salihundam (Subramanyam 1964). Similarly the excavations conducted at Bavikonda and Thotlakonda in the district of Visakhapatnam reveal Roman coins of Augustus (31 B.C.-A.D. 14) and Tiberius (A.D. 14-37) (Sree Padma 1993). The Roman gold coins of Gordian, Constantine and other rulers found at Bamanghati and Tamralipti show evidence of contact with the Romans (Warmington 1974). Four denarii, three of Augustus and one Tiberius coins were reported from Kotppad, and 23 gold coins from Gumada of Orissa (Turner 1989). One complete and two fragmentary copper coins with square perforation in the centre with Chinese

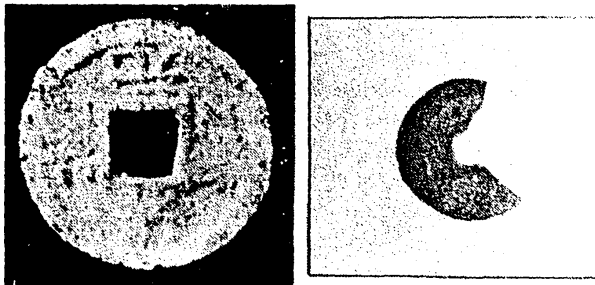


Fig. 3: Chinese coins found during excavations at Khalkatapatna

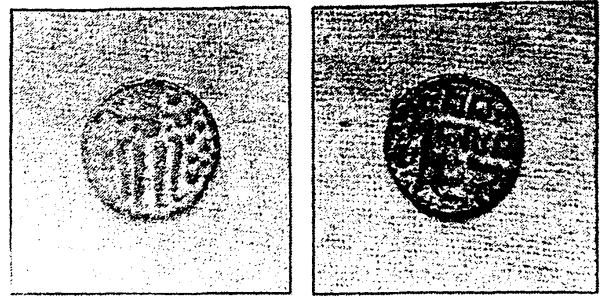


Fig. 4: Coin of king *Sahasamalla*, Sri Lanka found in the excavation at Manikapatna

legend were found from Khalkatapatna, belonging to the 14th century (Fig. 3). Manikapatna excavation has yielded a Sri Lankan copper coin datable to 12th century with the legend *Simad Sahasamalla* (Fig. 4) (Pradhan *et al.* 2000). Similar coins have been reported from Kotchina in Indonesia which prove the maritime network linking coastal Orissa, Sumatra, and Sri Lanka (Behera 1994).

Epigraphical Sources

The excavations at Chandraketugarh, Bangarh and Hadipur in West Bengal have yielded Kharosthi inscriptions on seals, plaques and pots. The terracotta seals from Bangarh and Chandraketugarh (Fig. 5) depict sea going vessels containing corn flanked by symbols like conch and taurine. Such vessel types are known as *Sasyadidhrta Sthali*, a bowl shaped vessel filled with com. Another such vessel has legend in Kharosthi-Brahmi script referring to



Fig. 5: Terracotta seal showing sea going vessel, Chandraketugarh, West Bengal

Tridesayatra, meaning a voyage to three countries or directions. Yet another seal from Chandraketurgarh reveals a type of vessel called *Trapyaka* belonging to the wealthy Tasvadaja family. It may be noted that *Trapyaka* is a type of ship mentioned also in the Periplus and the *Angavijja*. The above vessel types as well as flanking symbols recall the Satavahana ships. It appears that the Kharosthi script was used by traders settled in the lower Ganga valley of Bengal in good numbers during the third to first centuries B.C. and was mixed up with the Brahmi used by local merchants, developing a mixture type Kharosthi-Brahmi writing with North-western Prakrit expressions (Sarma 1991).

The location of Asoka's Major Rock Edicts at Dhauli and Jaugada suggests the existence of coastal route from Tamralipti to the present Andhra coast, which formerly constituted the southern part of the Kalingan Empire. It is known from the Hathigumpha inscription (1st century B.C.), that king Kharavela defeated the southern confederacy and "caused the procurement of pearls, precious stones and jewels from the Pandya king". He had developed his territory far and wide (Jayaswal 1983). The excavation at Sembiran has brought to light Kharosthi inscriptions on the potsherds which shows the maritime trade contacts between Orissa and Bali (Ardika and Bellwood 1991). The epigraphic sources of the Malayo-Indonesian region frequently mention people called "Kling" which evidently derived from Kalinga and scholars generally agree that it denotes the people of Kalinga. The early legends of Java mention "twenty thousand families were sent to Java by the prince of Kling. These people prospered and multiplied". Java was styled as "Ho-ling" in the Annals of the T'ang period (A.D. 618-906). Scholars usually believe that Ho-ling is the Chinese or old Javanese equivalent of Kalinga. This would suggest that Central Java was so much dominated by the people of Kalinga that the region was named as Kalinga or Ho-ling.

The Telaga Batu (A.D. 686) inscription of Indonesia mentions the special skill of the people such as *Puhawang* (ships captain), *Vaniyaga* (long distance or sea faring merchants), and *sthapaka* (sculptors). The Kaladi (909 A.D.) inscription mentions *wagga kilalan*, meaning a group of foreigners which include Kalingas, Aryas, Sinhalese, Dravidians, and Pandikiras. The term *banigrama* (Sanskrit Vanigrama) means a merchant guild, which have been mentioned in several East Javanese and Balinese inscriptions. Similarly the old Balinese inscriptions of Sembiran B (915 A.D.) and Sembiran A II (975 A.D.) also mention the term *banigrama* (Ardika 1999). The Indonesian inscriptions refer to foreign traders as (banyaga) which includes the Kalingas, Aryas, Sinhalese, Dravidians, etc. and a merchant guild as *banigrama*. The Bhaumakara inscription (8th-10th century A.D.) refers to *samudra kara bandha* (sea tax gate) on the bank of Chilka, where taxes were collected from the sea traders of Orissa.

Literary Sources

The people of Orissa dominated the overseas trade and continued their links to far off countries since the remote past. It was so prominent in maritime trade that Kalidasa referred in the *Raghuvamsa* to the king of Kalinga as *Mahodadhipati* or the Lord of Ocean (Nandargikar 1948). In connection with the seashore of Kalinga, the *Raghuvamsa* (6: 57) further mentions *dvipantara* (Indonesian Archipelago) from which breezes, filled with the scent of cloves, blew:

*anena sardham viharamburaseh tiresu talivana
marmarresu*

*dvipantaravita lavanga puspeih apakrtasveda lava
marudbhih*

Further, the *Aiyamanjusrimulakalpa* narrates to "all islands of the Kalinga sea" (Kalingodresu) from which appears that in the past the present Bay of Bengal was known as the "Kalinga Sea" being dominated by the ships of Kalinga (Sastri 1920-25).

The *Sankha Jataka*, the *Samudra Jataka* and the *Mahajanaka Jataka*, mention that the traders from central India used to come from Benaras to Tamralipti, from where they sailed to Southeast Asian countries (Law 1967). The *Mahavamsa* mentions that Asoka sent his missionaries to Sri Lanka from Tamralipti. The *Vassentara Jataka* mentions Kalinga as a great commercial and industrial country, from which rice, fine cloth, ivory, diamonds and other goods were exported even to foreign countries. The *Kathasaritsagara* indicates that Tamralipti was the main port for Chinese trade and commerce (Kar 1973).

The Buddhist texts mention the contact of ancient Orissa with Sri Lanka from about the 5th century B.C. onwards. Trade between Orissa and Sri Lanka must have continued in the later period which resulted in the strong political and cultural links between two countries. The contact of Orissa with China is known from the accounts of Huang Tsang who refers to commercial activities of the people. Subhakar Simha, son of the king of Orissa, (Wu-ta (Odra) country), went to China carrying with him many Tantric texts in A.D. 790, who may be identified with Sivakara or Subhakar of the Bhaumakara dynasty who had sent a Buddhist text for the great Tang emperor of China. The *Chu-fan-chi* of Chau Ju-Kua written in A.D. 1225-26, refers to Kia-ling sea going vessels (i.e. Kalinga ships) and their system of trade organisation. Chau Ju-Kua mentions two types of ships plying between Kalinga and Canton.

Art and Sculptural Evidence

Buddhism played a significant role in the relations between Orissa and Southeast Asia. Comparative studies of Buddhist art of Orissa and Southeast Asia show several

common elements and resemblances. The archaeological excavations at Ratnagiri, Udayagiri, and Lalitagiri in Orissa have brought to light the remains of Buddhist art. The Buddha heads from these centres and those from central Java share common characteristic features of massive form, modelling affinities and facial expressions. Similarly the Buddha and Boddhisattava images of Borobudur, Indonesia, and Orissa have common traits. The Javanese Boddhisattavas from Chandi Mendut have their attributes placed on long lotuses in the style distinctive of the Lalitagiri figures of Orissa (Tripathi 2000). The presence of the giraffe, an African animal in the temple of Konarak (13th century) suggests contact with Arab merchants who might have been commissioned to bring this animal from Africa to the eastern coast. In the early 15th century the Chinese Admiral Chang Ho, who visited East Africa is known to have brought a giraffe to the Ming court of China

(Behera 1977). Further the maritime pride of Orissa is also reflected in sculptural representation of boats in the temples of Puri and Bhubaneswar.

Overseas Routes

In early times, long distance overseas trade was not possible without making a halt at intermediate places for water and food. The ships of Orissa bound for Southeast Asian countries passed via the Andaman and Nicobar Islands (Fig. 6). Sailors voyaging from Tamralipti, Palur and Kalingapatnam to foreign countries used the Nicobar Islands as a halting station. I-Tsing mentioned that it was a month's sail from Tamralipti to Nicobar Islands, and China from Sri-Vijaya was twenty days sail (Syamchaudhuri 1977). From Tamralipti there was regular sailing of vessels which either proceeded along the coast of Bengal and

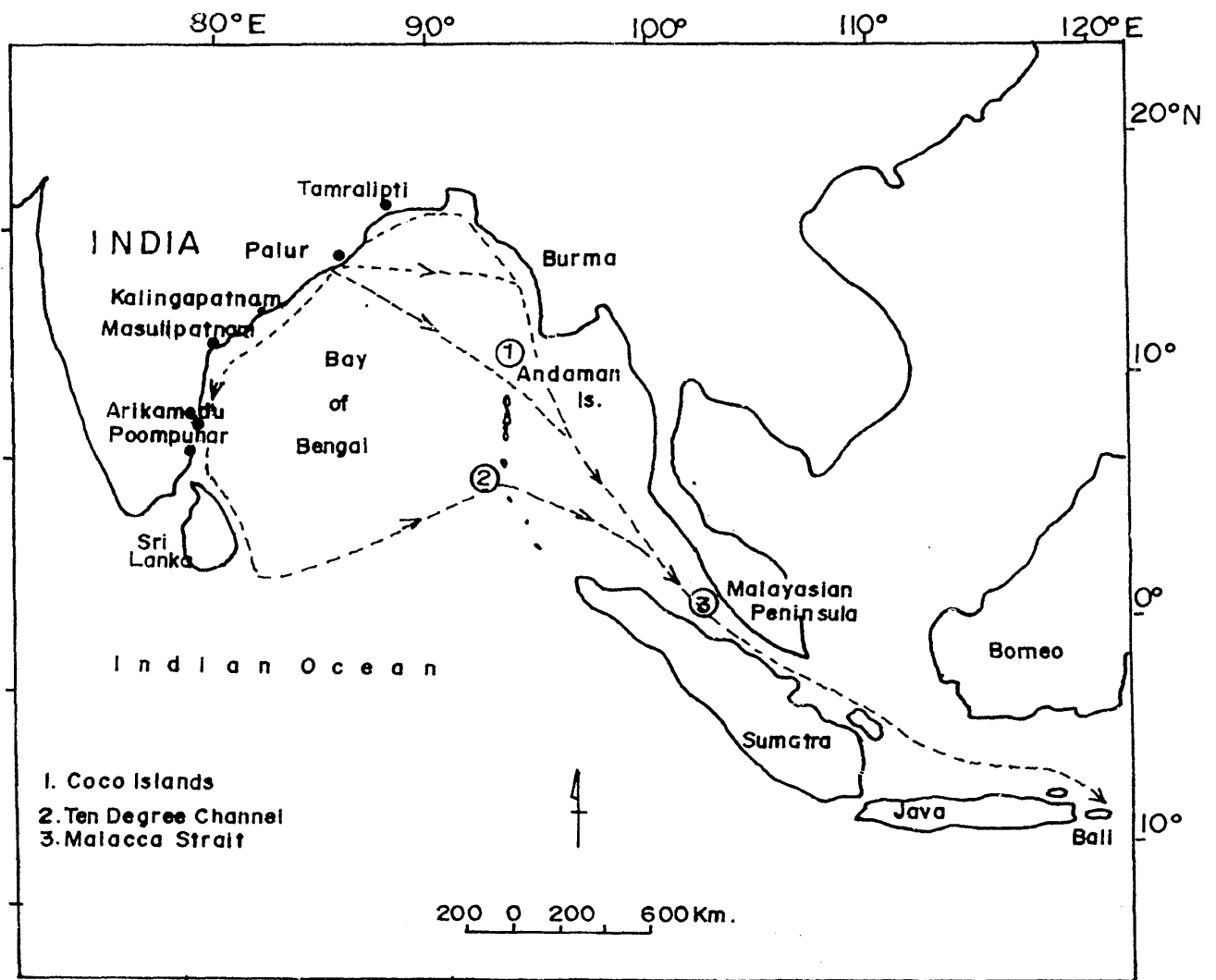


Fig. 6: Sea routes from Orissa to Southeast Asian countries

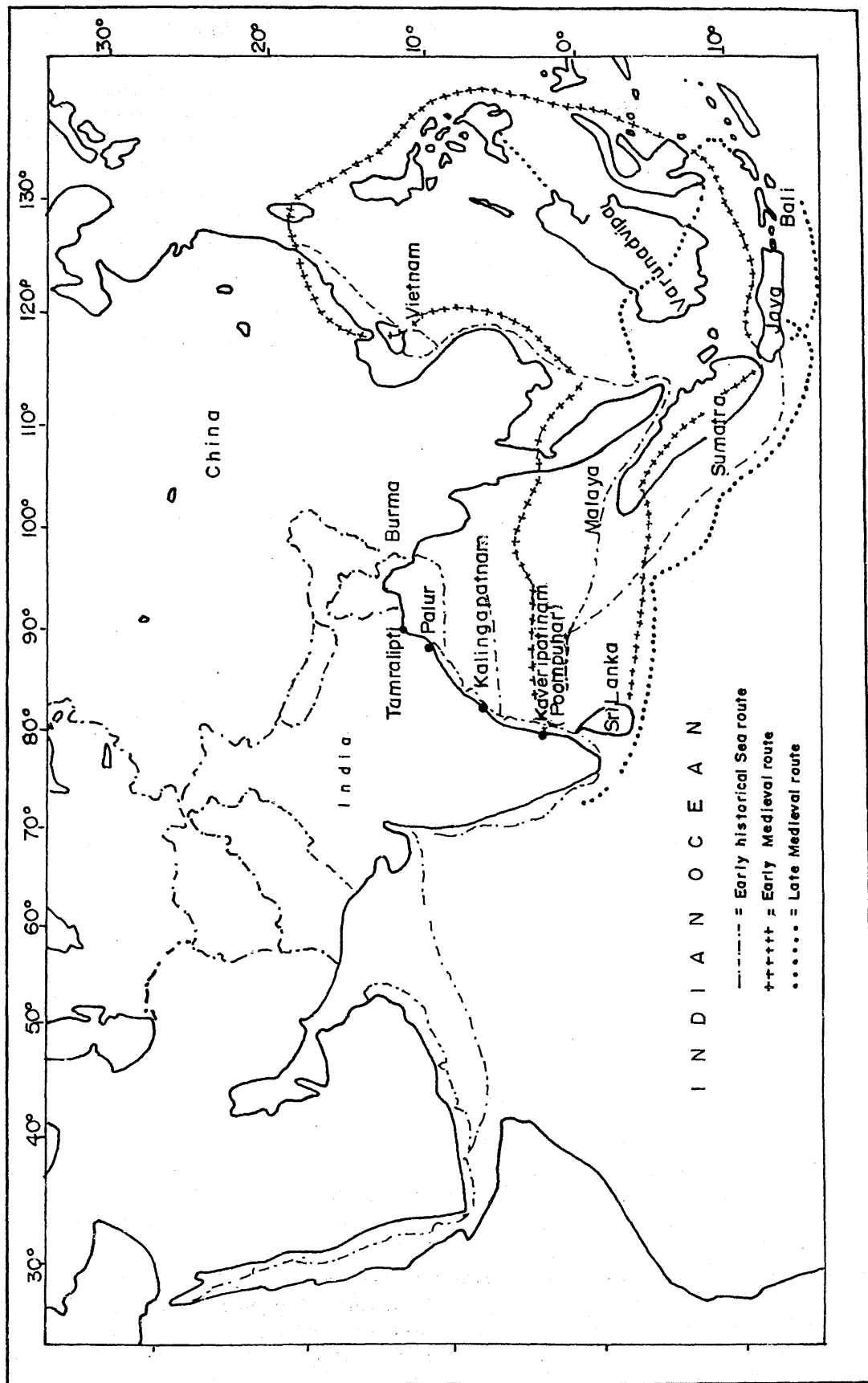


Fig. 7: Maritime trade routes of east coast of India and Southeast Asian countries

Burma, or crossed the Bay of Bengal and made a direct voyage to the Malaya Peninsula and then to the East Indies and Indo-China and beyond it. In making their voyages to Southeast Asia, the sailors and merchants of Orissa may have sailed around the Malay Peninsula through the Strait of Malacca. The other route must have been from Orissa to South India where one sailed through the area between the Andaman and the Nicobar Islands or between Nicobar Islands and Achin, the northern tip of Sumatra, disembarking on the peninsula around Takuapa or at Kedah. The ports of embarkation were Palur, Poompuhar, Arikamedu, Sopatma, and Masulipatnam from where ships sailed across the Bay of Bengal to the coasts of the Southeast Asia and the Far East. Ships used to go to Java from the ports of Orissa and return directly to Sri Lanka and other ports on the east coast of India (Fig. 7). Further, these ships took a course to the northeast from Java to reach Canton. This was the route followed by the merchants who traded with the West and the East (Prasad 1977). There was a regular coastal voyage from the mouth of the Ganga along the eastern coast of India to Sri Lanka. People from all ports of India came by land or river route to the nearest sea port and then made a coastal voyage to Tamralipti, Palur or to one of the ports near Masulipatnam, from where ships made a direct voyage to the Far East across the Bay of Bengal. The sailors and merchants of Kalinga had landed at various places including Srikshestra in Burma, Takkola, Kokkonagara, Kataha Kadharam in Malaya Peninsula, Sri Vijaya in Sumatra, Purva Kalinga in Java, Tonking in Cambodia and Kwang-fu in China (Tripathi 2000).

Discussion and Conclusion

The available sources such as the epics, Jataka stories, *Raghuvamsa*, *Kathasaritasagar*, inscriptions, and excavated antiquities bring to light the trade and cultural contact of Orissa with distant overseas countries through the ages. In spite of several hazards and the problem of piracy the Orissan seafarers undertook maritime trade for the sake of wealth. The archaeological findings at Sisupalgarh, Manikapatna, Palur shows that trade was flourishing till the Gupta period. As archaeological evidence is not found during the post Gupta period (6th-7th century A.D.) it appears that there was a decline of maritime trade through Orissa in this time. However, maritime trade revived during the Bhaumakara period and it flourished again after 10th and 11th century.

The excavation at Manikapatna has brought to light pottery of both indigenous and foreign origin. Along the east coast of India Manikapatna is the only site from where varieties of ceramics have so far been reported. The presence of pottery, coins, and art evidence indicates the impact of early sea trade between Orissa and the Mediterranean world. The discovery of Rouletted Ware all along the east coast of India and Kharoshthi scripts and semi-

precious stone beads suggests that the internal contact between Orissa, Bengal, Assam, Tamil Nadu had already began by about 2000 years ago.

The evidence from Manikapatna proves the East and West maritime trade relations. With the increase of Roman influence along the Indian coast, the Indian traders left for Southeast Asia countries in search of spices and sandalwood. Based on the available references and archaeological findings at Orissa, Southeast Asian countries, and other places, it is clear that the sailors knew about these lands and the products. It is worth mentioning here that historians have believed the weak successors, economy under the feudatories, attack by neighbouring kingdoms, imposition of taxes, and unskilled navigation contributed to the decline of maritime activities of Orissa. In addition to this it is noticed that the geological processes such as the coastal erosion, sea level changes, tectonic activities, natural hazards, sedimentation, and formation of sand bars and dunes in the navigational channels are equally responsible for the decline of ports of Orissa (Tripathi 1992-93). It is known that Balasore and Konarak were the ancient ports, which are presently 15 and 4.8 km away from the seashore respectively. Ahmed (1972) states that this is due to the uplift of land. Chilka was a busy port in the historical times and sedimentation caused the disuse of the port. The diversion of river course due to the formation of sand dunes made the Palur port non-operational. To understand in detail the geological processes from archaeological point of view no systematic studies have been carried out along the coast of Orissa. The coastal survey and offshore explorations at strategic locations, excavations at new sites, and comparative study of art evidence of Orissa may shed new light on the maritime activity of Orissa with the outside world.

Acknowledgements

The author is grateful to Dr. E. Desa, Director NIO, and Shri. K.H. Vora, Scientist-in-Charge of Marine Archaeology Centre for their encouragement in this field. Thanks are also due to Shri. S.B. Chitari for drawings, Shri. Sheikh Ali for photographs.

References

- Ahmad, E. 1972. *Coastal Geomorphology of India*. New Delhi: Orient Longman.
- Ardika, I.W. and P. Bellwood 1991. Sembiran: the Beginnings of Indian Contact with Bali, *Antiquity* LXV(247): 221-232.
- Ardika, I.W. 1999. Ancient Trade Relation between India and Indonesia, in *Maritime Heritage of India* (K.S. Behera Ed.), pp. 80-89. New Delhi: Aryan Books International.

- Begley, V. 1983. Arikamedu Reconsidered, *American Journal of Archaeology* 87: 461-81. pp. 129-141. New Delhi: Bharatiya Kala Prakashan.
- Behera, K.S. 1977. Maritime Trade in Ancient Orissa, in *Sidelights on History and Culture of Orissa* (M.N. Das Ed.), pp. 115-121. Cuttack: Vidyapuri.
- Behera, K.S. 1999. Maritime Activities of Orissa, in *Maritime Heritage of India* (K.S. Behera Ed.), pp. 162-171. New Delhi: Aryan Books International.
- Glover, I.C. 1990. Early Trade between India and South-east Asia: A link in the development of a World Trading System, *Occasional Paper No. 16*: 1-45. London: The University of Hull.
- Glover, I.C. 1996. Recent Archaeological Evidence for Early Maritime Contact between India and Southeast Asia, in *Tradition and Archaeology: Early Maritime Contacts in the Indian Ocean*, (H.P. Ray and J.F. Salles Eds.), pp. 129-158. New Delhi: Manohar Publishers.
- Gogte, V.D. 2000. Scientific Study of Ancient Pottery from Orissa: A Note on Preliminary Results, in *Archaeology of Orissa*, (K.K. Basa and P. Mohanty Eds.), pp. 681-689. New Delhi: Pratibha Prakashan.
- Higham, C. 1989. *The Archaeology of Mainland Southeast Asia*. Cambridge: Cambridge University Press.
- Jayaswal, K.P. 1983. The Hathigumpha Inscription of Kharavela, *Epigraphica Indica*, (reprint) XX: 71-89.
- Kar, B. 1973. *Prachina Utkalara Nau Vanijya* (Oriya), Cuttack: Board of Higher Secondary Education.
- Lal, B.B. 1984. Excavations at Sisupalgarh, *Ancient India* 5: 62-105.
- Law, B.C. 1967. *Historical Geography of Ancient India*, Paris: Societe Asiatique de Paris.
- McCrinkle, J.W. 1985. *Ancient India as Described by Ptolemy*. (reprint) New Delhi: Today and Tomorrow's Printers and Publishers.
- Mishra, J. 2000. Radhanagar: Early Historic Buddhism, Urban Structure and Trade, in *Archaeology of Orissa*, (K.K. Basa and P. Mohanty Eds.), pp. 507-550. New Delhi: Pratibha Prakashan.
- Mohapatra, R.P. 1986. *Archaeology of Orissa*, Vol. II, Delhi: B.R. Publishing Corporation.
- Nandargikar, G.R. (Ed. and Tr.) 1948. *Raghuvamsa*, VI. Mumbai: Nirnaya Sagara Press.
- Nigam, J.S. 2001. Rouletted Pottery and its Distribution, in *Hemakuta, Recent Researches in Archaeology and Museology*, (A.V. Narasimha Murthy, K.M. Suresh, K.P. Poonacha and K.R. Basavaraj Eds.), pp. 129-141. New Delhi: Bharatiya Kala Prakashan.
- Prasad, P.C. 1977. *Foreign Trade and Commerce in Ancient India*. New Delhi: Abhinav Publication.
- Pradhan, D., P. Mohanty and J. Mishra 2000. Manikapatna: An Ancient and Medieval Port on the East of Orissa, in *Archaeology of Orissa*, (K.K. Basa, and P. Mohanty Eds.), pp. 473-494. New Delhi: Pratibha Prakashan.
- Panigrahi, K.C., 1981. *History of Orissa*, Cuttack: Kitab Mahal.
- Ray, H.P. 1989. Early Maritime Contacts Between South and Southeast Asia, *Journal of Southeast Asian Studies* XX (1): 42-54.
- Ray, H.P. 1991. In Search of Suvarnabhumi: Early Sailing Networks in the Bay of Bengal, *Bulletin of the Indo-Pacific Prehistory Association* 10: 357-365.
- Sarma, I.K. 1980. *Coinage of the Satavahana Empire*. Delhi: Agam Kala Prakashan.
- Sarma, I.K. 1989. Salankayana Coins from Ghantasala, Dist. Krishna, Andhra Pradesh, in *Ajaya Sri, Recent Studies in Indology* (D. Handa Ed.), pp. 313-317. Delhi: Sundeep Prakashan.
- Sarma, I.K., 1990-91. Ceramics and Maritime Routes of India: New Evidences, *Puratattva* 21: 37-42.
- Sarma, I.K. 1991. Rare Evidences on Maritime Trade on the Bengal Coast of India, in *Recent Advances in Marine Archaeology* (S.R. Rao Ed.), pp. 38-40. Goa: Society for Marine Archaeology.
- Sastri, T.G. (Ed.) 1920-25. *Aryamanjusrimulka*, 3 Vols, Trivandrum: Trivandrum Sanskrit Series.
- Tripati, Sila 1992-93. Ancient Ports of Orissa: Probable Causes of their Decline, *Puratattva* 23: 50-53.
- Tripati, Sila 1997. Ports and Maritime Activities of Orissa (16th to 19th Centuries), in *Ship-building and Navigation in the Indian Ocean Region, A.D. 1400-1800*, (K.S. Mathew Ed.), pp. 155-164. New Delhi: Munshiram Manoharlal Publishers.
- Tripati, Sila 2000. *Maritime Archaeology: Historical Descriptions of the Seafarings of the Kalingas*. New Delhi: Kaveri Books.
- Sinha, B.N. 1971. *Geography of Orissa*, New Delhi: National Book Trust.
- Sree Padma, B. 1993. Coins and Maritime Trade of Andhra Country, in *Studies in South Indian Coins*, (A.V. Narasimha Murthy Ed.), Vol. III, pp. 97-100. Chennai: New Era Publishers.

Subramanyam, R. 1964. *Salihundam*. Hyderabad: Department of Archaeology and Museums, Government of Andhra Pradesh.

Syamchaudhuri, N.K. 1977. *The Social Structure of Car Nicobar Islanders: An Ethnic study of Cognation*. Kolkata: Anthropological Survey of India.

Turner, P.J. 1989. Roman Coins from India, *Royal Numismatic Society, Special Publication No: 22*, London.

Warmington, E.H. 1974. *The Commerce Between the Roman Empire and India*. Delhi: Vikas Publishing House.