

Antiquity of Sailing Ships of the Indian Ocean: Evidence from ancient Indian art

Dr. Alok Tripathi
Underwater Archaeology Wing
Archaeological Survey of India

India has an exceptionally varied and rich art heritage. Varieties of themes depicted in art throw light on various aspects of human history. A number of ships, including sailing ships, have been found depicted in ancient Indian art in the form of terracotta models, bas-reliefs, seals, sealing and plaques, paintings on pots and walls, sculptural panels, representation on coins, etc. These representations of ships are in different art media and are widely spread in time, from prehistoric period to the recent past, and space. Such representations in art reveal useful information about the use of sails and development of sailing ships through the ages. The ancient Indian art tradition was not confined to India but also spread as far as Southeast Asia. A systematic study of these representations may help to reconstruct the long maritime history in the Indian Ocean.

Although, archaeological explorations and excavations conducted in India so far have not yielded many ancient boats or ships, some of the excavated structures have been identified as evidence of maritime activities during the ancient period. In the absence of sufficient archaeological evidence it is difficult to reconstruct the long maritime history of the subcontinent having the most prominent position in the Indian Ocean. Systematic study of archaeological evidence, literary references and the study of ancient representations may contribute significantly to the understanding of the evolution and development of shipping and shipbuilding technology. Representations of ships and boats in Indian art also provide a continuous history of shipping in India from the Mesolithic to the recent period.⁽¹⁾

Some of the depictions exhibit the actual picture of ships of those days. Most of these forms were not created to record the technical details but to depict some episode connected with a ship. These depictions are not to scale but framed according to the need of the narrative.

Based on them the beginning of boat-building in India can be traced back to the Stone Age. A number of rock paintings in rock-shelters (Fig 1 & 2) datable to the Mesolithic period provide evidence of boats built and used by cave men.⁽²⁾ The earliest evidence of use of sails and maritime trade is datable to some 5000 years ago by the Harappans during the Bronze Age. Archaeological evidence unearthed in excavations in India and other countries have indicated navigational skills of their mariners. They established their cities close to the Indus and its tributaries and the long coastline provided all the necessary facilities for the development

of shipping.

The Harappans were the builders of large ships and their maritime trade extended up to Mesopotamia during 3rd millennium BC. Ship representations found on a Harappan seal, terracotta tablet and a graffito on a potsherd from Mohenjo-daro, a terracotta boat model from Lothal and a seal from Kachchh are some of the direct evidence of their shipping and ship-building activities. One graffito on a potsherd shows a ship with upturned prow and a high mast with yard. The graffito represents the first sailing ship.

Besides, it has the figure of a steersman. This type of boat or ship was suitable for river traffic and also for sea voyages.

Another boat is depicted on a rectangular steatite seal which is rather crude. Mackay has rightly pointed out that the way the vessel is portrayed on this seal shows it was not the work of an experienced seal-cutter. (Fig 3) It has sharply upturned stem and stern and was steered by long steering oars. The seal depicts one of the earliest Indian ships represented in Bronze Age art. It depicts a ship with a cabin amidships and two masts at fore and aft which suggests that it was a sea-going sailing ship. The rigging, though crude, is also depicted. Mackay identified it as a reed boat.⁽³⁾ Ratnagar also identified tress strokes over much of the length of a boat as indicating the tying of the reeds.⁽⁴⁾ However, the vertical lines at bow suggest wooden planks of the hull and short parallel lines at fore and aft of the cabin show the frames.

A ship depicted on a terracotta amulet (Fig 4) is the best representation of a Harappan ship known so far. This boat had a flat bottom with raked stern and prow and there are two steering oars at the stern. In the middle of the boat there is a cabin. At both ends of the ship a sea bird is depicted. They are called *dishakak* and were used by sailors to find land.⁽⁵⁾ There are two masts on both sides of the central cabin. Mackay suggested that it was made of reeds bound together, a method of shipbuilding which was used in Egypt during the Bronze Age.

A crude representation on a seal (Fig 5) reported from Harappa is also identified as a sailing ship. This ship might have been used for overseas trade as it is furnished with a big sail hoisted high near the raked prow. Some sort of superstructure is also visible amidships from which two oars are paddled out.⁽⁶⁾ The representation on the seal is very crude and it is difficult to make out various parts of the ship.

Five terracotta objects and a painting on a potsherd found at Lothal were identified as three types of ships of which two had sails.⁽⁷⁾ A rectangular steatite seal depicting a ship with an inscription was found in Kachchh, of which only an eye copy prepared by the discoverer is available now. (Fig 6) The seal depicting a long boat with two lines of Harappan script is unique. The ship has a high hull with two masts in the middle. In all other earlier representations standards were attached to either ends of the central cabin. The free standing masts clearly suggest that the ship was a sea-going vessel. Due to the composition of those representations it was felt that the masts could not be carved due to limitation of space available. But in this case there is enough space available above the ship but the height of the masts is low. It seems they used short masts, and had a single sail on them. Two steering oars are shown at the stern.

Ships have played a very important role for the trading communities of the Harappans, but their representations, except one, are always very crude and sketchy. Due to the prominent appearance of steering oars most of the scholars identified them as rowing boats used in near-shore waters and rivers. Most of the scholars also opined that Harappan ships were made of reed bundles.⁽⁸⁾ Ample archaeological evidence has been unearthed which make it clear that the

Harappans were navigators and shipbuilders. Detailed studies indicate that they made wooden ships. They had regular maritime trade and contacts with distant lands, including Magan (Oman).

Not much is known about the boats of the period between mid-second millennium to mid-first millennium BC. Two representations, dated to this period are found in Tamil Nadu. Rock-paintings at Karimaya Kavundanpatti depicting a boat is dated to 1000 BC.⁽⁹⁾ The painting in the rock shelter at Kilvalai is dated to 700 BC.

During early historical period a good number of boats are found represented in various mediums of art. The earliest representations during the early historical period are seen on some of the silver punch-marked coins. It has a crescent shaped hull with a small superstructure at the stern. These coins are datable to 5th-4th century BC.

From 2nd century BC onwards a number of boats are found depicted in the sculptural panels on the stupas of Bharhut, Sanchi and Amaravati, on the coins of the Satavahanas and in the rock-cut caves at Kanheri. These representations were engraved with great care and skills.

Two boats are carved on the pillars of eastern and western *toranas* of the Sanchi stupa.⁽¹⁰⁾ One of them is a big sea-going ship with a wooden superstructure carved on the southern face of the northern pillar of the western gateway. (Fig 7) Its prow is decorated with *Sardula* (griffin) head, whereas the stern is designed as upturned fish tail. With these decorations the sailing ship appears like a giant animal floating on the water. The lower portion of the boat has been damaged. The decorations, parasol and *chauri* (whisk) on board suggest it was a royal ship. The size and construction of the ship suggest that such ships might have been used for overseas trade and transport.

A ship is also carved in a panel on a pillar of Amaravati stupa, (Fig 8) a famous monument of Satavahana period described by Fergusson.⁽¹¹⁾ In the middle of the ship is a cabin or a pillared *mandapa* in which sacred relics of Lord Buddha are placed on a throne. A devotee is worshipping the relics and another man with a crown on his head is shown behind him. During the early centuries of the Christian era Indian ships had become stronger, bigger and more durable. The Sanchi and Amaravati sculptures depict some of these ships used during the period.

Excavation at Alagankulam, district Ramnad yielded two potsherds engraved with sailing ships datable to 1st century BC / AD.⁽¹²⁾ One depicts part of a ship in full sail with a mast which is supported by stays, sail and two paddles. Some scholars have identified the vessel with traditional boats of Tamil Nadu, *Vattai*.

Maritime activities are also apparent from numismatic evidences. Seafaring on the Coromandal coast is indicated by the Andhra-Satavahana coins having a ship motif on the reverse. Satavahana kings Pulamavi and Gautamiputra Yajna Sri Satakarni issued ship-type coins between 88 and 191 AD. These coins provide some good representations of contemporary ships having one or two masts. They were sea going trading vessels of large size and high tonnage.⁽¹³⁾ Being depicted on small coins, not many details can be made out. However it is possible to discern certain characteristics of the boats used during that period. Several stay and back stays, steering oars and flag on the stem post can be seen. The deck was straight and oars were used to steer the ship.

Excavations at Chandraketugarh have yielded a number of terracotta seals and sealings depicting ships of different types. These representations are very interesting for the study of

ships and maritime trade as the variety of commodities transported on these ships are also depicted on them. One of them depicts a ship with a mast. (Fig 9) Depictions of corn support their uses for transporting grains, and one shows horses. Many of these seals are also inscribed. The legend on a seal speaks of a journey in three directions by one Yasoda who has earned wealth by selling food. Another seal shows a ship having a single mast. Kharoshti-Bramhi legend on the seal makes it clear that these ships were trading vessels engaged in trade and earned wealth for their owners.⁽¹⁴⁾

Another ship engraved on a potshard, excavated at Alagankulam⁽¹⁵⁾ has a high single mast with two booms and sails tied to them. Three oars are shown at stern. The decoration of the ship suggests that the ship had a number of sails. It is dated to 4th – 5th century AD.

Some of the best representations of ancient Indian ships are found in the *Jataka* stories painted in the world famous caves of Ajanta. Though the episodes narrate stories of a very early period, the representations must have been influenced by existing crafts. Paintings are tastefully drawn and provide good information about contemporary maritime activities.⁽¹⁶⁾

The ships are found in the paintings in Cave No.1, 2 and 17, and sculptures in cave No. 26. They depict a variety of ships and boats, which include sea-going sailing ships, pleasure boats, naval ships as well as small canoes. The various activities depicted here are transporting an army, a ship loaded with cargo, a shipwreck, a pleasure ride, retrieval of corals from the deep sea, etc. The types of ships and boats correspond to the descriptions given in the *Yuktikalpataru*, dated to the 11th century. A ship with three masts in full sails is one of the best and most detailed representations of a sailing ship in Indian art.⁽¹⁷⁾

The episode depicting the ship in cave No. 1 was identified by Mookerji and Moti Chandra as *Mahajanaka Jataka* panel based on the documentation of John Griffiths. Lately, Schlingloff identified this episode as Kalyakarín's adventures. The boat is painted with eyes at stem and stern and has a pillared cabin in the middle. Schlingloff has suggested that the boat had three masts and same number of sails.⁽¹⁸⁾ To the left of this is shown a sinking ship and only one end is visible above the water. The parallel running lines suggest the planking of the ship. The crew of the ill-fated ship has jumped into the water and struggling to survive.

An episode from *Purna-Avadana Jataka* is painted in cave No. 2.⁽¹⁹⁾ The ship has three masts with rectangular or oblong sails, bowsprit and a jib sail, suggesting it is sailing in the sea. (Fig 10) Two small platforms project fore and aft and a small canopy and two steering oars are shown at the stern fitted in sockets. Towards the stern a low cabin is located. Stem and stern are pointed and end in a rounded head. Under the awning are kept a number of jars, and an eye is painted on the bows. The sea is represented with various kinds of fish.

There is another mural in Cave No. 17 showing two small boats with three masts. Two men holding ropes suggest some sort of diving in the sea. The wreckage of a boat by the striking of the boat against a coral reef can be made out. Some men may be seen in the wrecked boats. The hull of the ship resembles a bowl or a basket, and the bottom is slightly curvilinear.⁽²⁰⁾ They were suitable to use in lagoons and near coral reefs. In one of the boats there are two men, one holding in his hands a box tied with a string, evidently containing jewels (*ratna*), which they have retrieved from the sea (*ratnakara*).

The scene was misinterpreted earlier.⁽²¹⁾ It depicts the retrieval of corals from the depths of the ocean which are shown at the bottom of the water. A monster, painted red, has swallowed one arm of a man who had fallen into the sea and seems to be entangled in the weeds. Another monster is chasing a man who had also fallen into the sea. The depictions of mon-

sters suggest dangers involved in retrieving corals. Some large fishes, like sharks which are found around coral reefs in the Indian Ocean, are shown around the boat.⁽²²⁾

Pallavas, who ruled in south India, were a great sea power on the Corromandel coast. They sent voyages to Sri Lanka and other countries across the sea. The Rajasimha and Nandivarman Pallava of Kanchi issued coins having a ship motif on their reverse with two masts. Finding of these coins at Khuan Luck Pot in Thailand leaves no doubt that the Pallavas had maritime trade and contacts with these countries. These coins throw light on contemporary ships with two masts which closely resemble those represented on the Satavahana coins. The stem and the stern of these ships are upturned and raked. At the stern end a pair of steering oars is depicted. These representations of ships suggest that not many changes had occurred in the shipbuilding techniques over the centuries.

The ships on the Andhra and Pallava coins seem to be similar to the Masula and Dhoni boats which still survive in southern India. Such comparative study of ancient ships in Indian art with the surviving traditional crafts may provide valuable information about their shape, size and carrying capacity. We also know about their seaworthiness, and moreover it helps us to understand the antiquity of the traditional boats.

There is a good representation of a ship with sails in the cave No. 7 at Aurangabad dated to 7th century. It is one of the best representations of a sailing ship in sculptural art.⁽²³⁾ The bow is upturned and the stern comparatively low. At the rear end it has a long and wide steering oar. The two masts of the ship are supported by stays. A sail is shown filled with wind on the fore mast. The ends of the thwarts coming out from the sides are also shown. Despite the hard rock on which the ship is carved the artist has tried to show the details as well as the depth. The litany of Avlokiteswara is carved in bas-relief but the artist has successfully tried to give greater depth by carving the prow away from the rock.

A ship with a single mast is depicted in a sculpture found at Ratnagiri, Orissa, datable to 8th century AD. The litany of Tara carved on a sandstone slab is at present housed in the courtyard of a Buddhist monastery. The lowermost panel at her right shows a ship jumping on the waves. The stem of the ship has risen dangerously and the ship is about to sink. The mast amidships is secured with stay and backstay. Three sailors onboard are shown offering prayers to goddess Tara to rescue their ship. A steering oar is carved at the stern.

Four hero stones in the village of Eksar near Mumbai are carved with naval ships. Although they are damaged extensively, they represent some very good examples of ancient ships datable to 11th-12th century AD. Some of these hero stones are also inscribed but not legible now. The first hero stone is decorated with four bands of carving. The lowest band shows five naval ships with masts with the chief's ship at the end. They are manned with archers and shown advancing for battle. The second bend also depicts four ships which are perhaps part of the fleet shown in the lowest bend.

The second hero stone is decorated with eight bands of carving, but the upper portion has been damaged. The lowest bend of this hero stone depicts eleven ships. (Fig 11) They are more or less the same as depicted in the first hero stone. They are also shown advancing to meet a ship crowded with troops armed with spears and shields. In the second bend five vessels are shown advancing from the left to meet a galley which is approaching from the right. The fleet seems to disable the galley as its crew is depicted throwing themselves into the sea. One line inscription on this stone is datable to 11th or 12th century AD. In the third bend are shown nine ships of a fleet on their way back.



Fig. 1

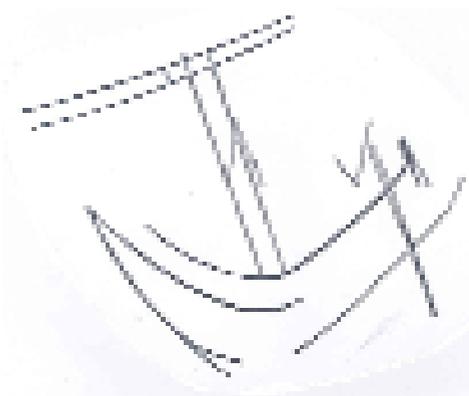


Fig. 2

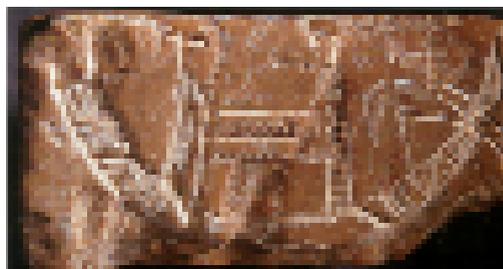


Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7



Fig. 8



Fig. 9



Fig. 10



Fig. 11

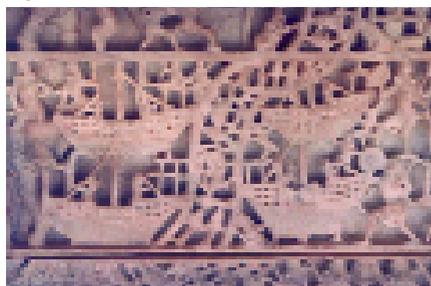


Fig. 12

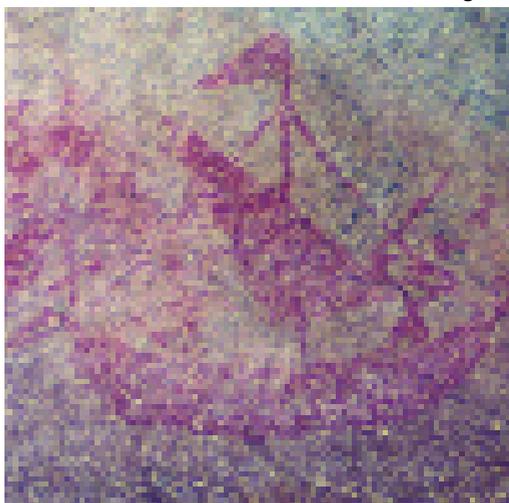


Fig. 13

The third hero stone is decorated with four bends of carving. In the lowest bend six ships with masts and oars are shown. A ship with a poop and parasol is the chief's ship. The second bend depicts a naval battle. Six ships from the left and three ships from the right are shown advancing towards the centre where the sailors onboard are depicted falling into the water under distress. Over the central ship heavenly damsels float bringing garlands for the warriors. On the fourth hero stone there are only two bends of sculptures. In the lower panel a naval battle is depicted. Those who die in the battle are shown in heaven in the upper panel.⁽²⁴⁾

The ships represented in these hero stones are more or less of same type but vary in size. They have a mast secured with stays, but at the same time 9 to 12 oars are shown on one side. During the normal course these ships might be using sails. During a naval battle a ship needs to be moved fast with precision, therefore oars were used. The oars are represented passing through the holes located below the gunwale. In some of the ships a row of rowers' heads is visible. This suggests that the ships had multiple decks. The lower deck was utilised by the rowers for rowing the ship whereas the upper deck was used by the warriors to launch an attack.

A ship carved in the Shiva temple at Tirumangalam, district Tiruchirapalli, Tamil Nadu, is datable to 11th century AD. It has upturned stem and stern. The shape of the boat resembles the Vattai which are used on the Tamil Nadu coast. High waves depicted below the boat indicate that it is a sea-going vessel.

Some good representations of boats and ships are found in Orissa. Those depicted in stone sculptures found at Puri, Bhubneswara and Konark are of a similar type. They were quite big in size carrying even elephants, but no mast or sails are shown.

A number of hero stones carved with naval battle scenes have been found in Goa. They depict a variety of ships and boats. A hero stone found at S. Lourence shows three ships engaged in a battle. The hull of the ships is crescent-shaped with a number of arrows like oars. The warriors have swords and shields. The hull is stylized but the numbers of oars suggest them to be long ships. Another hero stone show three ships engaged in a naval battle. The one at the centre is shown complete. It has a raised platform amidships, high poop-deck and long rudder. It seems to be a big ship as a number of oarsmen are shown rowing the ship.

The famous Jain temples at Delwara, Mount Abu, have six ships represented on the ceiling of Luna Vasah. (Fig 12) The temple is dated to 1231 AD. The ships carved in white marble have a thick central mast supported by stays. There are a number of sailors onboard. They are big sailing ships with several decks and high tonnage. The hull is well shaped and high with railing all along. These representations show multi-decked ships. Two other ships with single masts and a number of sailors seem to be passenger ships.

Two sailing ships of the historical period have been found painted in a rock shelter near the village of Chamardi in Bhavnagar district of Gujarat. The details of the ships painted here exhibit acquaintance of the painter with sailing crafts. Both the ships have a single mast and a lateen sail. Anchors are shown hanging from the prow. One of the ships has a rudder and also helmsman at the stern. A warrior holding a shield and sword is also shown standing at the prow. The bigger vessel has high upturned stem and stern. A flag is flying at the stern post. A long and narrow triangular flag is also depicted on the masthead. The mast is supported with stay, back stay and shrouds. The other ship is smaller in size (Fig 13) with a triangular flag at the masthead. These ships have all the features of sea-going vessels and might have been used

in maritime trade with western countries.⁽²⁶⁾ It is the only rock painting which exhibits sailing ships and a ship with a rudder.

The evidence provided in ancient Indian art can be corroborated by other archaeological and the literary sources. Study of these representations become more important and useful with the supporting information in ancient literature. Certain descriptions in ancient literature indicate existence of a variety of sailing ships, referring to their names and details of the voyages. The representations in art along with contemporary literature provide a volume of information and may throw light on ancient sailing ships of the Indian Ocean.

Though, it is difficult to recreate a complete picture of an ancient ship by studying a single representation, pictorial evidence is sometimes very reliable. The medium of art is also a very important factor in the study of ancient art. Use of different mediums may create a vast difference. A clear difference can be seen in the representation of ships in the sculptures and the paintings of the same period at Ajanta, the place that provides a number of ship representations in two different mediums – bas-reliefs carved on the rock surface and paintings drawn on the walls of the caves.

The representations of sailing ships in ancient art are often nearer to reality. Before studying a ship and its detail, one has to consider several aspects to determine the authenticity of the information, the medium of the art, episode narrated, purpose of depiction, etc. Study of ancient art, when corroborated with other archaeological and literary evidence, generate useful information about ancient sailing ships of the Indian Ocean.

These representations whether sculpture, painting, seal or a coin can be chronologically determined. Besides date these representations are often nearer to reality if not stereotyped. Visual art also helps in studying a ship in detail, its hull, superstructure, steering gear, type, building technique, capacity, and so on. With the help of archaeological evidences, literary references and the study of these ancient representations, attempts are made to understand ancient shipping. A systematic study of these representations from marine archaeological point of view may generate considerable information about the antiquity of sailing ships of the India Ocean.

Footnotes

1. Tripathi, Alok (1997) *Ships in Ancient Indian Art – A Study and Photo-documentation*, Nehru Trust for the Indian Collections in the Victoria and Albert Museum, New Delhi (Unpublished Report) pp. 81-82.
2. Neumeyer, E. (1993) *Lines on Stone – The Prehistoric Art of India*, New Delhi, p. 297.
3. Mackay, E.J.H. (1939) *Further Excavations at Mohenjodaro*, Vol. 2, Archaeological Survey of India, Delhi, pp. 340-341, 656-657.
4. Ratnagar, S. (1981) *Encounters - The Western Trade of the Harappans*, Delhi: Oxford University Press.
5. Chandra, M. (1977) *Trade and Trade Routes in Ancient India*, New Delhi: Abhinav Publications.
6. Joshi, Jagat Pati and A. Parpola, ed. (1987) *Corpus of Indus Seals and Inscriptions* 1, Collections in India, MASI.86, Archaeological Survey of India, Helsinki, p.90. Vats, M.S. (1940) *Excavations at Harappa*, Archaeological Survey of India, Delhi, I 318,341, II pl.XC, 223. Konishi, M. (1985) 'Notes on the Harappan Boats During the 3rd-2nd Millennia B.C.', in S. Sastri, ed., *Manjusha*, Bangalore, pp. 145-153.
7. Rao, S.R. (1973) *Lothal and the Indus Civilization*, Bombay: Asia Publishing House; (1979) *Lothal – A Harappan Port Town (1955-62)*, Vol. I, Archaeological Survey of India, New Delhi, pp. 225-226; (1985) *Lothal – A Harappan Port Town*, Vol. II, Archaeological Survey of India, New Delhi, p. 505.
8. Heyerdahl, T. (1980) *The Tigris Expedition*, London.
9. Tripathi (1997) *ibid*, pp.81-82.
10. Marshall, J. and Foucher A. (1982) *The Monuments of Sanchi*, 3 Vols., Delhi: Swati Publications, pl. LXV, LI.
11. Fergusson, J. (1971) *Tree and Serpent Worship*, Delhi: Oriental Publishers, p. 188, pl.68.
12. Kasinathan, N. (1996) 'A preliminary Report on Excavations at Alagankulam,' in K.V. Ramesh, et. al., ed.,

Gauravam, New Delhi: Harman Publishing House.

13. Mookerji, R.K. (1912) *History of Indian Shipping and Maritime Activity*, London: Longmanns.
14. Chandra (1977) *ibid*.
15. Sarma, I.K. (1991) 'Rare Evidences on Maritime Trade on the Bengal Coast of India', S.R. Rao, ed., *Recent Advances in Marine Archaeology*, Dona Paula: Society for Marine Archaeology.
16. *Indian Archaeology 1997-98 - A Review*, Archaeological Survey of India, New Delhi.
17. Dhavalikar, M.K. (1999) *Maritime Tradition of Western India*, in K.S. Behera, ed., *Maritime Heritage of India*, New Delhi: Aryan Books International.
18. Tripathi (1997) *ibid*.
19. Mookerji (1912) *ibid*. Chandra (1977) *ibid*. Griffiths, J. (1983) *Paintings in Buddhist Cave Temples of Ajanta, Khandesh, India*, Delhi: Caxton Publications, (Reprint). Schlingloff, D. (1976) 'Kalyanakarin's Adventures – The Identification of an Ajanta Painting', *Artibus Asiae*, Vol.XXXVIII-1.
20. Griffiths (1983) *ibid*, pl. 34.
21. Schlingloff (1976) Tripathi (1997) *ibid*.
22. Yajdani. G. (1933) *Ajanta*, Part II, London.
23. Tripathi (1997) *ibid*, pp. 125-128.
24. Tripathi (1997) *ibid*, pp. 142-143.
25. Chandra 1977.
26. Neumayer, 1993.