

## Traditional Boat-building Centres around Chilika Lake of Orissa

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### Abstract

*Chilika lake was not only a port but also a boat-building centre of Orissa. Brahmanda Purana of 10th century mentions that ships ply to Southeast Asian countries from Chilika. In course of time the lake was silted up and the port installations were of little use.*

*The traditional boat builders of the region started constructing small flat bottom craft called Nauka and Danga which are suitable for the environment because of siltation and reduce water depth. Along the whole of the Chilika region the true Nauka is the characteristic craft for passenger, cargo and fishing.*

*Information has been collected from the surrounding boat-building centres of Chilika namely Pathara, Soran and Nairi. However, in this paper an attempt has been made to describe the technical terms, construction pattern and distribution of Nauka in the Chilika lake region.*

### Introduction :

The glimpses of maritime history of Orissa anciently known as Kalinga are well known to one and all, but the ancient boat - building centres are little known. The general hurdle before us is the lack of archaeological data concerning boat building technology in India and neighbouring countries. Hardly any work has been done in this field. The only way of tracing the historical development and origin of boat-building technology in India will be through the understanding of the prevailing traditions in the peninsular India and the boat motifs found on the seals, sealings, coins, temples, and manuscripts. The description of boat-building and related subjects are available in *Yuktikalpataru*, *Samarangana Sutradhara*, *Tilakamanjari*, *Acaranga Sutra* and in *Arthasastra*. With the development of new technologies the traditional boat-building industries are not only neglected but have also collapsed.

The recorded stages of ship-building i.e. from construction to sailing and other technical aspects are few and far between. In the present century, a few boat-building centres only exist in some pockets of the peninsular India.

**Methodology :** The paper is the outcome of the field study in the Chilika region. Here an attempt has been made to analyse the technical details of flat bottom planked boats of the region such as construction pattern, navigational techniques, capacity of carrying the cargo etc. The factors that forced the builders to change their construction techniques from sea going vessel to planked boat are discussed here. No sea going vessel of large scale is constructed in the region at present.

Chilika lake, the largest tidal inlet on the east coast of India (Lat 19° 45'N and 85° 20'E) is about 64 km long and 13.5 km wide. Among the boat building centres of

Orissa, Chilika played a great role. Port Corina of Kalinga is also reported to be a ship building centre on the east coast of India, (Hornell 1920).

#### **Chilika as a Port :**

In ancient times Chilika lake was a busy port and an excellent harbour for anchorage, (Mookerji 1912). It was deep enough and had a wide open mouth connected to the sea providing easy access for the boats to enter for berthing. *Brahmanda Purana*, mentions that Chilika has been used to provide shelter to thousands of big sea going vessels. Ships set sail from Chilika to Bali, Burma, Ceylon, China, Java, Sumatra and other places, (Das 1975). Various types of boats such as Bhelaka, Variratha Nauh, Tarikah, Plavah, Tarandhuh, Vahanah, Tarndah and Varirath were in use in coastal Orissa during Ganga Period in 11th century AD, (Sah 1976).

The Department of Archaeology, Govt. of Orissa in a survey in the surrounding regions of Chilika collected a number of palmleaf manuscripts mentioning the details of boat-building such as, how to lay the keel, stern, stem, ribs and cabins. The manuscript also mentions the time to start the building work, technical terms of each part and other details, (Devraj Pradhan, personal communication).

The cause for siltation in Chilika is the formation of a spit under the influence of longshore drift of sediment during monsoon. The spit closed the mouth and water became brackish, (Anand & Chandramohan 1992). In course of time the navigational activities in Chilika declined and marine trade and the sea going boat-building industries vanished. Big boats could not move in the lake safely, so the traditional builders changed their technology and constructed small boats with flat bottom but fast moving in shallow water. They are different in dimension and capacity when

compared to sea going vessels.

Even today the traditional boat builders of Chilika region are locally called *Bindhani*, *Barhais* and *Biswakaramas* (carpenters). Nowadays they build the small flat bottomed boats known as *Nauka* or *Danga*. The builders recall that their forefathers used to build sea going vessels called *Boitas* with prows decorated like duck, lion and tiger. The technology of boat-building is still known to the shipwrights but circumstances and nature do not favour their building which is a thing of the past. *Nauka* is derived from *Nau*, meaning boat or ship in the *Rig Veda*. Often *Nau* may be a dug out or a Canoe, (Macdonell & Keith 1982).

#### **Description of Nauka :**

*Sal (terminalia tomentosa)* wood is used for construction of *Nauka*, a flat bottom planked craft. It is in use in Chilika region to carry passenger, cargo and for fishing. It can stay in the lake for five to six months at a stretch and has the capacity to carry 5 to 6 quintals. *Nauka* costs nearly Rs. 15000 to Rs. 25000 at present and takes 25 to 30 days to complete the building of craft. It can be rowed by sails and paddles covering an average of 50 km. in a day at 7 km per hour. The stars help the sailors at night to know the direction and shore.

The boat builders of Chilika region are illiterate. Their knowledge of boat building has come down as a family tradition. They go by rough formulae regarding the proportion of different parts of the boat which is worth noting.

#### **Construction of Nauka :**

*Nauka* is a craft without keel, stem, stern, rib and cabin. The maximum length, width and depth are respectively 14.30m, 2m and 50 to 60 cm. The thickness of the plank is 1 1/4 inches. The dimension of different parts of *Nauka* is in accordance

with the length of the lowermost plank. All the joints are made by iron and wooden nails, but not by sewing. Nails are used at every 5" to 6" and in some cases of joints at every 3". Local builders use the hand, anguli and feet as the unit of measurement.

**Shaping of Planks:** The horizontal planks of *Nauka* are arc-shaped. The process of shaping is very easy and simple. The part of the plank to be bent is heated for certain time and care is taken to see that the plank does not burn. After a few minutes, when the plank becomes hot the plank is bent to the needed shape with the wooden posts and metal bars. The plank then becomes ready for planking.

**Planking:** The method of planking is very simple. Planks are laid edge to edge and in some cases they are overlapping. Cotton is also used to make the *Nauka* watertight during nailing. The planks on either side of *Nauka* are held together from outside.

The lowermost plank of *Nauka* is called Tali and two lowerside planks are called Dasi. Dasi is overlapped by Tali on both sides, (fig. 1). The both ends of Tali and Dasi are heated and bent upwards for 5 hands on each side. Heating is known as *Seka*. *Bedha* is the lower side and *Bahuti* is the upperside plank of *Nauka*. Dasi and *Bedha* are joined by *Khera*, which is a small narrow plank, (fig. 2). Six horizontal planks known as *Polanda* are fixed in *Bahuti* to provide additional strength. Wooden nails provided to *polanda* on outer side of *Bahuti* are known as *Khila*. A triangular plank fixed on the frontside is known as *Muhala*. The foreside is known as *Agamanga* and aft as *Pachamanga*. Both the tapered ends of *Nauka* are called as *Jata*.

**Mast and Sail:** Two bamboos are used as mast, locally called *Gudda*, they are 14 hands in length. The square sail known as *Talari* and *pala* is tied to both the masts. Mast holes are known as *Kasani Phoda* or

*Kasani Kana* made on the *Bahuti* to tie the mast. Sail is 7 hands in width and 11 hands in length and made out of bamboo slits, sack and tarpaulin. The top portion of the sail is tied to *Kandar phoda* at the tip of *Nauka*. The oar is known as *kata* and a bamboo as *Danda*, which serves sometimes as anchor. In shallow water *Nauka* is rowed by a bamboo (Fig. 3).

**Decorations:** *Nauka* is painted with coal tar to protect it from sea organisms. Red ochre and lime are used for artistic motifs. The most decorative motives are *Hansa* (swan), *Trisula* (trident), *Dali* (creeper) or *Danda* (stick) on the *Bahuti*. These motives are associated with Goddess *Kalijai*, to whom the sailors offer prayer before they set sail. The art motifs are made by chisels.

#### Technical Terms:

- 1) Tali: Lowermost plank.
- 2) Dasi: Lowerside planks (adjacent to Tali).
- 3) Khera: Plank between Dasi and *Bedha*.
- 4) *Bedha*: Lowerside plank.
- 5) *Bahuti*: Upperside plank.
- 6) *Polanda*: Horizontal plank.
- 7) *Chapundi*: Top plank provided for walking.
- 8) *Muhala*: Triangular planks meant for sitting.
- 9) *Jata*: Tip points of the *Nauka*.
- 10) *Phoda* or *Kana*: Any hole.
- 11) *Kata*: Oar.
- 12) *Danda*: Bamboo.
- 13) *Gudda*: Mast
- 14) *Talari* or *Pala*: Sail.
- 15) *Lati* or *Daudi*: Rope.
- 16) *Khila*: Wooden nail.
- 17) *Lala*: Coal tar
- 18) *Agamanga*: Foreside of *Nauka*.
- 19) *Pachamanga*: Aftside of *Nauka*.

**Nails:** Iron nails are known as Kanta made by the local blacksmiths. Four varieties of nail are used.

- (a) Ganti: to join wooden planks
- (b) Dasi Bani: to join Tali and Dasi
- (c) Khera: to join Khera
- (d) Chepa: to join Bahuti and Bedha.

**Instruments used for construction of Nauka:**

- (a) Karata - Saw
- (b) Bhahara - Drill
- (c) Bharasi - Scraper
- (d) Lihana - Chisel
- (e) Gajakhati - Wooden scale
- (f) Kalasuta - Thread
- (g) Ghasa Pathara - Stone used for sharpening the instruments

**Results and discussions :** Not only in the Chilika region of Orissa but all over India, the traditional boat-building technology is in declining condition due to the change of technology and advancement of

mechanised systems. There are hardly a few places in India such as Kakinada, Cuddalore, Beypore and Veraval engaged in construction of sea going vessel at present. Nowadays traditional boats are used for crossing rivers, coastal transport and fishing.

*Nauka* is easy to build and economical too. Cabins cannot be mounted on *Nauka* because of overweight making it difficult to ply smoothly in the lake. Wind may over turn the *Nauka*. As the wave action is less in Chilika lake, horizontal and vertical ribs are not provided in *Nauka*.

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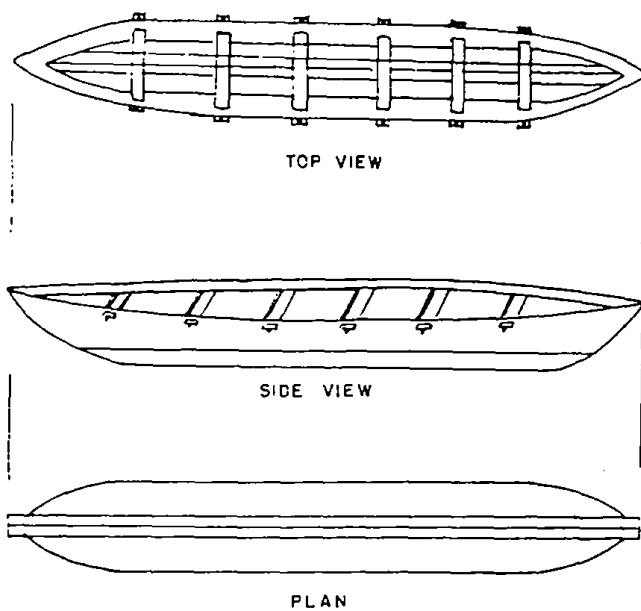
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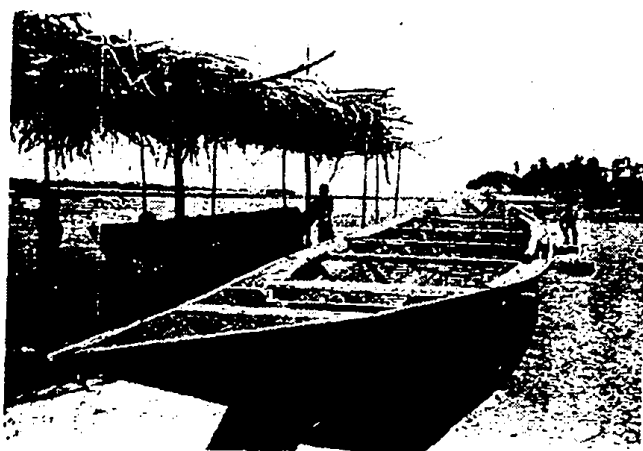
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*Fig. 1 : Joining of Wooden Plank of Nauka*



*Fig. 2 : Different Views of Nauka*



*Fig. 3 : Nauka*