

Traditional Boat Building Centres of Karnataka Coast - A special reference to Honavar, Bhatkal and Gangolly.

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Abstract

The boat building technology was started in India during Harappan times if not earlier.

The technology of boat building was a hereditary profession passing from father to son and was the monopoly of a particular caste of people known as Mestas or carpenters in Honavar. There was no written document or drawing for the builder to follow, but his ingenuity enabled him to build the right type of boat for a particular purpose without much difficulty.

In this article an attempt is made to study the history of traditional boat-building in northern parts of Karnataka, especially Honavar, Bhatkal and Gangolly. The local terms and technology adopted for building boats and dugouts are described.

INTRODUCTION

The Harappans of Indus civilization constructed the first tidal dock of the world for berthing and servicing ships at the port town of Lothal (Rao S.R. 1987). India took pride in having its own model of boats. The *Yuktikalpataru* (11th Century) deals with ship building and gives details of various types of ships. Boats built in various regions and called by different names such as *samanya*, *madhyama* and *visesha* were used for passenger service, cargo, fishing and ferrying over the rivers.

The Pali texts referring to sea voyages mention occasionally the number of passengers and the quantity of cargo carried in the ship (Rao S.R. 1987).

METHODOLOGY

This paper is the outcome of field work, carried out by the author at Honavar,

Bhatkal and Gangolly (Fig-1). The present boat building centre of Honavar is situated on the bank of the river Sharavati. The technology adopted for the boat building is more or less the same in all the three places. The smallest craft is known as canoe (*hudli*) which is scooped out of a single tree trunk. The middle sized craft is known as Boat (*doni*) which is presently used only for fishing and the biggest craft is known as ship (*machchwa*) which is meant for cargo, passenger service etc.

CANOE

The canoes are made by Indians as well as foreigners including Scandinavians (Bjorn Landstrom, 1961, 54). The technique of producing canoe is the oldest varying in shape and appearance according to need (Fig. 2). *Doni* construction is practised in Haduvinabalu, Gerusoppe near Honavar, Bhatkal and Gangolly even today and this

type is used for both inland and coastal navigation. It is made out of a single trunk of a mango tree or a jack fruit tree. The timber is cut to required size and the scooping out can be done with the help of axe, chisel and hammer. The ribs are left over as they are helpful in fixing wooden planks as a seat and to fix a mast. The front side and the back portion of the boat are used to keep the anchors etc. The Canoe is rowed with the help of long bamboo (jelle) and oars (huttu). The wooden planks are fixed either by stitching or by nailing on both the sides of the body to increase the height of the doni.

Three persons can go for fishing in a canoe about 10 to 15 km away from the shore. Their earning may range from Rs. 500 to 800 per day if the catch is good. During monsoon times they undertake river fishing. The capacity of the canoe is 20 to 30 quintals. It can also be used for ferrying goods and men across rivers. The outrigger is tied to the canoe during monsoon and also when the sea becomes rough.

In Bhatkal a special type of canoe or doni known as 'Marge' or Pathi is used for fishing. Its bottom length is 9 ft, overall length 13 ft, height and width $1\frac{1}{2}$ ft each. A wooden plank is fixed on both the sides of the body to raise the height. A small plank of betelnut palm is fixed from inside with a nylon or coir rope. No anchor is used and all the control can be done with the help of oar (thuttu). A single person can go for fishing about 10 km away from the sea shore. The daily earnings of the owner may range from Rs. 200 to 300. This type of doni is confined to Bhatkal. (Fig. 3)

BOAT

In boat building the keel 8" x 10" is laid on the ground and above that a beam 4" x 12" is placed and fixed by nuts and bolts. A beam raised upwards to form the stem in the front is known as 'nali'. The piece of beam fixed between the keel and nali is known as kurve. (Fig. 4) It gives

necessary strength to the boat. Then the skeleton is prepared with the help of tamplets. They are fixed on the beam which is placed on the keel by nailing. A slight chipping of about one inch is done on both sides of the keel. This measure makes it easier to fix the planks to the keel and gives strength and the required base to the planks. Then the planks are fixed one above the other by nailing them to the tamplet. A gum (kare) is applied on both sides of the planks after lumps of cotton are inserted between planks to hold them tight and render the boat water tight. The plank bending technology in boat building is the same as the one followed in shipbuilding. The width of wooden planks ranges from 10" to 7" and thickness from 1.5" to 2". The first plank near the keel is always broader than the succeeding planks. The ribs are fixed on the keel beam with nuts and bolts. A shelf and a *bhari* (beam) are fixed on both walls by nailing to the deck. The supporting beams are kept above the *bhari*. Wooden planks are fixed by nailing and the kari is applied for joining planks.

A shaft lock measuring 43" height 30" in width is fixed above the keel of aft. Thereafter a beam known as L piece (*thundu*) about 5 ft long, 8" to 10" thick is fixed. The engine shaft is fitted after boring the shaft lock. The rudder is fixed on the same keel to L piece and the master post rests on the L piece.

SHIP

A ship is known as *shadagu* in Kannada, and its local name is 'machwe'. Most of the ships use wind power.

Techniques of ship building:

The art of shipbuilding has been handed over from father to son for several centuries. It is practically a monopoly of a class of people known as *Mestas* or *Acharis* or carpenters. Presently the *mestas* are constructing big fishing trawlers instead of *machwas* because the demand for

machwas is reduced. There are minor differences between *machwas* and fishing boats but the same carpenters can build both.

Site selection:

During the early days the shipbuilding centres were at Karwar, Tadri, Honavar, Bhatkal, Gangolly and Malpe where the deep waters and conveniences for the construction of ship of high tonnage were available. The site selected for ship building is usually upstream of a river, where the tidal range is not high, but at the same time the site should be easily approachable by the spring tide so that the ship could be floated down the river on its completion.

KEEL

The keel or foundation beam for the ship locally known as *pattan mara* is laid on an auspicious day selected by an astrologer. When the keel laying ceremony takes place all the materials necessary for shipbuilding namely beams, planks, coir, nails etc. are kept ready.

If a keel is not of sufficient length for a ship the joining of two members is made with L shaped joint and resin made out of castor oil and chandroos with cotton is applied to joints and the parts of the keel are fixed with nuts and bolts of iron. At both the ends of the keel are joined two beams known as stern and stem. The small beams or ribs (*vanki/vanku*) are fixed on the beam fixed above the keel. The shape of the beam depends upon the shape of the ship. If the bottom is flat, the curvature of the beam is negligible and the joining portion is thicker than the extension upwards on both sides. The ribs extend in arcs upwards on both sides.

PLANKING SYSTEM

Wooden planks fixed on the outer face of the ribs are laid edge to edge one above the other upto the deck. Longitudinal members are fixed on the inner face of cross beams from stern to stem and then planked.

The first plank near the keel is always broader than the upward planks. But the thickness remains the same.

BENDING TECHNOLOGY

The planks of the ship are always arch-like after bending them. After applying castor oil they are heated and then fixed on the ribs with the help of iron rod after one hour. They are removed and cut to proper shape and fixed on the ribs and sewn.

Water proofing technology

The binding medium is a gum known as 'kare' (made out of castor oil and *chandrus* boiled to require consistency). The resinous layer is covered by cotton to render the joint waterproof. From inside, a coir lump is pressed into the joints and sewn with coir rope which passes through the holes, which are finally plugged with small wooden plugs (*berne*). Finally *chunnam* or *kari* is applied with cotton. In Maharashtra region the planking system is different. It is known as *Vadri* or overlapping of planks one above the other by making grooves in the plank edges. This technique renders the vessel watertight and holds planks firmly in position.

If the keel length is 41 ft the overall length of the ship should be 53 ft, the width 15 ft and the height 10 ft. Its draught is 4 ft 6 inch. A special wooden member known as *kurve* is fixed on the *Ari* to give extra strength to the ship and to resist shock when the ship hits a rock.

MAST

The main mast is known as 'Katimara' which is fixed on ribs (*vankis*) above the keel. It cannot be fixed directly on the keel. First a bottom support (*vastuman*) 3 ft long, 2 ft wide and 2 ft thick is fixed to the ribs. One more pole about 7 ft long is fixed in a separate hole on the *vastuman* and tied to the mast known as (*Bhoyi*) for extra strength. (Fig. 6). Some ships have a single mast (Fig. 7) and others two and more (Fig. 8). The height of the mast is fixed on the basis of

the length of the boat. If the ship should be single masted the mast is fixed in the centre, and sometimes at one third length from the bow. (Fig. 7)

RUDDER

The rudder which is meant to change the direction of the ship on the move is fixed at the back known as 'sunkant'. It is about 10 ft in height or may be equal in height to that of the ship. The width of the rudder at the bottom is 2 ft 6" and upwards it is 1 ft 9". It is tied by a rope to the supporting plank on the backside, and the handle for operating the rudder is fixed on the top of the *sunkant* known as *sunkantibahu*.

SAILS

The sails are made of cloth and are triangular or rectangular in shape. The length of a triangular sail ranges from 50 ft to 25 ft.

CARGO

Loading is done in the central portion of the ship. Planks are fixed in the front to keep anchors, rope etc. The rear is used for erecting a hut made of coconut leaves. Firewood is used for cooking on an earthen oven which is built here.

WOOD USED FOR SHIPBUILDING

The type of wood used for shipbuilding is known as *Kshatriya* which is mentioned in *Yuktikalpataru*. (Rao, 1987). In Karnataka the wood used for shipbuilding is *Matthi, sagony, teak, (Sesum Dalbargia), Honne (Bauhinia), Undi, (Calophyllu), hebbals*. Teak is used rarely because of high cost. Other varieties are available extensively in Mangalore forest.

A ship, 55 ft in length, 18 ft in width and 5 ft 6" in depth carries only 55 tons. The loading mark is made by the port officer. Overloading is prohibited and the port officer refuses permission for taking out the overloaded ship on sea.

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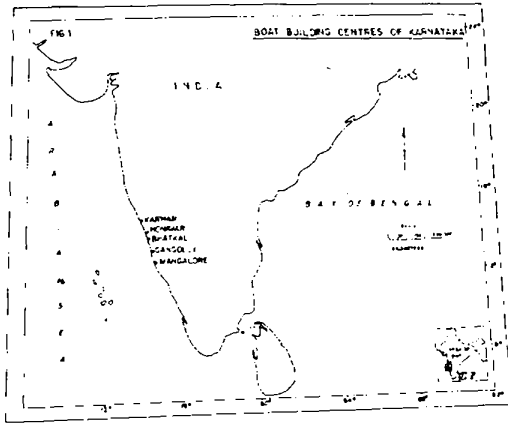


Fig. 1

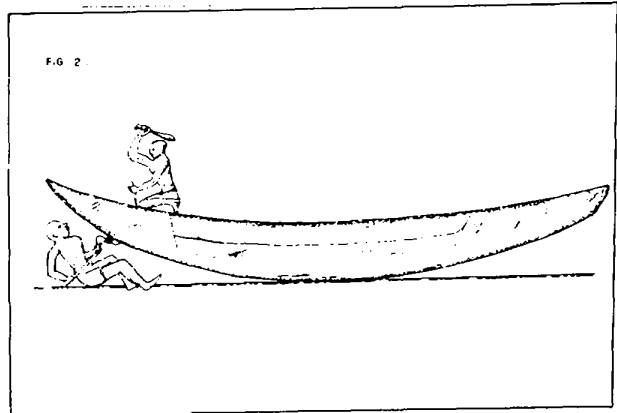


Fig. 2: Canoe

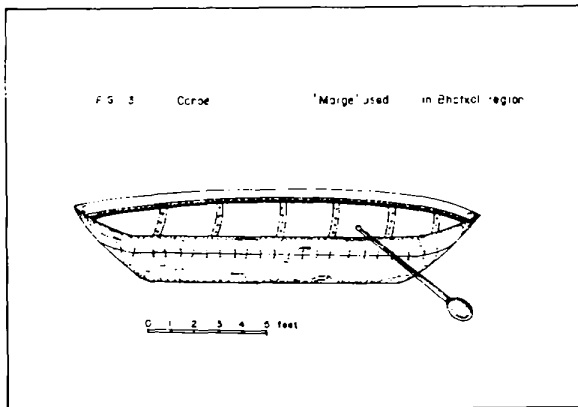


Fig. 3 : Canoe 'Marge' used in Bhatkal region



Fig. 4 A piece of beam fixed between keel and naile in the boat is called Kurva

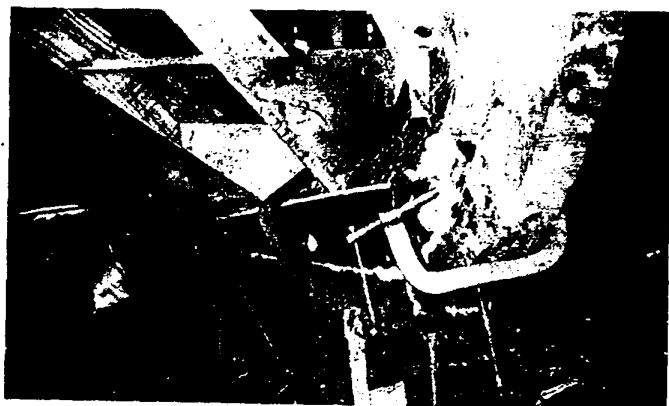


Fig. 5: Planking of the body



Fig. 6: Mast fixed on Vastuman with bhoji

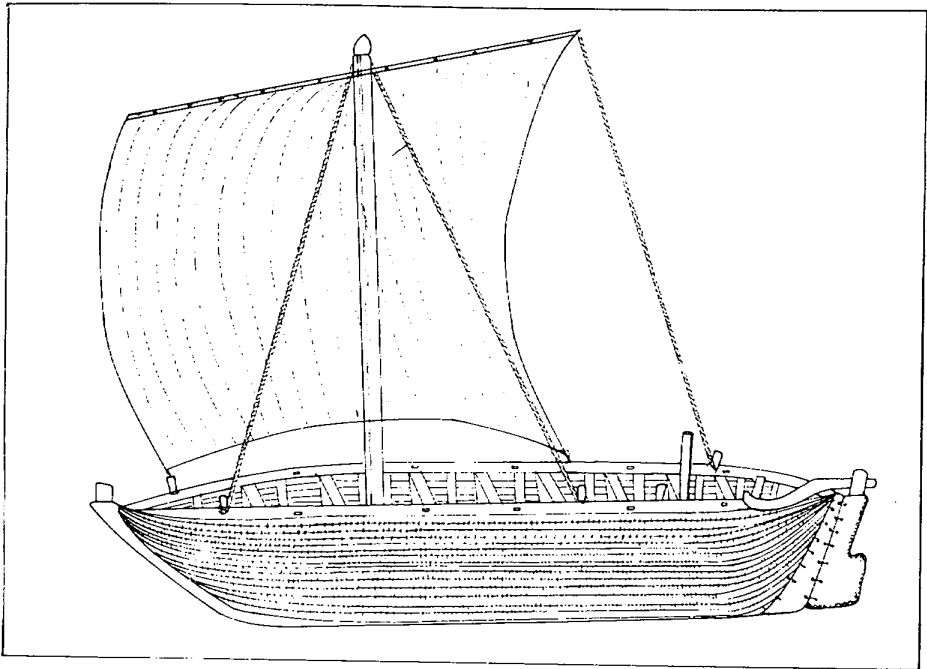


Fig. 7 : A Single most wooden ship with sail

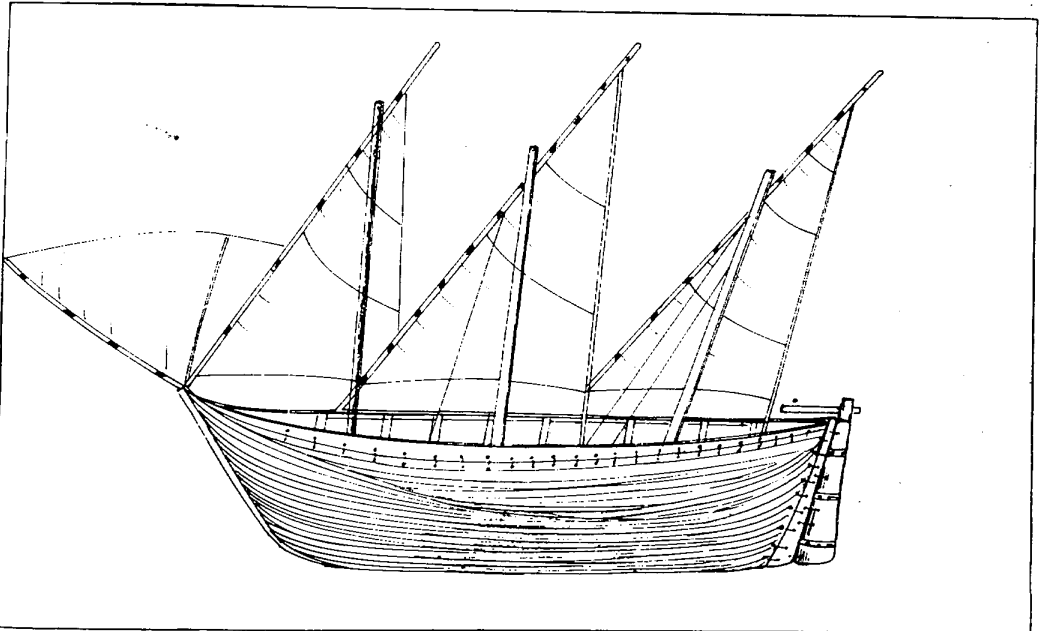


Fig. 8 : Three most wooden ship with sails