Patia of Eastern India. Vestiges of a reverse clinker tradition

Patia of Eastern India. Vestiges of a Reverse Clinker Tradition

Patia de la India del este. Vestigios de una tradición del tingladillo invertido

Swarup Bhattacharya and Lotika Varadarajan

Electronic version

URL: <https://journals.openedition.org/tc/304>

DOI: 10.4000/tc.304

ISSN: 1952-420X

Publisher

Éditions de l'EHESS

Printed version

Date of publication: 1 January 2001

Number of pages: 417-444

ISSN: 0248-6016

Electronic reference

Swarup Bhattacharya and Lotika Varadarajan, "Patia of Eastern India. Vestiges of a reverse clinker tradition", *Techniques & Culture* [Online], 35-36 | 2001, Online since 10 September 2012, connection on 29 September 2022. URL: <http://journals.openedition.org/tc/304> ; DOI: <https://doi.org/10.4000/tc.304>

This text was automatically generated on 29 September 2022.

All rights reserved

Patia of Eastern India. Vestiges of a reverse clinker tradition

Patia of Eastern India. Vestiges of a Reverse Clinker Tradition

Patia de la India del este. Vestigios de una tradición del tingladillo invertido

Swarup Bhattacharya and Lotika Varadarajan

- 1 The *patia* is a boat in which three methods of horizontal plank joinery may be found. These comprise reverse clinker, carvel and clinker. In modern times the *patia* is found exclusively in the Digha area adjoining the Subarnarekha river in West Bengal and in the contiguous coastal territory of Orissa (fig. 1). Neither the boat builders nor those who ply it demonstrate any significant markers of « modernity » insofar as systems of carpentry assemblage are concerned.

Figure 1. Distribution of *patia* in West Bengal and Orissa

- 2 However, there has been considerable innovation in the area of carpentry tools. It is significant that the absence of commercialisation in boat building is paralleled by the high degree of symbolism inherent to this boat.
- 3 The maximum length of this boat in which the reverse clinker section plays a crucial role, is 30 *hat* (1 *hat* is equal to 1,5'), 45' and the minimum 10 *hat*, 15'. The degree of overlap in the reverse clinker segment differs according to specific positioning in the hull. The reverse clinker joinery is used in the water line section of the floor of the hull, extending upwards upto points of termination at both stem and stern end regions. Professor K.S. Behera, (Head, Department of History —retired—, Utkal University, Bhubaneswar), has pointed out that both clinker and reverse clinker plank joinery are much in evidence in the Orissan boat building tradition. Because of the variations in clinker carpentry prevalent at Balasore, he feels this may have been the nuclear centre for this form in Orissa. The reverse clinker tradition is also to be found in the south Medinipur area of West Bengal. South Medinipur, in fact, enjoys an extensive common border with parts of north Orissa³. The presence of the reverse clinker tradition in this region, therefore, need elicit no surprise.

Raw Materials

- 4 The wood used in *patia* making include *arjun* (*Terminalia arjuna*), *babla* (*Acacia arabica*), *sirish* (*Albizia lebbek*), and *khirish* (*Samania saman*). *Sal*, (*Shorea robusta*) is prized but is too expensive even though the life of a boat made of *sal* is much longer than that of *arjun*. *Arjun* is the most popular choice because it is lighter and has a greater affinity for salt water. It is cheap and is available locally. The aspect of weight is also an important consideration. The littoral of the Bay of Bengal is subject to cyclones. Fishermen, who

fish at sea in *patia*, tend to shore their vessels when not in use. On occasion, safety from the vagaries of nature can be sought by dragging the boat inland over distances of as much as 100 metres. The main source of wood is that obtained from wood merchants and sawmills. The sawmills are located at Ramnagar and Kanthi at a distance of 7 km and 25 km respectively from Digha. Usually the owners buy wood of their choice from wood merchants and get these sawn into planks under the supervision of the head carpenter. The master carpenter prefers wood with the desired sap content. The wood is measured in cubic feet, called *sefti* locally. The volume of the wood is calculated on the basis of circumference of the log at the mid section multiplied by its length. The unit price (1' of circumference by 1/2' in length) is ascribed on the basis of the quality of the wood. The concept of measurement in terms of cubic feet is quite alien to the indigenous tradition⁴. Seasoning is simple. During the period of the Northeast monsoon, logs are stored under cover for drying without exposure to the sun.

- 5 Unlike the West Bengal *dingi*, which is stapled, the Orissa *patia* is nailed. Nails, *perek*, usually of between 4" to 6" in length, are procured from local hardware shops.

Organisation of Boat Building

- 6 *Patia* building is not a commercial activity as is the case with *dingi* construction at Sripur-Balagarh, district Hugli, West Bengal. Boat builders generally hail from families traditionally engaged in this activity. As such the skill content is high and linkages between patron and boat builder transcend the purely utilitarian considerations which prevail in a market dominated economy. Symbolical and ritual considerations are integral to the ties binding the boat builder to his patron on the one hand, and to his creation, the *patia*, on the other.
- 7 In Digha, district Medinipur, West Bengal, Sudhir Jana, a *patia* builder, hails from a family that has practiced this occupation for six generations. Unlike Balagarh where the fixing of staples, *jolui*, and caulking, *gaoni*, are handled by specialised groups, the master builder of *patia* assumes total responsibility for all aspects of boat building. He chooses his team and is accepted as master on account of his knowledge, managerial ability, skill, and intelligence. This kind of work organization could be taken as a parameter for assessing whether or not a particular artisanal activity can be classified as hereditary. In the case of the relatively new hybrid tradition of manufacture of the trawler at Kakdwip, Sundarbans, South Twenty-Four Parganas, master carpenters can be young and be first generation boat builders as demonstrated in the case of Kala Chand Dhali aged about thirty-eight. In Orissa, *patia* builders live in different parts of Balasore district but they maintain regular contact with coastal fishermen as well as those living along the banks of the Subarnarekha River.
- 8 The order for building a boat is procured on a contract basis which is, however, not time bound. The boat building team lives in the house of the patron who provides full hospitality. The expenses of travel are also borne by the patron. Boat building activity is carried out in the open within the premises of the owner. Although the owner is knowledgeable about the exigencies of *patia* building and lends a willing hand when required, all carpentry decisions are taken by the master carpenter who has the final say. However, this activity is extremely dependent on close teamwork. Usually the chief carpenter employs two helpers paid on a contractual or daily wage basis (photo 1).

Patias are always made to specific order. The owner defines the desired length. All other measurements are taken in proportion to this dimension.

- 9 For *Patia* Building, the wood selected is taken to the sawmill (if purchased from a stockist), or it is chosen at the sawmill itself. The master carpenter usually makes this choice. He brings a helper with him and has the wood is sawn according to his directions. A few extra planks are also included to cover possible wastage.

Bending

- 10 The first stage in the process is the bending of the planks as required. A trench is prepared, the length depending on the length of the planks which are to be bent. The fuel used comprises straw and scraps wood. The logs to be curved are covered on one side with a solution of fresh cowdung. One lump of dung is sufficient for a single plank. The dung is kept in a semi-solid state in a pot and is applied by a brush.

Photo 1. The master carpenter, Bangsidhar Gangahai, age 55 and his team at work. Bangsidhar Gangahai hails from the village of Rosolpur, Bhograi Police Station, district Balasore, Orissa. He is building a *patia* for Arjun Behra, village Paschim Godadharpur, Police Station Digha, District Medinipur. The owner's daughter has brought tea in a flask for the carpenters. Note the cloth awning above the boat

- 11 After heating, the planks are immediately taken to an adjacent place where bending is to be accomplished by means of an instrument called *meri kat*. At ground level the *meri kat* comprises a rounded log of wood, usually the trunk of palm or coconut. The ground is lightly dug out to accommodate the rounded shape. On the lower surface a section of wood is placed lengthwise supported by two blocks of wood. This acts as a kind of pivot ensuring that the rounded log will return to its central position each time the frame is turned and released. The plank to be bent is wedged beneath a frame. There is a gap of 4" to 5" between this frame and the surface of the log. One end of the plank is pushed

up by the height of the base log as it is being eased through from the lower end. The two long poles set 2' apart in an upright position serve as handles, which roll the log from one periphery to the other (photo 2). The plank may be heated more than once to ensure correct curvature.

PHOTO 2. WHILE THE HELPERS PULL THE HANDLES THE MASTER CARPENTER MANIPULATES THE PLANK AND GUIDES THE PRESSURE POINTS ON THE PLANK

Keel Laying

- 12 As has been stated the *patia*, unlike the majority of the boats of West Bengal, has a keel called *danda*. This is made from a long hard piece of wood 3" square in cross section. The lower surface is V shaped to minimise friction with water. The joinery used for lengthening the *danda* is the *dar sad* (scarf joint) of Balagarh, referred to as *khamci* or *jhinjhre khaj* here (fig. 2). Sometimes this can be further strengthened by a key, *khil*. Although the basic bending of the keel has been already accomplished through the *meri kat*, the final shaping is provided by elements in the support system of the *danda*.

Figure 2. Scarf joint, *khamci*

The Support System

- 13 Two wooden logs, *gor*, are placed on the ground just prior to the point where the upward curvature commences towards both the stem and stern ends. Bamboo poles provide support to the stem, *ani*, and stern, *picha*. The *kilti* device facilitates the upward curvature at the stem and stern ends. In this, a wedge is nailed onto the *danda*. The wedge is tied by a rope to a bamboo log driven transversally into the ground. This exercises an outward thrust to the *danda* at the desired point (fig. 3). The distance for the placement of *kilti* is measured from the terminal ends of the *danda* taken along its circumference. The positioning of the *kilti* is proportionate to the length of the *danda* as follows :

Length of <i>danda</i>	Placement of <i>kilti</i>	
	Stem	Stern
16 <i>hat</i>	6 <i>cankhor</i>	4 <i>cankhor</i>
17 <i>hat</i>	7 <i>cankhor</i>	4 <i>cankhor</i>
18 <i>hat</i>	7.5 <i>cankhor</i>	4.5 <i>cankhor</i>
19 <i>hat</i>	8 <i>cankhor</i>	4.5 <i>cankhor</i>
20 <i>hat</i>	9 <i>cankhor</i>	5 <i>cankhor</i>

1 *hat* = 18" 1 *cankhor*, the distance between thumb and little finger is equal to 9"

Figure 3. 1) *Patia*, support system, erection procedure and depth measurement. See how the *danda* is supported by the rope passing under it stretching between one peg and the other. Also to be noted is the placement of the *kilti* and its function in achieving keel curvature through exertion of an outward thrust by the rope and peg. Also shown is the method of taking the depth measurement by suspending a bamboo pole downward from the centrally aligned string, the *kali suto*, running from stem to stern. The depth of the stern will be less than that of the stem by 10 *kar*, finger widths. The inset shows that the distance a-b is equal to ten *kar*. 2) Progression in finger measurements taken as *kar*. Measurement is always initiated with the use of the forefinger, *tarjoni*. This is followed in progression by the middle finger, *modhyoma*, ring finger, *anamika*, and, finally, the little finger, *konistha*. After measuring 8 *kar* in this manner, the lower hand is removed and the middle and ring fingers of this hand are placed above the unit of four fingers already in position

Measurement of Depth

- 14 According to Sudhir Jana, Digba, after the erection of the *danda*, a string, *kali suto*, is aligned from one end of the stem to that of the stern. A bamboo strip measuring one quarter the length of the string is then made, $a-a^1$. One end, a , is positioned at the *ani*, while the other reaches down to test on the *danda* at point a^1 . The bamboo is then raised vertically at point a to cut the string at a point marked as a^2 . The same process is repeated at the stern, *picha*. However, when the bamboo is placed upwards here, a second point, b , is marked 10 to 12 *kar*, finger widths, below a^2 . The point b marks the height at this section of the stern. This position is 10 to 12 *kar*, 6 1/4" to 7.5", less than the equivalent height at the stem in a *patia* 16 *hat* in length. If 1 *kar* is taken as equal to 5/8", 10 *kar* will measure 6 1/4" and 12 *kar* can be taken as 7.5". The stem is thus higher than the stern in proportion to the length of the *danda*.
- 15 The information provided by Sudhir Jana, Digba, indicates the relative difference in depth between the stem and stern. This data is supplemented by the details obtained from Dhananjay Behera, village Udaypur, district Balasore, Orissa. This is listed below :

Length of <i>danda</i> from stem to stern	Length of string	Depth at <i>majhu</i>
16 <i>hat</i>	13,5 <i>hat</i>	3 <i>hat</i>
17 <i>hat</i>	14 <i>hat</i>	3 <i>hat</i>
18 <i>hat</i>	15,5 <i>hat</i>	3,5 <i>hat</i>
19 <i>hat</i>	16 <i>hat</i>	4 <i>hat</i>

RELATION BETWEEN LENGTH AND DEPTH

- 16 Since the *patia* is shell built all these calculations pre-determine the form to be given to the boat. Additional support is now provided to the *danda* by pegs driven at intervals of 18" on both sides at ground level. A rope is tied from one peg across to the other side from under the *danda*. It is important to note that the central section of the *patia* hull is relatively straight, the main curvature occurring at the stem and stern regions. Planks are, therefore, bent in the *meri kat* for the two end sections and joined to a flatter plank constituting the central portion of the hull (photo 3). The outer curvature is facilitated in these sections by bevelling overlaps in plank alignments.

Photo 3. View of stem curvature in *patia*. Note how nails driven through inboard are twisted outboard

- 17 After the *danda* has been fixed into position the next plank, *chapran*, approximating a keelson, is laid on the *danda*. The *chapran*, 1" in thickness and 4" to 6" in width, is fired and bent in the same manner as the *danda*. The tongue in groove joint is used in lengthening. The placement of the *chapran* commences from the mid-section of the *danda*. The *chapran* is slightly wider than the *danda* and prior to placement the carpenter rounds the edges to minimise friction. Holes are drilled from the *chapran* to the *danda* with the *turpun*, fiddle drill. Nails are then hammered out from the inner skin at intervals of between 4" to 5". As the nails are hammered outwards, these are twisted down on the outer skin. The *chapran* narrows down towards its two points of termination. Two posts are fixed at the terminal end of the *chapran*, at *ani*, stem and *picha*, stern. These posts are respectively called *ani mong* and *picha mong*. The *ani mong* has decorations on both sides while the *picha mong* is decorated only on the inner face. *Babla*, *Acacia arabica*, of the dimensions 1 *hat* in length, 7" in width, 3" in thickness, is utilised. According to Dhananjoy Behera, aged 68, in the past only the pattern of the *mali* flower was carved. In present times, Kali, the protective deity of the boat, is also to be found depicted. On occasion, holes may be found pierced through the central part of the *ani mong* and the *picha mong*. The former is used as a conduit for releasing the rope of the anchor, while the latter can be used for tying the steering oar (photo 4).
- 18 The first row in reverse clinker starting from either side of the *chapran* is called *andhli dhauri*. This is 4" wide at the central section. The overlap in reverse clinker at the centre is less than at the two ends. At the same time the plank itself is shaped and tapers towards the two ends. A section of about 1 *suto* (1/8") is removed with an adze along the connecting lower surface to provide an angular shape to the hull. The process of reducing the thickness and cutting away the surplus edge of the plank prior to joining is very slow as the surface has to be very even.

- 19 The thickness of the *andhli dhauri* is less by one *suto* than that of the *chapran*. There is a gap of about 1" to 1,5" between the two *andhli dhauri* nailed onto the *chapran*. Prior to final nailing cowdung paste is applied to the section of the *chapran* on which the *andhli dhauri* is to be placed. The *andhli dhauri* is then clamped into position (photo 5). If any sections of the *andhli dhauri* are found dotted with cowdung residue after the removal of the *jata* (clamp), these are planed. The process is repeated until there is a perfectly even alignment. In earlier times this section was luted with a fine cotton cloth but this practice has fallen into disuse. After a perfect fit has been assured, holes are bored at regular intervals by the fiddle drill, *turpun* or *bhomor*, and the *andhli dhauri* is nailed onto the *chapran*.
- 20 The same procedure is followed for all subsequent planking present in the reverse clinker section. All planks have already been bent on the *meri kat* by firing. The second line is called *dua*, the third *tia*, the fourth *couka* and so on. The section with reverse clinker planking is called *tala garon*, meaning bottom planking. The number of such planks in the *tala garon* is related to the length of the *patia*. Thus :

Length in <i>bat</i>	Number of rows (<i>dhaor</i>) in <i>tala garon</i>
16	9 to 10
17	11
18	12
	And so on

Photo 4. Hole in central part of *picha mong* used for tying steering oar

Photo 5. The two nails indicate the gap which will be maintained between the two *andhli dauli*. The distance between the two *andhli dauli* is continuously assessed by a plumb line extended from the string line above. Note the temporary clamping with the *jata* to ensure proper fitting and its further tightening by the wooden peg on the left. The wooden *jata* used in *patia* building is similar to the metal *kenchki* used in *Kakdwip*. *Dhaor* is the term used for plank

- 21 In a 16 *hat patia* the *andhli dhauri*, as well as the *dua* and *tia* are 4" wide at the central section. The 4th, 5th and 6th rows have a width of 5" while the widest section at the centre of the 7th, 8th and 9th row is 6". The width of the last row, *dantia*, is 8" (photo 6). Prior to nailing, the planks in the *tala garon* section are kept in position by clamps. Eight to ten clamps may be used for this purpose. All the planks do not extend along the full length of the keel and keelson. There is a progressive shortening in length of plank used in *tala garon* between the *andhli dhauri* and the *dantia* (photo 7). At points of the termination towards stem and stern nails are positioned transversally (photo 8). Another feature is that bevelling to a depth of one *suto* is done only on the lower face of the *danta*. The width of the hull is equal to its depth at the central section of the completed *patia*. When this measurement of width is taken from the *dantia*, at the widest section of the *tala garon* of the boat, the depth is one-third the width. Bi-lateral symmetry is maintained in course of laying the *tala garon* by means string measurements taken.

Photo 6. *Tala garon*. Note progressive increase in width and tapering towards ends

Photo 7. Note the progressive shortening in length of planks used in *tala garon* and string introduced through hole along *chapran*

PHOTO 8. TOWARDS POINTS OF TERMINATION APPROACHING STEM AND STERN ENDS NAILS ARE DRIVEN TRANSVERSALLY INWARDS, OUTBOARD TO INBOARD

- 22 On finishing the *tala garon* section, *soali*, a plank 8" to 10" in width and having a thickness of 1" is joined to the *dantia*. If the thickness of the *soali* is taken as a , the width as b , and the length as c , the corresponding dimensions of the *dantia* could be taken as a' , b' and c' . The *soali* is laid along the lower section of a on the outer edge of b' , the *dantia* running along c' (fig. 4). A certain sequence is followed in laying the planks at the *tala garon* section. Plank laying is started at the *kilti* section. However, the points at which lengthening of successive planks take place are staggered. After the construction of this section has been accomplished a different order is followed subsequent to the *dantia* plank. After the *dantia*, the planks are first laid at stem and stern ends and work proceeds progressively inwards. It is to be noted that the profile after *dantia* straightens out somewhat (see photo 3). After *soali*, the second line of planking, *dua*, is positioned. The topmost planking in this series is the *gali chato*. All the planks from *dua* to *gali chato* are clinker laid, and nailing is accomplished from outboard to inboard. The overlap in the clinker section is between 2" to 3". The vertical joint used in lengthening the planks is the tongue in groove called *sada khaj*.

Figure 4. Medial width wise depiction in *patia* plank laying. Note reverse clinker between *danda* and *dantia*, carvel in lower face of *soali* and clinker between *du soali* and *gali chato*

- 23 Before the *gali chato* is placed grooves are made on the uppermost planking and cross planks, *bari*, are positioned. Since contact with water is minimal here a different species of wood such as *babla*, *Acacia arabica*, may be used here. In fixing *bari* first the planks are cut for setting the *bari*. The carpenter then balances himself across the outer edges and drills holes. The *bari* is then nailed in. The *bari* sticks out at the stem region to protect planks from external friction (see photo 8). At the stern end, however, from where the fishing nets are thrown, these protrusions are planed down.
- 24 After the hull has been shaped and the *bari* have been fitted the floor and side timbers are nailed in. The floor timber, *bak*, are placed up to the level of the *soali* (photo 9). The side frames, *baras*, are aligned between *soali* and *gali chato* (photo 10). Both elements are nailed. In *patia* which are longer than 22 *hat* additional strengthening is provided by two to three thwarts. The *thei*, constituents of the thwart, are virtually free standing as they are positioned securely between the *bak* and *bari* (see photo 10). The thwarts support the hull against the inward pressure exercised by wave movement.

Partitions

- 25 The *Patia* is partitioned into four compartments, each serving a different purpose. Starting from the stern end the first compartment is used for the fishing net, *joal* and is called *joal gari*. The second is for storing fish, called *mach gari*. This is positioned in *majhu*, the mid section of the boat. The third, where water accumulates, is called *jal* (water) *gari*. The last compartment is called *gathi*. It is used by boatmen for rest and sleep when out at sea.

Caulking

- 26 A group called *kala pati* or *gaoni*, undertakes caulking operations. *Suto*, cotton wool, shaped into string form, is stuffed in with a blunt chisel (photo 11). There is no hard and fast rule about the practice of caulking. For some it borders on incest as the boat is taken to be a daughter. For others, caulking is legitimate if undertaken on boats constructed by others. However, it is considered a less skilful and this job fetches a lower emolument than carpentry.
- 27 Following the South Asian tradition, the *patia* is shored when not in use. In a *patia* of between 18 to 21 *hat* in length, there is a crew of seven to eight including one helmsman. A 16 *hat patia* has a crew of four comprising one helmsman, *majhi* and three rowers. The oar is called *dar*. The sail is square and a detachable mast step may be used.

Photo 9. Note positioning of *bari* and terminal *bari* at stern end. The master carpenter is assessing placement of *gali chat*

Photo 10. *Bak* placed up to the level of *soali*

Photo 11. The *gathi*, used for repose at sea

Measurements of a selected *Patia*, about 19 *hat* in length

Width		
From mid point, <i>gali chato</i> to <i>gali chato</i>	--	6' 3"
Quarter way from stern	--	5' 3"
Quarter way from stem	--	4' 8"
Maximum depth at centre	--	3' 8"

Overall length measured end to end from *gali chato* : 28' 10"

- 28 This measurement of depth at *majhu* is the actual depth measured at mid points between the two *gali chato* and not that of the same points in relation to the *tala garon* section. With regard to the depth of 4 *hat* (6') which was projected through the string measurement taken in relation to the length of the *danda* prior to actual plank laying, it is important to remember that the actual depth would be approximately half that taken in terms of string measurement.

<i>Bak a</i>	=	Length	--	4' 10"
		Breadth	--	6"
		Thickness --		1.5'
<i>Bak b</i>	=	Length	--	5' 4"
		Breadth	--	6"
		Thickness --		2 1/4"
<i>Bak c</i>	=	Length	--	5' 8"
		Breadth	--	6"
		Thickness --		2"
<i>Bak d</i>	=	Length	--	6'
		Breadth	--	6"
		Thickness --		1.5"

Floor timbers, *bak*. *Bak*, stem to centre, in *patia* (fig. 5)

FIGURE 5. LOWER FACE OF DETACHABLE MAST STEP

- 29 Four pairs of *baras* were found. These were mast step disconnected from their corresponding *bak*. The *baras* were of variable length, running down from the top of *andhli dhauri* to *gali chato*.
- 30 *Bari*, cross beam, are seven in number (fig. 6), the last being positioned at a distance of 12' from the stern post.

a =	1' 1" x 3" x 2"	d =	5' 2" x 5" x 2"
b =	2' 8" x 4,5" x 2"	e =	6' x 5" x 1 2/3"
c =	4' x 6" x 2"	f =	6' 6" x 5" x 1 2/3"
		g =	6' 4" x 4,5" x 1,5"

Quarter way from stem	--	4' 4"
Quarter way from stern	--	3' 6"
Mid section	--	3' 8"

Depth

Figure 6. Placement of *bak* in *patia*. Viewed from above

Patia Fishing

- 31 According to Sarat Pattayyat, age 66, Shahabajpur Village, district Balasore, traditional fishermen of *patia* use a net called *bhasali jal*. This *jal* is made of *monophil*, synthetic yarn. In a *patia* having a keel length of 16 *hat* the net would weigh between 80 and 100 kg. If the keel length were 23 *hat* the weight would be 150 kg. The latter would measure about 600 *bam*, one *bam* being equal to 4 *hat* or 6'. The mesh size is 3 *karah*, one *karah* being equivalent to 1.5". There is a gap of 4 *bam* between one floater (*sol*) and the next and same distance is maintained between individual sinkers (*caki*). The sinkers and floaters are placed in the same vertical alignment along each edge of the net.
- 32 This is the basic net used by the traditional fishermen. Different meshes may be used in different months as the varieties of fish differ. In the Udaypur and Sahabajipur regions, district Balasore, the yearly cycle starts with the month of *Baisakh*. During the months of *Magh* and *Phalgun*, the mesh is of 105 mm and the net is called *phas jal*. For *Asar* and *Sravan*, the mesh is of 65 to 70 mm and is used for catching small fish. This *jal* is called *ghoni jal*. Both these can be taken as variations of the *bhasali jal*.
- 33 Fishermen go out to sea under oar always keeping themselves within sight of a known landmark. The square sail is only utilised during the return journey. Fishing is usually done during high tide. When the net is pulled in the catch is placed in the *mach gari*.

Rituals

- 34 According to Sushil Kumar Acharya, near Duttapur, District Medinipur, there are three stages in boat building to mark which rituals are performed :
- 35 – *nauka gothon*, initiation of boat building ;
- 36 – *nauka chalon*, moment when the *patia* is to be shifted from the place of construction to some other place ;
- 37 – *nauka jatra*, the first launch.

Danda Puja

- 38 The meaning to be assigned to the term *puja* is that of the performance of a particular ritual or religious ceremony pertaining to the Hindu religion. The *danda puja* can be accommodated under the rituals undertaken at the time of *nauka gothon*. According to Sushil Kumar Acharya, *liko* or village astrologer, a resident of Duttapur, district Medinipur, the first stage of *danda* (keel) *puja* is *janmo dan* (Imparting Life). On finding the auspicious moment the *liko* has to find out if the *rasi*, sign of zodiac, matches that of the owner. If not some other family member will be found with the same *rasi*, otherwise another date will be identified. The matching of *rasi* is important, as this individual, for all practical purposes, will officiate as the personification of the boat for ritual purposes.
- 39 The head, *mistiri*, rather than a priest performs the rites. *Janmo dan* can also be taken as *Kali puja* (*puja* to the goddess Kali). This ritual takes place prior to the commencement of boat building operations. On the chosen day the head carpenter will make a small hole in the selected piece of wood. A little gold and silver are incised into the wood. Cow's milk, *champa* flower, *Michelia champaca*, *pada* (lotus), *Nelumbium nucifera*, marigold, *Tagetes erecta* along with other flowers, sandalwood, vermilion, *dhan*, *Orzya sativa*, *dubbo*, *Cynodon dactylon*, parched rice, rice grains, banana, *batasa* (a form of sugar) and other fruit are then ritually blessed and distributed among the participants as *prasad*. A sari with a red border and a red piece of cloth, *khaca*, are also offered. The sari is taken by the *mistiri*. However, a *supari*, betel nut, *Areca catechu*, and a one-rupee coin are wrapped up in the *khaca* and this cloth is tied around the wood where the incision was made. Prior to this the ritual form of *Kalapurush* as sketched is etched on this spot. *Kalapurush* has a connotation of the deity Shiva. At the same time it is also associated with the constellation Orion. Orion is visible overhead during the winter months, at the time of the Northeast monsoon. This is the most favoured season for maritime activities. Along with this depiction an eye is also drawn symbolically suggesting the presence here of *Sarbomongol* (All Auspicious) Durga. This is taken to be the place where Durga or Kali will take up residence. When the keel will be laid this piece will also form part of the keel. An auspicious day is chosen when the keel will be raised. On that day, water of green coconut, Ganges water, milk, flowers, *tulasi* leaf, *Ocimum sanctum*, sandalwood, ghee, clarified butter, sesame seed and other ritual items are kept on the stem post. The stem post must face the direction decreed by the almanac. The stem head is taken as the place of residence of Brahma the stern post that of Shiva while the middle section of the *danda* is the home of Vishnu. The section on which *Janmo Dan* had earlier been performed is also worshipped as Kali is taken as a very powerful protective

deity : there is no special ritual for Vishnu. However, it is believed that unless the trinity, Brahma, Vishnu and Shiva are propitiated, Kali will not descend into the boat.

- 40 *Jal Dan*, gift of water, is the next ritual to be performed. This marks the rite of *nouka chalon*. At the time of *danda puja*, the *rasi* of the *patia* had been selected. If the person who has the same horoscope as the boat happens to be of female sex, the person has to be either in the pre-menstrual or post-menstrual age group. This rite is performed when the boat is entirely finished and is to be handed over to the owner. The ceremony is also performed when the boat changes ownership. The person performing the ritual prior to transfer has to fast and a garland is to be placed on the stem. If available a second garland will be placed on the stern head. The stem and stern posts are decorated with *jhuti*, rice past, in circular dots. Vermilion is mixed with mustard oil and is also applied on the hull. The designs are made with *kusa* grass *Desmostachys kipinnata* (see fig. 5). Fruit and other ritual offerings are offered to the *ani mong* and *picha mong*, and also to the central section. In this way Brahma, Shiva, Vishnu and Kali and all propitiated. Incense sticks are lighted and conches blown at the moment when the previous owner, or his representative, pours Ganges water, milk, coconut water from a brass vessel, *ghoti*, from the stem head while the new owner, or his representative (the aspect of *rasi* plays a role here) receives this water on his/her head placed on the *danda*, keel section below the stem post (photo 12). This process is called *jal grohon* (« receiving water »). New clothes are worn on this occasion. A part of the offerings are left on the boat, the rest is distributed. This is a simple ceremony performed without complicated ritual and chanting. If the boat is not changing ownership the same ceremony is performed with the *mistiri* transfers the boat to the owner.
- 41 There is a variation in the symbolism of the rituals performed until the stage when the *patia* formally passes into the hands of the owner. The boat is created by the boat builder and the rite of *danda puja* simulates this through the ceremony of *janmo dan*. The sex of the child, the *patia*, is female and she is taken as the daughter of the master carpenter. After the completion of the *patia* it is handed over to the family of the owner, and the sense here is that of a daughter who is married and is then to proceed to the house of her husband. In Hindu Bengal this rite of passage is called *samprodan*. In the context of boat building ritual this is projected in terms of *jal dan* and *jal grohon*. It is significant that these ceremonies are accompanied by the use of vermillion paste as in a marriage ceremony. Once the boat is transferred into the hands of the owner, the relationship changes and the owner, the son, looks on the boat as his mother.
- 42 The next series of *pujas* forming part of *nouka jatra* are performed over a period of two days in the following order : 1) *gram candi puja* ; 2) propitiation of other deities ; 3) *joal puja* ; 4) *nauka puja* ; 5) *baluka puja*.

Photo 12. Placement of *bari* in *patia*. Viewed from above

Gram Candi Puja

- 43 A small pilgrimage is undertaken to the *gram* (village) shrine of Candi, a Mother Goddess (photo 13). This observance can be read at two levels. Any sacred tree can be worshipped as the embodiment of Candi, the mother goddess. The *ani mong* of discarded *patia* are placed below the tree and also worshipped. It is significant that when a boat is dismembered, all parts, with the exception of the *ani mong*, are recycled within the structures of domestic dwellings. This rite appears to be a projection of a belief in the symbiotic relationship between a living tree, the *ani mong* once the residence of Brahma and the ongoing domestic cycle of immediate activities such as the initiation of a new cycle of boat activities at sea.

Propitiation of other Deities

- 44 After *gram Candi puja*, visits are made to the local temples dedicated to Kali, Shiva and Sitala (diety of small pox) as well as the Chandaneshwar temple located in a village of the same name. (Informant : Santosh Pattayyat, Sahabajpur villave, district Balasore, Orissa).

PHOTO 13. PREVIOUS OWNER HAVING WATER POURED ONTO TO RECIPIENT REPRESENTATIVE OF NEW OWNER

Joal Puja

- 45 This is performed after the *Candi puja* and before *Baluka puja*. This appears to be an occupational rite to ensure a better catch of fish at sea. The fishing nets are carried from the home to the shore. These nets have different meshes depending on the size of the fish to be caught. The nets are laid out on the shore. At the auspicious moment the first knot is made tying two segments together. The joining procedure continues for a full day. After all the nets have been joined, two persons tie the floaters and two the sinkers.

Nauka Puja

- 46 *Joal puja* is followed by *nauka puja*. This is an extremely elaborate ritual over laid with much symbolism. In essence it signifies the cleansing of the boat, the abode of several deities. Only a few points are being described here. Ritual offerings are prepared in the house and these are brought to the shore. At the auspicious moment mustard oil is applied by the owner on the stem and stern post, on top of the *tia*, the central portion of the starboard side and on the steering oar. This is symbolical of the owner giving a bath and cleansing the *patia*. The same spots are brushed with a mango leaf, indicating teeth cleansing of the resident deities. Water is then poured, vermilion applied and garlands place on stem and stern. During this ceremony not only is the boat ritually cleansed but all presiding deities are also propitiated. After this ceremony a red cloth, *vastra*, is tied around the stem head below the hole. *Nauka puja* is followed by *Baluka puja*.

Daria, Mahakal or Baluka Puja

- 47 This is performed not only as a concluding part of the two-day ritual or *nouka jatra* but is also celebrated as an independent event when the *patia* is going out on its first fishing trip, or when the boat is going out after an interval of time. Although fishing is practiced through the year, there is abstention at certain times for a variety of reasons. The main gap in fishing occurs towards the close of *Caitra* when the nets are mended. Apart from this, *Baluka Puja* is performed once a year at the end of the month of *Baisakh*.
- 48 *Daria* is not only the term used for the sea but also carries the connotation of the Ganga, Jumna and Saraswati, the three sacred rivers. The designation, Mahakal is conferred on the trinity, Brahma, Vishnu and Maheshwar (Shiva). *Baluka* means sand. The three icons of Brahma, Vishnu and Shiva are worshipped in the aniconic form of pear shaped lumps of sand. The time for this ceremony is given by the *liko* or is determined after consulting the *panjika*, almanac. Worship is undertaken by the member of the owner's family who shares the same sign of zodiac at the time of birth as that assigned to the *patia*. The balls of sand finally disintegrate in the tidal waters and are washed away. The cycle of rituals culminating in *Baluka Puja* demonstrates that the *patia* is integrated into a whole cycle of belief systems of high ritual content. This is not to be found to the same degree in other segments of boat building activity in West Bengal. The cycle of rituals starting with Candi puja and ending with *baluka puja* simulate the chain of death (Candi puja), life in birth and maturity (*nauka puja*) followed by dissolution and rebirth (*baluka puja*).
- 49 The *patia* is essentially a boat of Orissan typology. The *chot* is the traditional boat in the area contiguous to that in which the *patia* is to be found in West Bengal. The carpentry usages of the two boats are shaped by two distinct traditions. The *chot* follows the dominant West Bengal tradition being rabbeted and stapled. Neither of these elements is present in the *patia*.
- 50 This work has been funded by the Department of Ocean Development, Government of India, and carried out at the National Institute of Science and Technology and Development Studies, CSIR, New Delhi. Facilities provided by Director, NISTADS, are gratefully acknowledged.

NOTES

3. The main centres in Orissa include villages within the jurisdiction of the police station of Bhograi. Mention may be made of Kirtonia, Ranasingpur, Bichitrapur, Krishnanagar, Padmapur, Gompharia, Sahapur, Duttapur and Narayan Mohanti Paria. Others lie scattered along the banks of the river Subarnarekha comprising the villages of Bishnupur, Baliapal, Bodapal, Rosolpur, Sahabondor, Banskhana, Lakshmipatna. Noyabali, Paschimpar, Chursara and Ekiripal. The tradition spills over to Digha, situated on the coastline of West Bengal bordering Orissa. In this study major emphasis has been placed on the documentation undertaken at the village of Paschim Godadharpur, Post Office Digha, district Medinipur, West Bengal. Unlike the Balagarh

dingi, which is essentially a riverine boat, the *patia* is well attuned to coastal waters, and, unlike the traditional boats of West Bengal, it has a keel.

4. The term *sefti* is probably derived from English, *cubic feet*, transpositioned as *se* denoting the *c* (pronounced as *s*) in *cubic* and *efti* signifying *feet*.

ABSTRACTS

The major tradition in Bengal boat-building carpentry is that of edge to edge (carvel) joinery in planks to shape the hull. The *patia*, a sea-going fishing craft of the south Medinipur area of West Bengal, is rooted in a north Orissa tradition and represents a departure from this typology. Three types of plank joinery can be identified in specific sections of the hull - reverse clinker, carvel and clinker. Unlike the other West Bengal fishing boats, which are maneuvered essentially in riverine waters, the *patia* is used in coastal fishing. This article follows the course of the boat building procedure from initiation of construction to completion. The angle of vision is basically ethno-historical. Apart from technical processes and procedures, corresponding rituals and belief systems are also described. The text is essentially based on field generated data as the subject has been little explored from this perspective in archival and published sources.

Au Bengale, la tradition navale privilégie l'assemblage des planches bord à bord (cloué) pour le façonnage de la coque. Le *patia*, une embarcation de pêche en mer, que l'on trouve dans l'ouest du Bengale, dans le sud de Medinipur, est issue de la tradition du nord de la région d'Orissa et représente le point de départ d'une typologie. Trois types d'assemblage des planches peuvent être identifiés : à clins inversé, cloué, à clins. Cet article, fondé essentiellement sur des données d'enquêtes, examine d'un point de vue ethno-historique le processus de fabrication dans son ensemble. Parallèlement aux opérations techniques, sont décrits les systèmes de croyances et les rituels associés à la construction navale.

En Bégala, la tradición naval privilegia la construcción borde con borde clavada para la elaboración del casco. El *patia*, una embarcación destinada a la pesca de altura que se encuentra en el oeste de Bengala, al sur de Medinipur, procede de la tradición del norte de la región de Orissa y representa el origen de esta tipología. Se pueden identificar tres tipos de ensamblaje de los tablonés : de tingladillo invertido, asegurados con clavos y de tingladillo invertido. Este artículo se apoya por la mayor parte en datos de investigación ; estudia desde el punto de vista etno-histórico el proceso de fabricación en su conjunto. Paralelamente a las operaciones técnicas se describen los sistemas de creencias y los rituales asociados a la construcción naval.

INDEX

Mots-clés: clin inversé, construction navale, *patia*, pêche, Inde de Test, système de croyances

AUTHORS

SWARUP BHATTACHARYA

National Institute of Science, Technology and Development Studies, New Delhi, India. This work forms part of a larger project on « Boat Building and Fishing Communities - Bengal and the Andamans »

LOTIKA VARADARAJAN

National Institute of Science, Technology and Development Studies, New Delhi, India. This work forms part of a larger project on « Boat Building and Fishing Communities - Bengal and the Andamans »