

“Winged” stem and stern in Southeast Asian lashed-lug vessels: from ethnography to archaeology

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ABSTRACT

So-called “winged” bows were among the first boat characteristics that were used to identify the expansion of shipping technologies of the Austronesian speaking people across both the Pacific and the Indian Ocean. Pioneers Haddon and Hornell were the first to recognize that small outrigger dugouts observed in East Africa shared a “winged” stem (and stern) construction with comparable boats from Insular Southeast Asia. Starting with the Butuan archaeological excavations in the 1980s, a number of much larger plank-built vessels of the first and second millennia CE have been brought to light in Southeast Asian waters that clearly belong to this “winged” technical tradition. They all belong to the lashed-lug shipbuilding tradition which is specific to Southeast Asia. This presentation will bring together the presently available evidence on such matters, with detailed observations, and a first attempt at building up a typology of such vessels.

Keywords: lashed-lug, Southeast Asian archaeology, Southeast Asian ethnography, winged stem

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INTRODUCTION

Pioneers Alfred C. Haddon and James Hornell were the first to recognize that small outrigger dugouts observed in East Africa and Madagascar shared structural characteristics with comparable boats from Insular Southeast Asia. They thus brought material evidence of early maritime contacts between the two shores of the Indian Ocean (linguistic and anthropological affinities with Madagascar had by then been recognised). They first examined the design of outriggers (Haddon 1918; 1920; Hornell 1919). Hornell, however, soon shifted his attention to what he termed the “winged” stem and stern pieces of these small boats, a possibly more stable common characteristic of crafts, built thousands of miles apart (Hornell 1920; 1928; 1934; 1944). On such small dugouts with only one or two raised side-planks, both dugout extremities are raised by attaching to them one or more blocks of wood carved out in the shape of a “winged” stem or stern pieces. In such boats, there is no need for a stem post, the extremities of the planks being fastened to these “winged” blocks of wood —at some distance from the acute-angled ends

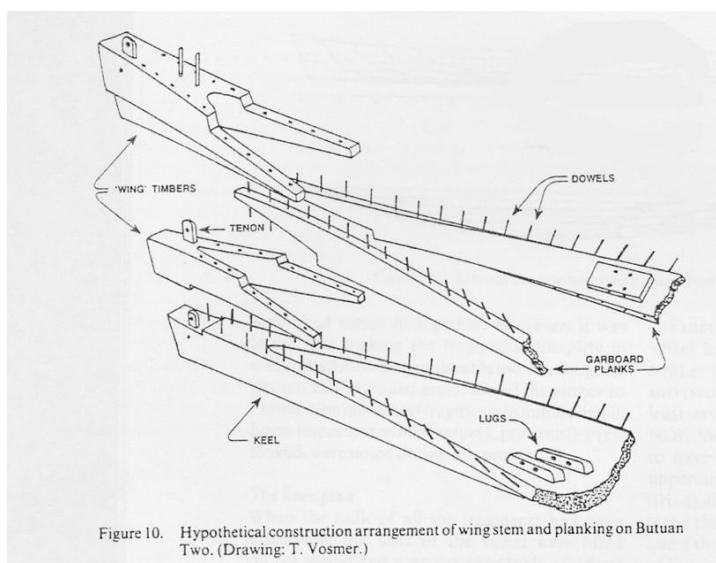


Figure 1. Butuan 2 “winged” stem (from Clark et al. 1993).

of the hull, and therefore without the need to impose a strong curvature, difficult to achieve, on the planks.

We know by now that such a design is not limited to small dugout craft but may also be found in larger plank-built boats in which the dugout has evolved into a true keel piece. Solid ethnographic work by Nick Burningham (1990) recognised and discussed such features in what he calls the “stemless craft” of Ende or the “seven- part craft” of the Bajau of Tawi-Tawi (Burningham 1990; 1992; on the Bajau *lepa*, see also Nimmo 1990). A close observation of the boats built by the Moken sea nomads living along the upper northwest coast of the Thai-Malay Peninsula, on the other side of Southeast Asia, show distinct similarities with those of the Sama Bajau of the Philippines (Ivanoff 1999). It is clear from these superficial remarks that, on ethnographic evidence alone, a considerable amount of comparative work remains to be done on such matters.

WINGED STEMS IN SOUTHEAST ASIA

Starting with the Butuan archaeological excavations in the 1980s, several large plank-built vessels of the first and second millennia CE were brought to light in Southeast Asian waters, which also clearly belong to this “winged stem and stern” technical tradition. This point was raised in one of the first systematic descriptions of one of the Butuan boats (Clark, Green, Santiago et al. 1993; see Figure 1), and discussed in much detail, after additional data was brought to light during further excavations of the Butuan boats by Ligaya Lacsina (2016).

This raises the possibility of connecting this particular boatbuilding technology with one other design that has now been firmly associated by nautical archaeologists to Southeast Asian shipbuilding, i.e. the “lashed-lug” technology. One essential task that nautical archaeologists working in Southeast Asia had assigned themselves was to identify technical characteristics that defined a local shipbuilding tradition different from those of neighbouring areas. In the early phases of nautical archaeology in the region, this was essential as most recoveries of ship timbers were brought to light as broken and dissociated fragments, after looting or during rescue operations of damaged sites (and this still happens too often). The “lashed-lug” technique is not exclusive to Southeast Asia, as already noted by Hornell (1935), but it is unique within Asia, and it has been one key identifier of the Southeast Asian origin of archaeological finds. If it is proved to be usually associated with winged stem and stern pieces, such identifications of archaeological finds (or of ambiguous textual sources) of Southeast Asian craft will be more secure, and a more reliable typology will be built up.

This brief presentation only purports to bring together new evidence presently available on such matters, mostly from Indonesia, as one assembled and many fragmented ship remains have been found in the past years, many of which could be studied at leisure. They all clearly belong to the lashed-lug tradition, and all can be associated with winged designs for stem and/or stern.

One major discovery by Indonesian archaeologists was that in Rembang (north coast of Central Java), on the beach ridge site of Punjulharjo, of a 16 m long, remarkably well preserved lashed-lug and stitched-plank boat dated to the 7th to 8th century CE (Abbas 2010; Mochtar 2018; Manguin 2019) (Figure 2). The fastenings with *ijok* ropes of the planks together and that of lugs to frames, stringers and vertical stanchions are particularly well preserved, as are the stem and the stern pieces, up to the third strake, as depicted in the following drawings. The stern and the less well- preserved stem are not symmetrical, but are clearly built following the same design. The “winged” blocks of wood are fastened not only by treenails inserted into their seams, but also by two kinds of *ijok* lashings: one passes outside of the hull, and fastens the extremity of the keel piece and the first block; the other is inside the hull, and must have been made taught by hammering in a rounded, bevelled wedge.

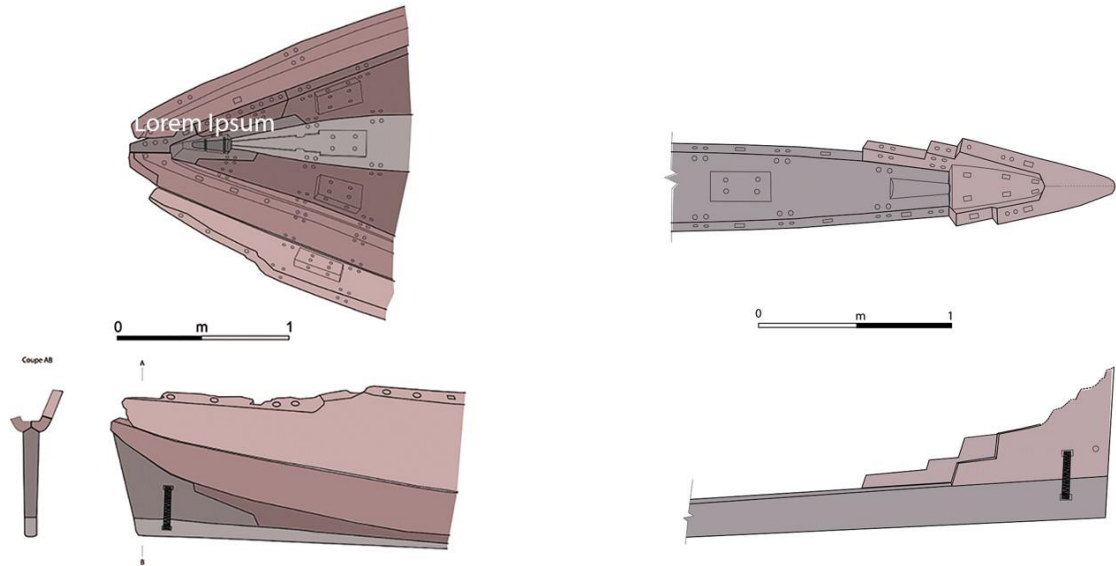
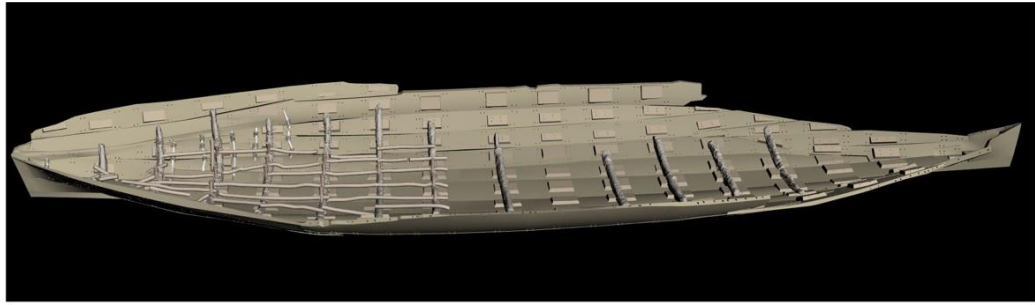


Figure 2. The Punjulharjo ship: 3D image (by Ipso Facto and P.-Y. Manguin) Stern (left) and stem of the Punjulharjo ship (drawing by P.-Y. Manguin).

Such rope fastenings of stemless stem and stern pieces have survived to this day under different guises in a few small boats (in Lamalera, Lembata, or in Jambi, Sumatra (Figure 3) (Barnes 1985; Dwyer and Ackerman 1998). Daniel G. Dwyer recently remarked that some boat depictions of Dong Son drums and of archaeological remains in Vietnam may have also used a comparable fastening (Dwyer 2015a, 2015b). Such lashings are no longer used in the Butuan boats, in line with the fact that, being younger by a few centuries, their planks are no longer stitched together with *ijok* as are those of Punjulharjo. Only treenails and tenons and mortises have by then remained in use to assemble the hull (Manguin 2022).

One rescue operation carried out in 1989-1990 by Indonesian archaeologists and the present author at Paya Pasir, which turned up to be the heavily disturbed harbour site of the 11th to 14th century CE neighbouring site of Kota Cina (North Sumatra). Only broken timbers belonging to a variety of small to large boats and ships were recovered, all of them of the lashed-lug tradition, and all dated to the period of activity of the Kota Cina site (Manguin 1989; in press).

One major find belonging to a middle-sized vessel (some 15 to 25 m) was that of a well-preserved stepped stem or stern (Figure 4, left). Contrary to what we have seen so far, it was elaborately carved out from one single block of wood that was fastened, as usual, to the extremity of a keel (now broken off). The end parts of the planks would have been fastened to the stepped wing sides by way of dowels (one or two dowel holes are still preserved on each step).

Other damaged pieces from different craft may be identified as the tapering extremities of now broken off keels, to which separate “winged” stem or stern pieces would have been attached. The twin bevelled surfaces starting after the stem or stern end are bored with dowel holes that would have maintained the garboard strakes in place (Figure 4, right). It appears that, as in the Butuan boats, no rope lashings were used to fasten the stem/stern piece to the keel (here again, in line with the late dating of these boats, none of which were of the earlier “stitched-plank” type).

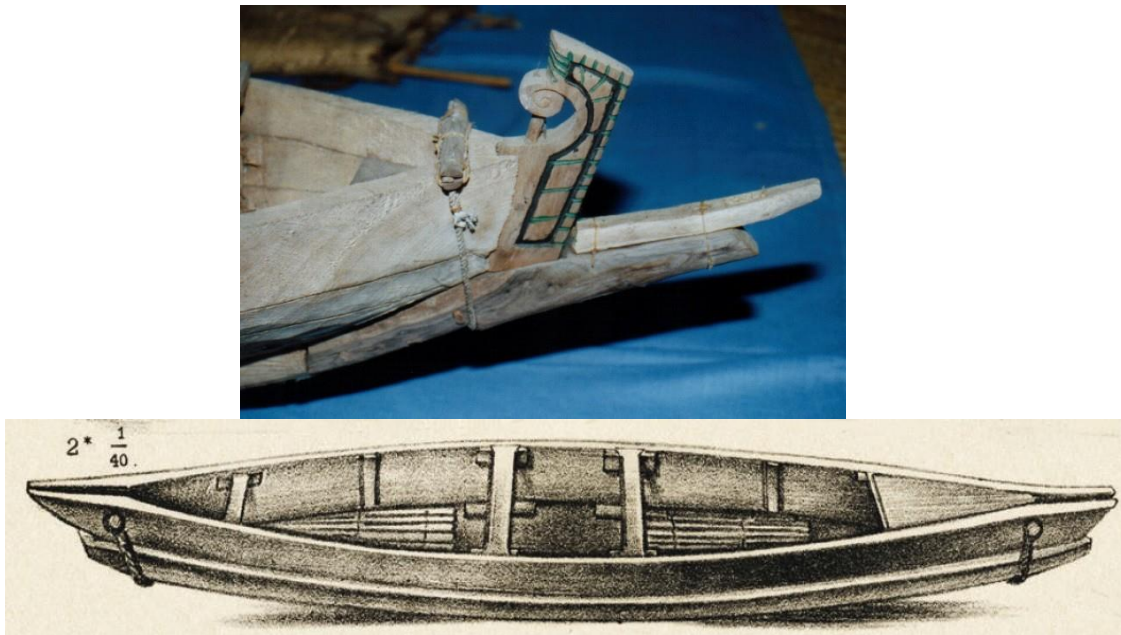


Figure 3. Rope fastenings of stem and/or stern. (top): model of a whaling boat of Lamalera (ph. Nick Burningham) / (bottom): a biduk of the Upper Batang Hari, Jambi (as drawn by van Hasselt 1882, pl. XCIV).

Other sites of Sumatra have in the past years delivered comparable remains of broken off keel pieces, all unfortunately from disturbed sites, along the shore of the Kota Kapur site (Bangka-Belitung), or at Margomulyo (Air Sugihan site complex, South Sumatra). All appear to have been fastened to similar stem/stern pieces. They have not been dated by C14, but both sites were in activity during the 1st millenium CE.

DISCUSSION

Scholars of the early 20th century, with the limited evidence they had at hand regarding the ancient shipbuilding traditions of Southeast Asian people, only considered the small boats they could then observe (dugouts with only a few raised planks). We know by now that large ocean sailing ships were built by Southeast Asians as early as the first few centuries CE, and that the boat builders of the Maldives —roughly half way on one possible route between Indonesia and Madagascar— kept building their mid-sized plank-built fishing craft in ways that clearly derive from former Southeast Asian lashed-lug technologies (Manguin 2011). It is therefore logical to conclude that those Austronesian speaking people who settled in Madagascar during the 1st millennium CE has sailed there in large plank- built vessels (Manguin 2012; 2016). This will have to remain in the realm of informed speculation, pending a systematic study of textual sources that would tell us if some of the Malagasy larger ships would show

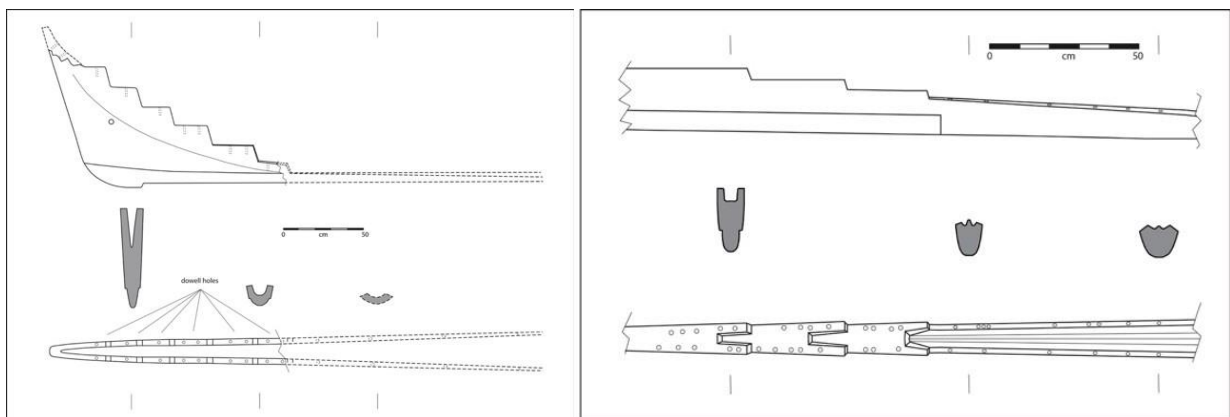


Figure 4. “Winged” stem or stern of a medium sized boat from Paya Pasir (photograph and drawing by P.- Y. Manguin; from Manguin, in press) / (right) Stepped design of the extremity of a keel piece, to which “winged” stem or stern blocks would have been fastened.

traces of Southeast Asian shipbuilding traditions, or the discovery of a relevant shipwreck in the Indian Ocean.

On more secure, if limited grounds, it now appears that the shape and the mode of assemblage stem and stern pieces following the ubiquitous “winged” design can vary considerably from craft to craft, and in different periods. It may well also have differed from region to region within Southeast Asian waters, but boats and ships being essentially mobile, it is rarely possible to ascertain from archaeological finds if the craft are locally produced or came from overseas).

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