

Boats in Indonesia

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The presence of boats, or the prahu, in Indonesia is as old as human existence in the archipelago. When early humans inhabited the caves, boats were part of their lives. Some of those caves illustrate prehistoric boats that may have been used by those who painted them or perhaps by their ancestors of several prior generations, the Australo-Melanesians who migrated from Sundaland to Wallacea, the islands beyond, in search of new livelihoods. There is a report of a boat painting in caves of the Little Kei Island in eastern Indonesia. Reproduction of the cave imprint presented by Intan (1998) shows the boat as a dugout with additional structure and projecting bows. This painting resembles the boat painting with pictures of men, animals, and the sun along with pictures of long boats called *kora-kora* found in East Timor reported by Ruy Cinatti in 1963. All those boats were single-bodied dugout canoes without outriggers, although some of them show additional construction for poles and sails or other strengthening structures (Fig. 1).

Outrigger canoes are absent from cave paintings. The outrigger boat technology is associated with the second wave of migration of Austronesians from Taiwan to Indonesia circa 2000 BCE, who brought more advanced technology than the Lapita civilization had in the eastern part of the archipelago. They might have started life in pillared houses above sea level or on their stable boats that roamed the waters before they reached Madagascar in the ninth century and spread to Polynesia until they reached Hawaii and New Zealand in the tenth century.

From the early centuries of the first millennium, the Strait of Malacca, the only passage that connected the West and the East at that time, witnessed the passing of foreign ships. Trading and envoy sending between China and India, Persia, Arabia, and Rome made the Strait a busy center of traffic. The latest archaeological findings in many places along the Strait of Malacca shipping lanes and Java Sea affirm this. Chinese historians wrote about the sea-going vessels known as Kunlun-po in the third century. The ships of the Kunlun are described as extending to 200 ft in length and standing out of the water up to 20 ft equipped with up to four obliquely mounted sails. The presence of foreign boat technologies is very influential to the development of indigenous boats in the archipelago even to this day.

The oldest evidence of outrigger boats is preserved on the impressive reliefs of the eighth-century Borobudur Temple. However, the earliest written description is found in the fifteenth-century La Galigo cycle, the world's longest epic manuscript written in the royal court of the Bugis-speaking Luwu Kingdom. The boats are described as aristocratic boats used in adventures and wars to conquer neighboring states. A story in the La Galigo that narrates the creation process of the mythical boat of the protagonist by "godly creation" indicates that the boat's body consisted only of a large tree that is hollowed out, a dugout boat. Further detailed descriptions say that they were ocean-going outrigger boats with a deckhouse structure, tripod mast, squared sails, and lateral rudder. Borobudur's ocean-going outrigger ships with additional side planks above the outrigger level were certainly dugout boats because only dugout boats with outriggers to balance because of breadth limitation restricted by the diameter of the wood log could have been used. And the side planks formed the upper structure to increase seaworthiness and thus carrying capacity. The tripod mast construction on a

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Fig. 1 A prahu painting on a cave wall in Ohoidertavun Village in Lesser Kei Island (Intan, 1998)



Fig. 2 A relief of a sea-going outriggered ship on the wall of Borobudur Temple

La Galigo boat is like the Borobudur ship but with additional technical details such as that their masts recline in the off-sail state. Borobudur reliefs were permanent poles with ladders to climb. This and the addition of the superstructure indicate that Borobudur boats were bigger than the La Galigo boats (Fig. 2).

Interestingly, the kingdom of Majapahit in the book of *Negarakertagama* written by Prapanca in 1364 claimed all known states in Sulawesi as its vassals. There are two possibilities as to what type of boat was used by Gadjahmada, the prime minister and commanding general, in conquering the eastern archipelago. It is not certain whether the fleet utilized the Borobudur boat technology or the plank boat technology which must have already existed. The first possibility is associated with the presence of outrigger boats in the eastern part of the archipelago at nearly the same time or after the conquests. The outrigger boat is still in use today by small-scale fishermen across the archipelago. Hundreds of local names are used all over the country with variations in their appearance and parts. A. C. Haddon and James Hornell documented the outrigger and dugout in their *Canoes of Oceania*. One remarkable type of outrigger is the sailing *sandeq* of Mandar. The *sandeq* has developed in size since the 1970s, and in 1990, its average length was about 7–8 m. At present, the *sandeq* that sails the open seas for fishing activities is more than 10 m long, and the dimensions would be optimized if the *sandeq* is used for racing. There are at least three variations within the *sandeq* type depending on its usage in fishing. For flying fish fishing there is the *sandeq potanga*; for fishing at *roppong*, which is a fish aggregating device, there is the *sandeq paroppong*; and for daily-short-distance fishing, there is the *sandeq pangoli*. The second possibility is attributed to the story of the origin of Lamaleran. The story goes that local oarsmen (probably the sea nomads) were sent further east and reached the Aru Islands. The small fleet went south round the back route to the west and experienced calamity, and



Fig. 3 A sandeq for fishing

the survivors then occupied the shores in Lembata Island. The current boats of plank technology in Lamalera, which is the remnant of their ancestor's wrecked ships, are very similar to the most basic plank boats in South Sulawesi, the *pajala* hull (Fig. 3).

A common characteristic of traditional plank boat construction in various ship-building centers in the archipelago is the backbone structure. The backbone is a solid structure that bears the longitudinal strength of a boat. The structure comprises the keel, the keel extensions, the stem- and stern-posts, and the strengthening clampers fixed on both sides at a length that covers the joints between the keel and its extensions. The plank pattern is also similar, and thus, the hulls are similar in form. The *pajala* and the *patorani* of Makassar, the *leti-leti* of Madura, the *mayang* of Sunda Strait, the *baqgoq* of Mandar, the *pencalang* of Java, and the *pledang* of Lamalera all share the basic hull form of what Adrian Horridge called the *pajala* hull. These are the earliest planked boats operated in the archipelago with an open hull structure (without fixed and watertight decks) with smooth curvature seen from any perspective. The plank pattern of the *pajala* hull, as Horridge observed, suggests that it is not far removed from the traditional boats of 1,000 years ago. The stem- and stern-posts are joined end to end with the keel to form a smooth continuous curve, although the bottom is flat with a negligible projecting keel. Bows and sterns are similar in shape, often turning in at a sharp angle because the planks are carved, never bent, to shape.

A Portuguese account written by Tome Pires in 1512 mentions a type of boat called *pangajavas*, which he encountered in Palembang and along the north coast of Java. Pires encountered the Bugis on their "large well-built *pangajavas*" in the port town of Malakka and learned the name *pangajava*, which means "a ship that frequents Java Island." This nomenclature is common in Sulawesi to name a type of ship based on the place it most frequently visits or the commodity it commonly catches or the fishing gear it uses. Pires then gave the name *pangajava* to all the planked boats or ships with lateral rudders and square sails, the common characteristics of all native trading ships of Indonesia at that time. Pires might have seen, in the ports of Java, the *pencalang* type, and the "large well-built *pangajavas*" might be the Makassar *biseang* used for overseas fishing and trading in that era. He described the Bugis from "Macaçar Island" as respected traders who frequented many places with their boats to Pahang and Siam and the countries between the two and Malacca, Java, and Borneo (Fig. 4).

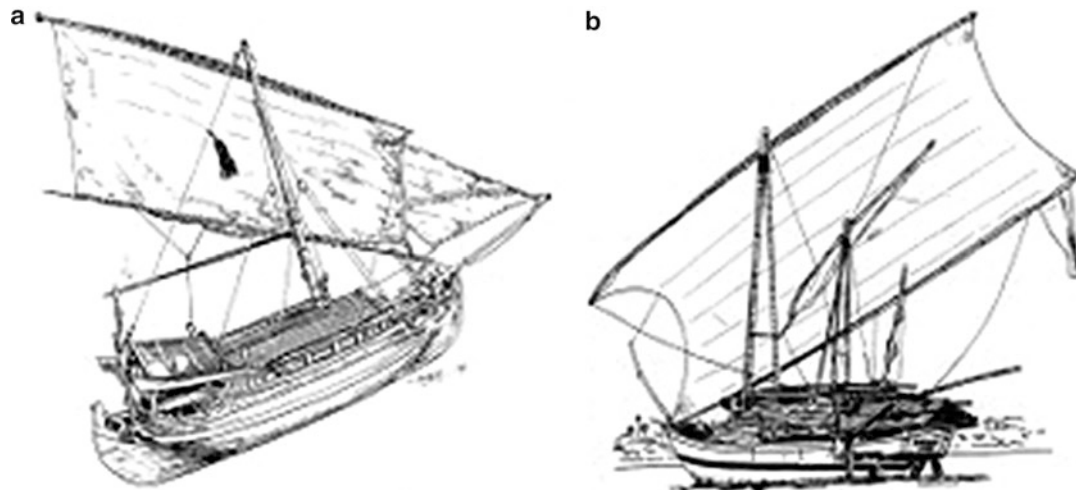


Fig. 4 A prahu pencalang (a) of the Mid-nineteenth Century (Horridge, 1986) and a Makassa trading prahu (b) (Horridge, 1985)

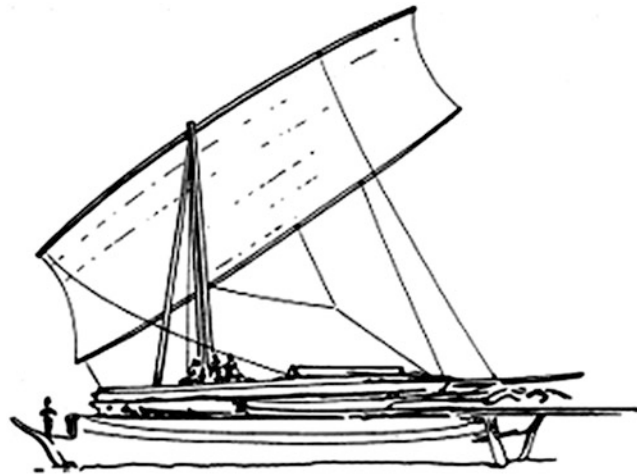


Fig. 5 Drawing made in 1803 by the artist William Westall of a Bugis prahu on the Arnhem Land coast (Horridge, 1985)

After the conquest of Makassar by Speelman in 1669, he reported in his *Notitie* the existence of the Bajaus in Spermonde Islands who “travel to all islands laying further out to sea, to gather tortoise-shell from them, which they are obliged to deliver to the King of Makassar; and moreover they must always be ready to go with their vessels in any direction they are sent, wherever the King from time to time sees some advantage.” The gathering of trepang and tortoise shell to supply the Chinese market at Makassar continued to the eighteenth and nineteenth centuries, and other ethnic groups joined in as they saw profit in it. They used to go as far as Dewakang Island far south of Makassar when the resources depleted at nearer locations, and they eventually roamed the northern coasts of Australia. Captain Matthew Flinders of H. M. S. Investigator met with a fleet of the *trepangers* (the *paqtaripang*, a specific type of *paqdewakang*) in 1803. In February 1840, Lieut. Owen Stanley on board H.M.S Britomart sketched praus, which were part of a fleet that annually fished the waters off Arnhem Land for trepang. In 1818, Phillip Parker King, an Australian hydrographer, encountered similar prahus with double tilted sails (Fig. 5).

The hull construction of a trading *paqdewakang* is similar to the hull of a *paqtaripang* except that the first is larger in size and it has additional upper structures. This is the type of boat boarded by

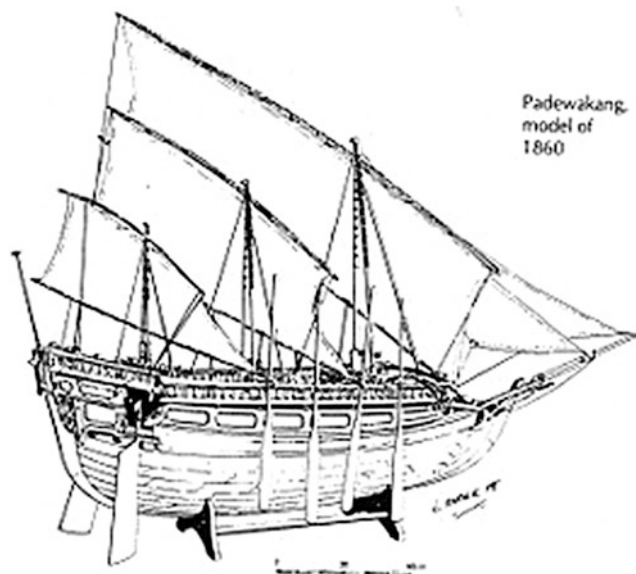


Fig. 6 Paqewakang model (Rotterdam 29568) in Horridge (1985)

Alfred Russel Wallace in his voyage from Makassar to the Aru Islands in 1856. He described the prahu as

It was a vessel of about seventy tons burthen, and shaped something like a Chinese junk. The deck sloped considerably downward to the bows, which are thus the lower part of the ship. There were two large rudders, but instead of being placed astern they were hung on the quarters from strong cross beams, which projected out two or three feet on each side, and to which extent the deck overhung the sides of the vessel amidships. The rudders were not hinged but hung with slings of rattan, the friction of which keeps them in any position in which they are placed, and thus perhaps facilitates steering. The tillers were not on deck, but entered the vessel through two square openings into a lower or half deck about three feet high, in which sit the two steersmen. In the after part of the vessel was a low poop, about three and a half feet high, which forms the captain's cabin, its furniture consisting of boxes, mats, and pillows. In front of the poop and mainmast was a little thatched house on deck, about four feet high to the ridge; . . .

The ship had two masts, which were movable tripods, a system that persisted since its use on the La Galigo boats. The sail carried by this vessel was an oblong shape just like the ones encountered by Captain Flinders half a century earlier. The sail was hung out of the center so that when the short end was hauled down on deck, the long end mounted high in the air. The foresail was of the same shape but smaller. Both were of matting and with two jibs and a fore and aft sail astern of cotton canvas (Fig. 6).

The *paqewakang* type declined in number from the 1860s onward. A new schooner type called *pinisi* emerged. The name resembles the names of European ships: the Netherland *pinas*, the British *pinnace*, and the French *peniche*. In 1935, G.E.P. Collins had the local people from Bira village build a *palari*-type schooner which had the initial hull form of a *pinisi*. A change in the hull size and the adoption of a schooner rig system on a *paqewakang* turned the ship into a *palari*, a name which literally means “runner” or “racer” owing to the improvement of its sail and rigging that makes it speedier. The idea was to increase the carrying capacity of the former trading ship by raising the hull sides and to increase speed by implementing a new schooner sail and rigging system. By raising the hull sides, the main deck became higher than the traditionally maintained stern- and stem-post level. This problem was solved by constructing *ambeng dua kali*, which are double platforms hanging under one another at the stern and at the aft by making the splashboard a wall the height of the main deck (Fig. 7).



Fig. 7 The palari built by G. E. P. Collins at Bira Village in 1935

A picture of Makassar Port in 1920 reproduced in a photo book (Scarpello & Makhfudz, 2004) from a photograph in KITLV-Leiden shows tens of *palari* at anchor among other ships with Western hulls. This picture suggests that further advancement of the *palari pinisi* into the famous *pinisi* of Bugis-Makassar in its latest form of hull had not yet taken place. The *palari* building by Collins in 1935 and the folk story about the existence of *pinisi* in the early 1940s in Spermonde Archipelago might lead to the conclusion that *pinisi*, the summit of sailing *prahu* evolution in Indonesia, most likely took its last hull shape in the late 1930s. Again, the principal difference between the new modification and its preceding types was the carrying capacity as was necessitated by the ever-increasing volume of trade. As the hull became bigger and taller, the stem- and stern-post problem could no longer be solved conventionally as in the *palari*. The stem- and stern-posts in a *pinisi* are lengthened up to the deck level, and the upper side planks are extended to be fitted to the posts at the center line. This modification thus eliminates the splashboard and the void space between it and the stem-post and makes the hull a complete round vessel. This requires the stem-post to be a little far away from the points where the upper side planks start to bend sharply inward, resulting in the forward-leaning stem-post of the *pinisi*.

Adrian Horridge describes the *pinisi* in his book *The Prahu*. The *pinisi* are partly a copy of a western schooner of the mid-nineteenth century, ranging in size from 120 to 200 t. They are recognized by their tall ketch rig of seven sails, including two topsails, three jibs with bipod or tripod foremast, and fixed gaffs. The enormous, heavy bowsprit with crossbeams and lateral boards is strengthened to support three jibs and a powerful forestay, which runs over both masts. The two lateral rudders are supported on a group of heavy beams, which run right through the stern. The deckhouse and upper part of the stern (*ambeng*) were added over an enlarged *pajala* hull (Fig. 8).

The motorized sailing *prahu* was the next transformation. The motorized *pinisi* emerged in the 1980s when the traditional *pinisi* fleet, the so-called *pelayaran rakyat* or people's shipping, was encouraged to adopt motorization. The superstructure of a motorized *pinisi* occupies half of the deck length, leaving only the foremast. There are only five sails: a main sail, a topsail, and three jibs. The engine requires a significant adjustment in the aft buttock to accommodate the engine foundation, the propeller and center rudder installations, and the engine room. Moreover, the next development resulted in an entirely new type of wooden ship, the motorized ship. Its hull is entirely of western



Fig. 8 A replica of a pinisi



Fig. 9 Motorized wooden ship now dominates shipping in Indonesia

type, and there are no more sails even for auxiliary power. The mast is now decorated with motor-powered lifting booms for loading and unloading operations (Fig. 9).

Not much is known about the evolutionary development of other boat types in Indonesia except that all types of traditional boats in the 1980s were touched by government programs of motorization. Motorization gave the final blow to the indigenous boats when they were required to adopt the western hull style halfway or totally. The backbone construction of a western hull, as opposed to traditional hulls, consists of straight pieces of wood. Joints are made at clumsy angles, which look to be stiff. The construction is built with three parts: the keel, the stem-post, and the stern-post. To put

an engine inside a traditional hull would require some construction reformation, such as a strong structure for the engine foundation, centered propeller and rudder installations, engine rooms, and wheel rooms. The traditional accommodation for the crew inside the hull became inconvenient because of engine installation, and crew cabins were built on deck behind the wheel room. Now, as the propelling function of the sails is largely replaced by the engine, the number of masts and sails are reduced in certain types and totally dismissed in other types.

References

- Alimuddin, M. R. (2009). *Sandeq, Perahu Tercepat Nusantara*. Yogyakarta, Indonesia: Ombak, Forum Studi dan Dokumentasi Sejarah dan Kebudayaan Mandar, Yayasan Ad-Daras Matakali.
- Barnes, R. H. (1996). *Sea hunters of Indonesia, fisher and weavers of Lamalera*. Oxford, UK: Clarendon Press.
- Bataona, Y. B., (n.d.). *Sejarah Lamalera*. Unpublished manuscript.
- Collins, G. E. P. (1992). *Makassar sailing*. Singapore: Oxford University Press.
- Cortesao, A. (Trans. & Ed.) (1990). *The Suma Orientale of Tome Pires and the Book of Fransisco Rodrigues* (Vol. 1). New Delhi/Madras, India: Asian Education Services.
- Haddon, A. C., & Hornell, J. (1997). *Canoes of oceania*. Honolulu, HI: Bishop Museum Press.
- Hawkins, C. W. (1982). *Praus of Indonesia*. London: Nautical Books.
- Horrige, A. (1979). *The Konjo Boatbuilders and the Bugis Prahus of South Sulawesi* (Maritime monographs and reports, Vol. 40). London: National Maritime Museum.
- Horrige, A. (1985). *The Prahu: Traditional sailing boat of Indonesia*. Singapore: Oxford University Press.
- Horrige, A. (1986). *Sailing craft of Indonesia*. Singapore: Oxford University Press.
- Intan, F. S. (1998). Geologi Situs Gua Kepulauan Kei Kecil, Maluku. *Majalah Kebudayaan*. Departemen Pendidikan dan Kebudayaan.
- Kern, R. A. (1989). *I La Galigo: Cerita Bugis Kuno*. KITLV-LIPI. Translation Series. Yogyakarta: Gadjah Mada University Press.
- Liebner, H. (2003). Berlayar ke Tompoq Tikkaq (Sebuah Episode La Galigo). In N. Rahman et al. (Eds.), *La Galigo: Menelusuri Jejak Warisan Sastra Dunia*. Makassar, Indonesia: Center for La Galigo Studies, and Research Center Hasanuddin University.
- Mattulada, M. (1991). *Menyusuri Jejak Kehadiran Makassar dalam Sejarah*. Ujung Pandang, Indonesia: Hasanuddin University Press.
- Pelras, C. (1996). *The Bugis*. Oxford, UK: Blackwell.
- Poelinggomang, E. L. (2002). *Makassar Abad XIX*. Jakarta: Kepustakaan Populer Gramedia.
- Salam, A., & Osozawa, K. (2005). Construction of Phinisi Cinta Laut: A research ship. *Jurnal Ecocelebica*, 1(3), 164–169.
- Salam, A., & Osozawa, K. (2008, September). *Technological adaptation in the transformation of traditional boats in The Spermonde Archipelago, South Sulawesi*. Tonan Ajia Kenkyu (Southeast Asian Studies, Vol. 46, No. 2). Kyoto University.
- Scarpello, F., & Makhfudz, K. (2004). *Makassar, gateway to Eastern Indonesia*. Makassar, Indonesia: Tadia Komunika Indonesia.

- Sukendar, H. (1999). *Perahu Tradisional Nusantara*. Jakarta: Departemen Pendidikan dan Kebudayaan.
- Villiers, J. (1990). Makassar: The rise and fall of eastern Indonesian maritime trading state, 1512 – 1669. In J. Villiers & J. Kathirithamby-Wells (Eds.), *The southeast Asian port and polity: Rise and demise*. Singapore: University of Singapore Press.
- Wallace, A. R. (2000). *The Malay Archipelago*. Singapore: Periplus.