

[G:RESEARCH]

“EVOLUTION THROUGH INTERACTION” REVISITED

Musings on whether, and where I went wrong

Preamble

Searching for the roots of Sri Lankan nautical cultures (Sinhala and Tamil) I began with a search for clues about the form and structure of ships and boats might have existed in the past and, if they did, what they may have looked like and how they would have been built. I searched many aspects of this fascinating and challenging area of study, before finally focusing myself on the vernacular Sinhala “Oru” and the hybrid “Thoni” of Jaffna.

I will not do more than touch on my investigations as they have been published and are found elsewhere on this site. I had already traced the birth and evolution of the log-based “Oru”, its development into a seagoing cargo ship and, finally, into a craft built of synthetic materials but which was still an “Oru”.

I had made some headway in a study of ships and nautical culture of Jaffna learning that these two major nautical cultures had existed in parallel without conflict within this island. It dawned on me, then, that the most important development of the 15th to the 20th centuries, was the impact on this peaceful scene when they confronted a totally alien nautical culture: when the basically trade-and-travel freighters of South Asia were confronted by the armed merchantmen from Europe designed to enforce a monopoly over trade and shipping. I had, earlier, argued that a process of “interaction” between different nautical cultures had led to vernacular base forms “evolving” into more sophisticated forms. Underlying this position was my assumption that such interaction was always between non-confrontational cultures (as opposed to Nations). But did this “evolution theory” hold good when our ships met those of an opposing, militant, nautical culture?

This question confronted me when I was trying to “marry” an old paper to a new one. The older, “Evolution through Interaction”, I had presented at a National Institute of Oceanography Conference at Thane, India, and dealt with the pre-colonial era. The later one, for a Sri Lankan Conference on “The Portuguese Encounter”, was built upon this foundation in an attempt to carry the argument into colonial times. The Abstract of the earlier paper is on the internet but I am not aware whether the Proceedings were published: the latter was withheld from publication by me as I was not happy with it. It had numerous shortcomings and, in short, called for a re-examination of the very validity of my thesis. Re-thinking, I came to understand the reality as described below. This understanding is presented in an essay form: no pictures, no references. Just retrospection.

Introduction

My initial premise was that, in different parts of the Indian Ocean, watercraft evolved that fitted their specific environments and purposes. Influenced, as time went on, by parallel developments in neighbouring countries, extended voyaging with the maritime neighbourhood becoming a vaster place, these local watercraft underwent change. Ships that had originated in

the different corners of the ocean met and interacted, and so did some that had developed beyond this ocean. Consequently Indian Ocean sailors came to adopt, borrow and adapt elements that had originated elsewhere, grafting them on to typically the Indian Ocean forms, some of which were limited to the islands only. This led to mutations of purely local forms. This, in brief, was where I started from.

I also noted that, in a limited region – which included Kerala, Lakshadweep and Sri Lanka (and the Andamans, marginally) – with shared links to major sea-routes, similar coastal environments, and available biological resources, a base form of indigenous watercraft resulted (the “*Oru*”) that, while benefitting from interaction, maintained an individuality. It flourished in a climate of peaceful trade and travel links in an ocean full of different types of shipping.

In the north of Sri Lanka, responding to different, more sub-continental imperatives, and influenced by the ethno-cultural links with south Indian shipping, ships developed in a totally different way.

With the arrival of the Portuguese this peaceful climate of maritime commerce was changed radically. Colonialism enforced a monopoly of trade by superior force at sea, using ships designed for the purpose. A new concept in shipbuilding impacted Indian Ocean ships, but the process of evolution continued. In time ships built for war came to be built in India: some were clones of European ships; others, hybrids of European and indigenous forms. India even became a major shipbuilding nation that eventually posed a threat to British shipyards.

A monopoly enforced by arms over trade routes relegated traditional shipping to a marginal role in oceanic trade and commerce. This occurred over some centuries but these craft continued in being, playing a low-key but significant role even in the post-Portuguese period. Denied the freedom of the seas, the old, non-opposing nautical cultures, ceased to influence each other.

Or, did they?

This exploratory essay re-examines how “evolution through interaction” impacted the *Yathra dhoni*, flag-bearer of the Sinhalese “*Oru*” culture, and the *Thoni* of Jaffna. Their fate in the face of Colonial mercantile interests forms the rest of this essay.

Pre- and post-colonial maritime trade

The prevailing maritime trade and commerce structure in mid-colonial times is best described by Johnston (1827), drawing on his experience of codifying prevailing conditions in or about 1802:

“The maritime laws and usages, which prevail amongst the Hindu and Mohammedan mariners and traders who frequent Ceylon, of which I made a complete collection while presiding in the Vice-Admiralty Court of that island, may be classed under four heads: First, those that carry on trade in small vessels between the coasts of Malabar, Coromandel, and the island of Ceylon; secondly, those which prevail amongst the Mohammedan mariners and traders of Arab descent between the coasts of Malabar, Coromandel and the island of Ceylon; thirdly, those which prevail amongst the Arab

mariners and traders who carry on trade in very large vessels between the eastern coasts of Africa, Arabia, the Persian Gulf, and the island of Ceylon; fourthly, those which prevail amongst the Malay mariners who carry on trade between the coasts of Malacca, the eastern islands, and Ceylon.

“The first are in some degree modified by the tenets of the Hindu religion and by Hindu law. The second, the third, and the fourth are modified in a great degree by the tenets of the Mohammedan religion, and Mohammedan law”

This impeccable source indicates the variety of shipping from Indian Ocean countries operating under indigenous legal systems even after this country came under British rule (1796). British rule had been preceded by some 300 years of Portuguese and Dutch control of the (Sinhala and Tamil) maritime provinces. The lack of Sinhala shipping in this account is significant: it indicates that, even though we know that Sinhala shipping did exist in trade between Sri Lanka, India and the Maldives, they were not reckoned as significant players in international trade.

It had not been so before the colonial period. In times when a strong central government had prevailed, laws administering ports and matters maritime were promulgated on inscribed tablets set up in the relevant ports. An inscription in Devundara (Dondra) in the south states (Paranavitana: 1953):

*“...apart from the levying of such imposts as have been approved by the **Maha-Pandithe**, illegal imposts shall not be levied. To those coming from foreign countries, means shall not be afforded to avoid the payment of imposts and duties that are due, which they do by establishing places of business, corrupting royal officers by means of presents and keeping with friends the merchandise smuggled from their own countries...”*

Another inscription, at Nainativu in the extreme north, states (Indrapala: 1953):

“...the foreigners should come and stay at Uratturai (Uratota), that they should be protected and that foreigners from many ports should come and gather at our ports; as we like elephants and horses, if the vessels bringing elephants and horses to us get wrecked, a fourth (share of the cargo) should be taken by the treasury and the (other) three parts should be left to the owner; if vessels with merchandise get wrecked, an exact half should be left to the owner...”

(Interestingly, this inscription, set up by a Sinhala king, is indited in the Tamil Language which was the *lingua franca*, of sailors in this region.)

But the waning power of central government weakened the hold of the Sri Lankan kings on the major ports (and Jaffna in the north) which were controlled by the by foreign traders, administering them according to their own laws. Major ports had, by then, become foreign enclaves. The “Galle Tri-lingual Inscription”, indited in China with the date corresponding to 2nd.February, 1409, and set up in the port-city of Galle some two years later by Zheng He, is inscribed in Chinese, Tamil and Persian (in Arabic characters), indicating the cosmopolitan nature of the city (Devendra: 1990). On the eastern coast, in Trincomalee, the site of an Arab

settlement in an eminently suited inlet (Nicholson's Cove) has been attested by my discovery of a graveyard containing tombstones bearing 13th. and 14th century dates. Johnston discovered one, dateable to mid 10th.century in Colombo. Ibn Batuta, visiting Sri Lanka in the 13th.century, speaks of a "Prince of the sea", named Jalasti, who held sway over Colombo commanding a force of 500 Ethiopians. Jalasti has been variously described as a powerful trader and a pirate. It was the continuation of this trend that led to the picture that Johnston paints.

Interraction with Euro-colonial nautical cultures

Sri Lanka, though having the ability to sail long distances, could lay no claim to have been a major maritime power. Undoubtedly, the nautical tradition flowered and faded, with the highest levels of sophistication being reached in the 12th to 14th centuries. Other Indian Ocean maritime nations also experienced the same phenomenon. Political developments followed a parallel course, with the advent of Euro-colonialism towards the end of this period. In Sri Lanka, the rapid collapse of central power leading to ports and coastal areas coming under the control of foreign merchants and mariners, indigenous maritime trade lost its former long reach. Even though the knowledge was not lost, the "high" technology had been reduced to a "folk" technology by the time the European powers established their power in the Indian Ocean.

The weakening of the "high" nautical tradition was linked to the political developments, notably expansion of the newly-strengthened kingdom of Jaffna which, at its zenith spread along the north-western and western coasts to Panadura, south of Colombo. Although it was not able to sustain this momentum very long, it did build itself up as a maritime power by alliances with Indian states and was able to maintain even a vitiated maritime presence in the north and north-east. The southern Sinhala kingdom of Kotte, under Parakkramabahu VI, regained its dominance and nipped in the bud the ambitions of the local rulers of Jaffna and Kandy, this dominance was not to last long, as the Kingdom of Kotte became the scene of palace revolutions.

The following description of a 20th century European traveler aboard an Arab trading ship of traditional type would have applied to any south Asian ship five hundred years ago. This would have been the type of ship the Portuguese encountered and is a useful insight before getting on to the *Yathra* and *Thoni*.

"I was crowded with something like 200 other passengers. The ship was about 180 tons, with a high poop...with a longboat cluttering up the deck, with little spare fresh water, with a small smoke-box for the only galley and a couple of small boxes slung outboard over the sea as the only bathroom and lavatory accommodation. She smelled. She rolled. She pitched. The passengers all lived on deck (except for the women who were crowded into a loathsome great cabin below the poop), and the smoke from their little fires and the clutter of their living and their cooking drifted over the whole vessel. They filled every nook and cranny, sleeping wherever they could..... Many...who were migrating either in small tribal groups or families, made up their own part of the deck...and set up house for the voyage. All prepared their own food and looked after themselves in all ways. The ship carried them, and that was the end of her obligation towards them..."

"...The 200-odd passengers lived full and eventful lives, punctuated by the five daily prayers of good Muslims and exalted by an awareness of God..."

There was no distinction between passenger and cargo ships: all were cargo ships, on which one took passage if one wanted to travel. Ships were built for trade, as boats were for fishing. After the coming of the Portuguese, some of these ships (notably Arab) armed themselves with small cannon, as a measure of self defence; but that was a later development. Ships continued to exist as cargo carriers only, with passenger traffic as a supplementary source of income. Hence ships were built as cargo carriers and nothing else. They probably had only a weather deck above a cavernous cargo space. Some covered space for essential activities and high-fee paying passengers, women or monks would have been found on some ships in the poop astern: other passengers lived on deck. Space was also required on deck for the ship's crew to handle the sails. Armament was lacking, as armed conflicts between cargo ships was foreign to south Asian nautical culture.

Were the *Yathra* and the *Thoni* like this? Almost, because the Arab ship described was one which had borrowed heavily from Portuguese models, particularly in relation to a large weather deck and a high poop astern, both of which were consistent with the huge Arab lateen sails they carried. But not quite: the *Yathra* and the *Thoni* were much more "native" in design and construction. Although the latter was very "European" from outside, both it and the *Yathra* were essentially floating cargo holds, covered over with split bamboo or woven coconut frond to keep put the rain. Deck space was limited to the bow and the stern, with a plank walkway connecting one to the other just inboard of the gunwales. There was no room for passengers unless they slept in the cargo hold. The sails and masts (main and mizzen only) did not require any more deck space for handling the sails.

The *Thoni* and the *Yathra*, though relegated to a marginal role after the ascendancy of European colonialism, yet survived providing a service to a segment of the sea-borne trade that was not serviced by European cargo ships. They survived till almost the middle of the 20th century and, in fact, it was Second World War imperatives that signaled their end. What did they look like at the very end of their days? Let me review my findings.

The *Yathra Dhoni*

Perhaps the most ancient type of indigenous sailing craft that we were able to research and reconstruct was the fore-and-aft rigged, outrigger-equipped *yathra dhoni* of Dodanduwa, a village about ten miles from Galle towards Colombo. Till the 1930s, this was a port where these ships operated from, sailing largely to coastal ports of India and Sri Lanka, the Maldives and south-east Asia. The find was, in every sense of the word, serendipitous. Its existence was known; there was a published note by an eyewitness to the sailing of the last of its kind, but no research published in English, other than that of Hornell's. Paris (1844), writing in French, has produced a much superior description and drawings than Hornell and added that this craft was common to both Sri Lanka and the Coromandel coast of India: in fact, to judge from the rounded penthouse roof he shows (unlike the typical Sri Lankan ridged roof) the craft illustrated could have been an Indian one. All other details, however, tally. Hornell had noted them but had, by some strange chance, not seen them. In a paper published in 1943 he says the last of them were seen in 1903 and 1908, adding:

"Their survival, or rather their presence on the Ceylon coast until recent years, is of great ethnological interest in view of the representation of ships related of related (?)"

outrigger design among the sculptures on the great Buddhist shrine of Boro Budur in Java, dating back to between A.D. 750 and 900."

There is a published photograph of one, by J.P.Lewis, referred to as a "Calpentyn Coaster", where the author refers to it as a surviving type. In the "Mahinda College Magazine" of June, 1936, a Senior Former, N.A.W.Arthur Alwis, writes:

"...it seems as if was yesterday that I saw the last schooner of Dodanduwa lying in the harbour. However the ship...left her native harbour for Hambantota never to return. That was in the year One-thousand nine-hundred and thirty."

I have related the story of this "Last of the *Yathras*", the "*Amugoda Oruwa*" as a short story "The Mansions of the Sea" in a collection of stories.

It is indeed puzzling why Hornell, who served in Ceylon, missed seeing these ships, though he has somehow produced a fine line drawing showing the craft in profile. He even says that the very memory of these ships is passing away. My own experience was that I had not only heard of them and heard much written and oral evidence of details in Sinhalese, but also I heard of a very faithful large model of one in a Buddhist temple at Dodanduwa. It is now in the Colombo Museum. While on a Maritime Archaeology Project in Galle Harbour, Tom Vosmer of the Western Australian Maritime Museum made technical drawings of the model. He measured the model meticulously for essential raw data, and tested the data on a computer programme for boat design and analysis. He was thus able to take the lines off, make detailed technical drawings and arrive at the sailing characteristics of the craft. My description of this craft, therefore, is not Hornell's but Tom Vosmer's (1993).

"The model examined and recorded appears to exhibit a hybrid of influences including, Arabian, Indian, local Sri Lankan traditions as well as Southeast and East Asian. As the model had been built by a boat-builder, it exhibited hallmarks of his care....In view of this attention to detail, it was thought the accuracy of the model, both in scale and detail would make a fairly reliable source for documentation."

The size of the model studied is 150 cm long, 32 cm at the point of its greatest beam and 20 cm from keel to gunwale.

*"The **yathra** are large outrigger craft, ranging to 100 ft (30m) in length but normally about 50-60 ft (15-18.3 m), carrying 25-75 tonnes of cargo usually averaging of 50 tons (Hornell 1943). Mukherjee mentions **yathra dhonis** as being about 60 ft. (18.3 m) in length with a beam of 15 ft (4.6 m). They are sewn craft, planked from **domba (Callophyllum inophyllum)**, at least two inches thick (Vitharana, 1992:69). In recent times (the 50-100 years to 1930) the **yathra dhoni** was used as a coastal trader and for voyages to India and the Maldives. However the type appears to be of ancient lineage, with Pliny (AD 23-79) reporting 'outrigger craft of large size west of Taprobane [Sri Lanka]'....."*

"The yathra can be described as double ended, with slack bilges but full mid-sections. The forward sections are only just slightly more fine than the aft sections, displaying a subtle hollow entry at the bows. The forefoot is extended forward by a

*gripe attached to the keel-stem and there is also a skeg aft to which the rudder is fitted. Both these devices would be aids to lateral stability, helping to reduce leeway and balancing the helm while sailing. It should be noted that at least one drawing of a **yathra** (Hornell, 1943:44) does not show these additions. The form of the hull shows affinities with ancient Arab and Indian craft illustrated by Paris (1841)”*

I will not quote Vosmer much more, but a few features need to be noted. He says that

“A large outrigger is fitted to the port side of the vessel...(This) is curious on a vessel which appears to possess a rather stable hull rig configuration. ...(It) is rigged as a ketch with square-headed lug sails and a jib set on a short bowsprit, a rig common to the region of the Indian subcontinent (Hornell, 1920)...The rudder is unusual in its size, enormous by most standards.”.

Details of the Cabin and Hatches show the similarity to the Jaffna *thonis* and river/canal *paruwas*: all three craft are large cargo carriers and the stowage arrangements are similar.

I do not intend going into the details of the analysis of the data that was carried out but will end this section with Vosmer’s concluding paragraph:

*“In view of the foregoing, a vessel of about 20 m in length was the size chosen for detailed analysis. The hull form of the **yathra**, with and without the outrigger, was analysed for stability, displacement, wetted surface, drag and powering requirements as well as cargo capacity for that size of vessel. The **yathra** hull alone was found to be reasonably stable as indicated by the transverse GM and RM figures (Garrett, 1987). The addition of the outrigger, however, increased the righting moment (RM) by a factor of approximately 100. It also, of course, added to the drag created, and therefore powering requirements of the vessel.”*

The *Yathra* was the culmination of the vernacular Sinhala “Oru” culture. It was unique in that it is the only known single outrigger equipped sailing cargo ship. Today, only fishing craft are built with outrigger balance logs in the Sinhala-dominant parts of the country and there are virtually no ship-builders left. Fishing craft are built by the community of fishermen themselves. Much sensitivity is aroused if one designates this community as a “Fisher” caste: the much larger “Karawe” caste regards itself a “Warrior” caste, while conceding that sub-communities within itself are the major traditional fishers of Sri Lanka. Since the “Karawe” traces its origins in Sri Lanka to a wave, or waves, of immigration five centuries or so ago, who were the shipbuilders in ancient and medieval periods? In India, there are yet many traditional craft built by traditional builders, not fishermen by occupation: they belong to the Hindu, Muslim and Christian communities in different parts of India. Among the Hindus (who are culturally most akin to Sri Lanka), they have been variously referred to as “Mestris” (Kunhali: 1993), “Mestas” and “Acharis” (Sunderesh: 1993) and “Biswakaramas” (Tripathi: 1993). The two latter are names specific to the Artisan caste. Both in India and Sri Lanka and it is tempting to believe that they were the builders of old. However, this was not so. Although the “Achari” and “Visvakarma” are names denoting the Artisan class, the names “Mestri” or “Mesti” (adopted from the Portuguese “Maestro”) is used by others to denote a master of his trade, whatever his trade be. In particular, the name is found in the Artisan caste in Sri Lanka. But one particular craft – carpentry – is not limited to the Artisan caste, but is practised among other castes as well,

including the *Karawe* caste. Probably, then, the ship-builders of the past (as now) were those who actually used the craft. Thus, in spite of sharing a (similar but not identical) caste system with India, here we come across the major difference regarding the identity of shipbuilders.

The Jaffna *Thonis*

Prevailing conditions did not favour field research in the Tamil-dominant north and the Muslim communities of the east, when I began my studies. Within the limits of my knowledge, it was the Fisher caste men of Jaffna who were the sailors of the north and it is in the areas dominated by them that the larger ships (the "*Jaffna Thonis*" and the "*Vattai / Vattal*" were built. As in India here, too, ship-building activity was carried on by different communities. It is worth noting that the Jaffna kingdom – a dominant maritime power for some centuries – was brought under Portuguese rule very early in the 16th century. The Portuguese wielded the Sword and the Cross equally dexterously and Roman Catholic priests targeted the Fisher caste in Jaffna (as in the Sinhala areas). The Fisher castes were willing converts, seeking to free themselves from a rigid and restrictive caste system. Perhaps a State-Church nexus was one reason that allowed shipbuilding and sailing to flourish in Jaffna.

The Jaffna *Thoni* which was photographed for posterity by Hornell, is a ship belonging to the Hybrid Technology zone I have referred to elsewhere. This would more or less cover the old Erythrean Sea, spanning the waters between the west coast of India and the eastern shores of Africa, touching the north western coast of Sri Lanka and going southwards to the Maldives. In these waters Mediterranean, Arab, Indian and later, Portuguese, Dutch, French and British ships met and mingled. The Jaffna *Thoni* is a fine example of this intermingling and cross-pollination. While basically a very south Asian craft in the way it is fitted out onboard, its lines are very reminiscent of European ships of a century or more ago. Since my source is Hornell (1943), let me quote him:

"The larger type of schooner is of purely European design. It diverges in no detail from the small wooden schooners employed in English coasting trade in the nineteenth century except in one detail. No Jaffna schooner would be considered shipshape unless a row of imitation square black ports were painted along each side, simulating the appearance of the gun ports of Armed East Indiamen of the eighteenth century."

The Europeans found, in this part of the world, the material and the skills to build ships to their liking. Initially, they modified certain smaller European designs to incorporate elements successfully proven in these seas. Later, large ships for the European were constructed in India. Gill (1993) states:

"The India built ships traded with U.K. and between June and August, 20 such ships took rice from India and returned with cargoes. Then the English builders and owners protested. Before a select committee (1814) of the House of Commons (Chaired by Sir Robert Peel), John Hillman a builder expressed that India built ships will kill their industry. "An India built teak ship, after she had performed 6 cargoes is equal to one of ours after she has performed three' "

Phillips-Birt, speaking of 10th century Arab ships, comments:

“...the teak often used for planking the better craft is ideal for iron fastening, containing as it does an oil that preserves the metal, unlike oak, with its acid content, which attacks it.”

The technology transfer worked both ways, as the Jaffna *Thoni* demonstrates. Earlier in the colonial days, the Maldivians picked up the lines of the Portuguese Caravels and built them late into this century. The point is that these designs continued to be used in the Indian Ocean long after they had been abandoned in the countries which gave them birth. In about 1802, Ceylon became a Crown Colony, The Chief Justice, Sir Alexander Johnston noted (1824) that, around 1802, he was informed by Muslim priests and merchants that, for some hundred years, they had been using Arab translations of Ptolemy. But, being in need, they had sold them to merchants who were sailing the Sri Lanka-southeast Asian route. Shipowners of the Jaffna *Thonis* were either Hindu or Muslim. There was only one point of difference, as far as design and decoration was concerned, which depended on ownership. In the Hindu-owned ships the sharply raked stem ends in an inwardly coiled ornamental head called a “*surul*” marked with three horizontal bars to represent the three ash-streaks that a Hindu wears on his forehead. Under this feature is the ship’s shrine. Also, on either bow a neat *oculus* is nailed, to represent the eye of the god, who will guide the ship through the seas. The Muslim-owned ships do not have either of these features. To quote Hornell (1827) again:

“At each end of the vessel is a short decking, ending in each case in a high transverse breakwater, 2 ½ - 3 ft. in height, sloped towards midships. The waist is undecked but is covered by a penthouse roofing of palm-leaves overlaid by closely set palmyra-palm reepers or battens tied down with coir. The after decking is the longer; on it is a small cooking galley or rather firebox and several water breakers find accommodation. At the centre is a small hatchway. There is no poop.”

This very same arrangement is found in the *Yathra Dhoni*, the river/canal *Paru* (the largest of the inland watercraft) and the Tuticorin coasters. (In the last tarpaulin sheets wrapped round the deck cargo have replaced the roofed penthouse). It will thus be seen that, notwithstanding the similarity to European craft, the interior was that of a typical Asian cargo ship. The rig of the Jaffna *Thonis*, however, is strictly 19th. century British, but with many more spritsails. Hornell’s photographs are invaluable. He has also given typical dimensions: length between perpendiculars, 100 ft.; beam amidships, 21 ft. 2 ins.; depth from gunwale to keel, 14 ft., carrying capacity, 100 tons. From sources that were recently made available to me it is evident that there were several shipbuilding communities in Jaffna, those of Kayts and Valvettiturai being the most active, with the larger ships built at Kayts and the smaller at Valvettiturai, the smaller port. In Valvettiturai shipbuilding and seafaring were a community calling and were practiced in the 19th. and 20th.centuries. The vessels built were hybrids, in terms of technology and had no specific features to merit their classification as traditional ships. Many were entirely western in form. Others were ships that had run aground and been abandoned, and later salvaged and rebuilt to their original form.

I have yet to get these Tamil sources translated but the photographs, by themselves, are revealing of the shipbuilding skill of the region. There is a list of 114 ships with the names of the owners (mostly Chettiars from Tamilnadu) and the Captains (all from Valvettiturai) which is ample evidence of a healthy seafaring community. The ships traded between ports, from

Colombo to Rangoon. Perhaps the most famous of them was the ‘*Annapurani*’, a two-masted ship with beautiful lines, which caught the fancy of an American, William A. Robinson, who bought her, re-named her the ‘*Florence C. Robinson*’ and sailed her with a crew of six seamen from Velvettiturai to Boston in 1938. I have published an account of the voyage of the “...89-foot brigantine *Florence C. Robinson* – the last windship of her kind that, in all probability, will ever cross the Western Ocean under canvas alone...” (The Boston Globe, August 2nd. 1938) and shall not repeat it here.

But for the “*Amugoda Oruwa*” in 1930 and the “*Annapurani*” in 1938, this was the last “hurrah”.

Portuguese warships and armed merchantmen

The Portuguese ships, with which the *Yathra* and the *Thoni* now came to face-face, were a different sort of animal. They had evolved under Mediterranean conditions and culture, toughened under harsh north Atlantic conditions and specifically designed and re-designed to find a way round Africa, navigating unknown seas. They were ships for exploration, in search of the trade they hoped to wrest from the Arabs by force and establish a second front against Islamist ascendancy in Europe. They were intended to enforce the Portuguese writ in Indian waters and beyond. Hulls were built strong, not only to withstand long voyages, but also to provide stable gun platforms for cannon. Sails and rigging were designed for maximum speed and for varying weather conditions combining square- and lateen sails. Capacious bilges and multiple decks were designed to carry as much cargo, sailors and soldiers as possible. In short, they were armed merchantmen: ships designed to sail long distances, establish a monopoly of trade by destroying all other merchant ships, collect the maximum of cargo through engaging, destroying and looting unarmed cargo ships, fight for their own lives and, finally, carry the cargo back home. In comparison with Asian ships, they were, indeed, impressive and formidable.

The question arises of whether the interaction between the ships of these two nautical cultures led to a mutation of the Sri Lankan base forms which had evolved over the centuries into the forms in use at end of the 15th century. It may seem strange that Sri Lankan shipbuilders – who had been willing to evolve the base forms by interacting with exotic forms – did not adopt, or adapt any Portuguese features in their ships. There were some marginal changes, of course, but their origin is open for debate. For example, was the use of a fixed rudder: this could either be of European or Arab origin? There is the use of multiple masts: these were most probably of Portuguese origin, but Indian ships with this feature had also existed. Fore-and-aft sails were hoisted on these multiple masts, but the sails themselves were not European square or lateen sails, but Indo-Arab lateen and lug sails. A bowsprit and spritsails were, definitely of Portuguese, or other European origin. As for armament, neither the *Yathra* nor the *Thoni* had any space to mount cannon, although Baldeus says that Sinhalese sailed (presumably Dutch) ships on raiding missions against the Portuguese. On the whole, therefore, it is safe to say that interaction with the Portuguese did not have any effect on Sri Lankan shipbuilding – but with one exception: the *Thoni* of Jaffna.

The *Thoni* was a child of the zone I call the “hybrid technology zone” (the Arabian Sea in modern terminology, and the “Erythrian Sea” in ancient European terminology). In ancient and medieval times, Mediterranean, Red Sea and Persian (now Arabian) Gulf ships and sailors came into contact with their counterparts from western India, the Maldives, Sri Lanka and other

countries further east. Adaptation took place here to a greater degree than in the Bay of Bengal. Some examples are: the west coast of India, where craft show a greater degree of mutation than on the east coast; the Maldives, where virtual copies of Portuguese *Caravels* survived as a form of the *Buggalow* class; and the *Thoni* of Jaffna, which adapted the shape and rigging of 18-19th century British merchantmen, while remaining essentially south Asian cargo carriers in all but the external appearance.

The example of the *Thoni* perhaps gives the answer to why the Sri Lankans did not adapt any essentially Portuguese features. It lies in the fact that Sri Lankan ships did not change into anything other than cargo carriers. They did not adapt themselves to combat Portuguese ships at sea, as the weak Sinhala central government did not seek to attack the Portuguese: on the contrary, the Portuguese became the King's protectors at his invitation. In the ports, the major trade between East and West, was carried on in Arab ships, which led to those ships being the targets for attack. Indigenous shipping was limited to coastal trade and South India and the Maldives. This trade was subject to controls issued in the King's name, and enforced by the Portuguese. Shipping, therefore, ceased to be of major importance, operating mostly under the orders of the Portuguese, and the need to radically change designs to keep pace with Portuguese models, ceased to exist. Ship design remained static and the major sea-going activity became fishing. With the fishing communities of western and northern coasts being wooed and won by Roman Catholic missionaries, fishing gained Portuguese backing and the trade/industry probably owes its continued existence up to today to this development. Inland shipping gained importance under the Dutch and British, but maritime commerce, in an ocean controlled by Euro-colonial powers, began a steady decline and eventual death. What remains today are the fishing craft and the most basic of inland watercraft.

Another reason for not adopting the Portuguese model must be noted. Those ships were stable gun platforms. Sri Lanka did not mount cannon on board: as has been noted above, *Yathras* had no deck space to accommodate ordnance. It is not that gunpowder and guns were not known. They were, as were cannon. Up the early 14th century, cannon had been used in war on land. There are no references to naval use but a cannon cast in Jaffna for use on board Dutch ships is seen in the Royal Armoury, London. Sri Lankan ships were not equipped for war at sea: such warfare involved more than the ability to cast and fire cannon. The entire concept of a "fighting ship" and the culture which underlies it was entirely beyond the Sri Lankan way of waging war. Sri Lankans, when they needed naval bombardment to supplement their sieges of Colombo, called upon the south Indian powers to support them. South India had evolved an offensive naval capability, but Sri Lanka had neither any use for cannon nor the motivation to design floating gun platforms. Portuguese and Dutch rulers of the Maritime Provinces did mount ordnance on *paru* hulls to access the interior Sinhala forts, but this was a stratagem not adopted by Sinhala armies. Thus the *Yathra* remained unchanged: a cargo ship for coastal voyaging.

Sri Lanka undoubtedly evolved indigenous forms of watercraft suitable for the environment, which underwent periodic morphological changes through the adoption of elements considered useful. But the base forms did not change. The line of development was, by and large, linear, but selectively influenced by regional technologies. Chinese technology, for instance, had left no imprint here, or none have yet been recognized. Similarly - and more importantly - the adoption of single outrigger rather than the double outrigger shows a major divergence from the south-east Asian model. With the arrival of a European nautical culture, and effective control of the coastal seas and Maritime Provinces, this line of development came

to a virtual end: the “high” technology of the cargo ships was allowed to wither away and only the most primitive forms permitted to survive. The point is succinctly set out by Gunawardana:

“Thus the traditions of shipbuilding of an era long past did survive right into modern times, but in a vitiated and diminished form. It is abundantly clear that an involution had set in, pushing back the level of nautical technology in Sri Lanka to what it had been long before the eighth.”

The country’s greatest claim to significance is that it still retains elements of ship design from all over the Indian Ocean – and even beyond – while those elements may have disappeared from the countries of their origin. Sri Lanka is thus a palimpsest: layer upon layer of development and adoption can be traced and it is, indeed here, that the search for the history of the ocean could be best begun. I personally believe that the *yathra dhoni* of Dodanduwa is the oldest of the pre-modern craft that survived into this century.

Did “evolution through interaction” survive the Portuguese?

Did the Portuguese nautical culture influence the form and structure of the Sri Lankan ships? Yes, but only negatively. Certain cosmetic and navigationally meaningful changes did take place, such as all ships opting for “European” sailing rig though remaining double-ended in hull form. But this did not lead to better ships and a change of evolutionary paths. *Yathra* and *Thoni* continued to exist and play a role in sea-borne commerce right up to the 1930s. *Yathra* faded from the scene in 1930 with the wrecking of the *Amugoda Oruwa*: Sri Lankan entrepreneurs could not finance such costly exercises. *Thoni* and other non-traditional sailing ships continued to be built and sailed from Kayts and Valvettiturai, but the financiers were South Indian Chettiars and the cargoes were those permitted by the British, such as rice from Rangoon to Colombo. And then came the Second World War and, once again, “native” ships were not allowed to ride the waves and then there were no more Asian sails upon the seas.

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