

## How the work on Indonesian boats and canoes started.

Another strange series of adventures led to the first comprehensive descriptions in English of the traditional methods of building boats and outrigger canoes of Indonesia, and of the ceremonies that are an essential part of their construction and maintenance. Later, this hobby was extended to the history of the hulls and rigs of Pacific canoes as adapted to the sailing requirements and as limited by the specific strength and stiffness of the timbers and wet mat sails.

As I was arriving in Australia in 1969, the International Airport and the Bali Beach Hotel was being built in South Bali. To recruit staff and students for RSBS, I had to visit Europe and Japan, so it was natural to stop off and see what Indonesia was like. All I knew was talk about the Wallace Line, Balinese traditional dancing and the abundance of corals.

Quite by chance, I stayed at a small hotel, the Darma Wisata, on the road south out of Den Pasar. The son of the hotel owner, Bagus Igusti Raka, was a bright youth of about 19 who spoke English. His great ambition was to obtain a Certificate in hotel management in Australia so that he could advance himself in the growing local hotel industry. He had a motor bike, and at first he took me around to show me Sanur, Kuta Bena and Kusamba. He showed me how to read the Balinese calendar so that we could locate the festivals and genuine dances in the villages. In return, I read all his English instruction book and some lengthy stretches of text from books into his tape recorder. I also showed him how to fill in his application, and wrote a recommendation for him. He must have listened to those tapes thousands of times, because when I arrived in Bali a year later, he had won his scholarship to Australia. He later became manager of the Kuta Beach Club Hotel. Of course, he was a friend for life, so when I passed that way, I would leave my suit and suitcase at his hotel and travel for short periods by bus and ferry to Java, Lombok, or further, learning Bahasa in the meantime.

Probably via our family annual letter, physiologists in California heard about these exploits. My friend Jim Case, professor at Santa Barbara, wrote to me in 1974 saying that an American Research ship, the Alpha Helix, would be crossing the Pacific from California to the Torres Straits and thence into Indonesia. In view of my interest in marine biology, coral behaviour, and especially a knowledge of the country and the language, would I act as Chief Scientist for the Indonesian leg of the voyage, and bring with me some Australian zoologists.

So, on the next trip through, informed by the Americans at Scripps, I stopped off in Jakarta and went to see Malik, the Indonesian Foreign Minister, to get clearance to bring the ship into Indonesia and to get

advice about where to make our base. We were aimed at the very deep trench of the Banda Sea. I saw only Malik's daughter because he himself was busy. As it happened, one of Malik's friends, Des Alui, had a large empty house on the Island of Banda, a volcanic pinnacle in the middle of the deep water, and we soon had clearance via the US Embassy, to work there and around Banda with the ship.

I went to see the Australian Minister for Science in his parliamentary office, and persuaded him to contribute \$25,000 to cover our costs in the expedition. Of the six Australians who went, two tried to take a bicycle on board at Cairns but were stopped by Customs, who demanded export tax. So, I had to get the Minister to put an end to that. Three made their way to Ambon, where the ship picked them up, and one arrived later by a ferry that had a 20° list to starboard. The shore party lived in Alui's house, an excellent base close to the harbour, and had a great time exploring the island, which is rich in the history of the Dutch nutmeg empire. There I worked on foveas in the eye of various arthropods, and discovered those of a formidable squilla, *Odontodactylus*. Of course we scientists knew nothing of the impending war in East Timor.

One day I walked into a village on the north coast of Banda, where the houses were of atap, not wood or stone, The people called themselves Binonkos and didn't speak Indonesian. They had migrated from Sulawesi and had put down their village on a stretch of sand which was nobody's else's coconut grove. They lived by trading with other parts of Indonesia and were building boats that looked like 19<sup>th</sup> century North Sea trawlers but constructed out of carved solid hardwood. These were gunter lug ketches, as we would call them these days, sometimes with a single mast and sometimes with two.

They built the shell of planks first and put the ribs in afterwards, which seems totally wrong to us. Western boats are mostly built by erecting the frames first and then bending the planks over the frames. Europeans used to build shell-first till about Elizabethan times, and in Scandinavia they continued till quite recent times, but I didn't know that when I walked into the Banda boatyard. It seemed to me to be one of those lucky finds that might lead to an academic publication.

I came back to Australia with a wordlist for all the parts of the boat, photographs of each stage in construction, exact measurements of the lines, dimensions of the timbers, samples of the wood, notes about the cost of the timber and the economics of the boats – how long they lasted, how much the people got from each trip and what was carried, such as copra to Surabaya. But I didn't know what to do with all this. I looked around in the literature; I asked people in the Anthropology Department. Nobody in Canberra knew anything about eastern boats of any kind

except David Lewis, who had worked in the Pacific on traditional navigation. They just told me to write to Holland, or go away.

My long suffering secretary, working from “*The World of Learning*”, sent letters to all the maritime and ethnology museums around the world, asking whether anybody knew anything about Indonesian boats. When the responses came back they just said things like, “We used to have an expert, but unfortunately he died in 1929”. Several of the Dutch museums said that since the war and the loss of Indonesia they had no further interest in Indonesia. “We have 250 models in our store,” they would say, “but nobody knows anything about them.”

I could see a marvellous opportunity. Even if the Dutch weren’t interested, I was. I had a good knowledge of stresses and strains that governed the designs of things like aeroplanes and boats, I could sail, I could speak the language that was taught in schools all over Indonesia, I could read the languages of the colonial powers that had been there before, I was willing, nay, keen, to search the museums and libraries, and also look for other boats in other islands. And so, in the ensuing years, each time I went overseas I would go to a different museum – in Holland, London, Budapest, Hamburg, Berlin, Jakarta, Singapore, Salem, Peabody, and La Jolla, California, – looking everywhere for models of Indonesian boats. I built up an archive of photographs of every model that I could find, with the acquisition dates, the names and sometimes the attached notes.

On my way out of or into Australia each time, I left my bag with Bagus and went to a different island in Indonesia and took photographs of living boats. I was very fortunate in a number of early discoveries. In the harbour at Benoa, Bali, a Frenchman, Philippe Pétiniaux, was building a boat. He had a Balinese wife and had sailed all over the region. He gave me a list of places where he knew there were boatyards. He sent me first to South Sulawesi, to the traditional boat builders of Ara and the Bonto Bahari. At Hasanuddin University in Ujung Pandang I came across an account of the building of the Pinisi prahus used by the Buginese, with some details of the ceremonies at each stage in the process. This saved time by showing me what questions to ask, because you find out nothing from a secretive clan of traditional boat builders unless you already know enough to pass as an expert. When asked why I wanted to know, my response was to say I was a teacher, and wished to teach my students about these things.

One day, Bill Scott from St Andrews Seminary in Manila turned up at my house in Canberra. He was working on material in the National Library. In discussions I learned that the Atheneum in Manila had a manuscript written by a Spaniard, Fr Alcina S J, in 1668 about boat construction in the early Philippines. I translated that, extended the story

with my new field work in the Islands, and forgotten stuff pulled out of the basements and attics of dusty museums. Luckily, the library at ANU had extensive SE Asia collections on open shelves. So, over the course of about 10 years from 1975 when I first walked in to the boatyard, I unearthed the histories and activities of the several different Indonesian ethnic groups (*suku*) that build boats; namely Buginese, Makassarese, Mandar, Madurese, the Kai Is, the whalers of Lomblen, and few lesser known groups, such as those on Pulau Polu'é, who built boats at the top of the volcano, where the trees are, and slide the hulls down the slopes to the sea. The results were put together in the books published in '81 and '85, and a book about canoes published in about '86, besides about 10 papers. I did all the photographs and some of the drawings.

What I did was to bring together all the history and diversity of these boats and outrigger canoes into a cohesive story, encompassing the interesting methods of construction, the measurements that define the boat; the strategies of using natural material to get optimum performance out of weak timber and plaited sennet. The story was extended to how Western designs influenced the Indonesian cultures, and the boatbuilders slowly adopted new rigs, then hull designs. There is no other comprehensive account.

All this came fortuitously from experience with aircraft structures at Farnborough, meeting Bagus in Bali, the opportunity of the Alpha Helix, and the chance finding of exactly the most needed assistance at the critical times. Also, as you must have realized by now, it was extended fun and enormous adventure to travel with a purpose, hunting the Prah.