

NALANDA-SRIWIJAYA CENTRE **19** WORKING PAPER SERIES NO.

# EARLY VOYAGING IN THE SOUTH CHINA SEA: IMPLICATIONS ON TERRITORIAL CLAIMS



The clipper Taeping under full sail. Photograph of a painting by Allan C. Green 1925 [public domain]. Credit: State Library of Victoria.

## **Michael Flecker**

![](_page_1_Picture_0.jpeg)

![](_page_1_Picture_1.jpeg)

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(Aug 2015)

# EARLY VOYAGING IN THE SOUTH CHINA SEA: IMPLICATIONS ON TERRITORIAL CLAIMS

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Michael Flecker has 28 years of experience in searching for and archaeologically excavating ancient shipwrecks, specialising in the evolution and interaction of various Asian shipbuilding traditions. In 2002 he received a PhD from the National University of Singapore based on his excavation of the 10th century Intan Wreck in Indonesia. His thesis was published as a book by the British Archaeological Report Series (2002). Other works include the book, *Porcelain from the Vung Tau Wreck* (2001), contributions to *Shipwrecked: Tang Treasures and Monsoon Winds* (2010) and *Southeast Asian Ceramics: New Light on Old Pottery* (2009), as well as numerous articles in the *International Journal of Nautical Archaeology*, the *Mariner's Mirror and World Archaeology*. Email: *mdflecker@gmail.com* 

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### Early Voyaging in the South China Sea: Implications on Territorial Claims

#### Michael Flecker

#### INTRODUCTION

THE SOUTH CHINA SEA has been a shipping thoroughfare for at least the past two millennia. Apart from piracy and occasional acts of war, ships of all types and origins have been free to sail wherever they wished.

Freedom of navigation through the South China Sea could now be at risk. Six countries lay claim to all or part of the Spratly Islands and the Paracels (Fig. 1). Five of them occupy islands or reefs. All five have built structures and infrastructure, and all have reclaimed land to do it. Recently, however, China has instigated something of a reclamation blitzkrieg. It has converted seven submerged reefs into islands, and several of those incorporate runways and harbours. They are primarily for military use and therefore dramatically change the strategic situation. When challenged, China cites an indisputable right to be there.

This paper seeks to address the sense of entitlement that all claimants exude. Perceived rights seem to override international law, ratified conventions, signed declarations, and even common sense. They stem from history, both ancient and modern; but history is open to interpretation. Archaeological evidence is more concrete, as it can corroborate and/or enhance the textual evidence.

In this paper, the maritime archaeological findings on some of the most dangerous reefs in the Spratlys are first examined. Background material on the United Nations Convention on the Law of the Sea and the Declaration of Conduct is then presented, before detailing the recent history of island and reef occupation. Next is an appraisal of the historical evidence of voyaging in the South China Sea, for various vessel types and origins. This paves the way for an assessment of all that is known archaeologically of shipwreck finds throughout the waters of China and Southeast Asia. A summary of the archaeological information allows for a look at the trends, and a comparison with the historical evidence. Only then can the implications of both the history and archaeology be examined. Whose history was it? What claims were made? Why were they made? Is there any logic to them? These questions are addressed before drawing conclusions.

The core evidence presented in this paper is factual: the archaeological findings and what they tell us of early voyaging in the South China Sea. The veracity of the various claims remains open to interpretation.

![](_page_3_Figure_2.jpeg)

Fig. 1. The Spratly and Paracel Islands

![](_page_3_Figure_4.jpeg)

![](_page_3_Figure_5.jpeg)

Credit: Courtesy of the University of Texas Libraries, The University of Texas at Austin.

#### Shipwreck Survey in the Vietnamese-Occupied Spratlys

In 1993, during the lull between the northeast and southwest monsoons, the author had the good fortune to investigate some of the Vietnamese-occupied reefs in the Spratly Archipelago, the Dangerous Ground marked on maritime charts. After years of patience and fortitude, close friend and adventurer Warren Blake had succeeded in his quest for a shipwreck survey licence. The license allowed his company, Ocean Surveys Pte Ltd, to conduct a remote sensing survey at Ladd Reef (Da Lat), West London Reef (Da Tay), Central London Reef (Dao Sa Truong Don), East London Reef (Da Dong), and Spratly Island (Dao Truong Sa Lon), in the presence of representatives from joint-venture partner, the Vietnam Salvage Corporation (Visal), the Navy, and the Marine Police.

The 21 m long ferro-cement ketch, *Four Friends*, was mobilised from Singapore with two marine magnetometers, diving equipment, four tonnes of diesel, and a bundle of lumber. En-route to Vung Tau, the port at the mouth of the Saigon River, the lumber was transformed into a pseudo deckhouse amidships and a false sheared bow. On arrival, the main mast was unstepped. With the Chinese occupying Cuarteron Reef just 12 nautical miles from East London Reef, the aim was to keep a low profile by disguising *Four Friends* as a fishing boat (Fig. 2). This was a complete failure. With the mizzen mast still required for the radar, the end result resembled nothing more than an ungainly yacht with the mainmast removed. As an upside, the deckhouse provided an airy refuge for the Vietnamese representatives.

![](_page_4_Figure_4.jpeg)

![](_page_4_Picture_5.jpeg)

Credit: Author.

Having motored the 300 miles from Vung Tau to Spratly Island, we paid our respects to the Vietnamese commanding officer. The few small buildings and water tanks that constituted the garrison were defended by anti-aircraft guns and some ancient tanks. The tanks had been dug into the sand leaving only their turrets exposed.

On 29 March 1843, Captain Richard Spratly of the whaler *Cyrus* observed first Ladd Reef and then Spratly Island, later commenting:

... at 9 h. a.m. a low sandy island was discovered from the masthead, bearing S.E.bE. four leagues.... One [of these two dangers] I call Ladd Reef, after Captain Ladd of the Ship Austen, who appears first to have seen it; the other Spratly's Sandy Island.<sup>1</sup>

Captain Spratly may more precisely have stated that Captain Ladd was the first European to have seen Ladd Reef; however, even this may have been incorrect. Ladd Reef was also named Robb Roy Shoal after the opium clipper of that name, which sailed the Calcutta China route during the 1840's, and Spratly Island was initially named Storm Island by Horsburgh (or perhaps by Captain Ross who was assigned by Horsburgh to survey the Dangerous Ground in 1807).

With the formalities out of the way, we proceeded with much anticipation to our first priority.

#### Ladd Reef

#### Fig. 3. A steel fishing boat wrecked on Ladd Reef

![](_page_5_Picture_7.jpeg)

Credit: Author.

Ladd Reef is the western-most danger in the Dangerous Ground, and therefore the most likely to get in the way of shipping in the busy trade route along the western reaches of the South China Sea. On approaching this 3 mile long by 1 mile wide impediment, its wrecking potential was immediately apparent. A small tanker sat high and dry on the

<sup>1</sup> Hancox and Prescott 1995:15, citing Nautical Magazine 1843:697.

northwest extremity of the reef, while the south side had claimed a steel fishing boat<sup>2</sup> (Fig. 3) and a barge. To the north lay the severed hull of a larger fishing boat. Vietnamese troops were stationed in an octagonal concrete blockhouse built on a mound of coral rubble at the northern extremity of the reef. At high tide, the waves lapped at the base of the structure, threatening to carry away precious water and fuel tanks.

While the southern edge of the reef was steep-to, the northern side sloped relatively gently allowing plenty of magnetometer work within diveable depths (Fig. 4). Boat-towed visual survey was conducted in the shallows in order to detect ballast stones, ceramic shards, and any other non-ferrous artefacts. The initial circumferential magnetometer survey had the pen shooting off the chart in several locations.

![](_page_6_Picture_4.jpeg)

Fig. 4. The author and Warren Blake surveying for wrecks with magnetometers

Credit: Author.

The first wreck was marked by long steel spars, a capstan, anchors, chain, hawsepipes, and dozens of iron frames pierced by bronze fastenings (Fig. 5). The top of the reef was strewn with fragments of copper sheathing. A porcelain shard bore the mark 'Royal Ironstone China – Johnson Bros. England'. Research has confirmed that this is the wreck of the famous tea clipper, *Taeping* (Fig. 6). She was built in 1863 in Greenock by the renowned firm of Robert Steele. Measuring 56m long and 767 tonnes, she was said to have been a magnificent vessel, excelling in light winds. She won the China tea races

<sup>2</sup> The hull had rusted away to little more than framing. Resting in the forepeak, amongst a pile of rust flakes, lay a human skull and a scattering of bones. Fishermen had burned incense as a precautionary measure. While there is a chance that the skull belonged to an original crew member, it is also possible that a Vietnamese refugee perished while taking shelter on the wreck.

in 1866<sup>3</sup> and 1867, however on 22 September 1871, while bound from Amoy to New York, she grounded on Ladd Reef.<sup>4</sup> The crew abandoned the wreck in three boats, one of which made it to Saigon to report that the only damage sustained seemed to be 'a few pieces of wood which came up from under the bows'. A gun boat was dispatched to search for the rest of the crew and to salvage the cargo, however *Taeping* was found to be broken up, and surrounded by bobbing chests of tea.

![](_page_7_Figure_3.jpeg)

Fig. 5. The author recording a capstan from the Taeping

Credit: Author.

Further to the west the seabed was littered with steel plate and frames. Discernible features included battery lead, iron billets, a heavy machinegun, bullets, and 4-inch shells. This was all that remained of the Dutch submarine, *O-19*, which ran hard aground on Ladd Reef in July 1945.<sup>5</sup> The Gato class submarine, *USS Cod*, was sent to the rescue. Two days were spent trying to free the stricken sub, to no avail. After the Dutch crew of 56 was taken aboard the *USS Cod*, the *O-19* was destroyed with torpedoes and fire from deck guns to prevent it from falling into Japanese hands.

<sup>3</sup> In 1866, the clippers *Taeping*, *Ariel*, and *Serica* crossed the bar of the Min River in China on 30 May. Ninety-nine days later all three docked in London on the same tide, *Taeping* and *Ariel* within one hour of each other. The tea race was serious business, the winner being paid a significant premium for her cargo.

<sup>4</sup> Straits Times Overland Journal, 8 November 1871, p. 4, from the Straits Times, 28 October 1871, Java.

<sup>5</sup> From The Old Salt Blog: 'Gato Class Submarine USS Cod Opens Fire Again'. For video footage of the stranding and destruction see: http://www.oldsaltblog.com/2011/07/gato-class-submarine-uss-cod-opens-fire-again.

![](_page_8_Picture_2.jpeg)

Fig. 6. The clipper *Taeping* under full sail

Note: Photograph of a painting by Allan C. Green 1925. Credit: State Library of Victoria.

Divers carrying out a visual search around the northeast corner of the reef discovered a cluster of three anchors, rounded ballast stones, square-cut granite blocks, iron frames with bronze fittings, and a padlock bearing a crown insignia. This is probably the Liverpool barque, *Titania*, which was lost on Ladd Reef<sup>6</sup> on 20 September 1852 while sailing from Macau with 'a valuable cargo for Sydney'.<sup>7</sup> After days of foul weather 'at 1.30 a.m. in a thick squall the vessel struck violently upon the reef... At daylight got provision and sail into the boats, ready for leaving the ship. Soon afterwards two vessels were seen close to the shoal in the offing...'<sup>8</sup> One was the brig, *Equator*, which delivered the crew safely to Singapore.

#### West London Reef

West London Reef lies approximately 35 miles to the east-northeast of Ladd Reef. It still protrudes into the shipping lane, presenting a 5.5 mile long virtually invisible barrier, but has not claimed as many victims. The reef is also some 3 miles wide, encompassing a relatively sheltered lagoon with a natural entrance to the southwest. The Vietnamese had constructed two blockhouses on drying patches, one to the west and one to the east. When their radios were not functioning, the occupants attracted each other's attention by

<sup>6</sup> The Straits Times of 15 October 1852 uses the alternative name for Ladd Reef, Robb Roy Shoal.

<sup>7</sup> *Straits Times*, 19 October 1852.

<sup>8</sup> Straits Times, 15 October 1852.

firing live rounds into the air. Young soldiers were based on these largely submerged reefs for up to a year, spending most of their time foraging for fish and trochus shells in order to feed themselves.<sup>9</sup> A large boiler protruded above the water not far from the western blockhouse, one of three that originally powered a riveted iron-hulled steamer. A long crank shaft lay along the centreline of the wreck but all of the non-ferrous fittings had been stripped by salvors.

A circumnavigation with the magnetometer led to the discovery of an iron capstan and a cluster of three anchors. Fragments of copper sheathing and a few bronze fastenings were all that remained of the vessel. From the similarity to the *Titania*, she was probably also lost around the mid-19<sup>th</sup> century.

A Vietnamese state-owned fisheries enterprise had a barge semi-permanently moored inside the lagoon. This proved slightly problematic for magnetometer work as we pinned much hope on discovering ancient wrecks that had been driven over the northern edge of the reef during the northeast monsoon only to sink in the protected waters of the lagoon. Hulls and cargoes would lie undisturbed under the sandy lagoon bottom in this idealistic scenario. We did indeed discover timber and iron fastenings under 3 m of sand within the lagoon. Due to our limited excavation equipment, it was only possible to expose a tiny portion. Jet probing indicated that wreckage may have extended at least 10 m horizontally, but the magnetometer signal suggested a single small anomaly of 100 kg at most. As no cargo was exposed in the large hole we created, no conclusions could be drawn on origin, date, or significance. The Vietnamese navy also chose this time to reinterpret our survey license. They decided that it did not allow for survey within the lagoons, so that was the end of that.

#### EAST LONDON REEF

East London Reef lies 18 miles to the east of West London Reef. It is larger, being 7 miles east/west by 2.5 miles north/south, and played host to no less than three Vietnamese blockhouses. The commanding officer was stationed in the easternmost structure, which boasted a large radar antenna on its roof. These blockhouses were off-limits to foreigners, but the boredom was so great that the commander invited us in. While sipping on highly sweetened coffee we observed exposed wires dangling through the roof. There was nothing attached to the radar antenna. The machineguns were quite functional however. They faced eastwards, where the Chinese blockhouse on Cuarteron Reef lay well within sight. The commander's hospitality extended further. He came on board Four Friends and guided us to a site not far from his residence. It was a beautiful steel wreck, some 60 m long, with the bow and part of the stern still intact (Fig. 7). The base of the bowsprit remained in place and towered over two massive anchors. They were still connected to a heavy chain that spilled through hawsepipes on port and starboard. The side plating had collapsed outwards, however, the transom remained intact around the steering quadrant. Adjacent to that lay a small steam engine and boiler, known as a donkey engine, used for powering the windlass and capstan. Steel masts and spars lay across the flattened hold. The

<sup>9</sup> On one occasion the wind blew up and five snorkelling soldiers disappeared for several hours. They were eventually spotted by a Vietnamese fishing boat and we were dispatched to pick them up in our tender. They were still clutching their bags of shells.

only artefacts of note were a torpedo-shaped bottle from 'A.H. Watson & Co. Hong Kong China Manila', a Walker's spinning log,<sup>10</sup> and a 5 pfennig piece dated 1900, suggesting that she could have been a German sailing vessel.

Magnetometer survey along the northern edge of the reef revealed yet another site nearly identical to the *Titania*. Three anchors were lodged in a surge gully that was full of ballast stones (Fig. 8). Bronze bolts and iron framing indicated composite construction. Apart from some square cut granite blocks, there was no sign of cargo.

![](_page_10_Picture_4.jpeg)

Fig. 7. The bow of a steel barque on East London Reef

Credit: Author.

<sup>10</sup> A spinning log is a torpedo shaped device that spins on the end of a rope trailed behind a ship. A dial on the transom converts the rate of spin into ship's speed in knots.

![](_page_11_Picture_2.jpeg)

Fig. 8. An anchor and ballast stones from the Christina

Credit: Author.

There may well have been cargo in the distant past, a particularly interesting cargo. On the 8 June 1842, the British barque, *Christina*, left Macau 'with a large quantity of treasure bound for Bombay'—the payment for her inward cargo of opium. On 1 July she was lost on 'West London Shoal'.<sup>11</sup> The ship broke up almost immediately. The crew could not save the log book or anything else as the waves were breaking over the vessel. Over two years later the Singapore Free Press<sup>12</sup> ran the following account:

The captain of a certain vessel, Martires de Tunkin, reports that when fishing to the eastward of East London Shoal, he discovered a chain leading from the reef to the water, upon following which the remains of a vessel was discovered, in about three fathoms at high water. One of the crew at low water discovered what he considered to be a piece of pewter, but on inspection it was found to be silver. Further search was made, and money in dollars and sycee was picked up to the amount of drs 150,000... It is supposed the wreck is that of the *Christina* lost in 1842.

The captain was a Spaniard by the name of Carlos Cuarteron, and he was not fishing for fish. Having heard of the loss of the *Christina*, he purchased a small schooner, enlisted a number of pearl divers and set out from Manila in March 1844. He initially searched West London Reef as per the newspaper reports, but when nothing was spotted

<sup>11</sup> Singapore Free Press and Mercantile Advertiser, 6 October 1842.

<sup>12</sup> Singapore Free Press and Mercantile Advertiser, 30 January 1845.

he proceeded to Central London Reef and then East London Reef, where his efforts finally paid off.<sup>13</sup> Interestingly, he chose to cruise amongst the Spice Islands before eventually delivering 150,000 silver dollars to *Christina*'s insurers in Hong Kong in December 1844. While receiving a substantial reward, he also discovered that he had only scratched the surface. Consequently he returned to the wreck in March 1845, arriving back in Macau on 14 May. There are no newspaper reports of him delivering a second stash, so perhaps he chose to be more discrete. Some years later the honest captain was ordained as a Catholic Bishop and went on to become the first Prefect of Borneo.<sup>14</sup>

Getting back to our magnetometer survey, the south side of East London Reef claimed a small tug and yet another fishing boat. The latter was not actually observed, the trail of freezer piping leading to depths beyond our scuba capabilities.

At East London Reef we observed a Hong Kong registered fishing boat loaded with a dozen or so sampans which could be dropped over the side for scavenging in the shallows. The scavenging was augmented with explosives, blatantly hurled into the water near one of the blockhouses. The fishermen were clearly working with authorisation from the Vietnamese garrison—we witnessed them handing over bags of fish, perhaps as payment. Diving in the area immediately after the fishermen left revealed the massive amount of damage done to the shallow reef, and plenty of small dead fish that they had not bothered to collect.

After we had spent nearly two months poking around this politically sensitive area, the navy once again reinterpreted our survey license, this time specifying that we could only search in the waters in the vicinity of the reefs. The waters in the vicinity of the reefs rapidly drop off to 1,000 m and more, way beyond our survey capability, and the chances of wrecks being there were miniscule. So we had no choice but to up-anchor and head for our second licensed survey area, well within Vietnamese territorial waters.

#### UNCLOS

The United Nations Convention on the Law of the Sea (UNCLOS) was drafted in 1982, and entered into force in 1994 with the requisite 60 ratifications. It is fundamental to the South China Sea dispute. All claimants have signed it, and by doing so they have theoretically abandoned any earlier stance that now contravenes the Convention. Unfortunately, the deliberately ambiguous clauses within UNCLOS, deemed necessary to bring the nine years of negotiations to a close, leave many issues open to interpretation. Even when the intent or spirit of a clause is clear to all with a modicum of common sense, this may not suffice in a court of law.

UNCLOS defines a variety of boundaries, each affording differing degrees of sovereignty. Territorial waters should be pretty straightforward—full sovereignty over all waters within 12 nautical miles of the coastal low water mark, including the seabed and whatever lies beneath it. The main exception is the right of innocent passage for ships through straits on recognised trade routes, such as Sunda Strait in Indonesia, Malacca Strait between Indonesia and Malaysia, and Balabac Strait between Malaysia and the

<sup>13</sup> Cuarteron seems to have discovered another reef to the east of East London Shoal during this voyage. It now bears his name.

<sup>14</sup> For the full story of this fascinating fellow see Gibby 2005.

Philippines. But when there are off-lying islands, rocks or reefs there is the issue of baselines. Article 7 of UNCLOS states that straight baselines may be drawn 'where the coastline is deeply indented and cut into, or if there is a fringe of islands along its coast in the immediate vicinity'. Vietnam has taken great liberty with Article 7 by drawing a series of baselines between distant islands, effectively extending territorial waters by up to 50 nautical miles. Malaysia has done likewise although not to the same extent. China has not only prescribed ambitious baselines, but has also included a segregated area around the disputed Paracels. As China is a continental state, under UNCLOS this form of archipelagic delineation is not permitted. The Philippines and Indonesia, being archipelagic states, can draw baselines joining the outermost points of islands or drying reefs thereby encompassing the seas between islands, as per Article 47.

The Exclusive Economic Zone (EEZ) is an order of magnitude greater than territorial waters, extending 200 nautical miles from coastal baselines and from offshore islands. The EEZ is neither under the sovereignty of the adjacent coastal state nor part of the high seas. Rather, the coastal state has sovereign rights to the natural resources within the EEZ, such as fish in the waters or oil, gas and minerals beneath the seabed.<sup>15</sup> All other states have the right to exercise high seas freedoms of navigation, overflight, and the laying of subsea cables and pipelines.

UNCLOS seems to unduly complicate matters by allowing coastal states to extend their EEZ an additional 150 nautical miles by claiming a continuation of their continental shelf, as if 200 miles was not generous enough. To complicate matters further, the traditional continental shelf delineation of 200 m water depth has been forgone in favour of a complex measure of 60 nautical miles from a poorly defined foot of the continental slope, 'or where the thickness of sedimentary rocks is at least 1 per cent of the shortest distance from such point to the foot of the continental slope'. Malaysia and Vietnam have indeed jointly claimed the 'continental shelf' in the high seas beyond their self-proclaimed 200-mile limit, including some of the reefs of the Spratlys. Not surprisingly, China and Brunei have taken exception to this.

With the ratification of UNCLOS, islands suddenly gained tremendous status. A radius of 200 nautical miles awards a minimum 126,000 square miles of EEZ to the successful claimant. An island is defined as 'a naturally formed area of land, surrounded by water, which is above water at high tide.' As this could potentially include barren outcrops, an additional clause states that 'rocks<sup>16</sup> which cannot sustain human habitation or economic life of their own shall have no economic zone or continental shelf', although they still qualify for territorial waters. Again, this clause leaves much to conjecture. Clearly desalination plants and greenhouses were not intended to qualify a feature as an island worthy of an EEZ, although a water-well and a vegetable patch may. The clause would have been more clear had it stated 'in its natural and original form'. Now many features in the disputed areas of the South China Sea not only have desalination plants and greenhouses,

As a shipwreck is not a natural resource, it remains unclear as to whether a shipwreck within the EEZ of a state belongs to that state. If it does not, then the shipwreck must lie in limbo, as no other state or entity has the right to carry out salvage work in another's EEZ.

<sup>16</sup> Many of the reefs in the Spratlys, and notably Scarborough Shoal off Luzon, have sand cays or coral boulders that remain dry at high tide, if the seas are calm. Perhaps coral boulders could be classified as 'rocks', but not the sand, nor coral rubble for that matter.

but runways and harbours. Islands have been, and continue to be, created by blasting and piling up coral or by reclamation using cutter-suction dredgers to dump huge quantities of sand onto reefs from lagoons or surrounding sand flats. The environmental impact of dynamite fishing pales in comparison to this unregulated onslaught.

UNCLOS does not preclude customary international law. If the critical date principle of customary international law is taken into account, all efforts at island building have been in vain. The critical date is the date upon which a dispute over sovereignty arose between two or more states (Beckman 2014:19). The islands and reefs in the disputed area of the South China Sea have been occupied on and off since the early 20<sup>th</sup> century<sup>17</sup> and invariably these occupations have been opposed by other claimants as soon as they became known. Many features were disputed well before occupation. Either way, the critical date predates any enhancements. Consequently, these efforts can only be strategic and/or designed to bolster the claimant's position in bilateral negotiations.

While China has led the 'occupy-and-enhance-race' in recent decades, the Chinese were laggards during the post-WWII wave of occupation. To bolster their claim to all islands and reefs that are not in their possession, the Chinese have gone to great lengths to emphasise their 'indisputable' historic claim. The Philippines has countered with their own historic claim, specifically with respect to Scarborough Shoal. Vietnam and Malaysia have been relatively quiet in this regard, but as will be discussed later in this paper, their historic actions may well be as valid as anyone else's. However, according to Robert Beckman, the Director of the Centre for International Law at the National University of Singapore and expert on territorial disputes in the South China Sea, under UNCLOS no parties are entitled to make any claims to historic rights or historic waters outside their territorial sea (Beckman 2014:28). This puts China in particular in an awkward position.

#### Declaration of Conduct

In response to heightening tensions resulting from territorial claim disputes in the Spratlys, China and all members of ASEAN signed the Declaration of Conduct (DOC) in 2002. Two clauses are of particular relevance to this discussion.

Clause 4: The Parties concerned undertake to resolve their territorial and jurisdictional disputes by peaceful means, without resorting to the threat or use of force, through friendly consultations and negotiations by sovereign states directly concerned, in accordance with universally recognized principles of international law, including the 1982 UN Convention on the Law of the Sea.

Clause 5: The Parties undertake to exercise self-restraint in the conduct of activities that would complicate or escalate disputes and affect peace and stability including, among others, refraining from action of inhabiting on the presently uninhabited islands, reefs, shoals, cays, and other features and to handle their differences in a constructive manner.

<sup>&</sup>lt;sup>17</sup> Some of the earliest occupiers, as opposed to itinerate fishermen, were not states at all. They were entrepreneurs out to mine guano.

#### Who Occupies What in the South China Sea?

The axiom, possession is nine-tenths of the law, holds strong in the South China Sea. China, Taiwan and Vietnam claim all of the Spratly and Paracel Islands. The Philippines claims all of the Spratlys. Malaysia claims all of the Spratly Islands that lie within its selfproclaimed continental shelf. Brunei claims an extended continental shelf but has made no mention of the reefs encompassed within that claim. They are all trying it on, some far more than others. Perhaps more relevant is the physical assertion of perceived rights, i.e. occupation.

Until the early 20<sup>th</sup> century the islands and reefs in the Spratlys and Paracels were effectively *terra nullius*, not occupied by any state. Seasonal fishing camps and intermittent commercial guano mining do not qualify as occupation, at least not by a state.

In 1933 the French, then governing Cochinchina, formally annexed Spratly Island, Amboyna Cay, Itu Aba, North Danger Reef, Loaita, and Thitu. The Japanese and Chinese protested but took no overt action. In 1937, Japan invaded China as a precursor to the occupation of much of South East Asia. The Vichy French government ceded control of Vietnam to the Japanese in 1940. With the British falling in Singapore in February 1942 and the Americans suffering a similar fate in the Philippines later in the same year, the entire South China Sea fell under the control of Japan. The Japanese occupied several islands, establishing a submarine base on Itu Aba in the Spratlys and a garrison at Woody Island in the Paracels, but by 1945 they were out. After the war, the French were quick to reassert control over Indochina and the Spratlys. The Chinese were also keen to reassert themselves, particularly in the absence of any decisive action from the victorious Americans. Both sent ships to place stone markers on various islands. Nobody else took much notice of them.

#### China (and Taiwan)

In 1949, the Communist Party ousted the nationalists and proclaimed the People's Republic of China. They retained all policy and claims related to the South China Sea, as did Taiwan, the new Republic of China. Chinese and Taiwanese claims have remained parallel ever since, but their occupations of course varied. Taiwan kept hold of Itu Aba, initially occupied by the Republic of China in 1947, and has maintained a garrison there since 1963. Itu Aba is the largest island in the Spratlys and one of the very few that may satisfy the UNCLOS definition of being able to sustain human habitation, thereby qualifying for its own EEZ. Taiwan also holds Pratas Island in the north-eastern extremity of the South China Sea, which has now been designated as a national park, albeit housing a military outpost and a fishing base.

China claims just about everything, by way of the infamous nine-dashed line (Fig. 9). No coordinates are provided for the dashes, but they appear in roughly the same place in various map reproductions. They encompass the entire South China Sea north of Indonesia's Natuna Islands. If they were physical, coastal residents of Luzon, Palawan, Sabah, Brunei, Sarawak, Natuna, and Vietnam could observe them looming ominously on the horizon.

![](_page_16_Figure_2.jpeg)

Fig. 9. A chart published by China in 1947 showing an 11-dashed line

Note: Two dashes were removed from the Gulf of Tonkin following bilateral agreement with Vietnam.

A map delineating a dashed line was first produced in 1936, with a more detailed version being officially published by the Chinese Ministry of Internal Affairs in 1948. In 2009, when Malaysia and Vietnam jointly applied to the UN for an extension of their continental shelves beyond the 200-mile EEZ limit, China attached the map to their protest note, thereby officially declaring that these lines demarcate the full extent of their claim. While the lines encompassed most of the South China Sea, the accompanying verbiage fortunately clouded the matter. 'Sovereignty' over the islands and their 'adjacent

waters' seem to imply territorial waters or an EEZ rather than the entire sea (Beckman 2013:33). 'Sovereign rights and jurisdiction over the relevant waters', however, could potentially cover the lot. Interestingly, there was no mention of historic justification in these UN protests although use of the term 'indisputable claims' seems to take the history for granted. How else could they be 'indisputable'?

Actions speak louder than words, and the actions of China in recent years are consistent with a claim over everything within the nine-dashed line. There have been numerous incidents of Chinese vessels deliberately cutting the towed arrays of seismic survey vessels operating well within the EEZ of Vietnam and the Philippines. Chinese patrol craft tested Malaysia's fortitude a number of times in 2010 by closing in on Pulau Layang Layang (Swallow Island on Admiralty charts), 150 nautical miles off Kota Kinabalu. Malaysia was up to the task, much to the relief of the sport divers staying at Layang Layang Resort.<sup>18</sup> The high profile deployment of an oil drilling rig off Triton Island in the Paracels in 2014, within Vietnam's proclaimed EEZ, was in blatant disregard of the 2002 Declaration on Conduct of Parties in the South China Sea (DOC) calling for no actions that could escalate tensions. However, the occupation of two reefs, and the blockade of another, well within the Philippines' EEZ was the most menacing manifestation of Chinese intensions prior to the reclamation blitz.

Mischief Reef is completely submerged at high tide. It lies 125 nautical miles off Palawan, well within the EEZ of the Philippines, and 600 miles from Hainan, the closest point in China. Towards the end of 1994, the Chinese quietly built three-steel platforms supporting octagonal blockhouses on the reef. When a Filipino fishing boat discovered these new edifices, and made the mistake of passing too close, the crew was incarcerated for a week. When the news got out the Philippine government expressed indignation but was powerless to act. ASEAN as a whole was taken aback but neglected to act. A 2004 Google Earth image shows that the three rusting platforms on the north edge of the atoll were joined by a 30 by 20 m concrete pad. An additional five-steel platforms on the south edge were augmented by a 50 by 50 m concrete pad sporting three-storey barracks, a dock, palm trees, and a basketball court. There were fish holding pens in the lagoon along with an anchorage for fishing and patrol vessels. The reef has now been reclaimed and the entrance to the lagoon has been widened, most likely to accommodate a naval base.

The Philippines occupies Second Thomas Shoal, tenuously. The antiquated landing craft, *BRP Sierra Madre*, was deliberately run aground there in 1999 in response to the Chinese occupation of Mischief Reef. A particularly hardy squad of marines continues to live on board the wreck, rotating on an irregular basis. Their primary danger has been falling through the rusted deck, but in March 2014 China blockaded this most pitiful of outposts. Beijing claimed that the Philippines' resupply vessels were carrying construction materials, in blatant violation of the DOC.

<sup>18</sup> The prolific sea life at protected Pulau Layang Layang, including the famous schooling hammerhead sharks and manta rays, stands in stark contrast to most other reefs in the Spratlys. Construction, blasting, overfishing, destructive fishing methods, and now reclamation have left many reefs barren. As these reefs form a spawning ground for much of the South China Sea fishery, the ramifications of their destruction are immense.

Scarborough Shoal is completely submerged at high tide too, except for a couple of coral boulders that remain dry at high water, on a calm day. A British ship with a cargo of tea came to grief on the reef in 1748, bestowing the name that now appears on Admiralty charts. Scarborough Shoal is not part of the Spratlys but lies completely isolated, some 120 nautical miles off the west coast of Luzon, again well within the EEZ of the Philippines. The closest landfall in China is 460 miles away.

The storm that thrust the boulders above water gifted them with a potential 12-mile territorial sea under UNCLOS. But if Mischief Reef is anything to go by, this enhanced status is not required to attract China's attention. In April 2012, the Philippine coastguard caught eight Chinese fishing boats in the act of decimating the reef. They were loaded to the gunnels with coral and giant clams. Two Chinese Marine Surveillance vessels immediately interceded. The Philippines ramped it up by sending their biggest warship but then decided better of it and reinstated the coastguard. An approaching typhoon gave diplomats a chance to negotiate a simultaneous departure. The Philippine coastguard left. The Chinese stayed, and consolidated their position by kicking out a Filipino-French archaeological team later in the same month. In early 2014, Filipino boats were driven away with water cannon. In January 2015, three fishing boats were rammed. The Scarborough Shoal blockade was the latest in a long and grim game of catch up.

It started with the Paracels which lie equidistant from Chinese Hainan and Vietnam. Fishermen, pirates and wreckers of both ethnicities have camped on the more substantial islands for centuries. They were briefly occupied by French and then Japanese troops during World War II, but resumed their status of *terra nullius* after 1945. Only two years later, France and China simultaneously attempted to occupy the islands. After a tense standoff, China held Woody Island in the Amphitrite Group to the north and France retreated to Pattle Island in the Crescent Group to the south. In 1950 the Chinese nationalist forces withdrew from Woody Island, to be replaced by the Communists five years later. The South Vietnamese replaced the French on Pattle Island shortly thereafter.

In 1974, China judged correctly that the US would no longer come to the aid of the South Vietnamese troops stationed in the Crescent Group. They launched a well-planned attack. The Vietnamese navy responded but was soundly defeated, leaving the garrisons on Pattle and adjacent islands isolated. Chinese forces shelled and then landed on each island, systematically displacing the Vietnamese. They have occupied the Paracels in their entirety ever since, with the 'city' of Sansha being declared on Woody Island in 2012. The runway has now been extended and harbour facilities have been expanded.

In January 1988, China landed on Fiery Cross Reef which, apart from a few rocks, was submerged at high water. Within a few weeks a large coral platform had been constructed and channels had been blasted into the lagoon. In February 1988, China surprised Vietnam by occupying Cuarteron Reef, just 12 miles east of the Vietnamese garrison on East London Reef. Realising that all features capable of supporting a structure were now being targeted, the Vietnamese raced to secure Collins, Landsdown and Johnson South Reefs on Union Bank. They already occupied the adjacent miniscule Sin Cowe Island. Two landings were successful, but China chose not to relent on Johnson South Reef. After an unsuccessful attempt to remove a flag that was being held in place by Vietnamese troops, the Chinese returned to their ships and opened fire. The virtually defenceless Vietnamese, standing knee deep in water, were mowed down by a levelled anti-aircraft gun. Their three decrepit support vessels were destroyed. Sixty-four men were killed, along with Vietnam's ability to pre-empt any more challenges. Within months China had occupied Hughes, Subi and Gaven Reefs, adjacent to Vietnamese, Filipino and Taiwanese garrisons respectively (Hayton 2014:83).

The Chinese aggression was as calculated as it was blatant. Most of the Spratly islands and reefs lie outside Vietnam's self-proclaimed EEZ. Under UNCLOS, China has as much right to occupy them as Vietnam. Vietnam had only just commenced the economic reform process known as *Doi Moi*, and remained relatively isolated in the world community. Vietnamese protests were no more than that. The world remained silent. For China, the occupation was a *fait accompli*.

The Chinese occupation continues. The *Tian Jing Hao* is the largest and most powerful cutter-suction dredger built in Asia. Since 2014, China has deployed this dredger, and many others like it, throughout the Spratlys to create land on the submerged reefs that they occupy. A revolving cutter head devours sand and coral then pumps it onto the reef through a floating pipeline. Lagoons provide a ready supply of sand, and in the process they are deepened for use as harbours. To prevent the sand from washing away, a seawall is created around the periphery. Conventionally this is built from concrete or granite. In the remote Spratlys, coral blocks are often used instead. So much for the environment, and so much for the DOC. With 'indisputable sovereignty' the DOC does not seem to apply to China.

Fiery Cross Reef, Cuarteron Reef, Johnson South Reef, Hughes Reef, Gaven Reef, Subi Reef, and now Mischief Reef have, or soon will have harbours, buildings, desalination plants and greenhouses. A runway is being built on Fiery Cross Reef, and Subi and Mischief Reefs are likely to accommodate more, projecting China's military power to the southern reaches of the South China Sea.

China is not alone in physically altering their controlled features. The Philippines has encroached on the surrounding reef by building a runway on Thitu Island, although that is now being reclaimed by the sea. Vietnam has substantially altered Southwest Cay, adding a harbour and other land features over the past decade. Taiwan has built an airstrip and is currently upgrading its naval facilities on Itu Aba. The main difference between these activities and China's is that they modified existing islands, while Beijing is constructing islands out of reefs that for the most part were under water at high tide.<sup>19</sup>

#### Vietnam

In September 1973, the South Vietnamese formally annexed ten of the Spratly islands and reefs, occupying two of the crown jewels, Spratly Island and Namyit Island, the latter situated on the same atoll as Taiwan held Itu Aba. As previously discussed, they also occupied the Crescent Group in the Paracels in 1974, losing it to China a year later. In early 1975, the South Vietnamese sneakily displaced the Filipinos stationed on Southwest Cay, apparently while they attended a party on nearby Northeast Cay. In April 1975, three weeks before the fall of Saigon, the North Vietnamese seized all of the occupied islands from the South Vietnamese (Hayton 2014:79), with those on Southwest Cay choosing to swim to the Philippine-held Northwest Cay rather than fall prisoner to the Communists. By 1987, the Socialist Republic of Vietnam had occupied 15 features in the Spratlys (Severino 2014:181). After the disastrous battle with China at Johnson South Reef in 1988, Vietnam

<sup>19</sup> IHS Jane's Defence Weekly, 20 June 2014.

took every opportunity to avoid 'ceding' more territory. By 1989, Vietnam held 24 islands and reefs.

As discussed in the opening pages of this paper, Vietnamese fortifications were rudimentary right through to the 1990s. Most consisted of octagonal blockhouses, closely resembling small medieval castles, inclusive of battlements. On the reefs not a great deal has changed. There are more and larger blockhouses, but none of the reclamation that has characterised China's expansion. The islands have been better developed. Spratly Island still relies on one small dock, however there is a runway stretching from end to end, and enough structures to resemble a small Vietnamese town. Namyit Island is village-like, with a helipad. Southwest Cay has been more substantially developed, with a small harbour being dredged out of the reef and some reclamation using the resultant spoil. Sin Cowe East Island and Amboyna Cay are small but built up, both bristling with communications antennae and satellite dishes. Most of the Vietnamese reefs and islands feature lighthouses, which benefit all seafarers.

The self-proclaimed limit of Vietnam's EEZ extends as far as West London Reef, leaving the majority of occupied features beyond this significant line. The joint Vietnam/ Malaysia claim to an extended continental shelf would only serve to incorporate the Central and East London Reefs. Otherwise Vietnam's substantial holdings have been won by early and determined occupation.

#### The Philippines

Discussion on the Philippines claim always begins with the efforts of the enterprising Filipino, Tomas Cloma. In 1956, with fish processing and guano mining in mind, Cloma personally claimed all of the Spratlys east of Spratly Island simply by issuing a letter to a government minister and various embassies in Manila. He based his claim 'on the rights of discovery and/or occupation' and called his territory Freedomland (Hayton 2014:67).

Initially Manila did not take Cloma too seriously, but he created quite a stir in France, Vietnam, China and Taiwan. The Nationalist Chinese kicked his personnel out of the North Danger Reefs, even though they were not occupied by Taiwan. In 1957, the Philippines' Minister of Foreign Affairs issued a letter stating that Cloma could claim any unoccupied islands as long as no other country's sovereignty over them had been recognised. When the Philippines finally occupied several islands under the state banner in 1971, Cloma protested on the basis of the 1957 letter. Interestingly, the protest was not dismissed offhand. In 1974, Marcos persuaded Cloma to sign over Freedomland to the Philippine government, finding legal and economic intimidation more effective than negotiation. Marcos changed the name to the Kalayaan Islands, meaning freedom in Tagalog, and in 1978 declared them a municipality of Palawan. In 2009, in order to comply more with UNCLOS, the Kalayaan Islands were deemed to be a 'regime of islands' rather than an extension of Palawan. The extent of the Philippines claim remained the same.

The current significant holding of the Philippines owes much to their early reaction to the threat from Taiwan. In 1971, the Philippines occupied Thitu, Nanshan and Flat Islands. By 1978 four more islands were occupied, and a couple more have been taken since then. They include Northeast Cay (the adjacent Southwest Cay having been stolen by the Vietnamese in 1975 as discussed earlier), Lankiam Cay, West York Island, and Loaita Island. These are sand cays or genuine islands, although none could sustain human habitation on their own. Thitu (Pagasa) is the second largest island in the Spratlys. Some

reclamation work has been done to accommodate a runway, but otherwise the facilities are rudimentary. Interestingly there are several families living on the island, and a school. Commodore Reef is the southernmost feature occupied by the Philippines, where a small sand cay provides foundation for a basic structure. Second Thomas Shoal remains in Filipino hands, by virtue of the rusting *Sierra Madre* and her resilient crew. While a lighthouse was constructed there in the 1960's, Scarborough Shoal was never occupied by the Philippines.

All other claimants have invested in recent upgrades to their facilities on occupied features. China leads the way by far, but others have taken action in response to China's aggressive build up. Not the Philippines. Despite a good economic performance over the past few years, and threats from China so close to home, funds have not been made available to noticeably enhance any of the Philippines' facilities.<sup>20</sup>

#### Malaysia

Malaysia has confined itself to reefs within their 1979 self-proclaimed continental shelf limit, which roughly coincides with their EEZ. The claim is based on national security and the relatively close proximity of these features to the Sabah mainland. Pulau Layang Layang was occupied in 1983, and opened to diving tourists in 1991. Ardasier, Mariveles, Dallas, Erica, and Investigator Reefs are also occupied. Malaysian Special Forces placed markers on Amboyna Cay in 1978 but that did not stop the Vietnamese from occupying the reef a few years later (Mahadzir 2014:209).

Malaysia has carried out some dredging and minor reclamation work on the occupied reefs in order to install military facilities. Several of these facilities have been pre-fabricated on large barges, which were towed into position and then ballasted down with sand and coral rubble in 1986 and 1999. In 2004, a marine research station was opened on Pulau Layang Layang.

Apart from the 2010 incident at Pulau Layang Layang, when Chinese vessels came a little close, Malaysia has not suffered direct conflict with China.<sup>21</sup> Malaysia's aim in occupying these reefs is perhaps more to do with strengthening its position *vis-à-vis* the maritime border with the Philippines. Unlike much of the South China Sea, this area does have confirmed oil reserves.

#### HISTORICAL EVIDENCE FOR EARLY VOYAGING IN THE SOUTH CHINA SEA

#### Chinese Junks

Manguin comments: 'it is widely accepted that the Chinese did not possess large sea-going craft before the 8<sup>th</sup> century' (Manguin 1984:199). Other scholars are not so magnanimous. Wade (2013b:11), while hedging his bet, nudges the start date ahead, stating that Chinese ships were rarely used on the Southeast Asian routes until the 9<sup>th</sup> century, while Indian,

<sup>20</sup> More recently this has in part been deliberate, so as not to undermine arguments against Chinese development and the blockade of Scarborough Shoal now before the International Court of Justice in The Hague.

<sup>21</sup> Mahadzir (2014:221) notes that there are probably many incidents that go unreported as 'Malaysia does not want to jeopardize its relations with the offending country'.

Persian and Kunlun (Southeast Asian) ships are frequently mentioned in ancient texts. Wang Gungwu quotes a Chinese text describing a mission from China to India via the Isthmus of Kra in AD 2: 'The merchant ships of the barbarians are used to transfer them [the Chinese] to their destination' (Wang 1958:20). In his opinion, the word 'transfer' implies that Chinese ships transported the mission to the Isthmus, before they crossed the land and embarked on foreign ships. Other translators such as Pelliot, Ferrand and Luce conclude that foreign ships were used for the entire voyage. The author must side with the majority in this case, as it is highly unlikely that such a feat would go unrepeated for nearly a thousand years. To bolster the case, Miksic (2015:5) notes that during the mid-3<sup>rd</sup> century AD several Chinese envoys were sent to the Nanhai (South Seas), but they all travelled in foreign ships.

Official Chinese forays were very rare. Wolters (1986:231) notes another in AD 683, when the Tang court sent an envoy to Srivijaya. The text does not mention a ship or even a mission, just an envoy. The implication is that this envoy travelled on a foreign ship. Wang (1958:107) states that there are no Tang records of large Chinese junks sailing to the Nanhai. He says that neither Chinese traders nor coastal shippers were interested in the Nanhai and its trade per se. Neither would take the gambles necessary to advance the trade appreciably, least of all risk their lives in trading junks and foreign countries at the mercy of waves, pirates and 'barbarian' officials (*ibid*.:116).

Heng's work on early Sino–Malay trade draws heavily on Chinese texts. He concludes that Chinese shipping apparently did not carry any of the trade between Southeast Asia and China throughout the first millennium AD (Heng 2012:30). He pushes the 'start' date even further ahead by stating that information on Chinese participation in maritime shipping to the Malay region is not forthcoming until the 11<sup>th</sup> century, when Chinese provincial accounts, particularly in Fujian and Guangdong, begin to mention the Chinese sailing abroad for the purpose of trade.<sup>22</sup> The passive stance of the Chinese courts in their diplomatic and economic interaction with maritime Southeast Asia appears to have greatly discouraged active Chinese participation in shipping between the two regions during this period (*ibid.*:31).

Being more specific, in 989 the Song court began to permit Chinese private vessels to sail abroad for the purpose of trade. However, regulations were imposed requiring all Chinese traders to first register themselves at the mercantile shipping superintendency at the ports of Hangzhou and Mingzhou (*ibid*.:42). During Renzong's reign (1023–65), the port of Guangzhou was added. Chinese ships had to return to the ports at which they registered so that they could be subjected to customs inspection, a restriction that must have stifled early direct trade. Eventually, in 1090, the Song court decreed that Chinese ships could officially register and depart from any prefecture. Within ten years, trade revenue doubled (*ibid*.:48).

Early Chinese shipping was not limited to the South China Sea. In the 9<sup>th</sup> century, Chinese and Korean merchants often sailed to Kyushu for private trade with Japan (Yamauchi 2013:113), suggesting that Japanese shipping played a minor role at that time. During the Five Dynasties period Chinese trade continued, primarily conducted by people from Wu-yue (*ibid*.:114). With the economic expansion of the Southern Song, the China-Japan trade blossomed. There was a marked increase in the demand for sulphur, a

<sup>22</sup> Heng, 2012:30, citing Wolters 1986.

primary ingredient in gunpowder. In 1084, a Chinese document records that an official from Ningbo submitted a plan to dispatch five groups of merchants to Japan to purchase 100,000 *jin* (about 58 tonnes) of sulphur each. This plan was approved by the Emperor. A Japanese document from the same year corroborates this mission, recording five trading vessels led by five Chinese captains which came to Hakata (*ibid*.:121). By the 12<sup>th</sup> century, Hakata was an officially designated trade port, controlled and managed by the Japanese government. There is archaeological evidence of a Chinese settlement there (*ibid*.:114).

From as early as the second half of the 11<sup>th</sup> century the Song court had ruled that Chinese vessels could not remain abroad for more than nine months (Heng 2012:51). As they could only operate within a single monsoon cycle it was impossible to trade directly with the Indian Ocean littoral. This restriction seems to have remained in force until the end of Southern Song rule, i.e. around 1279 (*ibid.*:59). As a result of the lifting of this restriction by the newly installed Yuan court, Chinese shippers appear to displace the Southeast Asians from their traditional role of transhipping products from the Indian Ocean littoral and Middle-East to China (*ibid.*:64). As an indication of how far the Chinese had come, a Muslim merchant and maritime trade supervisor in Quanzhou, Pu Shou-geng, reported in 1281 that he had been ordered by the Yuan emperor to build 200 sea-going ships, of which 50 had been finished (Wade 2013a:90).

In 1284, there was a major departure from the private trade policy implemented throughout the Song, when the Yuan court attempted a state monopoly on Chinese shipping (Heng 2012:65). Much of the maritime trade during the Yuan was controlled by foreign, mainly Muslim, merchants residing in the southern ports, often in *ortogh*<sup>23</sup> partnerships with Mongol imperial family members or government officials. A joint venture system was established, combining government ships with merchant expertise. Profits were shared in a 7:3 ratio. In 1285, the Yuan government allocated 100,000 *ding* (more than 20 tonnes) of silver to build ships for joint ventures (Wade 2013a:82).

The ban on private trade was lifted and re-imposed intermittently through to 1323, after which time private trade was permitted until the end of the Yuan dynasty (Heng 2012:59).

The Mongols were not content with trade alone. They invaded Korea repeatedly from 1231 to 1259, when the Goryeo Dynasty finally acquiesced to becoming a vassal state. In 1274, the Mongols invaded Japan but were eventually repelled. They tried again in 1281 only to have their fleet shattered by a typhoon.

Then it was Java's turn. According to the Accounts of Shih-pi (Robson 2013:196):

In the year 1292 he [Shih-pi] was made commander of the expedition to Java, whilst Ike Mese and Kau Hsing were appointed to assist him... In the 12th month he joined the other troops with 5,000 men and departed from Quanzhou: the wind was strong and the sea very rough, so that ships rolled heavily and the soldiers could not eat for many days. They passed the Sea of Seven Islands (Paracels) and the Long Reef,<sup>24</sup> they passed

<sup>23</sup> *Ortogh* partnerships were Mongol merchant associations which pooled their resources and spread their risks.

Robson suggests that Long Reef is Macclesfield Bank. The author is of the opinion that Long Reef refers to a legendary non-existent reef stretching south from the Paracels, known as the Scorpion's Tail. Macclesfield Bank is not a reef at all, but a huge area of shallows with a least depth of 9 m, and is nowhere near the course of ships heading for northern Vietnam.

the land of the Giau-chi (northern Vietnam) and Champa, and in the first month of the next year they came to the Western Tung Islands (Anambas?), entered the Indian Sea (?) and consecutively arrived at the Olive Islands (?), Karimata and Kau-lan (Bilitung), where they stopped to cut timber to make small boats for entering the rivers.

Pirates joined the expedition with a large number of men and ships, but in vain (Bade 2013:9). The Mongol incursion became immersed in local intrigue, and the fleet retreated while they could still take advantage of the favourable monsoon.

Chinese oceanic shipping steadily advanced, however, there were nowhere near enough sea-going vessels to satisfy the new emperor's goals. Emperor Yongle reigned from 1402 to 1424. Wade is of the opinion that he intended to create legitimacy after usurping the previous emperor by displaying the might of the Ming (Wade 2004:11). He aimed to bring all the known polities into submission and to collect treasures for his court. Designated Admiral Zheng He's fleets needed to be imposing enough to cow any opposition. Wade enumerates the phenomenal shipbuilding activities (*ibid*.). In 1403, the Fujian Regional Military Commission was ordered to build 137 sea-going ships. In the same year, various military units were ordered to build an additional 400 ships. In 1405, just after Zheng He departed on his first expedition, Zhejiang and other regional military commissions were ordered to build 1,180 sea-going ships.<sup>25</sup> By 1408, the Ministry of Works was required to build 48 'treasure-ships' or *bao-chuan*.<sup>26</sup> The various missions comprised between 50 and 250 ships, some voyaging for years before returning to China.

Zheng He's voyages had drained the state coffers, and lost relevance when viewed against the renewed threat of invasion from the north. When his patron, Yongle, died in 1424, successors, Hongxi, who only lasted for one year, and then Xuande, ordered the immediate cessation of overseas exploration. Tribute missions were consolidated and official trade continued, but without unfettered private trade, the quantity of Chinese exports and the number of Chinese ships carrying them began to decline.

The first edict specifically banning all Chinese shipping was issued in 1371 by Emperor Hongwu. It was lifted in 1405, but in 1479 China turned inwards again. Shipbuilding laws were implemented restricting the size of sea-going vessels. The decline of the Ming navy allowed the growth of both local and Japanese piracy along China's coasts. Instead of mounting a counter-attack, Ming authorities chose to shut down all ports to private shipping. Foreign trade was to be conducted by the state under the guise of tribute missions. These were known as the *hai jin* laws, a strict ban on private maritime activity which was not formally abolished until 1567 (Fairbank 2006:139).

Despite the frequent policy changes, a Chinese shipbuilding tradition had been well established. Construction techniques changed little for the next 300 years, when steam finally forced sail from the seas.

In the author's opinion, this number is a gross exaggeration, but it does convey an idea of the massive amount of construction needed to support Zheng He's voyages.

<sup>&</sup>lt;sup>26</sup> The *bao-chuan* are frequently ascribed a length of 120 m or more, based on one unsubstantiated Chinese text. In the humble opinion of the author, and many other scholars and professionals, this is rubbish. From consideration of naval architecture, sail-ability, archaeology and history, the *bao-chuan* would have been a maximum of 50 m long. This size is still huge and imposing, and was not matched again by wooden sailing vessels until the arrival of the 1,100 tonne Dutch retourships in the 18<sup>th</sup> century.

#### Southeast Asian Lashed-Lug Ships

As will be discussed shortly, the late appearance of the first Chinese sea-going shipwreck more or less conforms to textual expectations. The much earlier appearance of Southeast Asian ships is also reflected in ancient texts.

Expanding on the 1<sup>st</sup> century AD Chinese text, *Han shu* (History of the Han Dynasty):

The barbarian trading ships transfer them to where they are going [and those on the ships] also benefit from this trade, and sometimes rob and kill people. The traders also suffer from the winds and waves and sometimes drown. Those who survive will be several years on their return. (Wade 2013b:2)

Here we have allusions to opportunistic piracy, and to the risk of shipwreck. 'Those who survive' has ominous overtones, implying that the chances of sinking were higher than not.

An oft-quoted description of early Southeast Asian ships is provided in a 3<sup>rd</sup> century Chinese text, cited in the *Nanzhou Yiwuzhi*:

The men from foreign lands call their boats bo. The large ones are over 200 feet long, and they are twenty to thirty feet high... they can hold 600–700 men, and a cargo of over 600 tonnes. The men from beyond our frontiers use four sails for their ships, varying with the size of the ships. These sails are connected with each other from bow to stern. There is a kind of lutou tree whose leaves are like lattice. These leaves are more than ten feet long, and are woven into sails. The four sails do not face directly forwards, but are made to move together to one side or the other, with the direction of the breeze.... when they sail, they do not avoid strong winds and violent waves, and therefore can travel very swiftly. (Wade 2013b:10).

Another 3<sup>rd</sup> century text<sup>27</sup> refers to Southeast Asian ships more specifically as *kunlun-bo*, or the ships of the people who lived in the South Seas. From the same period, the *Liang shu* records that Fan Shihman, ruler of Funan in the 3<sup>rd</sup> century, 'had great ships built, and crossing the immense sea, he attacked more than ten kingdoms' (Wade 2013b:11). During the Southern Dynasties (420–589) tribute missions arrived on *kun-lun-bo* (Miksic 2015:6).

That 'immense sea' is probably the Gulf of Siam, again illustrating the prevalence of exaggeration in early, and often second hand descriptions. From archaeological evidence, the size of the *bo* described in the *Nanzhou Yiwuzhi* is probably twice the actual. The fact that the Chinese writer highlights the *bo*'s capacity to sail in strong winds and violent waves implies that Chinese ships did not have that capacity.

By the 9<sup>th</sup> century, Southeast Asian ships traded with China more frequently. In the *Yiqiejing yingyi* of 815, Hui-Lin notes that *kun-lun-bo* were arriving regularly at the Gulf of Tonkin and along the south-eastern Chinese Coast (Heng 2012:28). A source from AD 841 says:

<sup>27</sup> See Christie 1957, in Wade 2013b:10.

Guangzhou enjoyed the profits of the barbarian ships where all the valuable goods were gathered... Of all those who served at Guangzhou, not one returned without being fully laden. (Wang 1958:83).

One of the last examples of a Southeast Asian lashed-lug ship (described below) may have been utilised by Ibn Battuta who travelled in the region in 1345–46. He mentions visiting Barahnakār, al-Jāwa (Samudera), and Mul-Jāwa (Java), the 'country of the infidels.' From there he sailed onward toward China on a ship provided by the ruler of Samudera, stopping only at the country of Tawālisi—probably Champa (Wade 2013b:11).

#### Arab, Persian and Indian 'Dhows'

The Buddhist monk, Faxian, boarded an Indian ship that could carry 200 passengers for his voyage from Sri Lanka back to China in 413 (Guy 1990:2). He spent some five months at Yeh-po-ti in Indonesia (probably Java) before continuing on to China, most likely on a Southeast Asian ship. The historian of the Liu Sung dynasty writes in 487, 'There is a chain of great and small ships....' trading from India, Sri Lanka and ports further west (Wang 1958:58).

Hourani (1995:46) notes direct Arab trade with China from at least as early as the 7<sup>th</sup> century. He quotes the Chinese traveller, I-Ching, who voyaged from China to Sumatra in 671:

In the beginning of autumn..., I came to the island of Kwang-tung, where I fixed the date of meeting the owner of a Po-sse (Persian) ship to embark for the south.... At last I embarked from the coast of Guangzhou (Canton).

There is a Chinese account of the *Po-sse* in 727. After describing their voyages to Sri Lanka and Malaysia: 'They also sail in big craft to the country of Han, straight to Canton for silk piece goods and the like ware' (*ibid*.:62) In 748, the Chinese monk, Jianzhen, noted that on his way from Hainan to Guangzhou he saw countless numbers of sea-going vessels from India, Persia, *Kun-lun*, and other countries (Lam 1990:151).

Wang (1958:73) believes that during the course of the 8<sup>th</sup> century the Arabs became the middlemen of the Nanhai, and their ships the chief means of communication. He notes that the ships used by most of the Chinese pilgrims prior to 750 AD were either *kunlun* merchant ships, that is, ships owned or used by Cham, Khmer, Malay (Srivijayan) and Javanese merchants, or Indian ships. After the mid-8<sup>th</sup> century, a new trade had started in the South China Sea, with the *kun-lun* merchants who were most important in the previous century giving way to the Persians and the Arabs (*ibid*.:103).

Bronson (1996:181) argues that for at least several decades during the 9<sup>th</sup> century, cargoes flowing between China and the Middle-East were transhipped across the Isthmus of Kra, rather than being transported through the Malacca Straits by ship. He notes the great quantity and variety of late Tang wares and Middle-Eastern glass and glazed pottery at Laem Pho and Ko Kho Khao on opposite sides of the Isthmus, implying that they were the main entrepots on the most frequently used trade route.

An Arab source, the *Muruj al-Dhahab*, written by Mas'udi in 956, states:

The ships from Basra, Siraf, Oman, India, the islands of Zabaj and Sanf came to the mouth of the river of Khanfu [Guangzhou] with their merchandise and their cargo

[before 877–8]. Then [the trader] went to sea to the land of Killah [Kedah] which is approximately half way to China. Today [c.965] this town is the terminus for Muslim ships from Siraf and Oman, where they meet the ships which come down from China, but it was not so once. (Guy 1990:13)

So Arabs, Persians, and Indians were trading directly with China in the 9<sup>th</sup> century, as confirmed by the *Belitung* and *Phanom Surin Shipwrecks* (see below), but had the option to stop at Kedah or Ko Kho Khao to tranship. By the 10<sup>th</sup> century it would seem that transhipping was the only option.

The reason for discontinuing direct trade with China is clear. The *Po'ssi* (Persians) and *Ta'shih* (Arabs) seem to have dominated maritime trade with China at the height of the Tang Dynasty (Guy 1990:7). They established settlements at Guangzhou, where they were sufficiently strong to sack that city in 758, then evacuate, as an act of retaliation against corrupt port officials. Chinese rebels then sacked Yangzhou in 760, killing thousands of *Po'ssi* and *Ta'shih* merchants (Wang 1958:76). In 878, Huang-Chao burned and pillaged Guangzhou and murdered the foreign merchants, along with many Chinese citizens (*ibid.*:78). A contemporary Arab geographer, Abu Zaid, recorded that 'no less than 120,000 Muslims, Jews, Christians, and Parsees perished' (Hourani 1995:76), emphatically demonstrating the extent of sea commerce with the western Indian Ocean, even when taking exaggeration into account. Instead of retreating to Tonkin, as they had before, it seems that the Indian Ocean merchants abandoned the South China Sea and relied on Southeast Asian shipping to supply the entrepot ports on the western shores of the Isthmus of Kra.

There are two independent accounts of the route taken to China during the mid-9<sup>th</sup> century, one by ibn-Khur-dadhbih and the other by the author of *Akhbar al-Sin w-al-Hind*. Hourani gives a detailed account of the route derived from these sources (*ibid.:66*). Ships departed from various ports in the Persian Gulf after loading cargoes of fabrics, rugs, metalwork, iron-ore and bullion. Captains could take two routes to India. Vessels on the long China run called in at Muscat before sailing directly across the Indian Ocean to Quilon in southern Malabar. Other vessels took the coastal route along the northern shore of the Arabian Sea and down the west coast of India, but this route was fraught with danger, mainly from pirates. From Malabar passage was either made to Ceylon, the Island of Rubies, or directly to the Nicobar Islands where water was taken on. The next port of call was Kalah Bar [Kedah]. Ships sailed from there to Sumatra, Java and China. Those going directly to China proceeded down the Malacca Strait, stopped at Tioman Island for water, then carried on across the South China Sea to ports in Champa. From there they voyaged to Canton, either via Hanoi, or the more direct route past the dangerous Paracel Reefs. The return voyage followed the same route in reverse.

There is a description of an Arab ship in the late Tang work, *Ling Piao Lu I*: 'all the ships of the merchants... do not use iron nails; their (boards) are strapped together with fibres of coir-palms. All seams are caulked with an olive paste which is very hard when dry and acts like paint when mixed with water' (Wang 1958:107). The reference to strapping with coir could imply Arab or Southeast Asian, neither of which utilised any iron fastenings. The Southeast Asians, however, 'caulked' hull seams with paper-bark, while the Arabs used an oil-based paste.

#### Ships of the South China Sea Tradition

The marked predominance of South China Sea Tradition wrecks in the Gulf of Thailand and along the eastern coast of Peninsula Malaysia from the 14<sup>th</sup> century graphically illustrates a surge in shipping that mirrored the surge in Thai ceramic production (Flecker 2007). Indeed the life of the South China Sea Tradition ships mirrors the life of the Thai export kilns, from the late 14<sup>th</sup> century until the late 16<sup>th</sup> century.

At some time in the 14<sup>th</sup> century, the ceramic industry of central Thailand, which had hitherto only supplied a local demand, began to produce material for export. By the 15<sup>th</sup> century, Thai ceramics had become a regular feature of the Asian ceramic trade. The initial change may well be related to the founding of the Kingdom of Ayudhya in 1351. It rapidly emerged as a regional power, partly through the vigorous private trade carried on by locally entrenched Chinese merchants (Guy 1990). But the huge surge in ceramic production was mostly driven by the need to relieve the shortages created by the Chinese ban on private overseas trade.

Rather than tracing the various edicts banning overseas trade and/or shipping, Brown (2009:69) has studied the proportion of Chinese ceramics on all known shipwrecks from the 14<sup>th</sup> to the 16<sup>th</sup> century. She concludes that the so-called Ming gap occurred in stages. From a complete monopoly, Chinese ceramic cargoes fell to 30 to 40% of the total between c.1368 and c.1430. From c.1430 until 1487 the percentage plummeted further to 5% or less. However, during the Hongzhi reign (1488 to 1505) there was a flood of Chinese ware, including blue-and-white porcelain. There was another period of moderate shortage from about 1520 until the end of the Ming ban in 1567.

It was initially thought that the Sawankhalok and Sukhothai kilns, the main production centres for export Thai ceramics, closed during the mid-15<sup>th</sup> century battles between Ayudhya and Chiangmai, but subsequent kiln and shipwreck excavations, have moved the end date for these kilns towards or even beyond the Burmese invasion of northern Thailand in 1558 (Brown 1989). So the forces initially attributed to the demise of northern Thai ceramic production may, in fact, have significantly promoted trade. Guy states that the shifting of the Ayudhya Kingdom's capital to Pitsanulok, near Sawankhalok, in 1463 to strengthen the northern boundaries against Chiangmai, may have boosted the prosperity of the Sukhothai region, as the critical element in the Thai ceramic trade was Ayudhya's control of the Menam Chaoprhraya river basin and the access it provided to international trading networks (Guy 1990).

The location of the South China Sea Tradition wrecks and the Thai ceramic cargoes on them give insight into the routes they followed and the markets they supplied. The wide variety of ceramics found on many South China Sea Tradition wrecks clearly demonstrates Ayudhya's role as a staging point where ceramics from the Sawankhalok, Sukhothai and Singburi kilns, and various other kilns throughout the kingdom, accumulated prior to being loaded onto ships for export. A handful of Chinese and Vietnamese pieces have also been found on several wrecks with predominantly Thai ceramic cargoes. Guy (1990) comments that with trading vessels travelling from Japan to Thailand via Fujian, Guangdong, and Vietnam, there was ample opportunity for the introduction of the Chinese and Vietnamese ceramics.

It is surprising that these fine vessels seem to have faded away with the collapse of the Thai export kilns in the late 16<sup>th</sup> century.

#### Ship Construction Techniques

It is fortunate for the maritime archaeologist that there are only four key types of non-European ships found in Asia. Construction techniques are unique to each region and/or period, and differ so much from each other that a ship's origin can be determined from a glimpse of the hull or from fragmentary remains. The four types are described briefly below, as an introduction to an inventory of ship losses in China and Southeast Asia.

#### Southeast Asian Lashed-Lug Ships

The earliest shipwrecks found throughout Southeast Asia are of the so-called lashed-lug tradition. Lashed-lug ships are built by raising planks on each side of a keel piece that shows clear signs of having evolved from a dug-out base (Fig. 10). The planks are edge-joined with wooden dowels. They are carved, rather than bent to shape, and incorporate protruding cleats or lugs. Holes are carved out of the lugs so that they may be lashed to ribs and/or thwart beams, thereby holding the planks together. Additional strength and water-tightness is achieved by stitching the planks together. Holes are drilled near the edges of the planks for stitches of vegetal fibre. They are usually drilled in pairs and occur within the seam, not being visible from outside the hull. These early Southeast Asian craft were steered by two quarter rudders, a system that survives to this day on many sailing vessels still plying the waters of Indonesia. They had up to four bipod or tripod masts and a bowsprit, with canted square-rig or lug sails.

![](_page_29_Figure_6.jpeg)

![](_page_29_Figure_7.jpeg)

Credit: Author.

#### Arab or Indian 'Dhows'

Pretty well all that is known of ancient Arab or Indian hull construction comes to us from the archaeological excavation of the *Belitung Shipwreck* (Flecker 2001, 2001a, 2010) (Fig. 11). A canted stem-post connects to the keel at a horizontal mortise and tenon joint. Hull plank edges are faired to the correct angle and butted directly against the flat surface of the keel and stem-post, where they were stitched in place. The stern post is either vertical or has a slight cant. A strong keelson supplements the light keel in providing longitudinal stiffness

to the vessel. Sawn hull planks are stitched edge-to-edge with coconut fibre twine, or coir, passing right through the planks in a criss-cross manner. Wadding material is placed under the stitching both inside and outside the hull. Frames are notched where they pass over plank edge-joints to allow for the stitching and wadding, and two holes are provided between each notch for fastening light frames to the hull planks. Teak thwart beams protrude through the hull just below the gunnel, just as they do on still extant Omani fishing boats. So-called ceiling timbers, or cargo trays, may be placed longitudinally across the keelson, stringers, and frames as a supporting bed for ballast and cargo.

![](_page_30_Picture_3.jpeg)

#### Fig. 11. Stitching holes line the hull planking of the Belitung Wreck

Credit: Author.

Due to the great degree of inter-influence across the Arabian Sea it is very difficult to determine any fundamental structural differences between ships built in the Middle-East or India from historical, iconographic or ethnographic sources. Such sources can, however, provide insights on deck structure and rig. It would seem that dhows were essentially square rigged, with one or two vertical stayed masts (Vosmer 2010:132). During the first millennium AD they were steered with quarter rudders, which gave way to an axial rudder sometime during the early second millennium.

#### Chinese Junks

The ancient coastal and riverine craft of China tended to be flat-bottomed. While there are exceptions, sea-going junks seem to have adopted the Southeast Asian V-shaped hull in order to better navigate turbulent seas and shifting winds. The transom stem and stern were maintained, along with bulkheads that divided the ships into compartments

(Fig. 12). While there are many references to these compartments being watertight, the archaeological evidence of limber holes at the base of each bulkhead would seem to refute this.

It seems that the Chinese used the bulkheads as cross-sectional templates around which they built the hull. Worcester (1947:34) observed, 'The side planks are then placed longitudinally in position and hove down by a Chinese windlass, after which they are firmly nailed to the edges of the bulkheads'. The planks are edge-joined with diagonal iron nails driven through pre-prepared triangular notches, which are then filled with a lime-based caulking compound (*chu-nam*) to protect the iron from corrosion. In some cases wrought iron clamps are used (Li 1989:279), and these too are smeared with *chu-nam*.

![](_page_31_Figure_4.jpeg)

![](_page_31_Figure_5.jpeg)

Credit: Author.

The Chinese are thought to have developed the axial rudder as early as the 1<sup>st</sup> century AD (Temple 1998:185). Throughout the ages Chinese rudders were held to the hull in wooden jaws or sockets that permitted free vertical movement, and, if large, suspended from above by tackle pulling on the shoulder so that the rudder could be raised and lowered. Chinese rudders were often slung well below the bottom of the ship to minimise leeway in lieu of a substantial keel, being raised when approaching shallow water. On one type of vessel the rudder was held in place against the drag of passing water by ropes running from the foot of the rudder under the bottom of the vessel to a windlass on the forecastle (Needham 1971:404, Fig. 8.3).

Masts are stepped in tabernacle partners on the keel, and are generally canted forward. Smaller mizzen masts may be stepped on the deck, and sometimes off-centre. With a large cross-section and massive support at deck level, the masts can support the heavy battened sails without stays.

#### South China Sea Tradition

Vessels of the South China Sea tradition are typified by a V-shaped hull with a substantial keel. Regularly spaced bulkheads are held in place by a single adjacent frame (Fig. 13). Hull planking is multi-layered, with the inner planking fastened to frames and bulkheads

with square section iron nails. The outer planking is fastened to the inner planking by smaller nails, and often there is an additional sacrificial outer layer to protect from toredo worm attack. Both hull and bulkhead planks are dowel edge-joined. Mast steps have twin recesses for tabernacle partners. They are steered with an axial rudder which is held in place in wooded sockets in the same manner as a Chinese junk. Teak seems to be the primary timber used for construction, although additional investigation is necessary to determine whether these ships were made exclusively in Thailand. The author speculates that this design was utilised elsewhere in Southeast Asia, and from limited archaeological evidence, continued to be used well after the decline of Thai ceramics production in the mid-16<sup>th</sup> century (Flecker 2007).

Arguably the hull shape, keel, multi-layering, and dowel edge-joining can be attributed to Southeast Asian traditions. Bulkheads, iron fastenings, rigging, and the axial rudder are contributions from China.

![](_page_32_Figure_4.jpeg)

![](_page_32_Figure_5.jpeg)

Credit: Author.

#### Archaeological Evidence in China and Southeast Asia

Maritime archaeology has only been practiced in Asia since the late 1970s. It was introduced at that time in response to the looting of wrecks in the Gulf of Siam. Interestingly, institutional archaeology has been limited to Thailand ever since. Virtually all that is known of the multitude of shipwrecks found throughout the rest of Southeast Asia comes to us from responsible commercial excavators, working under license with regional governments. China is a relative newcomer to maritime archaeology. The field is fully controlled by the government and efforts are being made to make up for lost time. But no amount of effort, in China or Southeast Asia, will bring back the masses

of information that have been lost to looting. If anything, the looting is increasing. The relevant archaeological information that we do have is presented below.

#### Chinese Junks

The archaeological evidence supports Heng's conclusion that significant Chinese participation in oceanic shipping is not forthcoming until the 11<sup>th</sup> century. Actually, the earliest Chinese shipwreck known to have been engaged in international trade is the 12<sup>th</sup> to 13<sup>th</sup> century *Tanjung Simpang Mengayau Wreck* (Flecker 2012). It was lost off the northern-most tip of Borneo with a cargo of bronze gongs and ceramics from Fujian Province. The majority of the ceramics seem to have been utilitarian wares: green-glazed bowls and dishes from the kilns of Anxi, Nanan, and Putian. There were also olive-glazed bowls from the Tongan kilns, and covered boxes with a *qingbai* glaze from Dehua or Anxi. Timber samples have tentatively been identified as *Pinus sylvestris* (red pine). They are peppered with corroded iron fastenings, and outer hull planks exhibit rows of square-section nail holes. Red pine is a temperate species abundant in southern China, and only the Chinese used iron fastenings in vessel construction. The ship was probably voyaging from Quanzhou to Brunei or a settlement on the Sarawak River delta.

Next is the 13<sup>th</sup> century *Nanhai I Wreck*, which has been raised intact, at great expense, by the Chinese government and is now being 'excavated' within a dry-dock in a newly constructed museum at Yangjiang, Guangdong Province.<sup>28</sup> The hull is 30 m long with a beam of 7 m and is divided into compartments by a series of bulkheads. Interestingly the compartments are also divided internally by non-structural longitudinal timbers, which are therefore probably temporary. The ship contains a massive cargo of ceramics from Jingdezhen, Jiangxi, Longquan, Zhejiang, Dehua, and Cizao, along with much raw iron and iron-ware stowed amidships. She came to grief off the coast of Guangdong while bound for Southeast Asia.

The *Quanzhou Wreck*, is the only documented example of a Chinese ship returning from the Nanhai. She sank in a harbour around 1273 with a cargo of Southeast Asian commodities such as fragrant wood and cowrie shells, along with small samples of ambergris, cinnabar, betel nut, pepper, and tortoiseshell. The hull remains are 24 m long and 9 m wide. Twelve bulkheads are fastened to the hull planking by metal brackets and large frames. The hull planking itself is multi-layered in interesting clinker-like steps.

In 2007, Chinese archaeologists excavated a wreck on Discovery Reef in the Paracels. The hull measured 17 m long by 7.5 m wide, and ten bulkheads were fastened to the hull by means of wooden clamps and iron nails. While the findings are yet to be disseminated, Kimura (2010:15) reports that the wreck dates to the Song Dynasty. Mention of a few blue-and-white ceramics being found within the hull, however, makes this date suspicious. Blue-and-white was not exported until the Yuan, and even then it was a relatively rare occurrence.<sup>29</sup>

<sup>28</sup> Initial plans called for a carefully controlled underwater excavation of the cargo within the dry-dock. Online news photographs show that the dock has now been drained. Workers are shown walking on the concretions and structure within the hull, and the timbers appear to be dried out and crumbling. It would be a great pity if the hull is not properly preserved after the enormous effort and expense of bringing it up.

<sup>29</sup> Excavations in Singapore have revealed a surprising amount of Yuan blue-and-white porcelain, demonstrating that it was an important entrepot during the 14<sup>th</sup> century.

In Vietnam, a 13<sup>th</sup> to 14<sup>th</sup> century wreck recently discovered in shallow water in central Quang Ngai Province seems to be that of a Chinese junk. The hull is 21 m long by 5.6 m wide and incorporates twelve bulkheads. Chinese ceramics in the hold include fine Longquan-ware and brown-ware from Guangdong. The 13<sup>th</sup> to 14<sup>th</sup> century *Bai Jiao I Wreck*, found off Dinghai in Fujian Province, may or may not have been involved in international trade. Only black-glazed tea-bowls and iron were confirmed as cargo. Timber fragments have been identified as pine and they contained iron fastenings, confirmation of Chinese construction. The early 14<sup>th</sup> century *Shinan Wreck* was found off Korea with a cargo of Chinese ceramics and over 26 tonnes of copper coins. The hull is 28 m long by 6.6 m wide, and of so-called rabbeted-clinker construction. She is thought to have been voyaging from Ningbo to Kyoto.

There are two documented Chinese shipwrecks that are contemporary with Zheng He's voyages. One is referred to as the *Turiang Wreck*, which was lost east of Singapore Strait around the year 1400 (Brown and Sjostrand 2000). It has not been fully excavated, but a small wood sample has been identified as pine, and there is evidence of diagonally driven iron nails being used to edge-join bulkhead planks. The surviving cargo comprised Thai, Chinese, and Vietnamese ceramics, along with some iron and ivory. Another wreck that has been fully excavated, after extensive looting, is the *Bakau Wreck*, which was found off Bakau Island on the western edge of Karimata Strait, Indonesia (Flecker 2001b). It also contained ceramics from Thailand, China, and Vietnam, including many huge Thai storage jars with organic contents. The hull remains were 23 m long and 7 m wide, and displayed all the features typical of Chinese construction; bulkheads, adjacent frames, iron nail edge-joining, wood stiffeners, *chu-nam* caulking, and hull timbers of pine. She appeared to be flat bottomed, and certainly did not have any substantial keel structure. This wreck has been dated to the early 15<sup>th</sup> century through carbon dating and Yongle (1403–1424) coins found on board.

Both of these wrecks, with their diverse cargo origins, suggest that some Chinese ships were journeying throughout Southeast Asia in much the same way as tramp steamers of the early 20<sup>th</sup> century, stopping to trade at the various ports along their route. The final destination was probably a port in Java, such as Tuban, where the ceramics would have been exchanged for spices and other natural products for the direct voyage back to China during the southwest monsoon.

Chinese wrecks do not appear again until the 17<sup>th</sup> century, perhaps reflecting intermittent but frequent bans on overseas trade from the demise of Yongle through to the late 16<sup>th</sup> century. The *Binh Thuan Wreck* went down in Vietnam around 1608 with a cargo of Zhangzhou ceramics (Flecker 2004). Archival evidence suggests that she may have been delivering her cargo to Dutch traders in Johor. The *Vung Tau Wreck* sunk in Vietnam around 1690 with a cargo of Jindezhen blue-and-white destined largely for purchase by the Dutch East India Company in Batavia (*id.* 1992). She is actually a *lorcha*, combining the best features of Chinese and Western ship construction.

There are other Chinese ship discoveries, including many dating prior to the 12<sup>th</sup> century. Kimura has listed the finds in China, but apart from those discussed above, they seem to be relatively small, flat-bottomed coastal or riverine craft (Kimura 2010). These tend to be found at terrestrial sites, where ancient harbours or rivers have silted up.

#### Non-Chinese Ships

As with the earliest Chinese ship discoveries, most of the earliest Southeast Asian finds are terrestrial sites. The oldest known example was found on a river bank at Pontian on the Malay Peninsula (Gibson-Hill 1952, citing Evans 1927). Piles of ceramic shards were found over the hull remains, implying that the ship may have suffered an accident, such as the collapse of the river bank. The ceramics are comparable to finds at Oc Eo in southern Vietnam, which gives them a broad 1<sup>st</sup> to 6<sup>th</sup> century date. Carbon 14 (C14) analysis of timbers carried out long after the ship was first exposed in 1926 yielded a date between the 3<sup>rd</sup> and 5<sup>th</sup> century, consistent with the ceramics date (Manguin 1996:185).

Some badly damaged pieces of timber kept in the Wat Khlong Museum in southern Thailand bear close similarities to the *Pontian* timbers. This, and their apparent association with the bead production site of Khuan Lukpad, which dates from approximately the first half of the first millennium AD, indicates a broad date comparable to the *Pontian* boat (*ibid*.).

Two dozen badly damaged planks, including a small section of keel piece, were discovered and excavated at Kolam Pinisi, near Palembang in south Sumatra. They belonged to a large sturdy hull that had its planks stitched together and fastened to frames by way of lashed-lugs. A C14 date of the 5<sup>th</sup> to 7<sup>th</sup> century was obtained from the planks (*ibid.*).

At tin mining sites in Jenderam Hilir, south of Kuala Lumpur, Malaysia, damaged planks with dowel holes and protruding lugs were recovered. A C14 date ranging from the 5<sup>th</sup> to the 7<sup>th</sup> century has been obtained (*ibid*.:189).

Eleven planks and a rudder were recorded at a disturbed site in what appears to be an old river bed some 2 km from the Musi River, near Sambirejo, south Sumatra. One of them has been C14 dated to between 610 and 775 AD. This is not a conclusive date for the main vessel as a small number of shards in the vicinity are Yue-type ware of the Five Dynasties period (*id.* 1989:203–205, 1996:188).

Sand quarrying at Paya Pasir, near the city of Medan, north Sumatra, revealed 30 badly damaged timbers, some paddles, and part of a wooden anchor. The timbers belong to a variety of vessels of different sizes, all of the lashed-lug tradition. By comparing the plank thickness with later vessels, Manguin (1996:188) estimates that the overall length of the larger ship was 30 to 32 m, substantially larger than any other lashed-lug vessel so far found in Southeast Asia. The site has been proven to be the harbour of the nearby settlement of Kota Cina which was active from the 12<sup>th</sup> to 14<sup>th</sup> century (*ibid*.:189). Ceramics recovered at the site confirm this date.

Nine ancient wooden boats have been discovered west of Butuan in Mindanao, the Philippines. Three of them have been excavated, and all of these are of lashed-lug construction with dowel edge-joining. The three boats have been C14 dated to 320, 1215, and 1250 AD (Clarke et al. 1993:143). They appear to be small to medium sized boats (14 to 17 metres in length and narrow) and therefore were not intended for bulk cargo transport. They may have been used for small scale inter-island trade, or they may have been war craft. It is difficult to speculate without associated artefacts.

Interestingly, the earliest archaeological find containing a full cargo is not of lashed-lug construction. The *Belitung Wreck* was lost off Belitung Island in Indonesia in the first half of the 9<sup>th</sup> century (Flecker 2001, 2001a). The surviving keel was 15.3 m long and at the widest point the hull extended 5.1 m from the ship's centreline. A composite

grapnel-type anchor had a shank of wood and arms of iron. Lead ballast ingots were stacked on ceiling timbers the full length of the ship. Many of the timbers originated in Africa, which along with ethnographic and iconographic evidence confirms a ship of Middle-Eastern origin, an Arab dhow.

The cargo consisted mostly of Changsha bowls and ewers. Many of the bowls were packed inside stoneware jars of the so-called Dusun-type, which were manufactured in Guangdong Province. An ink inscription on one Changsha bowl gave a specific date of 826 AD. There were early examples of finely incised Yue-ware, with its distinctive olivegreen glaze, and magnificent examples of white-wares of the famed Ding and Xing kilns of northern China. Ceramics with a splashed green glaze were probably produced at the Guanxian kilns of Henan Province. Three dishes decorated in underglazed blue on a white background are the oldest intact examples of Chinese blue-and-white ever found. The large volume of Changsha wares packed inside Guangdong storage jars suggests that the dhow departed from Guangzhou. Chinese coastal vessels would have delivered the Changsha, Ding/Xing and Guanxian wares from the ports of Ningbo and Yangzhou. The origin of the ship and the Middle-Eastern influence displayed by several of the artefacts makes a port in the Arabian Gulf the most likely destination, marking the culmination of the longest oceanic voyage of that era. However, the location of the wreck well to the south of the usual route through Malacca Strait introduces a modicum of doubt. With Tang ceramics found at a number of terrestrial sites, there is a small chance that Java was the intended destination.

In 2013, another dhow-type ship was discovered in a swamp west of Bangkok, some 8 km inland from the present shoreline (Jumprom 2014). The stitched hull technique is identical to that of the *Belitung Wreck*. The ship is bigger, with the surviving keel approximately 18 m long. It is known as the *Phanom Surin Shipwreck*. The site is still under investigation, but unlike the *Belitung Wreck*, there are relatively few associated artefacts. A squat torpedo-shaped storage jar, with Arabic characters molded near the neck, contained *damar*, a resin usually sourced in Sumatra. There is some speculation that this resin was used to seal stitching holes in the hull. Betel nut was also found, along with some ivory and animal horns. Ceramic finds include Southeast Asian earthenware pots, and two types of Chinese storage jar. The latter have been identified as originating from kilns in Xinhui and Fengkai in Guangdong Province. From the limited amount of analysis so far performed, it has been tentatively concluded that the wreck dates to the first half of the 9<sup>th</sup> century and originated in the western Indian Ocean. It may ultimately have been bound for China, but was clearly trading at Southeast Asian ports along the way, including those in the historic Dvaravati region, going by its current location.

After a typhoon in 2011, a wooden shipwreck was exposed in very shallow water near the town of Chau Tan in Binh Son District, Quang Ngai Province, Vietnam. The wreck was immediately plundered, to the extent that locals pulled up the hull remains to use for construction or firewood. Fortunately a local collector managed to acquire a large selection of ceramics and a few non-ceramic artefacts, along with many of the disarticulated ships' timbers. A Japanese archaeological team has undertaken the task of studying these remnants, a daunting exercise considering that all context has been lost (Nishino 2014). The surviving keel is 22 m long. Hull planks are edge-joined with wooden dowels, and stitched internally with coir. The strakes incorporate pierced lugs, with coir lashings still evident. The *Chau Tan* ship is clearly of Southeast Asian lashed-lug construction, and the first example to be found in Vietnam. Some 400 sacks of ceramics now belonging to the collector have been found to contain Yue greenwares, Changshaware, Ding and Xing whiteware, and a few three-colour-ware figurines. There are also a number of turquoise-glazed Middle-Eastern amphora shards. Three types of Chinese copper coins have been noted from the Tang dynasty, including those from *Qianyuan Zhongbao* (758–760). Ink inscriptions on some of the ceramics are in Chinese, Arabic and Indic script.<sup>30</sup> It can be tentatively concluded that, like the *Belitung* ship, the *Chau Tan* vessel had loaded at a Chinese port, most likely Guangzhou, during the early 9<sup>th</sup> century. She stopped off near Chau Tan in Vietnam, perhaps the first landfall after the crossing between Hainan and the Paracels, to trade, revictual and/or shelter. From her shallow gravesite it would seem that a storm drove her ashore and filled her with sand, preventing the contemporary salvage of some of her cargo.

While the surviving hull remains of the *Intan Wreck* were minimal, dowel edgejoints and timber analysis conclusively identify it as another lashed-lug ship (Flecker 2002). Stylistic analysis of ceramics, Chinese coins, and C14 analysis provided an early to mid-10<sup>th</sup> century date. Nearly half of the ceramics cargo consisted of small brownware pots, some with handles and some without. These pots, along with storage jars and basins probably came from kilns in the Chinese provinces of Guangdong and Fujian. A small number of white-glazed jarlets, dishes and vases came from the Ding or Xing kilns of Hebei Province. Greenware bowls and covered boxes with finely incised decorations, and lobed ewers originated from the famous Yue kilns of Zhejiang Province. But not all of the ceramics were from China. Hundreds of fine paste ware bottles and kendis were probably crafted in southern Thailand. Large jar shards with a thick turquoise glaze were of Middle-Eastern provenance.

The *Intan Wreck* also carried a wide array of bronze objects cast in Sumatra, yet showing the strong Buddhist and Hindu influences of India. There were bronze mirrors and silver ingots from China, tin from the Malay Peninsula, and glass from the Middle-East. The wreck's location south of Bangka Strait, the fact that none of the bulk cargo items originated from Java, and the presence of several artefacts that are known to have originated in Sumatra, indicate that the ship was sailing from Sumatra to Java. Although Chinese ceramics and other Chinese commodities formed a large part of the cargo, the ship did not go anywhere near China. Tonnes of tin from the mines of Kedah were stowed beneath the Chinese ceramics. The Chinese cargo must have been transshipped at an entrepot port in Sumatra, probably at or near Palembang, the seat of the Srivijaya Empire. She was probably bound for the Javanese state of Mataram.

The 10<sup>th</sup> century *Cirebon Wreck* has a cargo almost identical to that of the *Intan Wreck*, but in much higher quantity. Over 150,000 artefacts were recovered, with ceramics making up the vast majority. Unlike the *Intan Wreck*, much of the hull survived under the sediments in this deep-water site, and it is clearly of lashed-lug construction. The *Cirebon Wreck* is perhaps a decade or so later, and was involved in the same entrepot trade. Neither ship was voyaging from China when it sunk, although the large *Cirebon* vessel was certainly capable of passage making throughout the South China Sea and beyond.

The *Java Sea Wreck* has been dated to the mid to late 13<sup>th</sup> century based on the stylistic analysis of the ceramic cargo (Mathers and Flecker 1997; Flecker 2003). This is

<sup>30</sup> According to Nishino et al. (2014), this Indic script is a derivate of Southern Brahmi, which is used in South and Southeast Asia.

consistent with the C14 date range of AD 1265 to 1310 for a resin sample recovered from the wreck. While almost nothing remained of the hull, there was sufficient to conclude that she was an Indonesian lashed-lug vessel. She went down in the western Java Sea, 40 nautical miles from the coast and roughly halfway between Jakarta and Bangka.

It has been estimated that the ceramic cargo comprised at least 100,000 pieces. The majority were utilitarian wares from kilns at Anxi, Nanan, and Putian in Fujian Province. Several hundred *qingbai* covered boxes and small vases were from kilns at Dehua and Anxi. Smaller numbers of high quality wares with a *qingbai* glaze, are thought to have been produced at the kilns of Jingdezhen. A small number of black-glazed *temmoku* teabowls may have been produced at the Jian kilns of Fujian Province, or perhaps the Jizhou kilns of Jiangxi Province. A wide range of shapes characterized by floral decorations painted in dark-brown or black pigment and originally covered in bright green lead glaze may have been produced at the Chayang kilns in Nanping County, Fujian Province, or less likely from kilns in Yongchun County (Ho, in Flecker 2003). Large heavily potted bowls and dishes with a dark olive-green glaze are from the Tongan kilns in Fujian Province. Brown-glazed jars were produced at the kilns near Guangzhou.

With approximately 360 tonnes of cast and wrought iron in her holds, beneath 25 to 30 tonnes of Chinese ceramics, there is no doubt that the *Java Sea* ship loaded in China, most likely at the port of Guangzhou. Finely potted fine paste ware *kendis* and bottles from kilns in the southern Thai region of Patani indicate that she may have traded there during the return voyage. Ivory and aromatic resin, products of Sumatra, suggest a stop at a port along those shores. There is, of course, a chance that the non-Chinese commodities were transshipped at a single entrepot port. In all likelihood, the *Java Sea* ship was heading for a port in Java, perhaps Tuban. Part of her cargo may have been intended for transshipment to the vast island network to the east, the islands that supplied the all-important spices.

Yet another lashed-lug ship was discovered off the northern-most tip of Borneo, within shouting distance of the *Tanjung Simpang Mengayau* junk. Despite the site being heavily looted, some hull planks were found in-situ. They incorporated lugs and were edge joined with dowels. A large hand-shaped stone formed the stock of a Southeast Asian style anchor. Iron concretions contained wrought iron bars and blades. Ceramics recovered from the wreck site, and others on display in local antique shops, confirmed an almost exclusive cargo from the Longquan kilns, dating from the late 12<sup>th</sup> to early 13<sup>th</sup> century. Most were in the form of bowls and dishes, but there were also covered boxes and jars. Glazes ranged from translucent pale green to unctuous dark green, emulating the various hues of polished jade. The dealers prized a few large chargers decorated with an appliqué dragon, and therefore coined the name, *Jade Dragon*, for the wreck.

Despite its prominence at the time the *Jade Dragon* sailed, Quanzhou is unlikely to have been the port of departure. Being an entrepot port, by its very nature a much more diverse ceramics cargo is likely to have been loaded at Quanzhou. Ningpo is a more likely option, although that too had an entrepot leaning, being distant from kilns in the hinterland. With the exception of the utilitarian brownware jars which are found on all wrecks of the period, and some *kendis* from Cizao, the only non-Longquan ceramics on the *Jade Dragon Wreck* were from Cizhou, way to the north. This lack of diversity suggests that the *Jade Dragon* ship departed from the port that served the Longquan kilns exclusively, Wenzhou. From terrestrial finds, it is most likely that she was heading for either Santubong or Brunei. From the mid-14<sup>th</sup> century a new type of vessel makes an appearance. Manguin (1984) first coined the term 'South China Sea Tradition' for hybrid vessels which combined Chinese shipbuilding techniques with those of traditional Southeast Asia. Dowel edge-joining and arguably the keel and V-shaped hull can be attributed to Southeast Asian traditions. Bulkheads, iron fastenings, the axial rudder, and perhaps the mast-step for tabernacle partners are the key contributions of China. The hybrid outcome was a magnificent combination of strength and lightness.

Well over 20 South China Sea Tradition wrecks have been found over the past four decades, all in Southeast Asian waters. Most were found with cargoes of Thai ceramics, sometimes intact but usually heavily looted. Relatively well-documented wrecks include the *Bukit Jakas Wreck* (Manguin 1989), *Phu Quoc I Wreck* (Blake and Flecker 1994), the *Central Gulf of Thailand Wreck* (Flecker 2007), the *Ko Kradat Wreck* (Green et al. 1984), the *Ko Si Chang III Wreck* (Green and Harper 1987), the *Pataya Wreck* (*id.* 1983), the *Royal Nanhai Wreck* (Brown and Sjostrand 2002), the *Longquan Wreck* (*ibid.*), the *Nanyang Wreck* (*ibid.*), the *Santa Cruz Wreck*,<sup>31</sup> the *Lena Shoal Wreck* (Goddio 2002), and the *Pandanan Wreck* (Loviny 1996).

Most of these shipwrecks contained Sawankhalok and/or Sukhothai ceramics, along with storage jars from kilns in Suphanburi Province. However, not all South China Sea Tradition wrecks contained Thai ceramics. The *Santa Cruz* ship had a predominantly Chinese ceramic cargo bound for the Philippines or Borneo. Whether it loaded directly in China, or at an entrepot port in Southeast Asia, is open to speculation. The *Pandanan* ship contained mostly Vietnamese ceramics destined for Borneo or Sulawesi. The *Hoi An Wreck* carried hundreds of thousands of Vietnamese blue-and-white ceramics from the Hai Duong kilns, located near the port of Hai Phong. The cargo is particularly important for highlighting the skills of the Vietnamese potters, skills perhaps learnt from their Chinese counterparts who migrated south in search of work at the start of the Ming ban. The wreck lies off Cu Lao Cham, half way down the east coast of Vietnam. Apart from the fact that she was headed south, little about her route can be deduced from her position. Vietnamese ceramics are relatively rare in Thailand so another destination in Southeast Asia is more likely, where, just like Thai ceramics, the Vietnamese product enjoyed a surge in popularity when Chinese private trade was prohibited.

#### A Look at the Trends

#### Data Selection

As noted above, it can be difficult to determine whether a particular shipwreck was involved in distant voyaging or coastal trade when there is no surviving cargo. Of the multitude of early lashed-lug craft, it would seem that the *Pontian* ship was involved in the South China Sea trade due to the presence of 'piles of ceramics', and from the speculated size of the largest *Paya Pasir* ship, that too is likely to have been a long-distance trader. The other vessels were quite likely involved in localised inter-island trade, or they could well have been used for fishing, piracy or battle. They would have been covering distances comparable to the Chinese coastal and riverine traders, although the seas in the higher latitudes would tend to be more tempestuous.

<sup>31</sup> http://www.franckgoddio.org/projects/ancient-trade-routes/santa-cruz.html

Shipwreck Designation	Century	Type (Origin)
Pontian Hull Remains, Malaysia	4th-5th	Lashed-lug (SE Asian)
Belitung (Tang) Wreck, Indonesia	9th	Stitched (Arab)
Phanom Surin Wreck, Thailand	9th	Stitched (Arab)
Chau Tan Wreck, Vietnam	9th	Lashed-lug (SE Asian)
Intan Wreck, Indonesia	10th	Lashed-lug (SE Asian)
Cirebon Wreck, Indonesia	10th	Lashed-lug (SE Asian)
Tanjong Simpang Mengayau Wreck, Sabah	12th-13th	Chinese Junk
Quanzhou Wreck, China	13th	Chinese Junk
Nanhai I Wreck, China	13th	Chinese Junk
Java Sea Wreck, Indonesia	13th	Lashed-lug (SE Asian)
Paya Pasir Hull Remains, Indonesia	13th–14th	Lashed-lug (SE Asian)
Jade Dragon Wreck, Sabah	13th–14th	Lashed-lug (SE Asian)
Quang Ngai Wreck, Vietnam	13th-14th	Chinese Junk
Bai Jiao I Wreck, China	13th-14th	Chinese Junk
Sinan Wreck, Korea	14th	Chinese Junk
Discovery Reef Wreck, Paracels	14th	Chinese Junk
Nanyang Wreck, Malaysia	14th	South China Sea Tradition
Phu Quoc I Wreck, Vietnam	14th-15th	South China Sea Tradition
Phu Quoc II Wreck, Vietnam	14th-15th	South China Sea Tradition
Ko Si Chang III Wreck, Thailand	14th-15th	South China Sea Tradition
Longquan Wreck, Malaysia	14th-15th	South China Sea Tradition
Ko Khram Wreck, Thailand	15th	South China Sea Tradition
Turiang Wreck, Malaysia	15th	Chinese Junk
Bakau Wreck, Indonesia	15th	Chinese Junk
Royal Nanhai Wreck, Malaysia	15th	South China Sea Tradition
Sha Tsui Hull Remains, Hong Kong	15th	South China Sea Tradition
Pandanan Wreck, Philippines	15th	South China Sea Tradition
Santa Cruz Wreck, Philippines	15th	South China Sea Tradition
Lena Shoal Wreck, Philippines	15th	South China Sea Tradition
Pataya Wreck, Thailand	15th–16th	South China Sea Tradition
Hoi An Wreck, Vietnam	15th–16th	South China Sea Tradition
Bukit Jakas Wreck, Indonesia	16th	South China Sea Tradition
Ko Kradat Wreck, Thailand	16th	South China Sea Tradition
Klang Aow (Central Gulf of Thailand) Wreck, Thailand	16th	South China Sea Tradition
Binh Thuan Wreck, Vietnam	17th	Chinese Junk
Vung Tau Wreck, Vietnam	17th	Chinese Lorcha

#### Table 1. Shipwrecks in China and Southeast Asia with documented structure

The larger Chinese coastal traders were certainly capable of extending their cruising grounds into the Gulf of Tonkin, down the coast of Vietnam, and beyond. It would seem from the textual evidence that they chose, or were ordered, not to.

For the purpose of determining the prevalence of particular types of long-distance trading vessel from the shipwreck evidence, the terrestrial finds without surviving cargoes must be excluded. Most are in fact abandoned hulls rather than shipwrecks. Likewise, shipwrecks with documented cargoes but no conclusive evidence for the origin of the vessel must also be excluded. For example, in the case of the 12<sup>th</sup> to 13<sup>th</sup> century *Pulau Buaya Wreck* in Indonesia, with a cargo of Chinese ceramics and iron (Ridho and Edwards McKinnon 1997), nothing of the hull was recorded. The same goes for the 10<sup>th</sup> century *Karawang Wreck* (Liebner 2014), also in Indonesia, with a ceramics cargo similar to those on the contemporary *Intan* and *Cirebon Wrecks*. It was almost certainly another lashed-lug ship, but nothing of the hull was observed and/or recorded.

![](_page_41_Figure_2.jpeg)

Chart 1. Documented shipwrecks in China and Southeast Asia by type<sup>32</sup>

Credit: Author.

When studying Chart 1, the first thing that springs to mind is the dearth of documented sea-going shipwrecks in China and Southeast Asia. For the entire first millennium there are only six wrecks. In the 11<sup>th</sup> century, during the Southern Song when maritime trade began to surge, there are none. During the 12<sup>th</sup> century there is a single Chinese junk. Even at the peak, during the 15<sup>th</sup> century, there are only nine wrecks, an average of less than one per decade.

From the earliest times there must have been at least an annual voyage from various polities to Oc Eo in the kingdom of Funan. From the rise of Srivijaya in the 8<sup>th</sup> century it is likely that there were several voyages per year to and from China alone. Liebner (2012:46) calculates at least two voyages between China and eastern Java per year around the mid-10<sup>th</sup> century based on the *Cirebon Wreck* ceramics cargo and the likely consumer population. The Cirebon cargo was remarkably large, so his results may be underestimated. Recorded tribute missions can provide a base number for voyages to and from China. For example, between 960 and 999 there were 71 missions, or approximately two voyages per year (Heng 2012:39). Tribute missions tend to ease off after this, but are made up for by a rapid increase in private trade. There were five major trading ports in China by the end of the 10<sup>th</sup> century. If there were only two major voyages per year from each of these ports there would be ten trading ships fanning out across the South China Sea annually. From the 11<sup>th</sup> century, Chinese shipping added to the Southeast Asian fleet.

<sup>32</sup> Note that wrecks with dates that mark the transition between centuries have been allocated to the earlier century, i.e., a 13<sup>th</sup> to 14<sup>th</sup> century wreck appears in the 13<sup>th</sup> century column.

By the end of the 11<sup>th</sup> century this led to an increase in the trade of high-volume low-value products, such as sandalwood, sappanwood, and ebony, and latter cloves and cardamom *(ibid.*:50). By the 12<sup>th</sup> century, dozens, if not hundreds, of heavily laden ships must have voyaged throughout the South China Sea and beyond every year. Numbers continued to grow through the centuries. By the 17<sup>th</sup> century—the cut-off date for this investigation—the Dutch Day Register, covering Batavia arrivals and departures, mentions Chinese, Japanese, Javanese, Cambodian, Siamese, Malacca, and Manila *jonken* on an almost daily basis.

Chinese and Arab texts frequently mention the perils. European archives reveal high attrition rates for the fleets that traded with Asia from the 16<sup>th</sup> century, when shipbuilding technology was well advanced. Storms, pirates, rotten timbers, fire, overloading, and reefs must have claimed ships every year. The documented shipwrecks are but a fraction of what lies, or lay, out there.

Many wrecks have of course been looted without any documentation. Numerous wrecks never come to our attention because they do not contain any cargo of commercial value. In fact, most of the wrecks without a ceramics cargo, i.e. almost all those voyaging to China or Vietnam or Thailand, may never come to our attention. Most Asian wrecks are inadvertently discovered when ceramics are hauled up in trawl nets. If the scars evident in side-scan-sonar images off the east coast of Malaysia are anything to go by, most of the seabed has been trawled, and many times over. Apart from occasionally finding wrecks, trawl nets frequently damage them.

But there should still be many shipwrecks awaiting archaeological documentation, assuming the looters, the irresponsible salvors, and the big trawlers do not get there first.

#### The Trends

The trends are quite evident from Chart 1. In simple terms, Southeast Asian lashed-lug ships dominated for a thousand years through to the 13<sup>th</sup> century. During the 9<sup>th</sup> century Arab (and probably Indian) ships switched from trading via the Isthmus of Kra to direct trade with China. However, they switched back during the 10<sup>th</sup> century. Chinese ships first appear in the South China Sea by the 12<sup>th</sup> century, and coexisted with Southeast Asian vessels during the 13<sup>th</sup> century. Unless a design flaw caused an inordinate number of sinkings, the South China Sea Tradition ships that sprang up in response to various bans on Chinese overseas trade, would seem to be the prevalent craft from the 14<sup>th</sup> to the 16<sup>th</sup> century. From this admittedly simplistic visualisation, it would seem that the South China Sea Tradition replaced the Southeast Asian lashed-lug design during the 14<sup>th</sup> century.<sup>33</sup> However, textual evidence reveals that lashed-lug vessels evolved, with treenails replacing internal plank stitching and lashed in frames. Two, and sometimes three layers of hull planking were also attached with treenails. But the quarter rudders were retained on these vessels, referred to as *jongs* by the Portuguese.<sup>34</sup> The Chinese continued to trade directly with Southeast Asia through to the 17<sup>th</sup> century and beyond, with imperial

<sup>33</sup> It has been assumed that the South China Sea Tradition vessels were constructed in Thailand. Most were made predominately from teak. However, a detailed analysis of other timber species found on the many wrecks may shed light on other potential construction sites.

<sup>34</sup> Manguin 2012:612. The absence of *jongs* from the archaeological record is an enigma.

policies causing fluctuations. By this time European ships were trading throughout the South China Sea, and they began to influence traditional Asian shipbuilding techniques.<sup>35</sup> From the archaeological evidence, the Southeast Asians seem to have eventually become bit players, but from frequent mention in European reports it is clear that this was not the case.<sup>36</sup>

#### Archaeology and History: the Implications

#### Whose History?

When considering historical claims to the remote reefs and islands of the South China Sea, the start point should be the beginning of long distance voyaging, when these reefs and islands became accessible. Nobody could possibly occupy maritime territory without some form of maritime capability. No conquest would be possible without the ability to design, construct and sail a ship.

When we study ancient texts, ships are assigned to merchants or tribute missions from states or polities which often changed over time: China, Siam, Funan, Holing, Pagan, Angkor, Dai Viet, Champa, Srivijaya, Kediri, Majapahit, Temasik, Po'sse, Ta'shih, etc. However, when we look at ship types, as determined by the archaeological evidence, we have the lashed-lug ship constructed throughout Southeast Asia, the fully stitched vessels of the Middle-East and India, the South China Sea Tradition vessels of Siam (and perhaps elsewhere in Southeast Asia), and the junks of China. The broader regions delineated by ship design are sufficient for this discussion, in which China stands out as the primary claimant on historical grounds.

When a claim is based on history there must be a certain continuity. Borders are a recent invention. In the beginning there were no nation-states as we now know them. There were ethnic groupings, some of which maintained their identity and territory throughout their history. Others merged, moved or were integrated. China has many ethnic groupings. Over 90% of the population is now Han, but the Mongols and Manchus have played an inordinately powerful role in the dynastic past.

Discussing early shipping, Wang Gungwu comments that at the beginning of the first millennium 'Chinese' shipping on the South China coast was insignificant. The ships sailing along the China coast were those of the Yueh. Since the majority of the people of the southern China coast were not 'sinicized' till much later on, in some cases not until the Tang dynasty, it would be wrong to call the Yueh sailors and shipbuilders of this early period 'Chinese' just because their territories were under Chinese rule.<sup>37</sup>

This could have complicated matters, but as there is no archaeological or historical evidence to suggest that the Yueh were voyaging across the South China Sea during the first millennium, there is no need to debate whether they were actually 'Chinese' at that time.

<sup>35</sup> The *Vung Tau Wreck*, a lorcha, is a prime example.

<sup>&</sup>lt;sup>36</sup> Post South China Sea Tradition ships present a hole in the archaeological record. One exception is the *Ca Mau Wreck* of c.1725. A single hull plank recovered from the wreck shows a row of dowels for edge-joining, a Southeast Asian shipbuilding characteristic. Unfortunately nothing of the hull was recorded in-situ.

<sup>37</sup> Wang Gungwu 1958, p. 23. Also see note 2, p. 115.

#### What Claims?

According to some modern scholars (Li and Tan 2014), one of the early Chinese references to the Paracels is the *Chu Fan Chi*, a 13<sup>th</sup> century book, translated by Hirth and Rockhill in 1911, into 'Chau Ju-kua: His work on the Chinese and Arab Trade in the 12<sup>th</sup> and 13<sup>th</sup> Centuries'. Chau, the customs inspector of foreign trade in Fujian province, wrote:

To the east [of Hainan] are the 'Thousand li banks' (Chien-li chang-sha) and the 'Myriad li rocks' (Wan-li shih-chuang). [Beyond them] is the boundless ocean, where the sea and the sky blend their colours, and the passing ships sail only by means of the south-pointing needle — if it be closely watched by day and night — for life or death depends on the slightest fraction of error (Hirth and Rockhill 1911:176).

There are in fact no banks or reefs to the east of Hainan, so the direct inference that these banks and rocks are the Paracels is invalid. However, Hirth and Rockhill (*ibid.*:185) do concur with Groeneveldt's translation and interpretation of the narrative of Shih Pi's invasion of Java in 1292, which mentions his fleet sailing through the 'Sea of the Seven Islands' (*Ch'i-chou yang*), and past Long Reef (*Wan-li shi-tang*). Groeneveldt concludes that the 'Sea of Seven Islands' is the Paracels, which lie to the southeast of Hainan. Hirth and Rockhill agree, and equate this feature to their *Wan-li shih-chuang*.

Contrary to the claim by Li and Tan (2014), none of these scholars interpret *Wan-li shi-tang* as the Spratlys. Instead they concur with Groeneveldt's assumption that it refers to Macclesfield bank, to the southeast of the Paracels. The author doubts this identification as, having passed Long Reef, Shih Pi's next landfall is northern Vietnam. Macclesfield Bank is not a reef at all, and lies nearly 200 miles off the direct route from Quanzhou, the port of departure, to northern Vietnam. As discussed earlier, Long Reef may allude to a legendary non-existent reef stretching south from the Paracels.

The 1178 account of Chou Ch'u-fei describes the *Wan-li Shi-tang* as 'a long embankment in the ocean near where the waters descend into the underworld' (Hayton 2014:36). The earliest Portuguese charts depict a wide and dense cluster of reefs or rocks extending south from the Paracels as far as southern Vietnam, perhaps a relic of testimony from Chinese pilots.

The remarkable Selden Map is Chinese in origin and dates to the early 17<sup>th</sup> century. It depicts the Paracels reasonably well, but emulates earlier European charts by illustrating a non-existent string of reefs south of the Paracels. This fallacy was perpetuated right through to the 1800's.

A New Nautical Directory for the East-India and China Navigation, edited by Mr Wright in 1804, states:

The old charts draw from one [island] to the other a dotted line, to represent the ridge of a bank, to indicate that the bottom between these two islands is dangerous. The Portuguese call this bank and the islands Rabo de Lacro, or the Scorpion's Tail.... The Paracels extend from N. to S. off the coast of Cochin-china, about 92 leagues in length, from latitude 12 10' N. to 16 45' N. and 20 leagues in breadth. (Wright 1804:560).

Thus the Scorpion's Tail is 276 nautical miles long, while the actual north–south spread of the Paracels is only 70 miles. This immense error was finally corrected by Horsburgh. In his *Memoirs: Comprising the Navigation to and from China by the China Sea*, of 1805 he notes:

Neither the bank of Scorpion's Tail, nor any of these islands [Cambridge Islands, Brothers] exist, except Pulo Ceicer de Mer, which island, together with some of the neighbouring mountains, or Cape Paderan, has been by those, navigating in error, transmuted into islands, Brothers, &c. From the same cause have the high islands, said to be on the south part of the Paracels, originated.

Getting back to Chau's 13<sup>th</sup> century writings, *Chien-li chang-sha* may in fact be Macclesfield Bank, for beyond it is indeed the 'boundless ocean' extending 300 miles to the coast of Luzon, interrupted only by Scarborough Shoal.

But so what? What does the recording of a few place names in the 12<sup>th</sup> and 13<sup>th</sup> century have to do with a territorial claim? Ninth century Arab texts mention the route south of Hainan, past the dangerous Paracel reefs (Hourani 1995:66). The Southeast Asians had been taking the same route for hundreds of years prior to that. They must have been aware of this hazard. The Paracels were a landmark, spotted and passed with a wide berth, and great relief. Fearless pirates may have lurked behind the islands, and wreckers may have set up camp from time to time in order to salvage lost cargoes. Wayward traders and fishermen may have even spotted some of the reefs and islands of the Spratlys. Again, so what?

Ptak (2004) has studied earlier Chinese works such as the *Wujing zongyao* (1044), the *Song huiyao jigao* and the *Fangyu shenglan* (1239). He notes the general use of the words *shi-tang* and *chang-sha* for reefs and banks, without these features being specifically identified (*ibid*.:405). Consequently there is little to suggest that Song and Yuan geographers conceived the Spratly or Paracel Islands as part of China's territory. He concludes: indeed, traditional Chinese border terminology would rather suggest the opposite, namely that any such islands lay beyond Chinese 'territorial waters' (*ibid*.).

#### Why Claim?

From the analysis of ancient Chinese texts, Ptak (*ibid*.:403) has determined that two major trade arteries led from Quanzhou to the south in the Song and Yuan periods. The first route followed the China mainland to Guangdong, then turned to Hainan from where it continued towards the Vietnamese coast. Near the southern tip of Vietnam it branched out into different directions. One branch went into the Gulf of Siam, a second led to the east Malaysian coast, and a third to Cape Datu on the western tip of Borneo. The second major trade artery connected Quanzhou with the west coast of Luzon. This route passed south-western Taiwan, then down to Manila Bay, past Mindoro Island, and from there continued, via Palawan, to Sabah, Brunei, and other sites along the coast of northern Borneo. The emergence of this double trunk route system is partly due to the existence of coral reefs in the central section of the South China Sea. Few vessels, if any, dared go directly from Quanzhou to Brunei Bay by cutting through the many reefs lying on the way (*ibid*.:404). Those reefs are the Spratlys.

From the detailed work of Mills (1979) it would seem that these routes changed little through to the Ming. His map shows the various routes criss-crossing the South China Sea (*ibid*.:73). Long offshore legs from the Gulf of Siam to Brunei, and from southern Vietnam to Tioman Island and to Tanjung Datu, demonstrate that mariners had fully mastered the compass. Hugging the coast was a thing of the past.

The mariners compass is a Chinese invention, originating from the magnetised needles that were used for geomancy on an increasingly widespread scale from the late

6<sup>th</sup> century. They are thought to have first been used for offshore navigation around the late 10<sup>th</sup> century (Needham and Ronan 1986:30). The south-pointing needle is mentioned in the 13<sup>th</sup> century *Chu Fan Chi*, quoted above. Chinese sailing directions are given by compass bearing and number of watches<sup>38</sup> (duration) to the next destination on the *Wu Pei Chih* charts, originally of c.1421. And yet there are no shipping routes in the vicinity of the central South China Sea. In fact there are none south of the Paracels, vessels choosing instead to pass between these reefs and Hainan before coasting off Vietnam. The early 17<sup>th</sup> century Selden Map depicts the routes quite clearly. The western passage hugs the coast of Vietnam. The eastern passage hugs the coast of Palawan. There is no venturing into the wide expanse of the South China Sea until well south of the Spratlys. The ancient shipping routes clearly demonstrate that the Spratlys were to be avoided at all costs.

Horsburgh, in his sailing directory of 1836, agrees:

The Archipelago of sandbanks, rocks or reefs, above and under water, ... is so extensive, and the dangers that form it so numerous, that there can be little utility in entering into a minute description of them, for they ought to be avoided by all navigators. (Horsburgh 1836:427).

It is therefore interesting to note that there were two ships in the offing when the *Titania* wrecked on Ladd Reef in September 1852, demonstrating that by the 19<sup>th</sup> century it was common for sailing ships to risk the wrath of the Dangerous Ground.<sup>39</sup> By this time speed was crucial for maximising profits in the tea and opium trade. Advanced rig and navigation allowed European ships to sail into the teeth of the southwest monsoon, following the most direct route down the middle of the South China Sea. However, the Admiralty's 1868 China Sea Pilot (Admiralty 1868) still advised against this practice:

The southwest monsoon is strongest, and least liable to change, in June, July and August, at which period there is at times much rain and cloudy weather all over the China Sea... Ships bound from China for Singapore... should in March and April adopt the Main Route by the Macclesfield Bank... At all other times, the Inner Route by the coast of Cochin China seems preferable, for it is shorter... had those ships, on leaving the Canton River, steered SSW... they would have not strained in the least, but reached their ports of destination in safety.<sup>40</sup>

March and April mark the tail end of the northeast monsoon and the relatively calm transition to the southwest monsoon. *Christina* wrecked on 1<sup>st</sup> July, at the height of the southwest monsoon. *Titania* and *Taeping* wrecked on 20<sup>th</sup> and 22<sup>nd</sup> September respectively, when it was still blowing. They were all tacking into the wind, and therefore deviating markedly from the direct route, and they suffered the consequences.

Until the late 18<sup>th</sup> century, tacking into the wind was not an option. Even beyond the 18<sup>th</sup> century, Chinese junks remained relatively poor upwind sailers. As a rule, upwind sailing was not necessary as opposing monsoons allowed ships to sail downwind both

Each watch was 2.4 hours, so with a typical speed of 10 knots, 10 nautical miles would be covered in one watch, or 100 miles in a day.

<sup>39</sup> The London Reefs were observed by the ship *London* in 1786 (Horsburgh, p.429).

<sup>40</sup> Also see Horsburgh 1836:420.

outward and homeward bound. Horsburgh provides two routes for downwind sailing from Canton to Singapore. The Outer Passage initially aims for Macclesfield Bank. It had to be located by sounding, so it was clearly too deep to be of any danger, even from breaking waves. From there, ships were instructed to head southwest for Pulau Sapata, a tall white rock off the southern coast of Vietnam. This route is well clear of the Spratlys. The Inner Passage passed between Hainan and the Paracels before ships made landfall at Cape Varela on the central coast of Vietnam. Horsburgh states 'The Inner Passage was the only route used by homeward bound ships upward of a century ago [the early 18<sup>th</sup> century]' (Horsburgh 1836:420). In heading for China, 'when the southwest monsoon is set fairly in, ships bound for the Canton River ought to proceed by the Outer Passage [south of the Paracels]' (*ibid.*).

Today the Spratlys are littered with modern wrecks. Lighthouses, accurate charts, radar and GPS have not been enough to prevent losses on the Dangerous Ground. Before these navigational aids were introduced, the risks involved in sailing anywhere near the Spratlys were immense. Fishermen could carefully pick their way through the reefs and islands, being small and agile and having time on their hands. But in centuries past, there were fish enough for all who ventured there. There was never a need for anyone to claim ownership of the treacherous reefs of the Spratlys.

#### Defying Logic

China defendants have cited Horsburgh's India Directory of 1836 in an effort to demonstrate an ongoing presence in the South China Sea:

The Hainan fishermen visit the islands and shoals in this part of the China Sea [Spratlys] in March and April to fish, as well as those at the Paracels. (*ibid*.:428).

A couple of months fishing during the calmest time of the year hardly constitutes a presence. It is, however, interesting that fishermen ventured so far from their home port to fill their holds well before fish stocks were decimated by modern fishing techniques. Fish stocks around the isolated reefs of the Spratlys must have been extraordinary prior to the 20<sup>th</sup> century. Perhaps the dense coastal population of China necessitated the time and risk of venturing further afield. Vietnam and the Philippines were not so populous as a whole, although there were high density areas in the Red River delta and central Luzon associated with wet rice cultivation (Hirschman and Bonaparte 2012:8). They are much closer to the Spratlys, but perhaps fish were still plentiful in coastal waters. Maybe Vietnamese and Filipino fishermen did occasionally sail out to the Spratlys, unnoticed by Horsburgh and his deputies during their brief visitations.<sup>41</sup> Populations throughout Southeast Asia rose rapidly from the beginning of the 20<sup>th</sup> century, so it is likely that fishermen from the Philippines, Vietnam and northern Borneo would have increasingly taken advantage of the common waters, along with the Chinese.

While some could argue a degree of logic for the above mentioned fishermen example, it's pretty hard to detect any when it comes to using shipwrecks as a basis for claim.

<sup>41</sup> There is no evidence whatsoever that Chinese fishermen exploited Scarborough Shoal before the Filipinos. From historical seafaring capability and geographical proximity, it is a highly unlikely scenario.

Liu Shuguang is the head of the Chinese government's Centre of Underwater Cultural Heritage, which was established in 2009 to oversee underwater archaeology. If the *Wall Street Journal*<sup>42</sup> is to be believed, Liu 'wants to find more evidence that can prove Chinese people went there and lived there, historical evidence that can help prove China is the sovereign owner of the South China Sea'. Commenting on the joint Filipino-French archaeological expedition that was evicted from Scarborough Shoal by the Chinese in 2012, Liu reasons: 'because this was material evidence that Chinese people first found the Scarborough Shoal, they wanted to destroy evidence that was beneficial to China.'

It would set a truly remarkable precedent if the misfortune or ineptitude that led to shipwreck could later be interpreted as discovery and occupation. As for Scarborough Shoal, the scattered rocks that break the surface would have afforded little relief for shipwreck survivors, let alone entice them to stay. And without any archaeological evidence of a ship, it is impossible to say who was carrying the Chinese ceramics that now decorate Scarborough Shoal and many other reefs, in fragmentary form.

In fact, only one site in the region of the Spratlys shows any evidence of a Chinese ship. The 13<sup>th</sup> century *Breaker Shoal Wreck*, located on a reef of that name adjacent to Palawan Passage, contained a stone anchor stock that is Chinese in design (Dupoizat 1995). It was documented by the same French outfit that was kicked off Scarborough Shoal. There are certainly no signs of Chinese ships on arguably the most dangerous reefs in the Dangerous Ground—those investigated by the author in 1993. Indeed, there were no signs of the ceramic fragments that mark shipwreck sites on so many other reefs in the South China and Java Seas.

Taking another tack, Li Xiaojie, the Chinese Vice Minister of Culture, was quoted as saying, 'Marine archaeology is an exercise that demonstrates national sovereignty' as he examined porcelain retrieved from a wreck in the Paracels.<sup>43</sup> Without context, this statement could conform to Liu's belief that wrecking equals possession, or it could mean that the act of scientific investigation in occupied territory reinforces ownership rights. Shipwrecks can have no bearing on historical claims. However, archaeology can. If there is genuine archaeological evidence for prolonged occupation on some of the islands in the Spratlys and Paracels, that could go some way towards justifying a claim. So far, none has been forthcoming, to the author's knowledge. Even if archaeological evidence was produced, it would be viewed with some scepticism internationally. By openly declaring the nationalistic intent of their archaeological programme, and by preventing any form of international participation, Chinese cultural officials do their country a disservice.

#### CONCLUSIONS

Whenever challenged, China reiterates the 'indisputable' rights the country enjoys within the nine-dashed line. Under the UNCLOS boundary regime, China's rights within the South China Sea are indeed very disputable. So one can only conclude that these perceived rights are historical. Forgetting for the moment that UNCLOS also denies any party historic rights outside their territorial sea, let us summarise the historical and archaeological evidence.

<sup>42</sup> Issue of 2<sup>nd</sup> December 2013.

<sup>43</sup> *Wall Street Journal*, 2 December 2013.

The Southeast Asians, in their lashed-lug ships, gained many centuries of knowledge of the islands and reefs in the South China Sea before other seafarers ventured into these waters. Towards the end of the first millennium, the Arabs and Indians voyaged through the South China Sea, probably under the guidance of Southeast Asian pilots. It was not until the 11<sup>th</sup> century that Chinese junks took to the high seas to trade directly with Southeast Asian polities.

The Chinese Ministry of Foreign Affairs cites Han and Tang dynasty texts as evidence of historical rights.<sup>44</sup> Chinese texts dating prior to the 11<sup>th</sup> century cannot possibly demonstrate any form of claim or ownership, simply because the Chinese did not voyage through the South China Sea in their own ships until that time. Some texts based on early Chinese voyages may specifically mention the Paracels, but none conclusively mention the Spratlys. Even if they did, the reference to a place on a trade route has no bearing whatsoever on the ownership of that place. So claims based on any ancient texts would seem to be irrelevant.

Due to the extreme danger posed by the reefs and islands of the Spratlys, they were avoided by ships both ancient and modern, Southeast Asian, Arab or Chinese. Still, some unfortunates wrecked there. The older wrecks tend to be on the reefs adjacent to Palawan Passage, on the eastern route. One of the wrecks found there may be a Chinese junk. Wrecks on the western-most reefs tend to be post-18<sup>th</sup> century and European. There is no evidence of any Chinese ships, or even Chinese ceramics, in this treacherous area. Regardless, shipwrecks are a result of bad luck or poor navigation. They cannot possibly be interpreted as a claim on territory.

Fishing boats have been taking advantage of the bountiful sea life in the Spratlys for centuries. Perhaps the Chinese ventured there first, when coastal stocks proved insufficient to feed the heavily populated hinterland. But they only visited for a couple of months at a time during the best weather window. And fishermen did not claim territory, at least not until Filipino, Thomas Cloma, tried it on in the mid-20<sup>th</sup> century.

While territorial claims had been declared, the Paracels and Spratlys were effectively *terra nullius* until the early 20<sup>th</sup> century. From that time there was a rising awareness that occupation was the only way to enforce a claim. Sometimes even occupation was not enough. Some features were taken by force, or trickery, from earlier occupiers.

UNCLOS entered into force in 1994 having been ratified by 60 countries, including all of the South China Sea claimants. From that moment on, unoccupied features lying within the EEZ of a specific country technically belonged to that country. Where already occupied features lay within another country's EEZ, bilateral negotiations were mooted in the hope that production sharing arrangements would result. So far they have not.

Towards the end of 1994, immediately after UNCLOS came into force, China occupied Mischief Reef, well inside the EEZ of the Philippines. In 1999, Malaysia also built structures on several of their occupied reefs, although these were within Malaysia's self-proclaimed EEZ.

The Declaration of Conduct (DOC) was signed by all claimants in 2002. It called for them to refrain from taking any actions that might escalate tensions. Despite signing, several claimants continued to enhance their occupied territory. China has completely ignored the DOC by blockading Scarborough Shoal and Second Thomas Reef, both well

<sup>44</sup> Chinese Ministry of Foreign Affairs, 2000, http://fas.org/news/china/2000/china-000600.htm.

inside the EEZ of the Philippines, by deploying a drilling rig inside the EEZ of Vietnam, and by undertaking massive reclamation projects on most of its occupied territory in the Spratlys, invariably reefs that barely break (broke) the surface at high tide.

The Paracels are roughly equidistant from Hainan and Vietnam. Vietnam and China can both offer relatively recent historical evidence to bolster their respective claims, but China occupies the Paracels in their entirety and is not going to move out in the foreseeable future. Bilateral negotiations similar to those that determined the division of the Gulf of Tonkin would be the best way forward, for the eternal optimist.

No country has demonstrated that they have historical rights to the Spratlys, simply because it is, and always has been, Dangerous Ground, a place to avoid at all costs. China's claim to virtually all of the South China Sea does not seem to be indisputable.

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