The Pre-Modern East Asian Maritime Realm: An Overview of European-Language Studies

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1. Introduction

The ways in which scholars outside Asia have examined and studied maritime East Asia have differed, in various ways, from the ways in which scholars within Asia have studied the subject. This brief overview intends to introduce the studies of maritime Asia which have been conducted outside Asia (or been published outside Asia or in non-Asian languages) in order to assist those within the region to remain au fait with the work of scholars outside the region.

To this end, I will be reviewing the major studies in various spheres relating to pre-modern maritime East Asia conducted over the last 50 years by scholars based beyond East Asia or published in European languages. It is at times difficult to draw a line between the maritime activities of the Bay of Bengal and the Indian Ocean and those of East Asia, so sometimes the discussion below will stray. It must be stressed that the works described are examples of that which exists within the various European-language traditions and make no claim to being exhaustive.

2. The Austronesians

There is documentary evidence of trade and exchange between island Southeast Asians and people from mainland Asia for about the last two millennia. Yet, for at least three thousand years before that, extensive trade networks existed in the East Asian maritime realm, extending both eastwards and westwards from the region. The studies conducted on origin and spread of the “Austronesians” is essentially based on archaeological and linguistic evidence. Peter Bellwood is one of the key figures in the archaeological side of this research and his individual and joint studies -- Bellwood (1978) and (1985), Bellwood and Koon (1989), Bellwood (1995) and Bellwood, Fox and Tryon (1995) -- provide much of the evidence upon which the Austronesian thesis is based. He argues (1995) that the Neolithic revolutions in China sparked population growth and that the food supply provided by the new technology allowed a “continuous generation-by-generation ‘budding off’ of new families into new terrain”, which was supported by “the inherent transportability and reproducibility of the agricultural economy” and “a

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1 This paper was originally presented at the symposium on the occasion of the 10th Anniversary of the Japanese Research Group of Maritime Asian History, “The Potential of Maritime Asian History,” Naha, Okinawa, Japan, on 1 November 2003. My many thanks are also due to Anthony Reid for comments and additions.

2 The term “East Asia” here is used as a broad shorthand for the West Pacific regions often termed North Asia and Southeast Asia.

3 Roughly, prior to the 16th century.
developing tradition of sailing-canoe construction and navigation” (Bellwood 1995, pp. 102-103).

Essentially the thesis is that a people, speakers of a language which was the ancestor of all the Austronesian/Malayo-Polynesian languages, moved out of what is today Southern China and into Taiwan approximately 6,000 years ago, and from there over the following 5,000 years, spread to much of Southeast Asia, the Pacific and even to Madagascar. Their technologies were marked by polished stone tools and by agriculture. Jared Diamond notes that they did not settle on islands which did not support their agricultural ‘package’ (e.g., New Guinea and Australia) because it had no advantage there. These people maintained links with the islands from whence they came and thereby created a wide-ranging trade network. Solheim (1975), (1992) and (2000) has detailed his ideas on what he calls the Nusantao, the people who carried these technologies and languages across Asia and the Pacific.

Our knowledge of the seafaring of the Austronesian people comes mainly from linguistics and archaeology, and the awareness that these peoples crossed large expanses of ocean. Although there are no Austronesian languages currently spoken in China, the fourteen or so remaining indigenous languages of Taiwan are all Austronesian. There are claims that both northern and southern maritime routes out of Taiwan took the Austronesian seafarers to both the Japanese islands and the Philippine islands. Based on linguistic analysis, claims about the early societies have been made. It is suggested that, after the first seafarers moved from Taiwan to the Philippines, major developments in their culture occurred. We are only able to reconstruct a few words relating to sailing technology at the highest levels of the Austronesian family tree. But at the next level down, the level ancestral to all those people who left their Taiwan homeland, we find terms for outriggers, sails, paddles, rudders, and a whole range of new developments in seafaring. New kinds of plants became available, and new species of fauna were encountered.

The claims that the Austronesian maritime expansion moved in a northerly direction as well as southwards derives from both archaeological correlations and linguistic claims of an Austronesian substratum in the Japanese languages. One of the proponents of this idea was Murayama Shichiro (1908-1995), who claimed links between Austronesian and Ainu languages. The claim remains contested.

3. The East Asian Maritime Realm – Nautical technology

3.1 Ships

We know from Austronesian studies that traditional ships made in Southeast Asia were capable of sailing and carrying people across the Indian Ocean to Madagascar and across the Pacific Ocean, eventually as far as Easter Island. Judging from more recent examples of likely similar technologies, we can assume that these ships were made from tropical hardwood, with a pointed bow, outboard rudders at each side, and lateen-rigged

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4 Given the name of Proto-Austronesian.
5 There are opponents to this view. See for example, Meacham (1984-85) who argues against a South China origin for the Austronesians.
sails. In the next few sections, we shall examine what has been written in European languages on the ships of the East Asian maritime realm.

3.1.a The Dong-so’n Tradition

Among the earliest graphic representations of early East Asia ships are those seen on Dong-so’n drums from about the first century B.C.E. These war ships show a helmsman with a steering oar as well as an after castle, which housed a bronze drum. Such drums thus seem to have been associated with a sea-going or at least ship-going tradition. Given their lack of masts and sails, we must assume that these ships were oar-propelled, like many of the Austronesian ships.

The bronze Dong-s’on drums are found throughout maritime Southeast Asia, as detailed by Bernet-Kempers (1986), Yokokura (1992), Smith (1979) and Sørensen (1986). Examples of the earliest drums -- the so-called Heger Type I -- have been excavated in the Malay peninsula, Borneo, many of the islands of modern Indonesia, and Thailand, as well as of course in Vietnam and Guang-xi in China. As it appears likely that these drums were all produced in what are today northern Vietnam and the two Chinese provinces of Yun-nan and Guang-xi, their presence throughout Southeast Asia must have derived from trade or other forms of exchange. Whether they were associated with ships as recorded above or had generic ritual purposes, remains a matter of conjecture. Loofs (1991) discusses the drums’ possible functions. What we can state is that their presence in these regions does demonstrate a maritime trade dating from at least 2,000 years ago.

3.1.b Chinese Ships

Much can be gleaned on the early history of Chinese ships from Krause (1915), who brings together, translates and annotates some of the texts on naval warfare in the earliest dynasties. In 219 B.C.E., when the Qin emperor Qin Shi huang-di sent forces, under Zhao Tuo (趙佗), to attack the Yue peoples, a large part of the force was marines based on war ships with deck castles -- the so-called “castled ships” (lou-chuan" - 樓船). The early Han also used their war ships to attack Yue and Korea, while the Latter Han rulers sent 2,000 “castled ships” against Jiao-zhi (present-day northern Vietnam) in the first century C.E.. This term “lou-chuan” for war ships continued through much of Chinese history.

For the most detailed account of Chinese ships over the succeeding 2,000 years, see Needham (1971). He discusses China’s nautical history with an erudition unsurpassed and references unequalled. Manguin (1984: p. 199) is of the opinion that the Chinese did not possess large ocean-going vessels before the 8th or 9th century. Needham suggest the existence of large ships in an earlier period, but does concur that China’s shipbuilding tradition saw its most rapid development during the 9th to 12th centuries. He sees one of the ships portrayed at Borobodur (c. 800 C.E.) as being Chinese, and claims that a ship carved on the Bayon at Angkor Thom (c. 1185 C.E) in Cambodia also represents a Chinese merchant ship. See also Poujade (1946) for a study of this carving.

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6 As illustrated, for example, in Needham (1971: 446)
Twelfth-century accounts of Chinese trading ships are given in Chinese texts such as *Ling-wai Dai-da* (嶺外代答) and Marco Polo also described, in the late 13th century, four-masted, four-sailed Chinese merchant ships with up to 60 cabins, a rudder and a bulkhead-built hull. These observations were repeated by Ibn Battutah, half a century later.⁷

In terms of the specific technologies employed in the ships, Needham (1971) examines the historical evolution of sails, rudders, bulkheads, anchors, caulking and other nautical components, while Turnbull and Reynolds (2002) provide a popular account of some Chinese fighting ships and illustrations thereof.

In short, historical evidence and ethnographic records tend to suggest that the ship-building tradition which produced the Chinese trading junk is marked by a number of characteristics. Five technical parameters were selected by Manguin (1984: p. 197) to describe various shipbuilding traditions and included the general shape of the hull, the type of stem and stern, the method of fastening the planking and frames, the presence or absence of water tight bulkheads and the type of sailing gear. The traditional Chinese designs included the flat bottom hull form and a single layer of carvel planking strengthened by bulkheads and frame timbers and, an approximation to a rectangular cross-section.⁸

The vessels found in southeast China, in Guangdong, Hainan and in northern Vietnam also shared the characteristics of strakes and frames fastened with iron nails or clamps; structurally essential bulkheads dividing the hull into watertight components, and single axial rudders.

### 3.1.c Southeast Asian ships

Needham (1971), in addition to detailing the history of Chinese ships, also records early Chinese textual references to ships in Southeast Asia. An account of a Fu-nan boat in the 3rd century, left by Kang Tai (Needham 1971; p. 450), is particularly valuable, as it suggests connections with the dragon boats still seen in the riverine and maritime waters of Asia today. Needham also provides an account of the building of Cambodian ships dating from the 13th century.

A Chinese text from c. 750 C.E. also notes of the “Kun-lun” (崑崙) ships from what is today Southeast Asia that they carried 1,000 men,⁹ and that the ships were built with several thicknesses of side planks, that they tied the parts of the ship together using cord made from coconut fibre and that the planks were caulked. They were propelled by sail (Needham 1971: p. 459). The ships depicted on the walls of Borobodur (c. 800 C.E.), with their sewn hulls, prominent stem- and stern-posts, outriggers, bipod or tripod masts, and square sails suggest a long-existing Southeast Asian tradition (Needham 1971: p. 458 and Plate CDVII).

Horridge (1982) provides an excellent study of both contemporary and historical Southeast Asian boat building—specifically “the lashed lug” boats of the eastern archipelago. These kora-kora were fast and were used as war ships as evidenced by their attacks on the Fu-jian coast in the 12th century (Scott 1981).

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⁹ Generally this is considered an exaggeration.
It appears that Southeast Asian ships up to the 14th century (or at least those documented so far) belong to a range of technical traditions which can be characterised as 'lashed-lug and stitched-plank'. The ships had V-shaped or U-shaped hulls with a keel. The ships were built by raising planks on either side of a keel, the components being held together with a variety of stitches and lashings made from sugar palm fibre. Lashed-lug technique involves carving protruding lugs on the inner side of the planks, with holes in the lugs for the planks to be lashed to ribs and/or thwarts making up a frame. Stitched-plank technique involves passing vegetal fibre through holes drilled at the edges of the planks. The practice of stitching planks gradually gave way to the use of wooden dowels. (In South Sulawesi and the Malaysian state of Terengganu, shipbuilders still use dowels.)

One of the oldest examples is the Pontian boat, discovered in Pahang in modern Malaysia in 1926 and dated to the 3rd-5th century. This is detailed in Evans (1927) and also Carl Gibson-Hill (1952).

It appears that sometime in the late 13th century, and some say as a result of Kublai Khan's thousand-ship raid on Java in 1293, Southeast Asian shipbuilders adopted the Chinese feature of transverse bulkheads. However, excavated vessels show that planking continued to be joined by wooden dowels rather than by iron bolts or nails.11 This brings us on to the hybrid ships of the region.

3.1.d The Hybrid “South China Sea” Shipbuilding Tradition

Needham (1971: pp. 457-58) suggests that even as early as the eight century, there was mutual influence between Chinese and Southeast Asian shipbuilding traditions, with both being represented on the reliefs which adorn the walls of Borobodur in Java of c. 800 C.E.. Poujade (1946) suggests that we can see in a carving of a ship at the Bayon in Cambodia (c. 1185 C.E.) the intermingling of components from the two traditions, with bulkheads from the Chinese tradition coexisting with a keel and true stem- and stern-posts from the Southeast Asian tradition.

Studies of the ships subsequent to the 13th century also suggest a hybrid shipbuilding tradition. Manguin (1984), on the basis of his analysis of a number of shipwrecks saw them as sharing characteristics of both Chinese and South-East Asian types, a so-called “South China Sea” tradition. For a possible scenario of this shipping form, see Reid (2000c). These vessels are built from tropical hardwood joined by wooden dowels, but with supplementary use of iron nails to fasten the transverse bulkheads to frames at the hull. This type of vessel, combining hardwood with Chinese construction details, may be a result of the Ming ban against private overseas trade. Ships of this type have not yet been found prior to 1371 when the Ming ban became effective. It is possible that displaced Chinese merchants who moved to Southeast Asia at that stage may have been the first to order ships built in this manner. The Nanyang (c.1380), Longquan (c.1400), Royal Nanhai (c.1460) and Singtai (c.1550), all found in the seas around the Malay peninsula, are of this type, as are a number of shipwrecks found in the Gulf of Thailand.12 Both the Quanzhou and Shinan ships13 possess some aspects considered to

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10 www.maritimeasia.ws/topic/shiptypes.html
11 www.maritimeasia.ws/topic/shiptypes.html (Brown and Sjostrand)
12 For further details, see Shipwrecks section below.
13 For further details, see Shipwrecks section below.
belong to the hybrid South China Sea tradition. Similarities include the marked (and often hollow) deadrise in the sectional shape of the hull, the use of bulkheads with adjacent frames, the positioning and shape of the main mast step and the use of multi layered planking. Vessels discovered in the Gulf of Thailand display some similar characteristics to the Quanzhou ship. For example, the Ko Khram shipwreck shows evidence for twelve bulkheads with the main mast step on the forward side of the sixth bulkhead.14

3.1.e Japanese and Korean Shipbuilding

Japanese and Korean ship construction has received little attention in Western-language publications. Purvis (1919) wrote on ship construction in Japan, while Bonar (2000) has discussed more generally the maritime enterprise in Japan. The classic work by Underwood (1934) and (1979 rpt) under the title “Korean Ships and Boats,” provides one of the best overviews of Korean ships and their technologies. Much of what Needham (1971) writes on relating to Chinese ship construction also can be shown to have manifestations, to varying degrees, in other northeast Asian ship-building traditions. Yang (1990) shows how certain nautical technologies were shared among China, Korea and Japan. Jeon Sang-won (1974), in his study of traditional Korean science and technology, also specifically examines Korean nautical technologies.

Turnbull and Reynolds (2003) suggest that the naval traditions of Japan and Korea have long been closely linked, and discuss and illustrate both Japanese and Korean early ship types. They describe the manufacture of Korean ships and the existence of double-masted sailing vessels known as kyongtanson by which up to 150 persons were sent on missions to China by Paekche and Silla in the 4th century.

The true Korean military vessels did not see rapid development until the Koryo period (935-1392 C.E.), and by the 11th century the kwason (spear vessel) capable of ramming Jurchen vessels was being produced. A Song account of 1123 noted two types of ships—one derived from Song styles and one a Koryo version, being simpler and sturdier. Some of the latter would have been the Korean ships which accompanied the Yuan naval forces in their invasion of Korea in 1281.

By the Choson period, the stress was firmly on warships, which were box-like, sturdy, not particularly swift, and carrying crews of 80, 60 or 30 sailors. By the 15th century, new troop-carrying ships were being produced and in the mid-16th century Korea’s first paddle-wheel ship was built.

One of the key developments of the Korean navy in the 16th century was the production of p’anokson (board-roofed or superstructure ships), which had both sail and oar propulsion, and which added an extra deck so that the oarsmen below could be separated from the fighters above. They carried about 125 persons and it was these ships which formed the majority of the craft in the Korean navy which fought the Japanese in 1592 (Turnbull and Reynolds 2003).

The “turtle ship” is the most famous of the Korean warships and is always linked with Admiral Yi Sun-sin. Following in the Korean ship tradition, it was wide and solid. Removing the castle from the deck of the p’anokson, it roofed over the entire space, providing “turtle-like” protection. They were armed with guns.

14 www.mm.wa.gov.au/Museum/march/excavate/ Bai_Jiao/ship/bj1_ship.html
The Japanese ship-building tradition seems to have been closely connected with that of mainland Asia—China and Korea. Ships were obviously able to carry people to the mainland in the 7th century. However, little is known of the ships of the Heian and Kamakura periods. We do have illustrations of the naval battles of the Gempei War in the 12th century, showing an imperial flagship with a decorative one-storey superstructure. Others were less decorative and they were accompanied by diverse smaller ships, powered by a single oarsman.

The persons termed wako who wandered the East Asian maritime realm from the 14th century sailed in a range of vessels -- some converted merchant junks which were mainly sail-powered, but often had auxiliary oars. Larger ships had two masts and a central deck castle.

The Sengoku period (mid 15th-mid 17th centuries) saw the creation of dedicated fighting ships for the first time. The ataka bune were some of the largest such ships, as the battleships of the navies of the various daimyos. Similar to the Korean p'anokson, it was very square, with the side wall being a single surface. It was both oar and sail powered, and the normal complement was 80 oarsmen and 60 fighting men.

4. East Asian Maritime Activities

The range of activities involving the East Asian maritime realm is huge, but the essential elements have always been transport, trade and warfare. Various of these activities have already been touched upon above, and only a brief overview will be attempted here in order to highlight some of the major Western-language works relating to these spheres.

4.1 China

Again Needham (1971) must be invoked as an essential text for any study of the maritime activities in the East Asian realm. His study includes nautics, navigation, voyages of discovery, trade and warfare, all centred on the theme of the Chinese maritime realm.

The fluctuating fortunes of the Chinese navies have been examined by Lo Jung-pang in his various works (1955), (1958), (1969) and (1976).

In the trade realm, Wang Gungwu (1958) provides an introduction to the so-called “Nan-hai Trade”, examining the diplomatic and trading relations between successive Chinese states and the polities of (mainly maritime) Southeast Asia over the period from the Han until the Five Dynasties, while Wake (1997) examines the ocean-going ships of southern China and their voyaging to India from the twelfth to the fifteenth centuries. The developments of Chinese maritime trade in the 15th and 16th century are included in the studies on piracy and smuggling by Bodo Weithoff (1963) and So Kwan-wai (1975).

Deng Gang (2003) has investigated the growth of China’s maritime trade activities during the Song, the Ming and the Qing, examining them from the angle of state versus market as the main agent of economic growth. The Song, he concluded, was by far the most pro-market, but Song growth was unsustainable because of the mismanagement of the country’s national defence by the money-hungry state. The Ming had an extremely weak market due to state discrimination, and thus a sharp decline in
maritime growth was inevitable. He sums up the two periods as the Song pattern being commercially desirable but politically and militarily damaging, while the Ming pattern was politically and militarily motivated but commercially disastrous.

The importance of overseas trade during the Song dynasties is underlined in the various essays in Schottenhammer (2000), which examine the important maritime entrepot of Quanzhou, as well as the monograph on South Fu-jian by So (2000). This factor is reinforced by Jacq-Hergoualc’h (2002) in his examination of Song interaction with Southeast Asia.

The “tribute/trade system” which so marked the latter “Chinese world order” was intimately involved with the maritime realm, as a large percentage of tribute envoys/traders arrived in China by sea. Fairbank (1968) and the contributors to the volume “the Chinese World Order” provide a useful overview of some of the concepts and practices which constituted this tribute/trade system. Hamashita (1988) considers that the Chinese tribute system was the key element in pre-modern relations in East Asia and that to understand modern Asia, we need to “trace how each country and area within Asia attempted to cope with the transformation of the tribute system.” (1988: p. 23)

The Ming dynasty (1368-1644) constituted a key period in Chinese maritime history, both because of the maritime prohibitions the Ming rulers initially instituted and due to the fact that the early Ming emperor Yong-le despatched his eunuch admirals on repeated voyages to Southeast Asia and the Indian Ocean. The Ming maritime prohibitions and their effects in terms of the lack of Jingdezhen ceramics reaching Southeast Asia and the responses of Southeast Asians to this change have been discussed by Harrisson (1958) and Brown (2002).

The Zheng He voyages have generated a huge literature, and works by Phillips (1885-86), Pelliot (1933) and (1935), Duyvendak (1937) and (1938), Wang Gungwu (1964), (1968b), and (1970), Mills (1970), Ray (1993) and Ptak (1996) stand prominently among the Western-language sources on the voyages. More popular works include those by Levathes and the extremely contentious volume 1421 by Menzies (2002).

Needham (1971) characterises the Zheng He voyages as “a navy paying friendly visits to foreign ports”, echoing the claims by most PRC historians. The possibility of the Zheng He voyages being much more aggressive and violent than presently represented, as the armadas sought to dominate the trade routes across the East Asian realm and the Indian Ocean has been suggested by Wade (2003b), who terms the voyages and their impetus “proto-colonialism”.

The major studies by Deng Gang (1997) and (1999) provide very valuable overviews of China and the maritime realm, and useful summaries of studies originally presented in Chinese. The earlier volume examines the evolution of Chinese maritime technologies and what this meant for the emergence of maritime trade patterns, markets, urbanization of the coastal region and migration overseas. The latter volume also comprises an economic and institutional study of the Chinese maritime realm, but includes more attention to the evolution and decline of China’s sea power.
4.2 Japan and Korea

The Western-language literature relating to Japanese and Korean maritime activities in the pre-modern era is much more limited than that relating to China and Southeast Asia.

Ballard (1921) examined the sea as a generic factor in the Japan’s history, while the role of naval strategy in Japanese history has been written on by Kiralfy (1943). Sadler (1937) and Turnbull (2002) both studied the 16th century war between Japan and Korea and its maritime elements. Turnbull and Reynolds (2003) examine and illustrate aspects of Japanese and Korean naval warfare. The so-called “Japanese pirates” in Ming China and their activities during the 16th century are studied in So Kwan-wai (1975).


As for the maritime trade relations of Ryukyu, Kobata and Matsuda (1969) provides important first-hand materials, Ishii (1990) looks at how the islands were tied in to Southeast Asian trade, while Ryukyu’s trade with China is the subject of Chang Pin-Tsun’s thesis (1983). Lee Hyoun-jong (1977) is a study of Ryukyuan links with Korea. Japan’s connections with Southeast Asian ports and polities are examined in Satow (1885), Ishii (1971), (1988), (1992), and (1998). Robert Sakai’s study (1968) examines Ryukyu as a fief of Satsuma. Momoki Shiro (1999) looks at the rivalry between Ryukyu and Dai Viet as tribute/trade partners of the Ming.


Maritime linkages between Korean polities and those of Southeast Asia in the pre-modern era include Cho Hungguk (1995) which examines early contacts between Korea and Thailand, while Ch’oe Sang-su (1983) looks at Korea-Indonesia Relations in the 15th century. Cho Hungguk (2000) also tries to paint an outline of the regional East Asian trading system in the early modern era by examining the trade between China, Japan, Korea and Southeast Asia in the 14th-17th centuries.

4.3 Southeast Asia

Quite a large corpus of work has been created through Western-language studies of the diverse maritime activities in Southeast Asia. Ferrand’s study of “Le K’ouen-louen” (1919) was a path-breaking work which provided a synthesis of early maritime activities in Southeast Asia.

Trade has attracted most attention in the studies of Southeast Asian maritime activities. As mentioned above, Wang Gungwu (1958) has examined trade between Southeast Asia and China in the first millennium C.E.. Bronson (1977) has created a model to explain the upstream-downstream interactions in the emergence of coastal
trading polities in Southeast Asia, while Leong Sau Heng (1990) has also written on collecting centres, feeder points and entrepots in the Malay Peninsula from 1000 B.C.E. to 1400 C.E.. Kenneth Hall (1985) looks at the inter-relationship between trade and statecraft in various periods and across diverse polities in early Southeast Asia. Wolters (1967) engages with early trade in what is today western Indonesia. Van Leur (1955) theorises about the nature of Indonesian trade, while Whitmore (1978) suggests a framework for the study of pre-modern Southeast Asian trade by looking at the patterns of penetration from outside the region. Hall and Whitmore (1976) look at trade as an element in the “isthmian struggles” over the period 1000-1200 C.E. The various essays in Hutterer (1978) include Bronson’s study as well as Hutterer’s own study of the role of trade in the emergence of Philippines societies. Other studies which link trade and the emergence of early Southeast Asian polities include Christie (1990), Day (2002), Hall (1985) and the essays in Hall and Whitmore (1976a) and Marr and Milner (1986).

The 9th and 10th centuries were obviously a boom period for trade both between Southeast Asia and China and for ceramics trade between the Middle East and China through Southeast Asian ports. Jacq-Hergoualc’h (2002: pp. 257-300) discusses the 9th century and the role of entrepot ports in the Malay peninsula, and also sees another commercial boom affecting the peninsula during the 12th and 13th centuries in Tambralinga and Kedah. Christie (1999) looks at Asian sea trade between the 10th and 13th centuries and its impact on the states of Java and Bali. Miksic and Yap (1992) examine archipelagic maritime trade over the period 12th-14th centuries.

The extent to which, and the period during which, maritime commerce played a role in the evolution of the polities of Southeast Asia remains a debated point. Momoki (1998) argues that Đạị Việ?t, the forerunner of modern Vietnam, for example, was no longer a great South China Sea trading centre by the time it gained independence from China in the 10th century. Nevertheless, the subsequent state development of Đạị Việ?t continued to depend more on the control of trade networks and export commodities than on peasants and agrarian produce. From the 13th to the 15th centuries, Đạị Việ?t undertook large-scale hydraulic works on the Red River Delta and founded a Chinese-style bureaucracy. Such Sinicization not only increased the area's agricultural potential but also fostered the development of new export commodities, including ceramics. Its strength renewed, Đạị Việ?t crushed the rival polity of Champa and proceeded to seize prosperous ports in modern central Vietnam, thus re-establishing itself as the pre-eminent force in the region's maritime trade.

Moving into later centuries, commerce and trade form the core of Anthony Reid’s thesis in *Southeast Asia in the Age of Commerce 1450-1680* (Reid 1988) and (1993). He sees that Southeast Asia played a crucial role in the sustained boom of the “long sixteenth century” which affected Europe and much of Asia, firstly through it being the source of the spices, and secondly because it was through the Southeast Asian port polities – “the leading regional centres of economic life, political power and cultural creativity” -- that this trade flowed. He sees this as giving rise to changes in urbanism, commerce, religious organisations and state structures, and ushering in the “early modern” period in Southeast Asia.
4.4 Indic Maritime Links with Southeast Asia

One of the greatest sources of cultural influence on Southeast Asia in the first millennium C.E. and the first half of the second millennium was the region we generically refer to as South Asia. The influences travelled both overland and via maritime routes, and for island Southeast Asia obviously exclusively by the latter avenue. The major studies by Majumdar (1927), (1933), (1934a), (1934b) and (1935) on Champa, the Śailendras and the Cholas provided a basis for his later works (1937-38 and 1979) which examined the overall Indic influences on Southeast Asia, including the maritime links. Other Indian scholars who have worked on this area included B.C. Chhabra (1935) (1935a) and (1956), and Sarkar (1971) and (1986). A number of these studies are seen by some as being excessively Indo-centric, but they were still important bases for later works by Coedes (1956), (1957), (1964a) and (1964b), Wheatley (1961) and (1975), and Guy (1993-94). The interactions in the art sphere are dealt with in Coomaraswamy (1972). Ramachandran (1996) contains an excellent bibliography of works which examine links, including the maritime, between India and Southeast Asia.

The Cholas/Colas and their involvement in the maritime and political affairs of Southeast Asian polities has attracted attention from a range of scholars. The classic work is by Nilakanta Sastri (1935-37), and this is supplemented by the earlier Aiyangar and Sewell (1932). Blagden (1920) and Spenser (1988) are also useful in this area.

The Indic inscriptions in Malaysia, mainly Sanskrit, have been well studied over the last 130 years, and relevant works include: Low (1878), Kern (1907), Christie (1988-89) and Weeraprajak (1989).

There has also been much work done on the Tamil inscriptions discovered in Southeast and East Asia, and the associated Tamil guilds. The earliest of the associations to have left a record was the Manigramam, which appears to have been actively involved in transit trade bypassing the Malacca Straits during a period of local political turmoil. Most of the thirteenth-century Tamil inscriptions abroad do not appear to mention merchant associations, perhaps reflecting the sharp decline in the economic power of these associations within south India during the course of the thirteenth century. Studies of Tamil links with Southeast Asia include Nilakanta Sastri (1932), (1944), (1949a) and (1949b), Hultzsch (1913) and (1914), Karashima (1975) and McKinnon (1996). For a general study of the Tamil guilds, see Abraham (1988). Subbarayalu (1998) provides a new interpretation of the Barus inscription. A useful website in this area is that at: http://ismaili.net/Source/0104c.html.

5. Maritime Routes and Trade Networks

The routes followed by mariners of diverse origins is necessarily an integral element in studying the East Asia maritime realm, and its historical evolution. Tibbets (1971), (1973)
and (1979) provides, through his translations of Arabic routiers and other accounts, an 
inchoate yet useful picture of the Asian navigation routes followed by the Arab sailors 
from the 9th to 16th centuries.

European-language studies of the Chinese navigation routes include those by 
Mills (1974) and (1979), which provide quite detailed sailing directions for ships 
travelling between and among Chinese and Southeast Asian ports in the 14th-17th 
centuries. Ptak (1992), (1988d) and (2000b) has examined the Chinese navigation routes 
in the region of the Sulu zone and the Moluccas. The Hokkien network which grew 
around these trade routes from the 15th century, and which grew to connect most of the 
major ports in East Asia, has been detailed in an outstanding new work by James Chin Kong (錢江) whose thesis on the subject completed in 1998 was undertaken under the 
supervision of Wang Gungwu (王賡武).

In terms of more local routes, Pensak Howitz (1977; 2-3) maps what she 
considers are the three main trade routes out of the Chao Phraya valley from the 14th-16th 
centuries – the first east along the coast towards Cambodia, the second a sea route 
directly from the Chao Phraya river to Nakhon Si Thammarat, Songkhla and Phattalung 
and the third a coastal route to the west which follows the coast to Prachuap Khiri Khan, 
Chumphon and Pattani. The shipwrecks found on these various routes had quite different 
cargoes. The third route, for example, had smaller ships and inferior cargoes.

There is less literature on the northern East Asian routes and routiers. Yoon Moo-
byong (1977) discusses the likely route sailed by the Sinan ship prior to its sinking off 
Korea.

Few Vietnamese texts relating to maritime Asia have been the subject of studies 
in Western-language scholarship. One of the more interesting texts which is now being 
investigated is the Xiêm-la-Quốc Lớ-trình Tếp-lực (暹羅國路程集錄), an early 19th 
century maritime routier, which seems likely to reflect sea routes used for centuries by 
the Vietnamese. Wade (1998) has translated into English and annotated the route which 
extends from the Mekong delta, along the coast of Cambodia and Thailand, down the 
Malay Peninsula to Singapore and back up to Phuket island in Thailand.

5.1 The Trans-Peninsular Routes?

Perhaps one of the most contentious issues relating to Southeast Asian maritime 
trade routes is whether or not land routes across the Malay Peninsula served as portages 
between the maritime routes in the South China Sea and those in the Andaman Sea and 
into the Indian Ocean. In the early 16th century, Eredia (1997: facing p 25) showed on his 
map of the peninsula the “Panarican”\(^\text{17}\), a portage connecting the upper reaches of the 
Muar and Pahang rivers, providing a trans-peninsular crossing. Wheatley (1961: pp. 163-
172) introduces the various references to the Penarikan trans-peninsular route, which he 
considers was used as a route for goods of little bulk but great value such as gold dust. 
Wheatley (1961: xxvi) also illustrates the major trans-peninsular routes, which may or 
may not have been used for transportation of cargoes.

Ho Chuimei (1994b) examines the ninth- and tenth-century ceramics found at 
Kho Khao and Laem Pho-Payang in the bay of Bandon, southern Thailand, two ports

\(^\text{17}\) In Malay, the term is “Penarikan”.
opposite each other across the Isthmus of Kra. There have been suggestions that these two ports were the ends of a trans-peninsular porterage route, but Ho does not seem to endorse this claim. A decade earlier, Manguin (1983) had stated his opinion on the unlikelihood of trans-peninsular porterages, while Bronson (1996) more openly rejected the idea of trans-peninsular porterage of cargoes. Jacq-Hergoualc’h (2002) suggests that the ceramics which were being transported by sea between the Middle East and China or vice-versa in the 9th and 10th centuries would not have survived porterage through the land routes, and this leads him to “doubt even further the reality of these transpeninsular routes”. Reid (1993a) describes the use of these portages in 17th century accounts.

5.2 The Coming of Islam to Maritime Asia

One of the great changes to affect maritime Asia over the millennium which extended from the 8th century C.E, to the 18th century C.E. was the arrival and gradual adoption of Islam through much of the archipelago. The spread of the religion very much relied on the maritime links which existed in the region, and thus it can truly be said that the spread of Islam constitutes part of the maritime history of Asia.

In his study of the historiography of the issue, Drewes (1968) notes the gravestones (dating from the 11th century), local histories and external sources for studying the arrival of Islam in the region. He suggests that the Muslims of the Coromandel Coast in India played a major role in introducing Islam to areas which are today in Indonesia. That some Sumatran polities had adopted the religion by the 13th century seems to be well accepted. Not surprisingly, Hugronje (1906) sees the participants in the international maritime trade as having been the carriers of the religion. In 1963, S.Q. Fatimi suggested that the rulers of Pasai derived from Bengal, but other scholars, particularly Marrison, suggest a likely South Indian source for Pasai’s Islam. Hall (1977) investigates this issue further, while other ideas are provided by Marrison (1951). Manguin (1985) and Nakamura (2000) look at the introduction of Islam to Champa, while Islamization in Java has been investigated by Ricklefs (1979). Denys Lombard (1990) places this Islamisation in a global perspective.

The contentious “Malay Annals of Semarang and Cirebon” translated by de Graaf, Pigeaud and Ricklefs (1984) offers the possibility of Islamization of much of Nusantara through the efforts of Chinese Muslims during the 15th and 16th century. This thesis is supported by the work of Tan Yeok Seong (1962). Separately, Aliah Gordon (2001) has usefully brought together a range of Western-language scholarship on Islamisation in Southeast Asia into a single volume.

Reid (1995) has discussed how Austronesian societies reacted to the proponents of Islamic beliefs and how they adapted Islamic beliefs and practices to their existing set of beliefs. He has also argued (Reid 1993) that Islamisation provided the potential for radical changes in these societies by introducing an external set of ideals, changes which he sees as mainly occurring later, in the 16th and 17th centuries. In his “The Islamization of Southeast Asia” (Reid 2000a), he provides an overview of the social and political impacts of the religion on Southeast Asia.
6. Studies of Major Ports and Port-polities

A necessary corollary of maritime trade is the ports between which the trade is conducted. The study of major ports and port-polities throughout East Asia is thus an integral part of the maritime studies of the region.

In their edited work, Kathirithamby-Wells and Villiers (1990) attempt to trace the evolution of the Southeast Asian port-polity as a historical phenomenon and examine the inherent links between the growth of trade and the rise of states. Space precludes discussion of this huge topic here, but for the convenience of readers, a listing of representative Western-language works which examine aspects of some of the major ports of the East Asian maritime realm during the pre-modern period is provided below. The works which are mentioned are those which concentrate on the maritime links and relations of these port-polities.


**Ho-ling:** Damais (1964), Meulen (1977), Nakada (1985).


Lambri: Cowan (1933), Gerini (1909), McKinnon (1988).


Pahang: Linehan (1930) and (1936), Wilkinson (1932).


7. Shipwreck Studies

The discovery and excavation of sunken ships throughout the East Asian region has provided us with much new information relating to nautical technologies, trade patterns, ceramic technology evolution, and other commodities. While nautical archaeology remains in its infancy in East Asia, some of the important excavations and salvages which have been reported in Western languages are detailed below.¹⁸

7.1 Shipwrecks Found in Malaysian waters

7.1.a The Pontian boat

As noted under the ship-building section above, probably the oldest boat known from Southeast Asia is that which was found in 1926 at Pontian, in southern Pahang on the east coast of the Malay peninsula. It was first published by Evans (1927) and also analysed by Carl Gibson-Hill (1952). According to the Maritime Asia website,¹⁹ the boat has been dated to the 3rd-5th century on the basis of carbon dating and the ceramics found. The ceramics are reportedly similar to some found at the Oc-eo site in southern Vietnam, which is broadly dated to the 1st-6th century. Manguin (1996) has also written on this boat in a broader context.

7.1.b The Tanjung Simpang shipwreck (11th century?)

This wreck, found off Sabah in Borneo, carried a cargo of Chinese ceramics tentatively dated to the Northern Song dynasty (960-1126 AD). The ship's timbers which have been collected appear to be from a temperate climate, and are probably pine, fir or cedar, suggesting that the ship herself is also of Chinese origin. The location suggests that the ship may have been travelling from China via the Philippines to Brunei or other locations in Borneo. This is the oldest loaded ship found in Malaysia to date. Excavations are being conducted by Nanhai Marine Archaeology Sdn. Bhd., led by Sten Sjostrand.

Investigations began in 2003, but looting was already apparent. However, it was obvious that the ship carried large numbers of bronze gongs as well as ceramics. A total of 303 ceramic artefacts (retaining over 50% of the original shape) were recovered, along with 250kg of shards. A brown-glazed kendi and teapots are of types previously unrecorded. The qingbai ewers, covered boxes and other brown-glazed wares have been reported from sites in Indonesia. All of the ceramics are Chinese.
In addition, 61 bronze gongs were recovered. All are 41-43cm wide, and the surfaces are slightly curved, without the central protrusion often seen on later gongs. Also recovered were 76 copper discs -- round and oval copper ingots which seem to have been cast in simple sand moulds. They were found in three sizes, corresponding to weights of approximately 0.5, 0.75 and 1 kg.20

7.1.c The Turiang21: a 14th century Chinese shipwreck

The Turiang was a Chinese ship with a multinational cargo of Thai, Vietnamese and Chinese ceramics, plus iron ore and fish, apparently heading for Borneo and/or Sulawesi. Its wreck was found off the eastern coast of the Malay peninsula. The wreck is tentatively dated to AD 1305-1370. The ship was likely sailing to Borneo and/or Sulawesi when she sank in the 14th century. An early or mid 14th century date is also suggested by the ship type, which is of Chinese construction using temperate-climate wood. Later vessels with the observed shipbuilding details are likely to have been of South China Sea type and built from tropical hardwood. It seems likely that the vessel was built in China and heavily loaded with Chinese ceramics in a Chinese port.

This is one of the earliest shipwrecks yet discovered with Thai export ceramics, and it prompted a reassessment of the relative importance of the two major ceramic production centres at Sukhothai and Si-Satchanalai. It also proves that almost-identical black underglaze ware was available simultaneously from Sukhothai and Vietnam. Other conclusions reached include:

- Decorated underglaze ware from Thailand and Vietnam was popular before Chinese blue-and-white
- Longquan celadons were fired on tubular supports, identical to those later used at Si-Satchanalai
- Sukhothai was in production earlier than previously thought
- Sukhothai was not always a minor producer; initially it was a volume exporter
- Sukhothai was exporting before the 'Ming ban'.
- Sukhothai developed independently of Si-Satchanalai
- Sukhothai was achieving higher firing temperatures than Si-Satchanalai in this period.
- Know-how on high-temperature firing and above-ground kilns may have been transferred from Sukhothai to Si-Satchanalai, rather than the other way around.
- Sukhothai was exporting before Si-Satchanalai produced mature celadon.
- Si-Satchanalai may have started to produce mature celadon later than previously thought.
- Both Sukhothai and Si-Satchanalai may have benefitted from the expertise of refugee Chinese potters.

The Turiang and other ship sites together suggest that the early dominance of Chinese ceramics in export markets during the Song and early Yuan dynasties was

20 http://www.maritimeasia.ws/tsimpang/index.html (Brown and Sjostrand)
21 Names were given to each ship by the excavation team, by association with the ceramics carried or with their history (in this case, with the 'Turiang kiln sites' in Sukhothai); original names, if assigned, are unknown. See: http://www.maritimeasia.ws/turiang/index.html
threatened by vigorous competition from Vietnamese and Thai producers from the 14th century onwards. Chinese involvement dwindled further in the late 14th and early 15th century, following the 'Ming ban'.

7.1.d The Nanyang ship (+/- 1380)

This wreck was discovered in 54 metres of water, 10 nautical miles from the nearest Malaysian island on the east coast of the peninsula. Only the surface of the site has been investigated, but the ship appears to be of “South China Sea” type. This represents a mixture of traditional Chinese and Southeast Asian shipbuilding features, perhaps the result of Chinese settlement in Southeast Asia. The ship was quite small, possibly around 18 metres long with a beam of 5 metres.

The Nanyang has hull planks joined by wooden dowels. Her ceramic cargo is well organized, in cargo compartments separated by transverse bulkheads. This site has not yet been excavated, but four hundred ceramic pieces were recovered for study purposes. These are mainly early Sisatchanalai celadon. They include ring-handled jars, large celadon plates, smaller bowls and earthenware. Storage jars are from Thailand and China.

The Nanyang is one of the earliest ship discoveries with Sisatchanalai celadons. She may have sailed soon after celadon production started at the Sisatchanalai kilns, which seem to have switched entirely to the new product: no underglaze decorated ware from Sisatchanalai is found on the Nanyang or the later Longquan wreck.

7.1.e The Longquan ship (+/- 1400)

This wreck was discovered in 63 metres of water, 23 nautical miles from the Malaysian coast. Again, only the surface of the site has been investigated, with a number of ceramic artefacts raised. The ship may have exceeded 30 metres in length with a beam of 8 metres, making her one of the largest wooden wrecks discovered in the South China Sea. She was of 'South China Sea' type; hull planks and transverse bulkheads were joined with wooden dowels. Since her discovery in 1996, fishing trawlers have destroyed much of the ship's structure and pottery.

The ceramics from this site are estimated to have numbered 100,000 pieces, fifteen times the volume on the Turiang. These are estimated to be 40% Chinese, 40% celadon from Sisatchanalai, and 20% underglaze ware from Sukhothai. The volume from Sukhothai, taken in conjunction with the Turiang cargo, is notable. No Sukhothai ware appears on the Nanyang site, but it was still in production at the later date of the Longquan wreck. Other archaeological sites had suggested that Sukhothai exported little compared to Sisatchanalai; the Turiang and Longquan wrecks suggest that Sukhothai in the early years was a significant exporter.

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22 http://www.maritimeasia.ws/turiang/index.html (Brown and Sjostrand)
23 http://www.maritimeasia.ws/exhib01/pages/p013.html (Brown and Sjostrand)
24 http://www.maritimeasia.ws/exhib01/pages/p014.html (Brown and Sjostrand)
7.1.f The Royal Nanhai ship (+/- 1460)

This wreck was discovered in 46 metres of water, 40 nautical miles from the Malaysian coast. The site has been excavated, and more than 21,000 ceramic pieces recovered. These are mainly Sisatchanalai celadons of later date. A few Chinese and Vietnamese blue-and-white ceramics assisted in dating. The ship was about 28 metres long with a beam of 7-8 metres, and again of “South China Sea” type, as hull planks and transverse bulkheads were joined with wooden dowels. Frames were fastened with bolts and nails. She was built from tropical hardwood of Hopea species. In addition, there was a secret compartment, below the cargo hold, which contained a seal and other art objects.25

7.1.g The Xuande site (+/- 1540)

This shipwreck was discovered in 53 metres of water, 39 nautical miles from the nearest Malaysian island. The site is unusual, with no hull remains, but many indications that a ship once rested there. This ship may have been built from a softer wood. About 170 Chinese blue-and-white ceramics and 30 underglaze pieces of late style from Sukhothai and Sisatchanalai were found partly buried in mud within the original outlines of the ship.

Six of these pieces bear reign marks of emperor Xuande (1426-1435). These were mixed with other pieces normally attributed to the 16th century - and two bronze cannon of a Portuguese style which first appeared in Portugal in the 1520s. This sets the earliest possible date for the wreck. However, the cannons are cast with the Eight Buddhist Emblems, so they might have been cast in Asia.

The absence of celadon on this wreck and the later Singtai is interesting, given that both ships carried underglaze products from Sisatchanalai and Sukhothai. Perhaps Sisatchanalai had ceased to export celadon, and switched back to underglaze decorated ware (not seen on the Nanyang, Longquan or Royal Nanhai), with new decorative styles and shapes - such as covered boxes, and bottles with cup shaped mouths. Many of the boxes were fired on tubular supports. Meanwhile, Sukhothai had apparently abandoned its famous fish and flower plates - but the presence of Sukhothai ceramics on the Xuande and Singtai shows that the kilns were still active in the 16th century, which is new information. Only one type of Sukhothai ware is found on the Xuande: bowls with a cakra or solar whorl medallion.26

7.1.h The Singtai ship (+/- 1550)

This wreck was discovered in 53 metres of water, 12 nautical miles from the nearest Malaysian island. Only the surface of the site has been investigated, with a few ceramic artefacts recovered. The ship appears to be of the South China Sea type, and approximately 22 metres in length. During the few dives on the site (in very limited visibility), hundreds of large Singburi storage jars were noticed - similar to jars on the Xuande site. These may have been the main cargo.

25 http://www.maritimeasia.ws/exhib01/pages/p015.html (Brown and Sjostrand)
26 http://www.maritimeasia.ws/exhib01/pages/p016.html (Brown and Sjostrand)
Some Sukhothai and Sisatchanalai underglaze products were found, but no celadon. Maybe blue-and-white, by now being exported in volume from China, had changed the competitive balance and forced the Thais to modify their product? The Singtai could be contemporary with the Xuande, but seems likely to be slightly later. The star motifs on the Sukhothai bowl, for example, are stamped.27

7.2 Shipwrecks Found in Indonesian Waters

7.2.a The Tang Shipwreck off Belitung (early 9th century)

The Belitung Wreck was found in 1997, one nautical mile off the coast of the Island of Belitung, Indonesia. It was only 17 m deep. A series of coral reefs a little further offshore appear to have been the cause of the loss. A remarkably large section of the ship's hull survived. The hull planks were stitched together, and light frames were lashed to the hull. Without doubt, the ship is either Arab or Indian, there being little to distinguish the two in ancient times. The Belitung Wreck is the first and only Arab or Indian ship to be found in Asia, and the first and only in the world with a complete cargo.

A bowl from the wreck is inscribed with a date equivalent to 826 AD. Carbon 14 analysis confirms the early 9th century date. The majority of the surviving cargo consists of ceramics from the Changsha kilns of China, primarily bowls and ewers, but also a smattering of figurines, jarlets, and other oddities. Many of the bowls were originally packed in straw cylinders and stowed directly in the holds. Many others were helically stacked inside large 'Dusun'-type storage jars, with up to 130 per jar.

In addition, there are excellent quality white-ware pieces from the famous Ding kilns, Yue-ware from Zhejiang Province, and the earliest known intact underglaze blue-and-white dishes. In addition, there have been excavated intricately decorated gold dishes and a cup, augmented by gilt-silver covered boxes and a large ewer, all beautifully decorated with animals and vegetation, many following Islamic themes.

Much can also be learnt from less valuable items on board, such as Indonesian scales weights, aromatic resin, gongs, an inkstone, a glass bottle, grindstones, and lacquer-ware. None of these items is definitively Arab or Indian. The Belitung ship may well have been at least partially crewed by Southeast Asians. She may well have called in at a Srivijayan port. The Belitung Wreck is the first archaeological proof that Arabs or Indians traded directly with China during the first millennium.28

The ship is still being excavated by commercial salvors (a German company named Seabed Explorations) and aspects of it have been detailed in an article by Michael Flecker (2000) who was involved in the excavation of the wreck. Further description and illustration can be found in Flecker (2001b). Full publication of the items found will not be possible until the cargo is sold by the salvors. A brief introduction to the ceramics carried on the ship can be found in Guy (2001-02).

27 http://www.maritimeasia.ws/exhib01/pages/p017.html (Brown and Sjostrand)
28 http://maritime-explorations.com/belitung.html (Flecker)
7.2.b The Intan Wreck (c. 10th century)

The Intan Wreck was found by Indonesian fishermen in the western reaches of the Java Sea, 40 miles off Sumatra and half way between Bangka Island and Jakarta. She lies in 26 metres of water. Michael Flecker carried out an investigation survey, and then directed the full excavation for a joint-venture incorporating the Indonesian licensee and the German company, Seabed Explorations, in 1997.

Carbon dating augmented ceramic and coin analysis to confirm a 10th century AD date. While little of the hull remained, timber identification and structural details indicated that the ship was an Indonesian lash-lugged craft. She was possibly bound from a Srivijayan port to central or eastern Java.

The cargo is extremely diverse. There are ceramics, silver ingots, mirrors, and ironware from China; tin ingots and currency from the Malay Peninsula; fine-paste-ware kendis and bottles from Thailand; and glass and amphorae from the Middle-East. Indonesian products include bronze ingots, gold coins and jewellery, aromatic resin, scales sets, and grind-stones. Buddhist figurines, kala-head door knockers, oil lamps, mirrors, votive tablet moulds, pellet bells, vajra and ghanta are all beautifully depicted in Indonesian bronze. Elephant tusks, tiger teeth, sambar antlers, and even human bones and a molar remarkably survived.

The Intan ship was apparently supplying metal deficient Java with all the necessities for day-to-day life, be they religious, ceremonial, or commercial. She clearly demonstrates the important role of the entrepot port, when Srivijaya was the power to be reckoned with. 29

Michael Flecker submitted his report on the archaeological excavation of the Intan Shipwreck to the National University of Singapore as a PhD dissertation and this was later published in the British Archaeological Reports as No 1047 in the International Series. See Flecker (2001a) and (2002a). A detailed study of the iron objects found in the wreck is also available on-line. 30

7.2.c The Pulau Buaya Wreck (12-13th century?)

The only known publication on this wreck is that by Abu Ridho and McKinnon (1998), which mainly describes the Song dynasty ceramics obtained therefrom. Further information is awaited.

7.2.d The Java Sea Wreck (13th Century)

The Java Sea Wreck is located in the western reaches of the Java Sea, half way between Bangka Island and Jakarta. She lies in 27 metres of water, far from any navigation hazard. Michael Flecker directed the final excavation of the wreck for Pacific Sea Resources in 1996. The wreck is thought to be an Indonesian lash-lugged craft of the 13th century of about 28 metres length, and she was likely voyaging from China to Java with a cargo of iron and ceramics.

29 http://maritime-explorations.com/intan.html (Flecker)
As much as 200 tonnes of iron was found in the form of cast iron pots and wrought iron bars. The original ceramics cargo may have amounted to 100,000 Song dynasty ceramics. 12,000 intact pieces were archaeologically excavated in 1996, after considerable looting and destruction by dynamite fishing. The ceramics are mostly celadon-type export ware from southern China, but there is also an array of Thai fine-paste-ware.

Unique artefacts include Indonesian bronze figurines, scale weights, ivory, aromatic resin, and glass ware. These indicate that the ship may have stopped at a port in southern Sumatra. The Java Sea Wreck is a fine example of Southeast Asian shipping being used to transport a Chinese export cargo. Possibly she had carried a cargo of spices and exotic forest products to China for trade. Despite the dominance of Chinese goods in Asian trade, Chinese shipping seems to have only started to play an important role after the 14th century.31

Literature which describes the Java Sea Wreck and the artefacts recovered from the site include Mathers and Flecker (1997) and Flecker (1999).

7.2.e The Bakau wreck (early 15th century)

The Bakau Wreck was found in 24 metres of water just off Bakau Island, which lies on the western side of Karimata Strait in Indonesia. The wreck lay at the base of a reef, with a large coherent section of hull surviving. The hull was originally divided by bulkheads, and planks were edge-joined with diagonal iron spikes, a clear sign of Chinese construction. The ceramics cargo, coins and carbon dating indicated a wreck of the early 15th century, which makes it one of the earliest examples of Chinese shipping in Southeast Asian waters. The ship was apparently bound from southern China to what is today Indonesia via a Thai entrepot port.

Despite heavy looting by fishermen, a remarkably diverse ceramics cargo remained. There were Sukhothai and Sawankhalok wares from Thailand, Longquan wares from China, and a few underglaze decorated bowls from Vietnam. But dozens of huge Thai storage jars, containing organic materials, formed the most impressive element of the cargo. The ship seems to have been destined for Indonesia having called in at several northern ports.

7.2 Shipwrecks Found in Thai Waters

In Thai waters, excavation work on shipwrecks has been ongoing since the mid-1970s. In 1975, Ms Pensak Chagsuchinda Howitz 32 presented a proposal to examine the shipwrecks in the Gulf of Thailand to the Danish Government, who funded the study. In the first two years of the work they investigated 18 wrecks. In later years, Jeremy Green and members of the Western Australian Museum assisted the Thai Fine Arts Department to locate and excavate wrecks, and train maritime archaeologists. See Atkinson, Green, Harper and Intakosi (1989). The wrecks found include the following:

31 http://maritime-explorations.com/java%20sea.html
32 At that time, the Chief Project Expert of the Underwater Archaeological Survey, Department of Fine Arts, Ministry of Education, Thailand.
7.2.a The Ko Si Chang Two Wreck (1290 +/- 60 years)

The Ko Si Chang Two Wreck, which has been carbon 14 dated to 1290 +/- 60 years, provides a useful datum line for dating ceramics. The Ko Si Chang Two site was looted before even cursory inspection, but has provided a few underglaze wares similar to those on the Turiang, for which no manufacturer was suggested. However, a fragment of an unusual high straight-rimmed celadon dish appears identical to several found on both the Turiang and the Longquan. For further details, see Jeremy Green (1983a).

7.2.b Sattahip wreck (16th century?)

This ship, made of teak, lies in 45 metres of water at Sattahip Bay, Chon Buri Province. It was about 34 metres in length and 12-14 metres in the beam. More than 4,000 pieces of ceramics were collected, 75 percent of which were Sukothai and Sawankhalok products. The rest were Annamese. It was likely a Southeast Asian ship from the 16th century. See Pensak Howitz (1977).

This is also likely the same wreck as Flecker refers to as the Central Gulf of Thailand wreck, lying in 55 metre deep water some 60 nautical miles south of Sattahip. The hull is reportedly more intact than any other ancient shipwreck in Asian waters, and is certainly the best preserved example of the South China Sea Tradition. A diver standing within a hull compartment must reach up to touch the top of the bulkheads. She is 18 m long and 6 m wide. Surviving features that have rarely, if ever, been seen before include two longitudinal stringers, an axial main-mast support, and a rudder socket for an axial rudder.

The cargo consisted almost entirely of Thai ceramics, with many of the smaller items being stowed inside storage jars. Most were utilitarian in nature. There were also a few examples of Chinese blue-and-white porcelain, as often occurs in wreck sites of this nature, and some Vietnamese water droppers. Non-cargo artefacts include Chinese bronze 'hand guns', gongs, and a lime-based putty.

This wreck is one of the most recent of this very successful design to be discovered. The South China Sea Tradition is thought to have been phased out later in the 16th century, paralleling the decline in the Thai export ceramics industry, as it did the rise.33

7.2.c Ko Si Chang 1 wreck (16th century)

This wreck was found in the Gulf of Thailand, near the island of Ko Si Chang north of Pattaya, in 35 metres of water. The site was the subject of a survey and exploratory excavation by the Australian Institute for Maritime Archaeology and Thai Fine Arts Department between 1983 and 1985 (Green et al., 1986). The results of this excavation showed the site was in excellent state of preservation. The ship was carrying Thai ceramics, Chinese porcelain, ceramics and lacquer ware, possibly European firearms and a variety of material of uncertain origin. The hull structure was unusual in that it is not edge-joined with dowels, but does have bulkheads separated by about 1 m. The site is dated by a ceramic mark from the reign of Wanli (1573-1619).

33 http://maritime-explorations.com/thailand%20artefacts.htm (Flecker)
7.2.d Ko Si Chang 2 Wreck

Little detail of this ship is available. The ceramics from this site are reportedly interesting because they are complex and include material thought to originate from Thailand, Southern China and a small group of uncertain origin. The hull timbers indicate an unusual construction, possibly non-Southeast Asian (Green et al., 1989).

7.2.e The Ko Si Chang 3 Wreck (15th century?)

In 1986 the Thai Fine Arts Department undertook an excavation of the Ko Si Chang Three site as one of the most ambitious projects attempted in Thailand. The team consisted of staff from the Underwater Archaeology Division of the Fine Arts Department of Thailand, trainees of the SEAMEO Project in Archaeology and Fine Arts (SPAF), and members of the Australian Institute of Maritime Archaeology (AIMA).

The site was considered to be important because it showed no signs of having been looted, although there was evidence of damage caused by the activity of trawlers. A sample of dyewood log SUA-2594 has been dated to 1440±60. The results of the excavation have been published by Green et al. (1987).

7.2.f Rang Kwien Wreck (14th -15th century?)

This site was excavated by the Fine Arts Department between 1978 and 1981. It had been extensively looted by sports divers, but the Fine Arts Department excavation recovered 200 kg of copper coins, copper ingots, ceramics, gongs, bells, and elephant tusks. Additionally, a large section of the hull of the ship survived, including the keel which had an unusual waterway cut out of the centre. In 1987, the survey group visited the site to recover timber samples for dating and analysis. During the visit, the keel was found to be exposed and so a series of cross-sectional measurements were made to record the keel waterway. The Rang Kwien Timber sample SUA-2699 was dated to 1270±60. See Atkinson, Green and Harper (1989).

7.2.g Koh Kradad wreck (early 17th century)

Found near Koh Kradad in Trad province on the eastern coast of the Gulf of Thailand, the wreck was only in two metres of water a few hundred metres from the coast. The ship was excavated in 1979/80 by a joint Thai-Australian team. It carried much in the way of granite, either as cargo or ballast. It also carried as cargo Sawankhalok wares and late Ming ceramics. The presence of these Chinese ceramics clearly dates the Sawankhalok products which were encapsulated together with the porcelain at the time of the wreck. This was an early 17th-century ship, likely from a local port. See Pensak Howitz (1977), Green and Harper (1982) and Green, Harper and Prishanchittara (1984) for various excavations reports.

34 www.mm.wa.gov.au/Museum/march/department/oseas.html (Green)
7.2.h Pattaya Wreck (17th century?)

The Pattaya site was excavated in 1982, also by a Joint Thai-Australian team. This wreck had been badly looted with looters using explosives before archaeologists surveyed it. The ship contained much lead in pyramid shaped ingots, quite a common cargo in Thai wrecks. Lead has long been mined at Kanchanaburi about 130 kilometres northwest of Bangkok. Possibly it was being exported for use as bullets. The hull consisted of planking, edge-joined with wooden dowels, compartments formed by a series of bulkheads, partially held in place with light, non-structural frames and the bulkheads which had waterways, presumably to allow the bilge water to collect in the deepest part of the hull. This wreck was also probably early 17th century. See Pensak Howitz (1977) and Green and Harper (1983). The latter has an excavation report.

7.2.i Ko Khram Wreck (14-15th century?)

This site was discovered in the mid-1970s and an excavation was undertaken by a joint Thai-Danish team from 1975 to 1977. A very large quantity of Thai ceramics was recovered from the site (in excess of 5,000 pieces) and the site and the wares have been described by Brown (1975), Howitz (1977) and Green (1981). The site is one of the largest and best preserved in the region. Plates and bowls bearing typical Sukhothai fish motifs and floral designs were recovered. Sisatchanalai kiln products included incised floral plates and bowls and plain jarlets covered with celadon glaze. Glazed saucer-bowls and an unglazed centre are believed to have their manufacture in Vietnam.

7.3 Shipwrecks Found in Vietnamese Waters

7.3.a The Phu Quoc (or Hon Dam) Wreck (14th-15th C.)

The Phu Quoc Wreck is located just to the south of Phu Quoc island, off the west coast of Vietnam and within the Gulf of Thailand. The water depth is only 11 metres. Despite the shallow water, the lower portion of the 25 metre long hull survived in magnificent condition. This is because it was constructed of teak, which is particularly resilient to marine borers. Teak is typically used to build Thai ships of this era, which were part of what is termed the South China Sea Tradition, which incorporates Southeast Asian design features, such as edge-joining with dowels, with Chinese features, such as bulkheads and an axial rudder.

The surviving cargo consisted almost entirely of Thai ceramics, mainly Sawankhalok ware. They are of excellent quality, and from the location of the wreck, were possibly bound for the Philippines. Many would eventually have been interred with the dead, as covers for burial jars and as grave goods. Apart from the ceramics there was a consignment of iron ore, which oxidised and entrapped several storage jars within the hull compartments. There were also lead and tin ingots, and a bronze lime container, typically used for the preparation of betel.

Some 1,100 intact Sawankhalok ceramic items were recovered during the survey, consisting mostly of bowls and small jars. Several thousand more pieces were later recovered by Visal, the Vietnamese Salvage Corporation. A selection of the ceramics is
displayed in the Ho Chi Minh City Art Museum, while the remainder has been offered for sale.  

For further details on the wreck, see Flecker and Blake (1994) and Flecker (1995).

7.3.b The Hoi An (or Cu Lao Cham) Wreck (15th century)

This site of the 15th-century ship was discovered by fishermen off the Hoi An coast of Vietnam in the South China Sea in the early 1990s. There was much looting of the site prior to excavation in the late 1990s. Given the depth of the wreck, at over 70 metres, the Vietnam Salvage Company (VISAL) engaged the Malaysian salvage company, Saga to assist with the deep-sea recovery. Saga's government-sanctioned exploration began in mid-1997.

The ship was laden with perhaps 150,000 pieces of Vietnamese porcelain, produced near present-day Hanoi, most with underglaze cobalt blue decoration, and some with brightly coloured overglaze enamels. These were trade goods, influenced by Chinese ceramics, possibly made to compensate for dwindling production at the kilns at Jingdezhen in southern China.

All unique pieces have been retained by the National History Museum in Hanoi. Another ten percent, selected by type, were dispersed among the more than one-hundred museums throughout the country. Saga received forty percent of all duplicate objects. As for the rest, the collection was auctioned by San Francisco based Butterfield's. Profits from the auction are to be shared equally between Saga and VISAL, which means that the Vietnamese government is sure to benefit substantially. VISAL is a state-owned company.

That Vietnam was producing and exporting large quantities of ceramics various qualities in the 15th century is strongly supported by this cargo. The find allows new interpretations of Vietnamese art history, as both technically and artistically the ceramics of the Le period (A.D. 1428-1527) are seen to be less conservative than previously believed. The shapes and designs of the pieces found at Cu Lao Cham also suggest a relatively independent evolution for some Vietnamese ceramics. See Guy (2000) for details of the ceramics.

7.3.c The Vung Tau (or Hon Cau) Wreck (1690)

The Vung Tau Wreck was found off the Con Dao island group, near the southern tip of Vietnam, lying in 34 metres of water. Only one half of the lower hull has survived. It is the hull of a lorcha, a hybrid vessel combining Chinese and European construction techniques, and the first and only such vessel ever found.

Comprising a wide array of Jingdezhen export porcelain, the cargo seems to have been ordered with interior decoration in mind, with garnitures of jars and vases accounting for a large proportion of the consignment. Non-ceramic artefacts included inkstones, ink sticks, personal seals, die, padlocks, woks, cauldrons, tweezers and combs. Even some silk survived. The porcelain was likely destined for a port where it would have been transhipped onto a VOC vessel for the onward voyage to Holland. The other goods were to supply the Chinese community at the same port. That port was Batavia.

35 http://maritime-explorations.com/phu%20quoc.htm (Flecker)
36 http://maritime-explorations.com/vung%20tau.htm (Flecker)
Christie's selected 28,000 pieces of porcelain for auction in Amsterdam. The return surpassed all expectations at US$7.3 million. A representative sample of ceramics and most artefacts were put on display in the Vung Tau Museum. The remainder of the ceramics, mostly damaged to some extent, were divided between Hallstrom and the Vietnamese Government.


7.3.d Vietnam History Museum

An exhibition of treasures from five ancient shipwrecks opened at the Vietnam History Museum in Hanoi in August 2003. Artifacts were from the five ancient shipwrecks - Cu Lao Cham, Hon Dam, Hon Cau, Binh Thuan and Ca Mau. The largest and most attractive part of the exhibition is relics from the Cu Lao Cham (Cham Island) wreck. They include a restored shipping map, many beautiful and valuable ceramics, and the well-preserved skull.

The Hon Cau ship was salvaged near Hon Cau island, southern Ba Ria-Vung Tau province during 1990-1992. Many ceramics made by Chinese artisans were discovered in the wreck found at a depth of 40 metre. The relics also included a signal piston and a Spanish cannon. The ship was believed to transport goods from China to Indonesia on its way to Europe. The ship dates back to 1690, according to archaeologists.

The salvage of the Hon Dam ship, found in An Thoi village, Phu Quoc district, southern Kien Giang province before 1975, was started in May 1991. The ship dates back to the 15th century because many Sawankhalok ceramics of Thailand during this period and a Chinese coin made in the 1403-1424 period were found.

The Ca Mau wreck was salvaged during the 1998-99 period. The ship was believed to be on fire before sinking. Cargo on the ship included many Chinese traditional ceramics. The Binh Thuan ship was salvaged from the sea of southern Binh Thuan province in 2001-2002. The ship, dating back to 1573-1620, transported chinaware produced by China’s Guangdong and Fujian provinces.

7.4 Shipwrecks Found in Philippine Waters

7.4.a The Butuan Boats

A number of early boats have been discovered in the Butuan region of northeastern Mindanao. In late 1976, Butuan Boat 1 was discovered near the east bank of the Libertad River. Then in 1977, Boat 2 was found about a kilometre southwest of the first site. All in all, eleven boats were identified at four different open sites (named after the land owners Luna, Toro-Toro, and Fortun and the Shrine Museum). The National Museum excavated and conserved three boats (Boat 1 in 1976, Boat 2 in 1978, and Boat 5 in 1986), despite the furious commercial digging activities for imported ceramics in the mid 1970s and later for gold.

Before these discoveries nothing was known about ancient Philippine boats. The series of Butuan boat archaeological excavations contributed much to the fundamental knowledge about the tradition of boat construction. The radiocarbon (C-14) tests on the

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37 www.nhandan.org.vn/english/20030830/bai-cul1.html
three boats (numbered according to the order of their discovery) gave the following results (radiocarbon dates are suggestive rather than conclusive):

- Boat 1 1630±110 years 320 AD
- Boat 2 700±790 years 1250 AD
- Boat 5 900±70 years 900AD

The Butuan Boat, just like the contemporary Badjau/Sama Laut's Lepa boat, and the barangay boat described in the seventeenth century AD by the Spanish Friar Francisco Alcina in his study of the Eastern Visayas (Samar/Leyte area) material culture, are built in a lashed lug technique. The elements of this boat building tradition are believed to be of Southeast Asian in origin, though there are parallels in Oceania and the Indian Ocean, too. The technique of edge-joining with hardwood spikes is also a tradition in Southeast Asia. Only in the Philippines has such a grouping of prehistoric wooden boats been found.38

The Western Australian maritime museum has also been involved in collaborative projects on the boats and ethnographic studies of boat-building in the region. See Green, Vosmer, Clark, Santiago and Alva res (1995).

7.4.b The Breaker Shoal Wreck (12th-13th century)

This wreck was found at Breaker Shoal, south-west of Palawan in the Philippines; and it contain ceramics dated to the Southern Song or Yuan dynasties. The site was excavated in 1991 by the National Museum and Frank Goddio. Apart from qingbai ceramics, lead ingots, iron ingots and an anchor stock were recovered. There were no wood remains of the boat. The ceramics excavated from the site are detailed in Dupoizat (1995).

7.4.c The Pandanan Wreck (c. 1414)

The Pandanan Wreck is a ship which sank near the small island of Pandanan in the early 15th century and which was discovered in 1993. The wreck represents a hybrid Southeast Asian/Chinese vessel. Although divided into Chinese-type cargo compartments, separated by means of transverse bulkheads, she was joined with wooden dowels, with no iron nails of any kind. Like most Southeast Asian and hybrid vessels, she was built of tropical hardwood.

About 1,000 dives were made on the wreck, recovering 4,722 artifacts. Among the recovered items were 15th century Chinese, Thai and Vietnamese ceramics as well as bronze cannons, coins, lamps, mirrors and weighing scales. Part of the collection is now with the National Museum in Manila while the rest was sold to private individuals.

For more details on the wreck, the artefacts recovered, and the importance of the wreck as an indicator of regional trade, see Diem (1997) and (1998-2001).

38 http://www.geocities.com/Athens/Cyprus/8446/Balanghai.html
7.4.d Lena Shoal Shipwreck (late 15th century)

The Lena Shoal Wreck was discovered in 1997 northeast of Palawan, and has been excavated through a joint effort between the Philippine National Museum and the Far Eastern Foundation for Nautical Archaeology (FEFNA) headed by Franck Goddio. It was a Chinese ship which sank some time in the late 15th century.

Some 5,000 objects, including lacquer, ivory, betel-nuts, iron ingots and woks, bronze cannons, glass beads and the well-preserved ceramics, were recovered. The snapshot thus provided of trade within East Asia just before the arrival of the Portuguese in 1511 is invaluable evidence for economic history and the contextualisation of the porcelain industry. It is possible that after loading up with ceramics, some of which originated from the kilns at Jingdezhen, Longquan and Guangdong, as well as various other merchandise such as bronze gongs and bracelets, frying-pans and iron ingots, the junk set sail from a port in Zhejiang or Fujian. The junk then made for southern China where it took on board jars of various types. It then made for a port in Siam where the holds were loaded with an additional quantity of ceramics from various kilns. Goddio claims that the ship might have been sailing to supply markets in Persia, the Mameluke Empire or the Ottoman Empire was sailing to the Middle East, but provides little evidence to support this claim.39

Almost all of the recovered artefacts are now in the collection of the National Museum of the Philippines, but a selection of the recovered ceramics is now on view at the Percival David Foundation of Chinese Art in London. More detailed accounts of the ship and its cargo can be found in Goddio (2000) and Goddio (2003).

7.4.e The Santa Cruz Shipwreck (15th century)

A Chinese junk of the Ming dynasty was discovered in 2000 off the town of Santa Cruz which is the northernmost town in Zambales. Franck Goddio began excavation in June of that year with the permission of the National Museum of the Philippines. After two and a half months, 15,000 pieces of ceramics were recovered with much Ming porcelain. The 80 percent of the hull that survived has been covered in mud and sand to protect it. It was 25 metres long and about 5.8 metres in breadth. It is important as it gives many clues as to how cargoes were packed in 15th century junks.

7.4.f Gujangan (or Luuc) Wreck (15th century?)

The Gujangan (or Luuc) Wreck was discovered in 1998 off Mindanao. The Gujangan shipwreck was extensively looted but shards and sundry pieces as well as wood specimens from the boat (of similar construction to the Butuan Boat) have been recovered by the Philippine Navy. The Gujanagan Island excavation was undertaken jointly with the Archipelago Search and Recovery, Inc. (ASRI) and with the full support of the Philippine Navy at the waters of Luuk Municipality, Sulu Province. Two separate periods of fieldwork were conducted at the site in the months of September and October 1998 to assess the extent of the wreck and to conduct partial archaeological research.

39 http://www.franckgoddio.org/english/projects/lenashaol/default.asp (Goddio)
excavation. The site is located at a depth of 135 feet below the surface, and yielded trade
ware materials dating to the Ming.

7.5 Shipwrecks Found in Brunei Waters

7.5.a The Brunei Shipwreck (late 15th century)

On 24 May 1997, while preparing to install a pipeline off the coast of Brunei, a
team under the oil giant Totalfinaelf discovered a shipwreck lying at a depth of 63 metres.
It reported the find and also became involved in excavating the wreck. The Brunei
government brought in French underwater archaeologists from DRASSM (Département
des Recherches Archéologiques Subaquatiques et Sous-Marines – the French Ministry of
Culture and Communication). More than 13,000 ceramic items dating from the late 15th
century were found in the wreck.

These included Chinese and Thai ceramics, including large volumes of Chinese
blue-and-white porcelain. Thai ceramics were also massively represented in the cargo,
not only in the form of stoneware pottery, but also in the form of jars. Further details and
illustrations of the wreck and its contents can be found in Perrin (2000).

Conclusions from the Southeast Asian shipwrecks

The cargo of the 13th -17th century shipwrecks suggests that Thai and Vietnamese
kilns challenged the early Chinese monopoly of ceramic exports from the late 14th
century to the mid 16th century. The established indigenous potteries at Sisatchanalai
appear to have started production of underglaze black decorated ware under foreign
influence. Nearby Sukhothai started producing at around this time, and may have been
the first to export such products. The later introduction of celadon at Sisatchanalai seems
to have been influenced by a second infusion of know-how.

Sisatchanalai and Sukhothai continued to produce plates and other products for
the next two hundred years. Sisatchanalai soon overtook the early export dominance of
Sukhothai. Underglaze decorated and celadon plates seem to have been the main product
until the mid 16th century. After this, the Sisatchanalai kilns seem to have reverted to
underglaze production, although using different clay, forms and motifs. Sukhothai
switched from plates to bowls with a new decorative style.

By the late 16th century, the Thai kilns ceased production, except at Singburi.
Chinese blue-and-white had become immensely popular in both Southeast Asian and
European markets. None of the Southeast Asian kilns could compete. After two hundred
years, China again dominated Asia's ceramic trade.40

7.6 Shipwrecks Found in Chinese Waters

7.6.a The Quan-zhou Wreck (1270s?)

Much has been written on the famous Quan-zhou ship excavated and now
preserved in the Quan-zhou Maritime Museum, but little of this has been in Western
languages, except for general website descriptions. The ship was about 114 feet long by

40 http://www.maritimeasia.ws/exhib01/pages/p019.html (Brown and Sjostrand)
32 feet wide, with a displacement of roughly 375 tons. The archaeologists found more than 500 copper coins associated with the wreck, 70 of which were minted during the Southern Song period (ca. 1127-1279), with the latest ones dating to 1272. The ship probably sank soon after that date. The Quanzhou ship is considered to belong to the hybrid South China Sea tradition.

Associated with the ship remains were about 5,000 pounds of fragrant wood, probably from either mainland or island Southeast Asia, and assorted materials such as cowrie shells, ambergris, cinnabar, betel nut, pepper, and tortoiseshell -- in other words, a priority cargo. (Priority cargoes were processed and/or packaged in archeologically identifiable ways that set them apart from unprocessed or unpackaged bulk cargoes.) The archaeological team also found remains of supplies relating to the ship's provisioning and operations, including faunal remains of possible food animals (bird, fish, goat, pig, and cow) and dogs and rats, as well as plant remains of food items (coconuts, olives, lychees, peaches, and plums). Portable artifacts included an axe, a wooden ruler, and a bronze ladle -- all useful items for maintaining the ship during its voyages -- and assorted celadon bowls, a stoneware wine jar, Chinese chessmen, glass beads, and other personal items and tableware. Western-language literature on the ship includes Green (1983a).

7.6.b The Bai Jiao 1 Shipwreck (Ming)

A joint China-Australia maritime archaeological programme made surveys of the Dinghai area, north of Fu-zhou in Fu-jian, in 1990 and 1995, following the discovery of ceramics being dredged from the sea floor. Several wrecks were found. The Bai Jiao 1 ship structure was not as substantial as was hoped for. Initial survey located what was considered to be the keel or keelson running under a large concretion. This timber was relocated in later inspections and a further section was found in an adjoining grid square. It did not continue however, and little other ships structure was found. The ceramics recovered included black glazed bowls, ying-qing porcelains, white porcelains,


7.7 Shipwrecks Found in Japanese Waters

Very little literature on Japanese shipwrecks is available in European languages. The Japanese maritime archaeology which has attracted most attention in more popular English-language journals is that being conducted in the Imari Gulf, a small cove on Takashima, an island off Japan's Kyushu coast, and the work which has been conducted there since 1981 by Professor Torao Mozai and by archaeologist Kenzo Hayashida of the Kyushu Okinawa Society for Underwater Archaeology (KOSUWA) since 1991. Their efforts have been directed at finding ships used in the 13th-century Mongol invasion of the Japanese islands, and in 2001 it appears that their efforts were rewarded. In October of that year, an entire shipwreck, that appears to originate from Fujian in south China. The scattered remains of what is assumed to be a Mongol Navy ship were located at 15 metres, below about 1 metre of mud on the sea bottom. The ship appears to have been about 70 metres long, and possessed watertight bulkheads, a rudder and three layers of
overlapping planks to strengthen the hull. The claim is that it was one of the ships lost during the Mongol invasion of Japan in 1281.

Among the finds are several ceramic projectile bombs, filled with gunpowder and iron shrapnel, the earliest discovered such ordnance in the world, and a massive anchor, some 23 feet long when intact. The granite and wood of which it was made have been traced to Fujian Province in China, where some of the Mongol fleet sailed from. There are also reports of chunks of wood, clusters of iron arrows, and bits of red leather armour being found by the archaeologists.

Western-language literature on the naval invasion and the excavations conducted at Imari bay include Jeremy Green (1987), Nelson (2002) and Delgado (2003).

7.8 Shipwrecks Found in Korean Waters

7.8.a The Sinan/Shinan Shipwreck

From 1975 to 1984, the wreckage of a Yuan Chinese trading ship situated in the sea off Shinan, Chollanam-do province, dubbed the "Shinan," was excavated along with various relics, most notably ceramic items. With the active cooperation of the navy, more than 10 excavations were conducted between by a research team organized by the Korean Office of Cultural Properties. Among the recovered ceramics were items not only from China, Korea and Japan but also from Southeast Asian countries, and this ceramic “time capsule” has been invaluable in the study of Asian art history.

The Shinan is 28.4 meters long and 6.6 meters wide and about 200 tons. Various structures above its deck are missing due to deterioration. However, the 720 pieces of hull that were recovered have been assembled so that the overall appearance of the original ship can be discerned. A total of 22,007 relics were recovered from the hold of the ship, which was divided into seven watertight bulkheads.

Chinese ceramics, coins and rosewood timber from Southeast Asia made up the bulk of the relics. In addition, Chinese herbal medicinal items and numerous common metal, stone, wood and lacquered articles were recovered along with the belongings of crew members.

A total of 20,661 Chinese ceramics were recovered, 12,359 of which were celadon and 5,303 of which were white or blue-and-white (Ch'ing-pai) pieces. The 792 metal articles found account for the bulk of the general items that were recovered. Most of them are items of daily use such as silver tableware, bronze mirrors, kettles, cups, weights and kitchen utensils. Many of the bronze weights are engraved with the Yuan name for the port now called Ningbo. Except for seven Koryo celadon ceramics and 20 Japanese products such as clogs and knife sheaths, most of the relics are Yuan Chinese.41


41 www.koreana.or.kr/search_db/view.asp?article_id=236(Yun Yong-i)
7.8.b The Wando Island Shipwreck

Another shipwreck, found near Wando Island, and presumed to be a Koryo ship transporting ceramics, was excavated in 1983-1984. A large number of relics, including ceramic wares for everyday use, were recovered.

The wooden boat was a small vessel used for coastal transport. Its construction resembled that of a wooden boat excavated from the bottom of Anapji -- a pond at a royal pavilion in Kyongju -- in 1975. It provided significant evidence related to the history of boat development in Korea: It appears that the boats used during the Shilla period evolved into a larger-scale version, which was later developed into the smaller boats of the Choson Dynasty.

More than 30,000 of the 30,701 ceramic pieces that were recovered intact are celadon bowls and plates of various sizes. A range of other ceramics was also recovered. This find was particularly important for Korean ceramic studies. Until the discovery of this ship, most of the extant Koryo celadon was from excavated tombs, having been produced for burial with the dead. An analysis of the ceramics determined that celadon wares, initially thought to have been made between the ninth and tenth centuries, were actually produced in the early twelfth century. It also revealed that the coarse celadon made with low-quality clay and glazes was produced in coastal areas, most notably the Kyongso-dong pottery of Inch'on and the Chinsal-ri pottery of Haenam. Many wooden tags with inscriptions were found, for bunches of coins, for example. Written in brush ink on the tags were a description of the object, the name of its owner, the amount and the date. Judging from the tags, most of the goods were Japanese-owned.

8. East Asian Maritime Trade Commodities

The ships which traversed the waters of the East Asia maritime realm were, to a large degree, trading vessels, carrying commodities for sale, distribution or forwarding at other ports. In understanding the economic development of East Asia and its component part, some understanding of the commodities which were traded (and often also produced) in the region is essential. Below, we will discuss the major Western-language studies of maritime trade commodities in East Asia.

8.1 Generic Studies of Trade Commodities

In his study of “The Nan-hai Trade” Wang Gungwu (1958) examined, *inter alia*, the commodities which formed part of this trade during the period from the Qin to the end of the Tang dynasty (2nd century B.C. to 10th century C.E.). Paul Wheatley (1959) wrote in much detail on the various commodities involved in East Asian trade during the Song dynasties (10-13th centuries), including the origins of the products. In his study of the tax rates imposed on various commodities imported into Zhang-zhou during the early 17th century, Chang Tseng-hsin (1991) specifically examines those commodities which were being imported into China in the late Ming.
8.2 Ceramics

Ceramics are the commodities which have been preserved best in the archaeological record. It is thus that they are sometimes given more prominence than they deserve in our studies of East Asia trade. That said, ceramics were still enormously important in the commercial interactions throughout Asia and one of the key links between the societies of the region.

Chinese and Arab ceramics were being shipped across the South China Sea as early as the 9th century (see Flecker 2000). By the 12th century, enormous quantities of Chinese green-glazed ceramics (celadon) were being exported to the Middle East, India and throughout Southeast Asia. At the beginning of the Ming dynasty (1368-1644), when prohibitions on overseas trade were proclaimed, Chinese potters or at least their technologies appear to have moved to Thailand and resumed production. The earliest Southeast Asian exporters were kilns in what are today Thailand and Vietnam, and these wares were traded frequently with Japan, the Philippines, Borneo and the Indonesian archipelago. Roxanna Brown, in her various publications, suggests that potters based in Southeast Asian countries made and shipped the largest volumes of ceramics traded on the South China Sea between the 14th and 16th centuries. Asian markets predominated, despite some trade with the Middle East, until the early 17th century when Europeans started to ship large volumes of Chinese blue-and-white porcelain to Europe.


An important aspect of Chinese ceramic production for external markets was the degree to which it was ready to adjust to the market demand. Some, for example, incorporated Islamic elements to meet demand in Southeast Asia and beyond. See the study by Chen Da-sheng (1995) for further details.

8.3 Textiles

One of the East Asian trade commodities which is not usually found in archaeological deposits, but which obviously formed a large part of intra-Asian maritime trade goods is textiles. Chinese silks and other textiles were sought after in places beyond China, while Indian textiles also formed a major cargo between India and East Asia. The latter trade forms the core of John Guy’s recent work Woven Cargoes (Guy 1998).

42 http://www.maritimeasia.ws/turiang/ceramicissues.html#SSvSuk (Roxanna Brown)
8.4 Spices and Aromatics

One of the great impetuses for maritime explorations was the search for spices and aromatics. It was these that assisted the merchants and polities of Southeast Asia trade for the ceramics, silks and metals which so obviously constituted the major flow from the north of East Asia to its South.

In respect of **pepper** and **clove**, Bulbeck, Reid, Tan and Wu (1998) provide an attempt at quantifying the production and trade flows of pepper from the 14th century onwards. Ptak (1993b) and (1995) looks at the clove trade in Asia in about 1500 C.E. Other early references to the pepper trade are provided by Tien Ju-kang (1981), who examines the pepper trade vis-à-vis the role of the Zheng He voyages, and Ts’ao Yung-ho (1982) who has provided a useful overview of the early pepper trade in East Asia.

**Camphor** has long been a much sought product in East Asia, and it features in many of the early lists of trading good carried by ships and tribute missions to China. Wheatley (1959) looks at Song period trade in camphor, while Ptak (2000a) uses Chinese and Portuguese sources to outline the East Asian trade in camphor around 1500 C.E. His study of Barus (1998a) also relates closely to the topic. Nicholl (1979) examined camphor and its links with Brunei. Bryant (1925) has investigated Chinese camphor and camphor oil, while Donkin (1999) provides possibly the most detailed historical geography of camphor yet available.

Ptak (1987) has also examined the trade in **sandalwood** and the way in which this trade linked Timor and China.

Groom (1981) has investigated the flows of **frankincense** and **myrrh**, which were also highly sought after commodities in East Asia.

8.5 Decorative Materials

A range of decorative materials were traded throughout the East Asian maritime realm. The trade in **coral**, for example, and particularly Chinese coral imports, has been examined in Ptak (1990a).

**Glass** was another highly sought-after product, and its presence or absence in archaeological sites is another useful indicator of the links which that place had with the global trading system. Glover and Henderson (1995) provide a useful overview of glass in China-Southeast Asia historical interactions. Broader studies of Chinese glass can be found in Brill and Martin (1991). Miksic (1995) studies the 14th century glass found in Singapore and its environs.

**Beads** were another commodity traded widely not only in the region but around the world. Perhaps the most detailed account of beads and their trade within Asia is the

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43 Bulbeck, Reid, Tan and Wu (1998) also examine coffee and sugar exports in Southeast Asia, but these records fall beyond the temporal limits of this paper.
recently-published book by the late Peter Francis -- *Asia’s Maritime Bead Trade: 300 B.C. to the Present* (2002).

The use of **tortoise-shell** as a decorative art object in East Asia is well-known, but little has been written on the way in which it was traded throughout East Asia. Ptak (1991a), which looks at China and the trade in tortoise-shell from the Song to Ming dynasties (10th-17th centuries).

### 8.6 Animals

Of the animals which were traded in pre-modern East Asia, probably the **horse** was the most important. While many studies have been conducted of the horse and tea trade on China’s land borders, very little work has been done on the maritime horse trade. One of the more prominent of these is Ptak (1990c), which examines the role of horses in China’s maritime trade in the 15th century.

The more exotic trade in parrots, cockatoos and loris around East Asia in the pre-modern period is subject to investigation in another work by Ptak (2003a).

### 8.7 Money

It is clear that much early trade was carried out on a system of barter exchange. The emergence of wider acceptance of specific mediums of exchange, however, inevitably meant that these forms (the most obvious form is money, but cowries were also an early medium of exchange) began to play a larger role in Asian trade. The role of cowries in early East Asian and South Asian economic history has been dealt with by Vogel (1993), while the emergence of forms of money and currency in Southeast Asia and the effects that this had on trade in the region up till 1400 C.E. is dealt with by Wicks (1992). As to the period following this, in his *Southeast Asia in the Age of Commerce*, Reid (1993a: p. 95) concludes that “Chinese copper cash, and local coins modelled on them, were the basic lubricant for the increasing commercialization of the region after 1400.”

### 9. Studies of Classical Texts relating to Maritime East Asia

#### 9.1 Studies of Chinese texts on Maritime Asia

**Zhu-fan-zhi (諸蕃志)**

The only Western-language translation of this early 13th century work which examines foreign ports and polities is that by Hirth and Rockhill (1911), which has been reprinted on several occasions and remains a seminal work for the study of maritime polities and maritime trade in eastern Asia and beyond in
Ling-wai Dai-da (嶺外代答)

Again, there is but one Western-language study of this late 12th century work -- a translation into German by Almut Netolitzky, published under the title *Das Ling-wai tai-ta von Chou Ch’ü-fei* in 1977. Various Western-language secondary works also quote from this text.

Dao-yi zhi-lue （島夷志略）

Sections of this mid-14th century text were translated into English by Rockhill (1914/15). Ptak, who has conducted a study of the images of polities and people portrayed in the work (Ptak 1994), is now considering a translation of the entire text.

Yong-le da-dian (永樂大典)

Both Jao Tsung-I (1967) and Carrie Brown (1978) have conducted studies on the references to Southeast Asia contained in the *Yong-le da-dian*

Ying-yai sheng-lan （瀛涯勝覽）

One of the most important works left to us by those who accompanied the Zheng He voyages in the early 15th century, Ma Huan’s *Ying-yai sheng-lan* provides one of the rare accounts of maritime polities in Southeast Asia and beyond in that period. Many of the early savants drew upon it, Duyvendak (1937) wrote a volume about it and Mills translated and annotated the work, based on Feng Cheng-jun’s (馮承鈞) variorum edition. (see Ma Huan 1970). This translation has become a standard work for western-language studies of East Asia in the 15th century.

Xing-cha sheng-lan （星槎勝覽）

The first English translation of this work was published in 1996. On the basis of a draft done by J.V.G. Mills, Professor Roderich Ptak of Munich corrected, revised and added to this draft and produced a polished translation with an excellent bibliography relating to 15th century maritime affairs. (Mills and Ptak 1996) This has made the work available to scholars who do not read Chinese and it will thus likely be further utilized in Asian maritime studies in coming years.

Ming shi-lu （明實錄）

The *Ming Shi-lu* provides one of the most important sources for examining the history of maritime Asia over the period from the 14th to the 17th centuries. It is thus that it has attracted attention from scholars from throughout the world. In terms of the more relevant Western-language studies, Watanabe Hiroshi (1975) provided an index to references to Islamic countries contained in the *Ming Shi-lu*.44 Wade has also extracted

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44 This work was originally published in Japanese in 1971
and translated into English the references within the *Ming shi-lu* relating to Southeast Asia, including the maritime activities relating to the region. (Wade 1994).

**Wu-bei-zhi charts (武備志 圖)**

These maps contained within the *Wu-bei-zhi* appear to also date from the period of the Ming maritime missions in the early 15th century. As such, they have been widely used by Western scholars in various works. Mills made great use of the maps in creating the gazetteer of maritime Southeast Asia and the Indian Ocean, contained in Ma Huan (1970). There are several other Western-language works which are devoted to the maps. (Mulder 1944 and Mills 1937).

**Dong-xi-yang kao (東西洋考)**

There has been little use made of *Dong-xi-yang kao* in Western works, because no translation has been made of what is, in parts, a very difficult text. Chang Tseng-hsin (1991) used the customs lists within this work to look at the commodities being imported into Zhang-zhou in the early 17th century.

Professor Leonard Blussé of Leiden University is said to be preparing an English translation of the *Dong-xi-yang kao*.

**Shun Feng xiang Song (順風相送) and Zhi-nan zheng-fa (指南正法)**

During his various studies of maritime Asia, J.V.G. Mills made much use of the two texts noted above, maritime routiers or navigation books which were likely compiled in the 17th century on the basis of earlier texts. His most direct use of the texts can be seen in Mills 1974 and Mills 1979, where he provided translations of some of the maritime routes contained within these texts.

### 9.2 Studies of Japanese Texts on Maritime Asia

There has been much less work done in Western languages on Japanese texts relating to the Asia maritime realm. Probably the most prominent is Professor Ishii Yoneo’s study of the junk trade connecting Japan with Southeast Asia in the 17th and 18th centuries, in which he translates a large number of references to port polities in Southeast Asia taken from the *Tō-sen Fusetsu-gaki* (唐船風說書) (Ishii 1998). He had earlier introduced records from this series relating to Siam (Ishii 1971).

IIoka Naoko is now also working on these materials and presenting her results in English. (IIoka 2003).

### 9.3 Studies of Korean Texts on Maritime Asia

The only major Korean text on maritime Asia which has been studied deeply and translated into a European language is that by Ch’oe Pu (崔溥 《漂海録》). The work has been translated into English by John Meskill in *Ch’oe Pu’s Diary: A Record of Drifting across the Sea* (1965). A later study of Ch’oe Pu’s work is that by Koh Byong-ik,
published in 1982, under the title "Ch'oe Pu's Shipwreck and Self-Account of His Drifting."  

### 9.4 Studies of Ryukyuan Texts on Maritime Asia

Up until very recently, the only Ryukyuan maritime-related texts available in Western languages were the selections from *Rekidai Hōan* (歴代寶案) provided in Kobata and Matsuda (1969). All of the documents which are translated into English deal with Ryukyuan relations with Korea and eight Southeast Asian countries from 1425-1638 and are taken from volumes 39-43 of the First Collection of the archives. This has been one of the key texts for Western scholars in understanding Ryukyu and its links with surrounding polities during the 15-16th centuries.

It is believed that further English-language translations of materials from the *Rekidai Hōan* are now being arranged and published by the Rekidai Hoan Editorial Office, Okinawa Archives, Okinawa Prefectural Board of Education.

### 9.5 Studies on Vietnamese texts on Maritime Asia

Few Vietnamese texts relating to maritime Asia have been the subject of studies in Western-language scholarship. One of the more interesting texts which is now being investigated is the *Xiêm-la-Quốc Lộ-trình Tắp-lúc* (暹羅國路程集錄), an early 19th century maritime routier, which seems likely to reflect sea routes used for centuries by the Vietnamese. Wade (1998) has translated into English the route which extends from the Mekong delta, along the coast of Cambodia and Thailand, down the Malay Peninsula to Singapore and back up to Phuket island in Thailand.

### 9.6 Studies of Arabic Texts on Maritime Asia

In his “A Study of the Arabic Texts Containing Material on South-East Asia”, Gerald Tibbetts provides extended quotes from earlier Arab authors (9th-14th centuries) on their perceptions of Southeast Asia, along with excellent analysis. He then provides in English translation two 15th and 16th century navigational treatises by Arab authors relating to maritime East Asia (Tibbetts 1979). Along with his other works -- Tibbetts (1956), (1971) and (1973) -- these volumes remain the most essential works on Arab perceptions of and navigation in Maritime Southeast Asia.

Another of the most important medieval Arabic texts on the East Asian maritime region is that which details the trip of Ibn Battūta to Asia Minor, South Asia and Southeast Asia in the mid-14th century. This has been made available in partial English translation by Gibb (1957).

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45 Ch’oe Pu was an official at Che-ju Island, but drifted to Zhe-jiang in China during a voyage. He was then sent back to Korea via Bei-jing. His work 漂海録 details his itinerary. My thanks to Professor Momoki Shiro for procuring these details.

46 Including Akhbār al-Sīn wa’l-Hind (c. 850 C.E.); Ibn Khudādhbih (C. 850 C.E.); Ya’qūbī (died 897 C.E.); Ibn Al-Faqīh (903 C.E.), Ibn Rusta (c. 900 C.E.); Abū Zaid, Mas’ūdī (d. 956); Ibn Serapion (988 C.E.) and ‘Ajā’ib al-Hind (c. 1000 C.E.), and a range of later authors extending until the mid-14th century.
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**Abbreviations**

BEFEO -- *Bulletin de l’École Française d’Extrême-Orient*

BKI -- *Bijdragen tot de Taal-, Land- en Volkenkunde*

BMJ – *Brunei Museum Journal*

FMJ – *Federated Museums Journal*

JGIS – *Journal of the Greater India Society*

JMBRAS -- *Journal of the Malayan/Malaysian Branch of the Royal Asiatic Society*

JSS -- *Journal of the Siam Society*

RIMA -- *Review of Indonesian and Malay Affairs*
Useful Websites

Maritime Asia website

http://www.maritimeasia.ws/

Maritime Explorations /Michael Flecker website

http://maritime-explorations.com/index.html#details

International Journal of Maritime History website

http://www.mun.ca/mhp/ijmh.htm

Thai Underwater Archaeology website

http://www.thai.net/uwarceo/

Nanhai Marine Archaeology website (Sten Sjostrand)

http://www.ming-wrecks.com/

Marine Archaeology in India website

http://www.nio.org/marinearc/index.html

Kamal Maritime Archaeology website

http://www.alang.ukm.my/kamal/under.htm

History and Archaeology of the Ship website

cma.soton.ac.uk/HistShip/

The Lena Shoal website


Maritime archaeology in Southeast and East Asia

www.mm.wa.gov.au/Museum/march/department/oseas.html