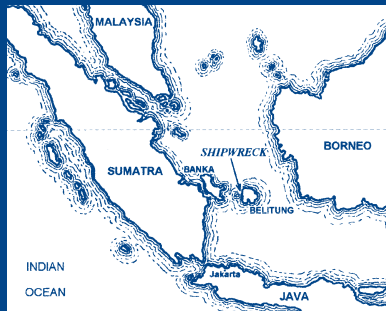


Roxanna M. Brown



# History of Shipwreck Excavation in Southeast Asia

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<sup>1</sup> Ayers 1978; Keith 1979, 1980.

<sup>2</sup> Liu Xinyuan 1998 and 1999.

The Belitung wreck is a recent addition to the large, and continuously growing, corpus of maritime archaeological sites discovered in Southeast Asia (cf. fig. 1). This spate of underwater exploration largely began three decades ago in the mid 1970s and continues unabated. Since there is no central repository for information on the various discoveries, and few ships are as well documented as the Belitung wreck, it is worthwhile to review the finds in general. The sorts of primary data offered by underwater archaeology in Southeast Asia are certain to have an impact on a variety of ongoing historical debates. These debates involve questions about changes in shipbuilding techniques and routes over time, ship sizes, and the extent and content of trade in Asia. The wrecks offer invaluable data relevant to cycles of commerce, and they may help answer questions about the spread of religions. Shipwreck cargoes also provide a bountiful means to hone a more definitive chronology of trade ceramics. Land sites rarely yield dates for ceramics so precise as potentially possible from shipwrecks. Indeed, it is analysis of shipwreck cargoes that is beginning to offer chronologies that can be applied to land sites.

One of the most intriguing and enduring questions in Chinese ceramics concerns the date and circumstances that led to the introduction of blue-and-white ceramics at the Jingdezhen kilns

of Jiangxi province. Thus the eyes of scholars of Chinese art from all over the world immediately turned to Korea when a shipwreck with a cargo of Chinese trade ceramics was surveyed and partially excavated in 1976.<sup>1</sup> Coins retrieved from the site suggested that the ship sailed in the early fourteenth century, yet the extensive ceramic cargo did not include blue-and-white. As a result of the Sinan wreck finds, scholars concluded that Jingdezhen blue-and-white was not exported before about 1325. This conclusion is supported by recent research at Jingdezhen itself. Chinese archaeologists now say that blue-and-white from Jingdezhen was first exported in 1328.<sup>2</sup> Evidence from the land thus validates and corroborates evidence from the sea.

A date for the earliest export of blue-and-white from Jingdezhen is only one aspect of the history of cobalt use in Asia. Cobalt produced the blue glaze seen on many Tang dynasty burial wares, but that glaze is quite different from the glazes of Jingdezhen. The colourful Tang dynasty glazes are low-temperature lead glazes. The glazes of Jingdezhen are high-temperature ash glazes. The colourful Tang ceramics are earthenware, while underglaze blue decoration at Jingdezhen is applied to high-fired stoneware and porcelain. Following decades of claims by a few ardent Chinese collectors that there were underglaze blue wares in the Song dynasty, archaeologists

eventually did find evidence for pre-Jingdezhen blue-and-white. In fact, the finds are also pre-Song dynasty. Very old blue-and-white sherds were discovered first in 1975 and then in the 1980s at Yangzhou, Jiangsu province, and they were assigned to the ninth century when the port of Yangzhou was frequented by Arabs and Persians. They are believed to have been made at the Gongxian kilns, Henan.<sup>3</sup> Again, finds from the sea corroborate evidence on land, for the cargo of the Belitung wreck offers three pristine, unbroken examples of Tang dynasty blue-and-white that resemble the finds from Yangzhou and Gongxian (nos 107–109).

Mysteries remain of course. No connection has yet been established between the ninth- and the fourteenth-century blue-and-white wares. Whether blue-and-white was produced in the years between is unknown. The dishes aboard the Belitung wreck revive these old questions about the origins of blue-and-white and make the discussions ever more interesting.<sup>4</sup>

In 1974, shortly before the Sinan wreck was first discovered by Korean fishermen, another shipwreck, this one from the fifteenth century, was discovered by fishermen in the Gulf of Thailand. Identified as the Ko Khram (or Sattahip) wreck, it carried a surprising mixture of trade ceramics from southern China, northern Vietnam,

Champa (a former kingdom located in central Vietnam) and Thailand.<sup>5</sup> Like the Sinan wreck, it also did not yield Chinese blue-and-white wares, but it represents a time in the fifteenth century when blue-and-white was not exported to Southeast Asia. The Thai ceramics, moreover, came from three different production centres. For the first time here was evidence that these three centres were all active at the same time. The long held theory that the Sukhothai kilns closed when the Sawankhalok kilns opened had to be discarded. In addition to continuous re-assessments of this vessel and its cargo, the discovery and documentation of the Ko Khram wreck can be used as a signpost for the beginnings of an amazing series of shipwreck finds in Southeast Asia. Only two sites were documented prior to 1974, and more than a hundred have been reported since then. An average four or five more are discovered every year.

The first of the two sites known prior to 1974 involves a small vessel assigned to the third–fifth centuries found in the Pontian River, Malaysia. In addition to being the subject of the earliest report on an antique boat in Southeast Asia, the Pontian vessel remains the oldest known vessel in Southeast Asia.<sup>6</sup> The second site involves three vessels of the eighteenth–nineteenth centuries that were discovered together at Johore Lama, Malaysia in the 1950s.<sup>7</sup>

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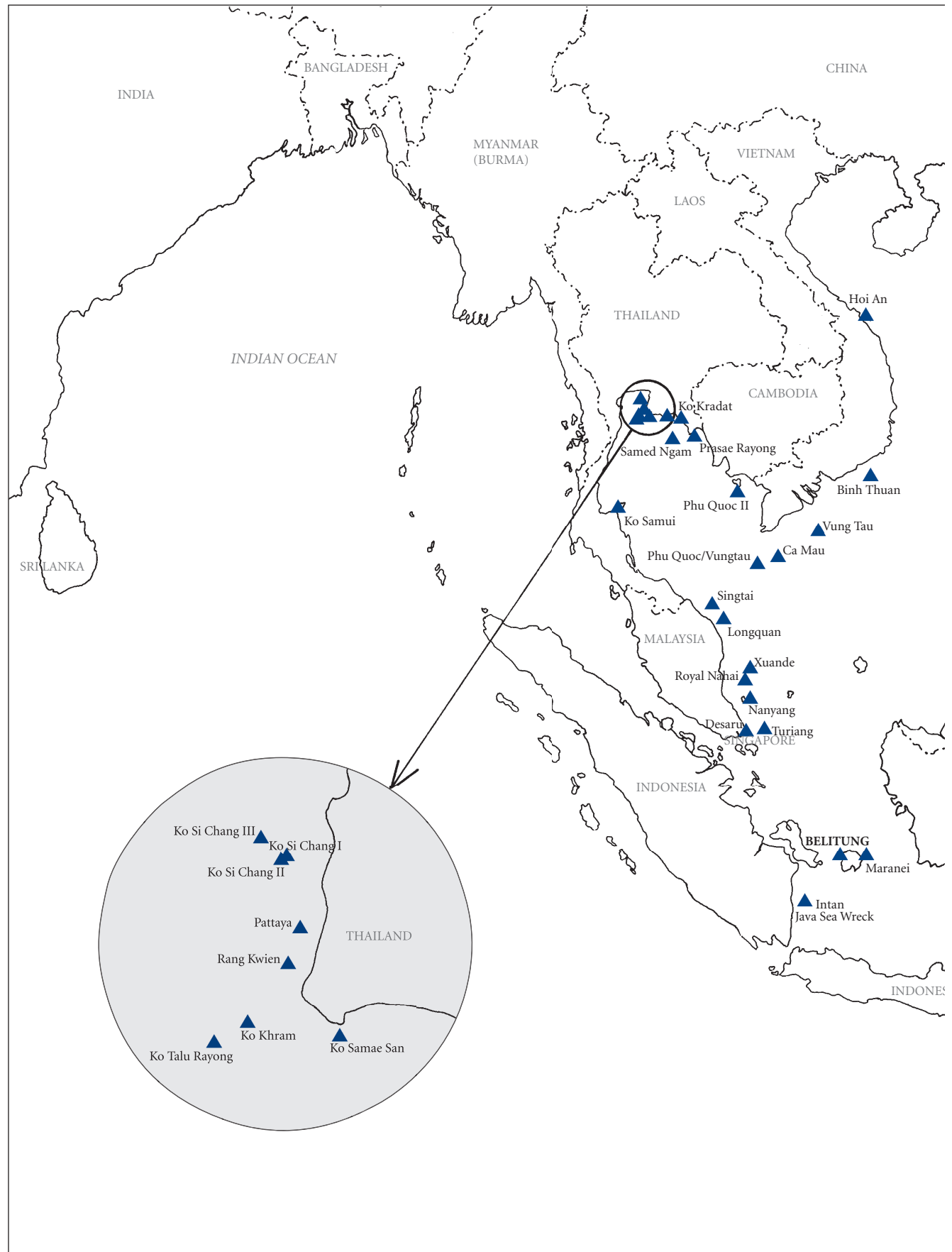
<sup>3</sup> The archaeological data on pre-fourteenth-century blue-and-white in China is reviewed by Rita Tan in Gotuaco et al. 1997, xiii–xv.

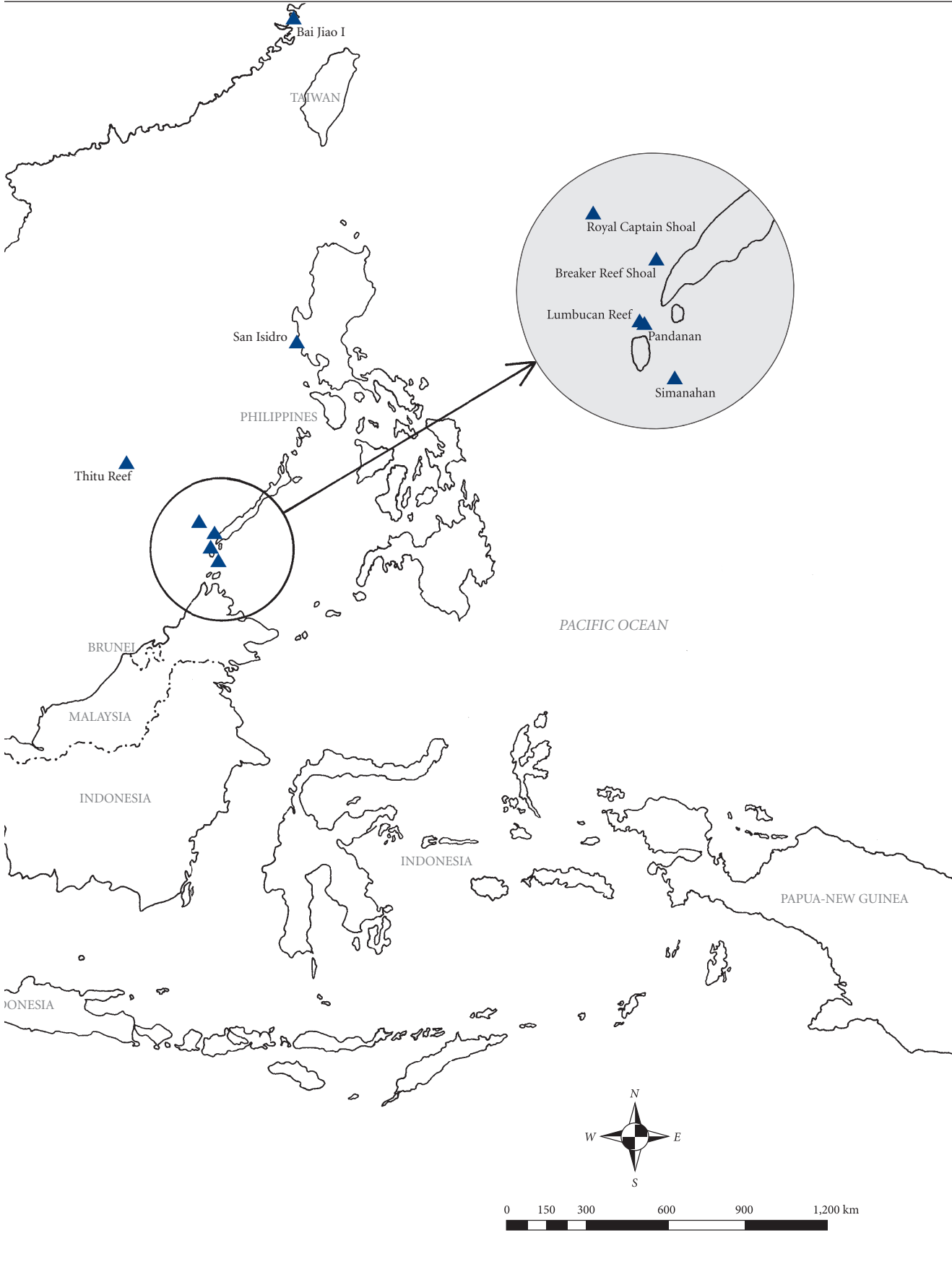
<sup>4</sup> The tie between ninth- and fourteenth-century Chinese blue-and-white may have to do with customer preference. Blue is a popular colour in the Middle East.

<sup>5</sup> The Ko Khram is the subject of numerous articles; see, for instance, Brown 1975–76, Howitz 1977, Green 1981, Rooney 1981, Green and Harper 1987.

<sup>6</sup> The Pontian boat is featured in articles by Evans (1927) and Gibson-Hill (1952). Manguin (1996) refers to it as an example of traditional early Southeast Asian boat construction. Booth (1984) gives the results of radiocarbon dating on the boat as 293 +/-60. The finds are also summarized in Brown and Sjostrand 2002.

<sup>7</sup> Sieveking et al. 1954.





**Fig. 1** Shipwreck sites in the South China Sea (Map courtesy of ECAI Southeast Asia).

# History of Shipwreck Excavation in Southeast Asia

<sup>8</sup> Christie's 1984a, 1984b and 1985.

<sup>9</sup> In a popular book for hopeful local treasure hunters, Tony Wells' *Shipwrecks & Sunken Treasure in Southeast Asia* (1995, 38), for instance, the story is featured under the heading 'The *Geldermalsen's* Fabulous Nanking Cargo'. The ship, which was *en route* from Canton, China, to the Netherlands, sank on 3 January 1752.

<sup>10</sup> Liu Benan 1995.

<sup>11</sup> See Christie's 1984a, 1984b, 1985, 1986, 1992, 1995 and 2004; Butterfields 2000; Nagel Auctions 2000.

Shipwreck sites have been located and at least partially investigated both in international waters and within the territorial waters of almost all the countries of Southeast Asia (cf. fig. 1). Sites in international waters are investigated by private entrepreneurs who base their salvage rights on international laws of the sea. Sites in territorial waters have been excavated by the relevant national authorities alone or sometimes in conjunction with archaeologists from abroad or together with private companies. Sometimes the work of excavation is wholly contracted out to a private company, and sometimes the country simply issues an excavation permit to salvors for a fee. In Vietnam, the national salvage company is usually involved. In Thailand, the Underwater Archaeology section of the Fine Arts Department directs excavations. There is a wide range of possibilities. The extent of published documentation of a wrecksite also varies considerably. Sometimes there is a full excavation report but more often either the archaeology or the data recording (or both) is incomplete. Yet there is a clear, loud message from experience: when fishermen or sports divers simply extract artefacts from a wreck, when there is no documentation whatsoever, these objects are less valuable both archaeologically *and* commercially.

In the case of the first shipwreck ceramics to be sold publicly,<sup>8</sup> there were questions from the

academic community about whether the pieces actually came from a shipwreck or not. Thus when the same entrepreneur, Michael Hatcher, found a second shipwreck, the Dutch East Indies Company's *Geldermalsen*, the excavation was documented with reports and underwater photography. The sale of *Geldermalsen* finds as The Nanking Cargo at Christie's Amsterdam in 1985 is well remembered.<sup>9</sup> The event fired the imaginations of treasure hunters worldwide, it is continually cited as an example of great riches under the sea (even though no other shipwreck cargo in Southeast Asia has brought as much money) and Chinese authorities openly admit that the *Geldermalsen* sale led directly to the creation of the Research Laboratory of Underwater Archaeology at Beijing History Museum in 1987.<sup>10</sup> Actually, relatively few cargoes from shipwrecks in Southeast Asia have made it to auction houses. Five (Hatcher's Ming wreck, the *Geldermalsen*, the *Diana*, the Vung Tau cargo, and Binh Thuan) have been sold by Christie's, a sixth (Hoi An wreck) was sold by Butterfields in San Francisco, and a seventh (*Tek Sing*) was sold in Germany at Nagel Auctions.<sup>11</sup> On the whole, commercial viability for shipwrecks from Southeast Asia is rare.

Besides a cargo of more than 100,000 pieces of high-quality Chinese porcelain, the *Geldermalsen* yielded 125 shoe-shaped gold bars. Gold on ship-

wrecks in Southeast Asia is however normally rare, particularly on non-European vessels. The gold dishes recovered from the Belitung wreck (nos 2–4) are extraordinary, as is the gold jewellery from the Intan wreck that will be mentioned shortly. One wonders if such fine gold dishes as those carried aboard the Belitung wreck were a standard item of trade in the ninth century. But until other ships from this early date are found, one can only speculate. Judging by the rarity of the types of the Chinese Changsha ceramics aboard the Belitung wreck at land-based sites, the gold vessels were perhaps equally rare. All evidence suggests this was an unusually rich cargo. Only about fourteen per cent of the imported Chinese ceramics from the ninth–tenth centuries at Palembang, the site of the old capital of Srivijaya on Sumatra in the seventh–eleventh centuries, for instance, are from Changsha. Most of the Palembang debris fragments from this time are Yue, Yue type and Guangdong wares.<sup>12</sup> Ceramics from Changsha have not been recovered from any other wrecksite.

It is impossible to be precise about an actual number for the shipwrecks found to date in Southeast Asia. One problem is geographical limits. There are a number of Portuguese and Dutch wrecks in the Indian Ocean off the coast of Africa for instance, the remains of a Portuguese vessel in the Seychelles, and a few other European

vessels may lie in the depths of Galle harbor in Sri Lanka.<sup>13</sup> Many of them were *en route* from China and Southeast Asia to Europe and their cargoes include Southeast Asian goods. Old Spanish galleons, *en route* from Manila to Acapulco in the Americas, have also been investigated in the Pacific Ocean and even off the shores of California and Mexico.<sup>14</sup> There have also been a number of excavations in China such as the Quanzhou ship off the South China coast. Excavated in 1974, the Quanzhou vessel offers a model for the construction of southern Chinese vessels in the thirteenth century, and it carried the remains of cargo from Southeast Asia.<sup>15</sup> Fragments of Thai celadon that must have been loaded in Southeast Asia were recovered in the excavation of another vessel in Hong Kong.<sup>16</sup> There are also ships, such as the *Batavia*<sup>17</sup> and *Vergulde Draeck*<sup>18</sup> that sank off the coast of Western Australia. All these can be included in a list of Southeast Asia sites

The one major area where no wrecksites have yet been documented is the waters of Burma and the eastern shores of India. Research on underwater sites along the western coast of India is almost as scanty. A single maritime investigation by Indian archaeologists in 1997–1999 revealed only the remains of an unidentified vessel from the seventeenth–eighteenth centuries.<sup>19</sup> For this reason the Belitung wreck offers a further point of significance. It originated in the western Indian Ocean

<sup>12</sup> Personal communication from Pierre-Yves Manguin.

<sup>13</sup> Examples include the *Santiago* (sank 1585; Martin 2001) off Mozambique; the *Santo Antonio de Tanna* (1697; see Piercy 1977, 1978, 1979, 1981) at Mombasa Harbour, Kenya; and three off South Africa, the *Sao Bento* (1554; see Auret and Maggs 1982; Esterhuizen 2000), the *Sao Joao* (1552; see Esterhuizen 2000); and *Witte Leeuw* (1613; see Van der Pijl-Ketel 1982). For the Seychelles wrecksite, see Blake and Green 1986. For information on the shipwrecks being investigated at Galle, see <http://www.hum.uva.nl/galle>.

<sup>14</sup> Remains of two Manila galleons have been found in the Mariannas Islands, the *Nuestra Senora de la Concepcion* (lost 1638) at Saipan (Mathers and Shaw 1993) and the *Santa Margarita* at Rota (IOTA Partners 1996, Cuevas et al. 1997). The remains of others have been identified at Drake's Bay in California (Shangraw and Van der Porten 1981) and near Encinada, Mexico (personal communication from Edward Van der Porten).

<sup>15</sup> Salmon and Lombard 1979; Keith and Buys 1981; Green 1983a; Li Guoqing 1989.

<sup>16</sup> Frost et al. 1974.

<sup>17</sup> Stanbury 1975.

<sup>18</sup> Green 1977.

<sup>19</sup> Tripathi et al. 2001. More recently, the remains of an eleventh–thirteenth-century vessel were discovered on land in South India; see Pedersen 2003.

# History of Shipwreck Excavation in Southeast Asia

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20 Brown and Sjostrand 2002. The exhibition, entitled 'Malaysian Maritime Archaeology', opened in November 2001 and will be on view at least through 2004. The catalogue presents the first attempt to place ceramic cargoes of the fourteenth–sixteenth centuries in relative chronological order.

(either the Middle East or India), yet there is no strong corpus of shipwreck archaeology there for comparisons.

My personal list of wrecksites includes sites known to fishermen, sports divers and/or private salvors that have not been reported in print. In some cases there are no public reports because the cargo is not commercially viable. If it becomes clear that not even publication will increase the sales price of a cargo sufficiently to cover expenses, the complicated efforts of proper documentation and publication are often abandoned. The academic world benefits most when collectors and museums, as well as archaeologists, see value in shipwreck cargoes.

While some wrecksites become the subject of a newspaper or magazine article and then disappear from view, many good articles on shipwreck finds in Southeast Asia have appeared in *The International Journal of Nautical Archaeology*, and the Internet has become an alternate means of publication. A number of websites on the World Wide Web now feature news and articles on the excavations of shipwrecks in Southeast Asia (Several of these websites are listed in this volume, p. 753).

The few attempts to summarize nautical finds in Southeast Asia include an indispensable study by

Jeremy Green and Rosemary Harper, *The Maritime Archaeology of Shipwrecks and Ceramics in Southeast Asia* (1987), and two volumes in Thai with short English summaries, Vidya Intakosai and Pisit Charoenwongsa (ed.), *Underwater Archaeology in Thailand* (1988) and Pisit Charoenwongsa and Sayan Praicharnjit (ed.), *Underwater Archaeology in Thailand II: Ceramics from the Gulf of Thailand* (1990). Any summary is however quickly out-of-date, since more new sites are discovered each year, and sometimes there is further excavation of old sites. Green and Harper (1987), for instance, mention some thirty-three wrecksites, and this includes various vessels off Korea (two sites), South China (two), Africa (five), the Seychelles (one) and Western Australia (two). My own informal list, which includes the sites enumerated in Green and Harper as well as finds through early 2004, numbers 175 entries, with 129 of them in Southeast Asia proper.

The most recent retrospective on shipwreck archaeology is being staged as an exhibition at the Kuala Lumpur National Museum, Malaysia. Accompanied by a catalogue,<sup>20</sup> the exhibition features eleven vessels. These range from the Pontian boat of the third–fifth centuries that was discovered in an eroding riverbank to ten wrecksites covering the fourteenth–nineteenth centuries off the coasts of peninsular Malaysia. With

vessels from South China, Great Britain and the Netherlands, as well as a variety of others from Southeast Asia, the exhibition is wide-ranging. Aside from Malaysia, assorted shipwreck materials are generally on permanent display in national museums in Thailand (particularly the Maritime Museum at Chantaburi), the Philippines, and Vietnam. Artefacts from a ship that sank about 1500 discovered off its coast are on view at the Brunei National Museum.<sup>21</sup>

It should be mentioned that in the case of European vessels such as the *Nassau* (Dutch 1606), *Risdam* (Dutch 1727) and *Diana* (British 1817) that were excavated off Malaysia, both the name of the vessel and the exact date of the loss are known from contemporaneous records. For the many Asian vessels discovered in Southeast Asia, however, neither a name nor date are known. The *Tek Sing*, a Chinese vessel that sank in Indonesian waters in 1822, is an exception.<sup>22</sup> The Asian wrecks are usually given site names, and the date of sinking must be ascertained from the finds.

Key evidence for proposing a date of loss includes the specific types and mixture of ceramics recovered, along with the range of non-ceramic artefacts. Yet, even when there are dated coins and radiocarbon test results, the proposed age for unrecorded shipwrecks will always be an approximation. The ship cannot be earlier than the latest

coins, of course, but it may be many decades or even centuries later. Yongle coins were recovered from the Maranei wreck,<sup>23</sup> which is probably no later than the Yongle reign (1403–1424), and they were also the latest coins recovered from two sites that belong to the mid- and late fifteenth century: the Pandanan<sup>24</sup> and Hoi An<sup>25</sup> ships respectively. Radiocarbon results, moreover, most often give possible time ranges of 150 years and more, with each of those years – even the first and last in a given range – equally possible. In most cases, the ceramics recovered can already be dated with similar or better precision. Radiocarbon testing is however valuable as collaborating evidence for the age of a shipwreck.

So few of the known wrecksites belong to the years before the thirteenth century that they can be quickly reviewed. The Pontian boat (third–fifth centuries)<sup>26</sup> and the Belitung wreck (ninth century) are so far the earliest known vessels. As already mentioned elsewhere in this volume (pp. 31–38), the Belitung is also the only known vessel in Southeast Asia that exhibits Arab/Indian construction. Although written sources attest that vessels from the Indian Ocean made voyages to Southeast Asia and China at least as early as the fourth–fifth centuries, no remains of these early ships were known before the excavation of the Belitung site.

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21 L'Hour 2001.

22 The *Tek Sing* was discovered in May 1999; see Nagel Auctions 2000.

23 Flecker 2001b.

24 Loviny 1996.

25 Butterfields 2000.

26 One of the nine Butuan boats, which are otherwise thought to be thirteenth-century, may belong to about the fourth century; see Peralta 1980.

# History of Shipwreck Excavation in Southeast Asia

27 Flecker 2001a. The Intan artefacts have been given to the Museum Pusat, Jakarta.

28 A newly documented wrecksite, given the site name Tanjung Simpang, which was discovered off Sabah, East Malaysia, in December 2003 may fill this temporal gap; see [www.mingwrecks.com](http://www.mingwrecks.com).

29 Ridho and Edwards McKinnon 1998.

30 Clark et al. 1989.

31 Conese 1987.

32 Edwards McKinnon 2001.

33 Dupoizat 1995.

34 Goddio et al. 1997.

35 Mathers and Flecker 1997. Dupoizat (1995) assigns the Breaker Reef Shoal ceramics to the eleventh–twelfth centuries but later excavation of the Java Sea wreck in Indonesia offered good evidence for a thirteenth-century date. Ceramics from the two cargoes are practically identical. So alike are they that one can imagine that the two ships probably left Quanzhou port on the same day. A notable feature of the two cargoes is that they carried primarily Fujian ceramics.

Following in time after the Pontian and Belitung wreck vessels, the Intan wreck is the sole site so far tentatively assigned to the tenth century in Southeast Asia. This ship, which carried a wide mixture of Chinese, Middle East and Southeast Asian goods, appears to have been *en route* from Sumatra to Java.<sup>27</sup> The Intan finds include Chinese ceramics, Indian and/or Southeast Asian Mahayana Buddhist objects, gold jewellery, Middle Eastern glass, and a range of metal items including bronze, lead, silver, iron and tin goods – some 13,500 artefacts altogether.

None of the known shipwrecks can be assigned specifically to the eleventh century,<sup>28</sup> but the important Pulau Buaya wreck in Indonesia<sup>29</sup> belongs to approximately the eleventh–twelfth centuries.

Judging from brief, cursory notices, five further wrecksites can be tentatively assigned to the approximate time range of twelfth–thirteenth centuries. None of the five has been described in detail. Three, the North Palawan, Bolinao I, and San Antonio sites, are mentioned in a report on a joint Australia-Philippines survey,<sup>30</sup> with the North Palawan site also investigated two years earlier.<sup>31</sup> Two others, the Jepara and Karang Cina sites in Indonesia, were mentioned in a lecture at Ceramic Society of Indonesia.<sup>32</sup> Neither of the two Indonesian sites has been officially investigated, and information on them comes primarily from the antiques market.

It should be mentioned that there is very rarely a full accounting of any wreck partly because the fishermen who are always the first to discover old wrecksites are able to retrieve and sell at least a portion of the material. Many sites also become unknowingly disturbed and their artefacts broken and scattered because of the use of fishing drag nets.

Known shipwrecks from the thirteenth century are more numerous. Three wrecksites in Southeast Asia can be assigned, with fair confidence, to the thirteenth century, and all three were excavated with some care. It is however unfortunate that no remains of a hull were found at any of the three sites. They are the Breaker Reef Shoal<sup>33</sup> and Investigator Shoal<sup>34</sup> sites in the Philippines, and the Java Sea wreck in Indonesia.<sup>35</sup> Another vessel, the Quanzhou ship, which was excavated off South China and has already been mentioned above (p. 47), is also generally included in studies of underwater archaeology and shipping for the thirteenth century. The Quanzhou ship presently provides the only example of South Chinese ship construction for this period.

Altogether, as this chapter is being written, about two dozen ships or wrecksites are known in Southeast Asia from the third–thirteenth centuries. At many of these, as well as later sites, parts of the actual vessel have been located or not been reported. In these cases, it is only the remains of cargo that are seen and documented. In other

cases, remains of a ship have been found without any associated cargo.

The fourteenth century is tricky, and the most spectacular possible discovery for the future would be a full cargo of the highly treasured Yuan dynasty blue-and-white ware. For now, no shipwrecks in Southeast Asia fill the gap between the Sinan wreck (c. 1325) off Korea and the earliest of five shipwrecks that are presently assigned to the beginning of the Ming dynasty (1368–1643). Most intriguingly, no ships anywhere have been discovered with a cargo of Yuan dynasty blue-and-white.<sup>36</sup> Partly this can be explained by their brief time of export that, as mentioned above, Chinese archaeologists now say extends only from 1328 to 1352, a mere twenty-four years. Nevertheless, one can certainly hope for such a discovery, since fair numbers of Yuan blue-and-white found in such places as the Philippine and Indonesian islands show that the ware did travel by sea.

While the finds of Yuan dynasty blue-and-white at land sites in the Middle East and Southeast Asia hold promise that the pre-Ming cargo may one day be discovered, there is little hope for a significant cargo of blue-and-white from most of the first half of the Ming dynasty. For, prior to the Hongzhi reign (1488–1505), Ming blue-and-white is practically absent from both land and maritime sites. Elsewhere, I have adopted the term ‘Ming gap’ to refer to this near absence

of blue-and-white, which extends from 1352 (when Chinese archaeologists say war caused the closure of the Jingdezhen kilns) to the Hongzhi reign.<sup>37</sup>

The ‘Ming gap’ is presently reflected in the finds from fourteen shipwrecks with ceramics in Southeast Asia. Only 50–100 examples of blue-and-white are documented from the fourteen cargoes, and all except one example come from the years that immediately precede the Hongzhi reign. That exception comes from the Rang Kwien wreck (c. 1380–1400) in the Gulf of Thailand; the other examples are scattered among the cargoes of five wrecks from about 1450–1487.<sup>38</sup> The uncertainty about the total number of finds is due to confusion over the correct identification of the mixture of Chinese and Vietnamese blue-and-white ceramics from the Pandanan wreck in the Philippines. It appears clear, however, that the Vietnamese examples recovered outnumber the Chinese examples.

The shipwrecks also show that the ‘Ming gap’, which strictly refers to the period of shortages that follows the Ming ban on private overseas trade from 1369, is more than a dearth of blue-and-white. The total proportion of Chinese ceramics of all types on the five known shipwrecks from about 1368–1424/30 is approximately thirty–fifty per cent. This is a significant drop from the hundred per cent Chinese monopoly on trade ceramics known from earlier shipwreck cargoes.

<sup>36</sup> Two collections of Yuan dynasty sherds may come from undocumented shipwrecks off Sri Lanka and in the Red Sea; see Carswell 2000, 2001.

<sup>37</sup> The term ‘Ming gap’ was first used by Harrison (1958) to refer to an absence of early Ming blue-and-white at Sarawak River delta sites in Borneo, then adopted by me in an article on the Xuande shipwreck (Brown 1997) and expanded in scope in my Ph.D. dissertation (Brown 2004).

<sup>38</sup> The fourteen shipwrecks (cf. pp. 44–45, fig. 1) include Rang Kwien and Song Doc (both c. 1380–1400), Turiang and Ko Si Chang II (both c. 1400–1420), Maranei (c. 1420–1430), Nanyang and Longquan (both c. 1424/30–1450), Ko Khram and Royal Nanhai (both c. 1450–1460), Pandanan (c. 1470), Belanakan, Phu Quoc II, Prasae Rayong, and Ko Si Chang III (all c. 1470–1487). For information on the individual sites, see Brown 2004, 128, table 25. While the inventory of the Rang Kwien artefacts includes three examples of Chinese blue-and-white, two of them are almost certainly intrusive finds from the nearby Pattaya site (c. 1480–1510). See Brown 2004, pls 11–12. The five wrecks with blue-and-white from c. 1460–1487 are the Royal Nanhai, Pandanan, Belanakan, Phu Quoc II, and Ko Si Chang III.

# History of Shipwreck Excavation in Southeast Asia

<sup>39</sup> For a popular, well-researched history of these voyages see Levathes 1994. For the first report on the ceramics shortages see Brown 2004.

<sup>40</sup> The phases are described in Brown 2004, ch. 3.

<sup>41</sup> Since this is the period of the Mac dynasty in Vietnam, I have created the term 'Mac gap' to describe this situation, see Brown 2004. Vietnamese blue-and-white makes a brief reappearance in maritime archaeology in the form of 16 jars recovered from the Royal Captain Shoal wreck that belongs to about 1600; see Goddio 1988, 101.

<sup>42</sup> One of the Pandanan pieces is shown in Loviny 1996, 77, and all four are shown in Brown 2004, 190, pl. 50. For the Brunei junk pieces see L'Hour 2001, 31, 81.

<sup>43</sup> L'Hour 2001, 31, 81.

The ceramics recovered from the five sites are mostly celadon, but there are also monochrome brown and monochrome white wares.

While a shortage of about fifty per cent based on land sites, has always been suspected, the nine shipwrecks from about 1424/30–1487 have offered an unexpected surprise. In this period the proportion of Chinese ware plunges to five per cent and usually less. In other words, the period of greatest shortage follows the famous Zheng He 'treasure ship' voyages that, except for one later mission in 1433, sailed from China to Southeast Asia, India and even the coast of Africa during the Yongle reign (1403–1424).<sup>39</sup>

Maritime archaeology reveals other unexpected findings as well. Firstly, shipwrecks from about 1380–1580 presently show a valuable provisional succession of six phases of Thai ceramics from five different production sites.<sup>40</sup> Secondly, they offer a guide to approximate dates for export from other areas. Besides Thailand, trade ceramics were also produced in Vietnam and Burma. Champa ware from central Vietnam's Binh Dinh province has been recovered in commercial quantities from the Ko Khram and Pandanan wrecks (c. 1450–1470), and in very limited numbers from the Ko Si Chang III (c. 1470–1487) and Hoi An (c. 1500–1510) ships (pp. 44–45, fig. 1) that sailed after the export probably ended with a defeat of

Champa at the hands of Vietnam in 1471. Burmese celadon ware is most common on Hongzhi period shipwrecks (1488–1505) but at least one example was recovered from the Pandanan site (c. 1470). Vietnamese ceramics are found alongside the earliest maritime finds of Thai ceramics, but the period of greatest export for Vietnamese ware appears to have been about 1470–1510. About 1510 Vietnamese ceramics abruptly disappear from shipwrecks for the remainder of the sixteenth century.<sup>41</sup>

Shipwrecks also reveal the existence of a trade in antiques. Six Yuan dynasty ceramics have been recovered from two Ming-dynasty ships – four examples from the Pandanan wreck of about 1470 and two from the Brunei junk of about 1500.<sup>42</sup> Even earlier evidence for an antiques trade in Asia comes from the previously mentioned Sinan wreck. Three Korean pots from the twelfth century were found in a cargo of Chinese ceramics from c. 1325. Still, it was a surprise twenty years later to find four Yuan dynasty ceramics aboard the Pandanan vessel in the Philippines. Then two further Yuan dynasty pieces, a small blue-and-white jar, and a gourd shaped ewer, were recovered from the Brunei junk.<sup>43</sup> At the time of loss, the Yuan dynasty examples from the Pandanan were at least one hundred years old and those from the Brunei junk were about one hundred and fifty years old.

Before moving on to later ships, it is worth mentioning that the *Maranei*, which probably sailed about 1420, yielded at least seven examples of the earliest known Chinese firearms from a maritime context. Two other firearms were found at the Pandanan site (c. 1460–1500), five were found at the Lena Shoal (c. 1490–1500) and seven at the Brunei junk (c. 1505) sites. The *Australia Tide* (c. 1500–1510) offered three more examples.<sup>44</sup> All these belong to a time before the Portuguese conquest of Melaka in 1511.

The Hongzhi reign (1488–1505) is one of the most important markers in constructing a relative chronology for the shipwrecks of Southeast Asia. The period is marked by a sudden, extraordinary outflow of Chinese ceramics, including a large percentage of blue-and-white. With fair confidence based on mainland Chinese archaeology, at least three ships can be assigned to the Hongzhi years.<sup>45</sup> These are the Lena Shoal and Santa Cruz wrecks in the Philippines and the Brunei junk. Each of the three ships carried more Chinese blue-and-white than seen on all earlier shipwrecks combined. It is instructive to visualize the Hongzhi years as a great bubble of Chinese blue-and-white that flowed onto the Southeast Asian market. For, shortly after the Hongzhi years, there appears to have been a moderate fall in export volume that lasted until the Ming ban was formally rescinded in 1567.

Thai wares alone fill the gap of sixteenth-century Chinese shortages, since the Vietnamese appear to have ceased all export by about 1510. Both Vietnamese and Burmese wares are absent from shipwreck cargoes currently assigned to the Zhengde reign (1506–1521), and Champa had ceased production some thirty years earlier.

After 1567 there are only gentle reminders of the golden age of Southeast Asian ceramics. Thai storage jars from the Singburi kilns near Ayutthaya are documented on practically every shipwreck from about 1425 to at least 1727, while Sukhothai ceramics dropped from the export scene by about 1530–1540 and Sawankhalok ceramics disappeared by about 1570–1580. Small amounts of Vietnamese ware from the early seventeenth century are known in Indonesia, and several Burmese storage jars were recovered from the *San Diego* (1600), a galleon, which sank off Manila on 14 December 1600. Otherwise, Chinese ware, now predominantly blue-and-white, takes over the ceramics market, and this begins the third major division of shipwrecks.

The two hundred years (c. 1380–1580) of primary Southeast Asian ceramics export divide the shipwrecks of Southeast Asia into three large groups: those that are earlier than ones with Southeast Asian ceramics, the ones with Southeast Asian ceramics, and those that are later. In

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<sup>44</sup> Neither the *Maranei* nor *Australia Tide* examples have not been published. For the Pandanan see Loviny 1996, 69; for the Lena Shoal see Goddio et al. 2002, 240–241; for the Brunei junk see L'Hour 2001, II, 152–153.

<sup>45</sup> See Lam 2002 who supported this identification.

# History of Shipwreck Excavation in Southeast Asia

<sup>46</sup> This one is the Gujangan wrecksite in the Philippines, at which the vessel was a local, small, eighteen metres long, stitched-plank ship. Planking, showing carved lugs on the inner side, from the ship is on view at the Naval Museum in Manila. See Dizon 2003; Gotuaco 2002.

<sup>47</sup> For a description of the South China Sea technical tradition see Manguin 1984, 1993, 1996.

review, the earlier group, which has already been described above, presently includes some two dozen maritime-related sites from the third to thirteenth centuries within the boundaries of Southeast Asia. The earliest of these sites that includes a ship and associated cargo is the Belitung wreck.

The earliest of the documented ships with Thai and Vietnamese Southeast Asian ceramics belong to about 1380–1400, and the latest, which carry Thai Sawankhalok ceramics, are probably no later than about 1580. For the two centuries 1380–1580, some thirty-five sites are known, and only one of them has not yielded any Southeast Asian ceramics.<sup>46</sup>

Moving on in time, about six sites can be assigned to the Wanli reign (1573–1619), and one of them, the *San Diego*, represents the earliest recovered remains of a European vessel in Southeast Asia. Subsequent shipwreck finds, including about forty sites, for the seventeenth–nineteenth centuries are then about evenly divided between Asian and European ships, with a variety of British, Spanish, Portuguese, Dutch and French vessels. The few Asian ships for which there are excavation reports concerning the hull structure appear to be Chinese in this later period, whereas

all but one (the Belitung) from the pre-Ming period appear to be Indonesian vessels.

The Southeast Asian period, on the other hand, offers a mixture of Asian vessels. At least three of the early ships from the years c. 1400–1424/30 are China-built: the *Ko Si Chang II*, *Turiang*, and *Maranei*. This small group is followed by the earliest documented hybrid ships, the *Nanyang* and *Longquan* (both 1424/30–1450), which were discovered off peninsular Malaysia. Hybrid South China Sea ships combine Southeast Asian hardwood and Southeast Asian construction techniques with Chinese ones.<sup>47</sup> China-built ships reappear in maritime archaeology in the sixteenth century, when they seem to have sailed alongside both hybrid ships, which perhaps belonged to overseas Chinese, and traditional old lashed-lug vessels from the Philippine and Indonesian archipelagos.

Before closing, I would like to emphasize the necessity of caution in drawing ‘conclusions’ from shipwreck finds. The word ‘accidental’ comes immediately to mind. The loss of ships is always accidental, and the discovery of their remains in modern times is also accidental. Not all maritime sites yield both cargo and ship remains. Often there is no trace of the original hull. The finds

may be jettisoned cargo, or else the wood of the hull has entirely rotted away. On the other hand, ships are sometimes discovered (usually on land) without any sign of cargo. Recovered cargoes are never intact, since the sites are disturbed by fishing activities and divers long before professional observation and excavation take place. Even then, sites are rarely completely excavated, and it is even rarer that they are adequately documented. Data is always fragmentary. In many cases – my notes contain twenty such under-reported sites – there is not enough information to be more precise about age than ‘pre-Ming’, ‘Ming’, or ‘later’. Still, the database is growing, since an average five to six new maritime sites are discovered every year. As mentioned earlier, my own notes include about 175 sites associated with Southeast Asia, with 129 of them within the geographical limits of Southeast Asia proper.

In summary, the Belitung ship is one among a growing number of maritime sites found in Southeast Asia and it is presently the oldest in a chronological list of ships with trade ceramics. The Belitung belongs to the earliest of three primary groups of sites: the group, which presently includes remains from the third to thirteenth

centuries, that precedes the era of Southeast Asia trade ceramics *c.* 1380–1580. The third group includes sites from the late sixteenth through nineteenth centuries. For now, the Belitung offers the earliest cargo recovered at least partially intact, and it is also the sole ship from the Indian Ocean so far documented in Southeast Asia. Alongside more than a hundred other maritime sites already known in Southeast Asia, the Belitung offers a set of primary data that will be continually reassessed and mined for information with each new archaeological discovery of the future.