

# The *Bakau* or Maranei shipwreck: a Chinese smuggling vessel and its context

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***Bakau* ship was on a smuggling voyage when it sank. It is the oldest well-preserved Chinese ship yet found outside of China. Its cargo consisted of large quantities of ceramics from at least three areas of Southeast Asia as well as China. Cannons found on the ship are possibly the oldest evidence for this form of artillery on any vessel. This discovery helps us reconstruct the nature of illicit trade during the early 15th century CE. For obvious reasons, no detailed written records of this trade survive. The ship was probably bound for Java, where several Chinese communities existed. The discovery illustrates the sophistication of trade in Southeast Asia during a period when Chinese goods were strictly forbidden by the Chinese government to engage in overseas commerce.**

**Keywords:** Cannon, ceramic trade, Fine Paste Ware, Java, Ming.

## Introduction

THE *Bakau* shipwreck (sometimes called Maranei) was found in the Karimata Strait between Belitung and Borneo in 1998 (ref. 1). Artefacts found on the wreck suggested that the vessel sailed from China in the first half of the 15th century CE, called at Vietnam and Thailand, then sank in the shipping lane between the South China and Java seas. Artefacts recovered (approximately 1600) consisted of ceramics, metal, ivory and stone. Evidence for its date consists of a dozen Chinese coins, of which all legible examples except one were minted in the reign of Yongle (1403–1424 CE); the other is of 11th century CE. Some 1156 ceramics were documented by Seabed Explorations GmbH & Co, which kindly gave me an inventory of the finds (Figures 1–10).

## Historical context of *Bakau*

In 1371 CE Hongwu, the first Ming emperor severely punished Fujian officials who sent traders overseas. Minor offenders were sentenced to hard labour at the frontier; major offenders were executed. In 1394 CE an edict stressed the need to eradicate illicit sea trade. The

emperor was angry because many Chinese were going abroad illegally<sup>2</sup>. In 1402 CE a law was passed threatening to send a fleet to kill all Chinese who refused to return to China. Emperor Yongle encouraged foreigners to bring tribute to compensate for the loss of trade and allowed members of foreign missions to conduct limited private trade while in China. Envoys often purchased Chinese goods illegally with the help of interpreters, some of whom were overseas Chinese. One of the most famous aspects of Ming foreign policy was the dispatch of large fleets on voyages as far as Africa between 1403 and 1432 CE. In 1405 CE, Chinese living in the ancient harbour of Palembang in Sumatra were ordered to return to China, but the Chinese in Palembang wished to be accepted as an independent Southeast Asian kingdom rather than a community of sojourners. Yongle decided to create a special office to deal with Palembang<sup>3</sup>. After 1433 CE, China cut itself off from foreign contact, yet smuggling continued; in 1444 CE for example 55 people from Guangdong went to Java illegally to trade. Twenty-two of them were arrested when they returned to China<sup>4</sup>.

The term ‘Ming gap’ refers to a drastic reduction in Chinese porcelain found outside China as a result of the Ming policy. According to a statistical study of shipwrecks, between 1368 CE, when the Ming Dynasty was founded, and 1433 CE, the last Ming fleet’s voyage, the proportion of Chinese ceramics in cargoes fell from 100% to 30–40%. During the next 60 years, Chinese



**Figure 1.** Chinese celadons (green glazed stoneware), mainly bowls (seabed explorations GmbH).

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ceramics constituted no more than 5% of cargoes. During the Hongzhi reign (1488–1505 CE), export of Chinese ceramics began to expand<sup>5</sup>.

More than 30 Southeast Asian shipwrecks from the 15th century are known indicating that trade in Southeast Asia remained active. Only two, Rang Kwien (1400–1425 CE) in the Gulf of Thailand and the Royal Nanhai (1460/70 CE) off the east coast of Malaysia, yielded blue and white ware (eight pieces in total). Some blue and white pieces found in Southeast Asian land sites can be ascribed to the reigns of Zhenghua (1465–1487 CE) and Hongzhi (1488–1505 CE), but the date of their export is difficult to determine. Although Chinese ceramics were almost non-existent on the Rang Kwien shipwreck, the cargo included at least three tons of Chinese coins dating from the 4th century CE through the Hongwu reign<sup>5</sup>.

Thais and Vietnamese pounced on the commercial opportunity offered by China's isolationism. *Turiang* and

*Bakau* yielded large quantities of Thai and Vietnamese ceramics. *Bakau* also yielded Yongle coins, supporting the conclusion that the ship sank during Yongle's reign. *Bakau* may be slightly later than *Turiang*, because underglaze blue Vietnamese ware and Chinese green porcelain were found on the *Bakau* but not the *Turiang*. It is also possible that the cargoes were different because the *Bakau* may have sailed from a Chinese port, thus on a smuggling cruise, while the *Turiang* may have been a Southeast Asian ship sailing from Thailand and not from Chinese or Vietnamese ports. *Bakau* is similar to a group of wrecks which Brown called the Classic Sawankhalok group dated to c. 1425–1487 CE.



**Figure 2.** Chinese stem cup with black glaze (seabed exploration Gmbh).



**Figure 4.** Thai celadon vase (seabed explorations Gmbh).



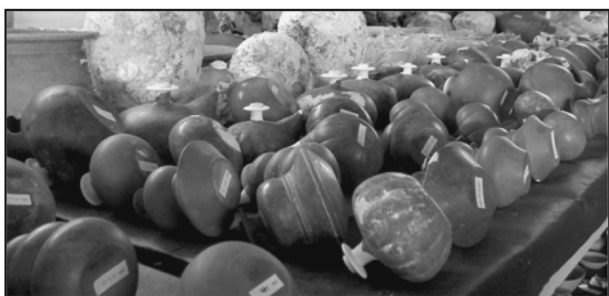
**Figure 3.** Bowls with underglaze decoration: Vietnamese with cobalt blue, Thai with iron black (seabed explorations Gmbh).



**Figure 5.** Bottle made in Sawankhalok (Si Satchanalai), Thailand, with underglaze black decoration (seabed explorations Gmbh).

**The *Bakau* ship**

The first documentary evidence that Chinese ships sailed to Southeast Asia is the record of the Mongol invasion of Java in 1292 CE, over a hundred years before *Bakau* sank. None of those ships has yet been found. Fragments of a possible Chinese ship dated to around 1300 CE have been found off north Sabah, Malaysia, but its remains are poorly preserved<sup>6</sup>. *Bakau* is the oldest well documented Chinese ship yet found in Southeast Asia. Remains of *Bakau* hull are 22.7 m long and 6.5 m wide; the original ship would have been about 30 m in length. Numerous pieces of evidence show that this vessel was China-built. Its seams were caulked with *chunam*, a lime plaster typical of Chinese construction. The vessel had a flat bottom with bulkheads and was held together with iron nails. The strakes were made from *Pinus sylvestris*, trees found in India, Myanmar and south China. The bulkheads are made of *sapotaceae* and the frames are *burseraceae*, found from Africa to the Pacific.



**Figure 6.** Red slipped *kendis* (pouring vessels for drinking water) from south Thailand (seabed explorations GmbH).



**Figure 7.** Chinese bronze cannons (seabed explorations GmbH).

Some 14th century CE shipwrecks in the Gulf of Thailand have some but not all of these features. Wrecks of the hybrid Chinese Southeast Asian variety are termed ‘South China Sea tradition’ ships. They were made from tropical hardwood and used wooden dowels to hold the hulls together, which is a Southeast Asian feature, with some nails<sup>7</sup>.

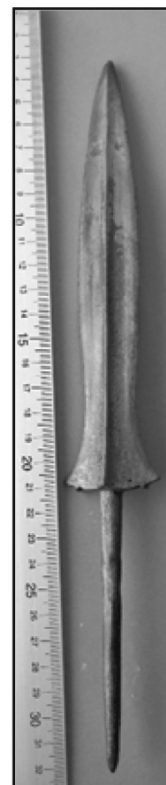
**Major artefact categories**

*Bakau*’s cargo included Thai, Vietnamese and Chinese ceramics, in order from most to fewest. The Thai ceramics were made at several sites: Sukhothai were most numerous, followed by Sawankhalok and Suphanburi<sup>1</sup>. The cargo also contained fine earthenware from Patani where a Malay kingdom tributary to Ayutthaya existed at this period. The ceramic assemblage is like other shipwrecks from the same period along a route from the Gulf of Thailand to the Java Sea<sup>8-10</sup>.

**Thailand**

*High-fired ceramics*

The majority of the cargo recovered consists of Sukhothai ceramics with underglaze black decoration. This is similar



**Figure 8.** Bronze spear point. Origin is unknown, possibly southeast Asian (seabed explorations GmbH).

to *Turiang*<sup>9</sup>. The discovery of storage jars from Suphanburi, Sawankhalok and Singburi in the same site is unusual. Thai ceramics outnumber Vietnamese on most 15th century shipwrecks and land sites. Data from looted burials in south Sulawesi interred in the 15th century suggest that Chinese ceramics represented 75% of the burial offerings, Sawankhalok about 17%, Sukhothai about 3%, and Vietnamese perhaps 5% (ref. 11). Data from Trowulan in east Java suggest that Vietnamese sherds there outnumber those from Thailand<sup>12</sup>. This indicates that there were regional preferences which merchants needed to consider.

Si Satchanalai covered boxes are said to be abundant in the 15th century sites in northern Okinawa. Vietnamese wares in Gusuku include cobalt blue, over glaze enamels and celadon<sup>13</sup>. Southeast Asian ceramics also reach the main islands of Japan. These included stoneware jars from Suphanburi and Martaban, and underglaze blue and black decorated ware from Vietnam. Vietnamese bowls with underglaze iron decoration and chocolate base have been excavated at Dazaifu, Kyushu, together with an inscribed piece of wood dated 1330 CE, and at Nakigin and Katsuren Castles, Okinawa<sup>14</sup>. The dearth of Vietnamese

wares relative to Thai in Japan probably reflects consumer preference.

### Earthenware

One of the *Bakau* shipwreck's most significant finds is the large quantity of Fine Paste Ware. Laboratory analysis at the National University of Singapore showed that Fine Paste Ware *kendis* (special vessels for pouring and storing water) found in Kota Cina, a site of the late 11th to early 13th centuries in north Sumatra, and 14th century CE Singapore, had been imported from southern Thailand<sup>15-17</sup>.

Fine Paste Ware bottles and *kendi* also formed an important component of the early 10th century *Intan* cargo<sup>18</sup>. The *Cirebon* shipwreck sank off the north-west coast of Java in the late 10th century with a cargo including 35,819 pieces of earthenware, including Fine Paste Ware *kendi* as well as 256,943 Chinese ceramics<sup>19</sup>. Hundreds of Fine Paste Ware *kendis* and bottles on the Java Sea shipwreck of the late 13th century CE indicate that the ship voyaged from China to the Patani area of south Thailand, then to Sumatra, and was on its way to Java when it sank<sup>20</sup>. Several examples of this ware were found on Tioman Island off the south-east coast of peninsular Malaysia<sup>21</sup>. Examples found in Indonesia are attributed to east Java, and in many cases to Tuban, the port of 14th century Majapahit<sup>22</sup>. Some examples, probably excavated in Butuan, Mindanao, are found in the National Museum, Manila, and private collections in the Philippines. Thai archaeologist Amara Srisuchat identified kilns at Pa-O, south Thailand, where this ware was produced as early as the 12th century<sup>23</sup>. The discovery of a large quantity of comparable items on *Bakau* shows that this ware continued to evolve during the 15th century. They were sufficiently valuable that traders would ship them to Indonesia. *Bakau* also bore utilitarian earthenware possibly made in Phitsanulok, Central Thailand, probably used by the ship's crew for carrying rice and other supplies. Similar items have been found on sites off the east coast of Malaysia.



**Figure 9.** Earthenware cooking pot with incised and punctate decoration, probably made in Southeast Asia, for use by the crew of the *Bakau* (seabed explorations GmbH).



**Figure 10.** *Anglo* cooking stove, probably made in China (seabed explorations GmbH).

### Chinese wares

#### Porcelain

Knowledge of Chinese ceramic production of the early 15th century CE is incomplete. Chinese wares on *Bakau* are of interest because a relatively precise date can be ascribed to them. Most of them are brown or black-glazed ware from the Guangdong area. Others include green Longquan bowls, stem cups, small dishes, lids, incense burners; non-Longquan bowls; and Jingdezhen white cups (~40) and dishes.

*Metal*

Objects in this category include iron swords, umbrella collars (?) and stacks of frying pans; weights and ingots, probably made of lead; bronze mirrors, mirror handles, chain, bell, gongs<sup>18</sup>, teapot, tweezers, spear points, trays, sounding weights and eleven small bronze cannons. The *Bakau* shipwreck may be the oldest known ship in the world to have been armed with cannon. Cannons have been found on the Pandanan site in the Philippines<sup>8</sup> and the Brunei Junk, both slightly later<sup>24</sup>. A Chinese cannon made in 1450 CE is said to have been capable of shooting a projectile 450 m (ref. 25). It is possible that the *Bakau* cannons were commercial items, but their varying dimensions suggest that they were made at different times and places, supporting the idea that they were for defence. Their positions in the wreck, which might have helped resolve this question, is unknown.

*Stone*

Millstones found on board were probably made in China. Their export to Southeast Asia is interesting; Southeast Asians may have begun to use Chinese technology for making flour, which implies a change in cooking to incorporate Chinese types of dishes. Another possibility is that they were intended for use by overseas Chinese residing in the ship's intended destination. When the ship sank, there were at least four towns in Java with around 5000 Chinese inhabitants each<sup>26</sup>. A whet stone and ink stone may also have been meant for overseas Chinese.

*Glass*

This category is limited to three blue-green sherds, one with a red strip.

*Vietnamese ceramics*

Roxanna Brown suggested that Vietnamese began to produce ceramics for export by the Late 13th or early 14th centuries CE (ref. 11) but most sites in Indonesia and the Philippines where Vietnamese ceramics are found date from the 15th century CE. The *Bakau* shipwreck carried some Vietnamese ceramics decorated with underglaze blue paint. Looters may have removed most of them, since they are highly valued by modern collectors. *Bakau* also carried monochrome Vietnamese ware. Similar Vietnamese ware (both underglaze black and underglaze blue painted motifs, and sometimes on the same piece) has been recovered from the *Rang Kwien* and *Song Doc* shipwrecks.

At Trowulan, capital of the Javanese empire of Majapahit (1294–1526 CE), Chinese ceramics comprise 82% of the total porcelain (by number of sherds); 18% come

from Southeast Asia. Vietnamese wares outnumbered Thai by a proportion of 4 to 1 (ref. 12). Some pieces such as blue and white wall tiles were made specifically for the Javanese court. The Javanese text *Desawarnana* written in 1365 CE mentions merchants from Annam (northern Vietnam), Siam, India, Cambodia and China<sup>27</sup>. In the Philippines, Vietnamese ceramics comprise only 2–4% of foreign ceramics of the 15th–16th centuries, whereas Thai ware of the same period comprises 20%–40% (ref. 11). Nevertheless, some very good individual Vietnamese pieces are found in Philippine collections.

The location(s) of the kilns where Vietnamese export wares were made is still under study. Kiln complexes were found in Hai Hung Province, at Bat-trang where the first reference to ceramic production is dated 1435 CE. Bat-trang ceramics were sent to China as tribute in the 15th century<sup>28</sup>. Another candidate for the production area of these ceramics is Hai Duong province<sup>29</sup>. An important shipwreck found in the southern Philippines, Pandanan, dated to the first half of the 15th century, yielded 75.6% Vietnamese ceramics out of 4722 pieces recovered. Of them 74% were produced in central Vietnam, the Cham area<sup>30,31</sup>. A famous cobalt blue decorated vase made in Vietnam bearing a date of 1450 CE which at some point reached the Topkapi Sarayi in Istanbul indicates the range over which Vietnamese pottery travelled<sup>11</sup>.

*Unidentified items, possibly from Southeast Asia used by the crew*

This category includes an unidentified ivory object, copper fishhooks, a tanged spearhead, a hanging lamp, dishes, bowls, spoons, a bell, scale weights, a lime container and tweezers. Grindstones with rollers are a Southeast Asian device. Perhaps they were meant for use on the ship rather than forming part of the cargo.

**Related shipwrecks***Turiang*

The ship is probably China-built. The ceramic cargo consisted of 46% Sukhothai, 11% Si Satchanalai, 8% Vietnamese and 35% Chinese monochrome ware. At least four Suphanburi jars, common storage vessels, were also discovered. Non-ceramic cargo included iron ore and four elephant tusks. This may be the oldest known ship carrying a principal cargo of Southeast Asian glazed pottery<sup>8,9</sup>. It sank during the same approximate period as the *Bakau* wreck, with a very similar cargo.

*Longquan*

This is a hybrid ship made in Southeast Asia. It lies in deep water, and no sustained excavations have taken



place. It is estimated that the cargo consists of 100 thousand ceramic objects, of which Chinese white and green-glazed wares appear to constitute 40%; an equal amount originates from Si Satchanalai. The non-ceramic cargo included Sappanwood.

#### *Royal Nanhai*

This hybrid vessel yielded more than 21,000 ceramics, mostly Sawankhalok celadon, along with Singburi storage jars and some Chinese brown ware. Four Chinese blue and white bowls and two Vietnamese blue and white covered boxes were found hidden below floor boards. The cargo also included iron and tin.

#### *Bukit Jakas*

This ship was found at the edge of the Bintan River estuary in Riau. It may have been intentionally abandoned. The ship was originally approximately 30 m long. Radio-carbon dating places the ship in the critical period 1400–1460 CE. It is of hybrid construction<sup>32</sup>.

#### *Chu Lao Cham (or Hoi An)*

This site off Central Vietnam was excavated in 1997–99. Over 150,000 complete Vietnamese ceramics were recovered; the original cargo may have contained over 250,000. The cargo also contained Thai wares, including thirty stoneware jars from the Ban Rachan kilns of Singburi, five Si Satchanalai jars, and an earthenware *kendi*. Chinese porcelains included blue and white wares and polychrome enamel, some with gold. The ship was about the same size as Bakau. It was a hybrid Sino-Thai ship (it is divided into compartments by bulkheads and is made of teak), possibly crewed by Thais, and probably sank between 1435 and 1470 CE, slightly later than the Bakau. One scholar believes the vessel sank no later than 1457 CE (refs 29, 33).

#### *The Brunei Junk and the Santa Cruz*

The oldest known shipwrecks with large quantities of Chinese blue and white porcelain date from the Hongzhi period (1488–1505 CE). These two shipwrecks contained significant amounts of Chinese blue and white ware, some Vietnamese blue and white ceramics, and many storage jars, mostly from Singburi, Thailand<sup>5</sup>.

#### *The Pandanan wreck*

This ship was found off the southwest tip of Palawan in the southern Philippines. The ship's hull suggests South-

east Asian origin<sup>34</sup>. A Yongle coin shows that the ship probably dates from the 15th century<sup>31</sup>. Vietnamese ware comprised 75.6% of 4722 ceramic pieces recovered. The cargo also contained 63 Thai brown jars, and a few Chinese wares, including very rare blue and white believed to date from the Interregnum period (1436–64 CE). Also, of interest are two small cannons.

#### *Lena Shoal*

This ship, found in the Philippines, yielded 5000 items, including ceramics, bronze cannon, spices, glass beads, lacquer, bronze bracelets, silver and iron ingots, iron frying pans, copper vessels and elephant tusks. The ceramics included Vietnamese porcelains, Chinese and Thai celadon, and storage jars from China, Thailand, Vietnam and Myanmar<sup>34</sup>.

### Conclusion

The 15th century CE was an interesting period in maritime commercial history in Asia. Despite severe restrictions on Chinese trade, a combination of smuggling and Southeast Asian enterprise ensured that seaborne trade continued to flourish during this period. Historical sources on this trade are almost non-existent, but the study of the *Bakau* and related shipwrecks has provided much documentation for archaeologists to analyse.

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