

The sunken ship “Nan’ao I” of the Ming Dynasty in Shantou City, Guangdong

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Abstract

In April through July 2010, archaeological excavation was conducted to the sunken ship “Nan’ao I” of the Ming Dynasty in the sea area of Shantou (Swatow) City, Guangdong Province. The discovered ship body was about 20m long with 17 bulkheads and 16 compartments, the longest one of which was 7.5m in length. Over 10,000 pieces of artifacts of various categories were recovered, most of which were porcelains, followed by potteries, bronzes and iron and tin wares, as well as over 15,000 bronze coins. Most of the porcelains were blue-and-white wares produced in Zhangzhou Kiln at the end of the 16th and the beginning of the 17th centuries, and the date of the sinking of the ship would be roughly the same. The discovery and recovering of “Nan’ao I” provided direct evidence for the researches on the material cultural interchanges among different civilizations and regions.

Keywords: Blue-and-white porcelains; merchant ships – archaeology; Ming Dynasty; “Nan’ao I” (sunken ship in Shantou City, Guangdong); shipping – China – history; shipwrecks

General introduction

Nan’ao County located to the east of Shantou (Swatow) City is the only island county of Guangdong Province. It consists of the Nanpeng Archipelago, Lemen Archipelago and so on, including 23 islands covering 112.4sq km of land and with 99km of coastline; the main island covers 106.85sq km with 77km of coastline.

“Nan’ao I” is located between the Wuyu Islet and Banchao (Half-tidal) Reef (Sandian Jin), which is in the South China Sea and the entrance of Taiwan Strait (Figure 1). In May 2007, fishermen from Yun’ao Town, Nan’ao County found this sunken ship during their fishing operation. At the end of May 2007, Guangdong Provincial Institute of Cultural Relics and Archaeology dispatched divers to make underwater investigation and finally positioned the “Nan’ao I” shipwreck. In the over 50 days of June to July 2007, Guangdong Provincial Institute of Cultural Relics and Archaeology organized underwater archaeological team and conducted survey and trial excavation to “Nan’ao I”. Because in the artifacts gathered from the fishermen, the archaeologists found not only the relics of the Ming Dynasty but also that of the Song and Yuan Dynasties, they believed that there must be some sunken ships of other periods in the nearby sea area. In March and July 2010, National Research Center for Underwater Cultural Heritage Preservation, Guangdong Provincial Institute of Cultural Relics and Archaeology and Geography and Planning School and

School of Marine Sciences of Sun Yat-sen University conducted two times of multi-beam and sub-bottom surveys to the sea areas nearby “Nan’ao I” and found 49 suspected locations, seven of which (numbered as ST04, ST09, ST12, ST15, ST26, ST29 and ST36) are potential locations of sunken shipwrecks to be discovered.

The excavation process

1. In April through July 2010, the cooperative excavation to the “Nan’ao I” sunken ship was conducted jointly by the National Research Center for Underwater Cultural Heritage Preservation, Guangdong Provincial Institute of Cultural Relics and Archaeology and Guangdong Museum. The excavation discovered 16 compartments partitioned by 17

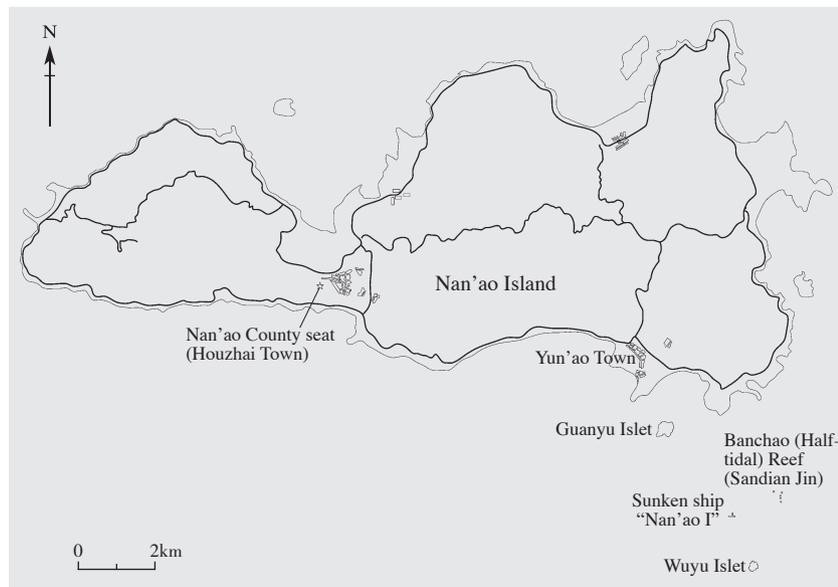


Figure 1 The location of the sunken ship “Nan’ao I”.

bulkheads and recovered over 10000 pieces of artifacts of various categories. The 17 bulkheads were set in east-west orientation and arranged from south to north (Figure 2). The two bulkheads in the south are the best preserved, the space between which was also the largest, so it was numbered as compartment N1, and the compartments to its north were successively numbered as N2, N3 etc. The compartments to the south of N1 were numbered as S1, S2 etc.

2. Now we have an introduction to the compartments N1 through N7.

The compartment N1 is 0.89m wide and the bulkheads are 9cm thick; estimated by the excavated depth, it is at least 1m deep. The remaining length of the south bulkhead is about 5m and that of the north bulkhead is about 3m, both of which are tilting from west to east. The north bulkhead is stretching eastward into the sand. The top of the north bulkhead is a little leaning to the north but most of the parts of the two bulkheads of N1 are straightly standing and well preserved.

Compartment N2 is 0.85m wide and the bulkheads are 9cm thick. The remaining length of the north bulkhead is about 0.8m and leaning to the north. In this compartment, there is a piece of coagulation covering about 1sq m and 0.7–0.8m high.

Compartment N3 is 0.83m wide and the bulkheads are 9cm thick. The remaining length of the north bulkhead is about 2.4m and leaning to the north.

Compartment N4 is 0.86m wide and the bulkheads are 9cm thick. The remaining length of the north bulkhead is

about 0.6m, stretching eastward into the coagulation and leaning to the north. In this compartment, there is a piece of coagulation covering about 1.5sq m and 0.6–0.7m high, the north part of which is superimposed over the north bulkhead.

Compartment N5 is 0.82m wide and the bulkheads are 9cm thick. The remaining length of the north bulkhead is about 0.6m, stretching eastward into the sand and leaning to the north.

Compartment N6 is 0.84m wide and the bulkheads are 9cm thick. The remaining length of the north bulkhead is about 0.7m, stretching eastward into the sand and leaning to the north.

Compartment N7 is 0.77m wide and the bulkheads are 9cm thick. The remaining length of the north bulkhead is about 1.35m, stretching eastward into the sand and leaning to the north.

In the north of N7 is a rather large piece of coagulation found to date. It is 2.7m in length, 2.3m in width and 0.7–0.8m in height. Below it there might be other bulkheads.

N1 is the widest and best preserved compartment of the “Nan’ao I” found to date, which is speculated to be the central compartment of the ship. The excavation has revealed 17 bulkheads and 16 compartments.

3. Let us choose N1 as the example: the deepest place we touched was 1m but the bottom of the compartment is not reached yet. The main category of the discovered artifacts is the blue-and-white porcelain plates, followed by bowls and jars, and a few of powder cases, cups, large jugs with dragon and tiger design, bronze ingots,



Figure 2 The plan and sections of the sunken ship “Nan’ao I”.



Figure 3 The porcelain cargoes in "Nan'ao I".



Figure 4 The bronze coins stored in "Nan'ao I".

scattered bronze coins, tin pots, wooden steelyard balance arm, metal finger rings, etc. Among them, the blue-and-white porcelain plates are the most regularly arranged: they are stacked up into piles, each two piles are lined in horizontal rows roughly parallel to the bulkheads, and two or three layers of this kind of pairs of piles are stored in the compartment. In the spared spaces among the piles of plates, piles of porcelain bowls and small pots are inserted. The pottery jugs with dragon design are mostly arranged into lines in the west of N1, and some of them are also scattered in the middle. Walnuts are found in some of these jugs; in one of these jugs, several dozens of fruit stones whose color had changed into black are recovered. From the sediment drawn from

the compartment, some olive stones are found, which would have been also stored in the jugs. In another jug, piles of wine cups, go chess stones and walnuts are found. In this compartment, some intact blue-and-white porcelain tureens covered with overturned lids were found, some of which contained small jars. The powder cases are mostly scattered in the west of N1, which are usually nested into a set each of which consists of three in different sizes. The finger rings and tin pots are found in the west of N1.

Recovered artifacts

Because of the huge quantity, the artifacts recovered from "Nan'ao I" are numbered by the compartments where they are recovered in order to guarantee that their original positions can be restored as accurately as possible. From the shipwreck "Nan'ao I", in total 11248 pieces of artifacts are recovered, of which 10624 are porcelains, 145 are potteries, 113 are metal objects and 54 are other objects; in addition, 312 strings of bronze coins consisting of more than 15000 pieces are also recovered (Figures 3 and 4). In N1, 1259 artifacts are recovered, among which are 724 plates, 250 bowls, 132 jars, 50 cases, 32 tureens, 13 cups, 11 dishes, nine vases (all of above are porcelains), 14 pottery jugs, nine bronze ingots, four go chess stones, three coagulations, two iron woks, two bronze coins, two tin pots, one finger ring and one iron bar.

1. The 10624 pieces of porcelains take 94.5% of all of the artifacts

recovered from "Nan'ao I", which is in the absolute bulk. Among the porcelains, there are 4457 plates, 3897 bowls, 858 jars, 760 cups, 224 dishes, 213 powder cases, 177 tureens and 38 vases. These porcelains are mainly the products of two kiln systems, which are the Zhangzhou Kiln System in Fujian and Jingdezhen Kiln System in Jiangxi; the main types are blue-and-white porcelains, followed by *wucui* (polychrome) porcelains, and some celadon wares, white-glazed and bluish-white glazed porcelains. Most of the porcelains are glazed, the decorative motifs of which are floral designs, animal figures, human figures (Figure 5) and auspicious words. The bottom inscriptions are mainly "fu 福 (welfare)", "shou 寿 (longevity)", "wanfu youtong 万福攸同 (all good meet

upon them)”, “*fugui jiaqi* 富贵佳器 (ware favorable for being rich and noble)”, “*Da Ming nian zao* 大明年造 (made in the Great Ming Dynasty)” and so on, and the bottoms are usually stuck with sand grains.

The 4457 plates take 39.6% of all of the recovered artifacts and about 42% of all of the recovered porcelains, which is the highest percentage in all of the categories of the recovered artifacts. Among the porcelain plates, 4385 are produced by the Zhangzhou Kiln System, taking 98.4% of all of the plates. Most of the plates have flaring rim or outward bending rim, curved belly, flat bottom with ring foot; the pastes are dense, heavy and close and in grayish-white color, coated with white or bluish glazes and with sand grains stuck to the bottom of ring foot. The rest 72 are products of Jingdezhen Kiln System, all of which are blue-and-white porcelain plates, the main motifs of which are phoenix design and bee-monkey-sparrow-deer (homophone of “being entitled as marquis and enjoying high salary” in Chinese) design.

The 3897 bowls take the second position in the quantity of the recovered artifacts, which is 36.7% of all of the porcelains. Bowls were found in every compartment. They are also the products of Zhangzhou and Jingdezhen Kiln Systems and most of them are blue-and-white wares, but there are also some *wucaï* and celadon wares. The products of Zhangzhou Kiln System usually have dense and heavy pastes in grayish-white color, and the bottoms are not glazed. The types are mainly celadon bowls, blue-and-white porcelain bowls with floral design and flat rim, and blue-and-white porcelain bowls with floral design. The bowls produced by Jingdezhen Kiln System all have fine and clean pastes and are fully glazed, the main types of which are blue-and-white bowls, celadon bowls with impressed design, *wucaï* bowls and blue-and-white bowls plus *wucaï* design, etc.

The 858 jars were found in almost every compartment; all of them are products of Zhangzhou Kiln System and most are blue-and-white wares. Their pastes are dense



Figure 5 Blue-and-white porcelain plate with beauty figure design.



Figure 7 Blue-and-white porcelain bowl with flower and swimming duck designs in four medallion motifs.



Figure 6 Blue-and-white porcelain bowl with double-dragon design.

and heavy with grayish-white color, and all of them are glazed and painted with floral design. Some bluish-white glazed jars are also found, most of which have lids, and the shapes of this kind of jars are also more diversified. The decorative motifs of the jars are mainly intertwined flower and branch design (Figure 8), plucked flower branch design or tendril design. The jar lids are usually decorated with blue-and-white floral design, some have animal-shaped knob on the top, or flat top. The jars are sometimes nested in porcelain tureens or pottery jugs.

The 760 cups take 6.8% of all of the artifacts recovered from the "Nan'ao I"; they can be found in



Figure 8 Blue-and-white porcelain jar with four lugs and intertwined flower and branch design.

every compartment, but most of them (90% or more) are stored in N5, N8 and scattered on the east and west sides of N8 and east side of N10. All of the cups are the products of the folk kilns of Jingdezhen Kiln System; they have flaring rim, curved or round belly, flat bottom with ring foot, and thin and light body. The cups are fully glazed, the color of which is dark bluish-white. The inner bottoms are usually decorated with a single-line circle within which plucked flower branch design, freehand floral design or human figures are painted, the outer walls are usually bowstring pattern and flower-and-bird motifs, floral designs or human figures. The bottom inscription are mainly "fu 福 (welfare)", "shou 寿 (longevity)", "zheng 正 (upright)", "yu 玉 (jade, gemstone)" and so on. The cups are mostly stored in pottery jugs.

The 224 dishes are distributed in compartments N1 through N13 and the east side of N5, the outer range of N8 and nearby the north end of the baseline of our measurement. All of the dishes are blue-and-white wares of folk kilns, most of which are produced by that of Zhangzhou Kiln System and a few are produced by that of Jingdezhen Kiln System. The dishes usually have decorative designs in the inner bottoms, the motifs of which are mainly flower-and-bird design, human figures, *qilin* (kirin) figures and floral designs. The products of Jingdezhen Kiln System have inscriptions on the outer bottom, most of which are "fu 福 (welfare)".

The 213 powder cases (cosmetic cases) are mostly the products of the folk kilns of Jingdezhen Kiln System, plus few of products of that of Zhangzhou Kiln System. Each case consists of the lid and the body; the main types are blue-and-white wares (Figure 9), *wucai* wares (Figure 10) and hybrid of blue-and-white and *wucai*. The main motifs of the decorative designs of the powder cases are flower-and-bird design, floral design, the Eight-trigram design and auspicious words, and the outer bottoms are usually plain without inscriptions.



Figure 9 Blue-and-white porcelain nested powder cases with floral design.

The 177 tureens are all blue-and-white products of the folk kilns of Zhangzhou Kiln System. They have dense and heavy pastes in grayish-white color; all of them are glazed, the white ground shows bluish tint and the blue designs show gray tint, in some places as dark as black. Each tureen consists of the lid and the body (Figure 11). The lids have nesting rim and, mostly, globular knob. The tureen bodies usually have contracting rim, curved wall, flat bottom with ring foot. The knobs on the lids are usually decorated with characters such as “*fu* 福 (welfare)”, “*mu* 木 (wood)”, “*zheng* 正 (upright)”, “*tai* 太 (great)” and so on, or floral design; some tureens have inscriptions on the inner or outer walls, such as “*Lin zhai*

林宅 (house of Lin Family)”, “*Qu* 曲 (a surname)” and so on. In the tureens, porcelain jars, cups and other smaller commodities are sometimes stored.

The 38 vases are all blue-and-white wares of Zhangzhou Kiln System, most of which have flaring rim, curved wall, flat bottom with ring foot. Their pastes are dense and heavy with grayish-white color; all of them are glazed, the white ground shows bluish tint and the blue designs show gray tint, in some places as dark as black. The design motifs are mainly intertwined flower and branch design (Figure 12). The bottoms of the ring feet are stuck with sand grains. The types include *yuhuchun* (pear-shaped) vases and *jingping* (*kundika*, water



Figure 10 White porcelain powder case with *wucui* (polychrome) flying horse and floral designs and four medallion motifs.



Figure 11 Blue-and-white porcelain tureen with intertwined flower and branch design.



Figure 12 Blue-and-white porcelain vases with intertwined flower and branch design.

sprinkler, a kind of Buddhist religious instrument).

2. Potteries, 140 pieces, which is second to the quantity of porcelains. The main categories are jars, jugs, lids, etc. 132 are jars, four jar lids, three jugs and one pot; the jugs are glazed in brown color and decorated with embossed dragon- or tiger-shaped lugs and incised designs.

3. Metal objects, 113 pieces, include bronzes, iron and tin wares, etc. Among them, there are 46 plank-shaped bronze ingots, 12 bronze palm bowls (three sets), two bronze fittings, one bronze gong, one bronze spring, two iron woks, six iron bars, two iron blunderbusses, two tin pots, two finger rings and 37 pieces of coagulations.

4. The other objects include stone weights, wooden steelyard balance arm, dices, abacus beads, beads, gong stones, lacquer peels, etc.

The conclusion

The depth of the water body where the "Nan'ao I" sank is about 27m, which is a rather deep location of the underwater archaeological fieldwork in China at present. The seabed is sandy-mud floor with low proportion of mud. To date, the gathering of the artifacts scattered outside the shipwreck and the surveying, videoing, photographing and drawing works of the main body of the shipwreck have been basically finished.

Except for some coagulations outcropping from the seabed, the shipwreck was almost completely covered by the sand and silt; the compartments N8 to N10 had been buried as deep as more than 1.5m before excavation. The detecting result shows that the ship is about 27m long and 7.5m wide at the widest compartment. The orientation of the longitudinal axis of the ship was 10° and the inclining angles are between 8° and 13° because the inclining degrees of the compartments are uneven. Outside N8 and nearby compartments, large amounts of shallowly buried artifacts are found, implying that the ship might have cracked or split and the cargoes were dumped out.

In the artifacts recovered from the shipwreck, porcelains take the absolute majority, in which again

the blue-and-white wares produced by Zhangzhou Kiln System take the highest proportion, and they are also the popular types of the export porcelains in the Ming Dynasty. Rather large quantity of blue-and-white wares and *wucai* (polychrome) wares produced by Jingdezhen Kiln System are also found in the shipwreck. Zhangzhou Kiln System, which might have started to work in the Wanli Era (1573–1620) of the Ming Dynasty and declined in the mid Qing Dynasty, was the folk kiln system making export porcelains. The wares of Zhangzhou Kiln System found in the shipwreck are mainly made in Erlong Kiln at Wuzhai Township in Pinghe County and their dates are around the end of the 16th through the beginning of the 17th centuries.

The port of departure of "Nan'ao I" might very probably be Yuegang (Moon Port) in Zhangzhou, Fujian, and its destination would be the Southeast Asian countries; its date would be in or after the Longqing Era (1567–1572 or later), when the *haijin* (lit. "sea ban": the prohibition of maritime traffic) was partly lifted in some places of Guangdong and Fujian Provinces; this lifting policy was an expedient measure to deal with the pressure of the smuggling and to relieve the tight financial situation.

"Nan'ao I" is the best preserved merchant ship of the Ming Dynasty found in the coastal areas of China. It provided important clues and data for the researches on the maritime trade in the mid and late Ming Dynasty, and rare and valuable physical materials for the researches on the porcelain products of "Zhangzhou Kiln System" and "Swatow Ware" and other issues on the ceramic studies.

Postscript

The original report published in *Kaogu* 考古 (Archaeology) 2011. 7: 39–46 with two illustrations and three plates was written by Cui Yong 崔勇. This abridged version is prepared by the author and translated into English by Ding Xiaolei 丁晓雷.