

Excavation on the Water Valve Site at the Northern Gate of the Great Song City in Yangzhou, Jiangsu

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In the spring of 2003, when the western section of Caohe 漕河 Road in Yangzhou 扬州 City, Jiangsu 江苏 Province, was being rebuilt and expanded, an ancient site built of large-sized long narrow stones was discovered in the southeastern corner of the confluence of the Yudai 玉带 River and the Caohe River. The site consists mainly of the remains of the northern gate and water valve of the Great Song City (Fig. 1). In March to May 2004, the Yangzhou Tang City Archaeological Team carried out a rescuing excavation of the northern section of the water valve site, and brought to light quantities of cultural relics from the Tang to Yuan period.



Fig. 1 Water valve site at the Northern City-gate (photo taken from south to north)

I. Vestiges

The site is located on the eastern bank of the Yudai River, to the west of the northern gate of Great Song City, and looks like a slope with the east higher than the west. In the excavation area, which is about 21 m long from the north to the south and about 12.5 m wide from the west to the east, they revealed remains of the main city-wall, the eastern and western stone-built walls of the water valve, the slide in the eastern wall, the northern section of the passageway, the eastern and western bent walls in the north, the bank-protecting wood stakes, ground nails and planks (Figs. 2 and 3).

At the western wall of excavation area, to the east of its southern end, the bottom of a Ming period intruding pit was found to be superimposed on the foundation of the water valve's western stone-built wall, and remaining stones laid in courses along with Yuan period cultural layers were discovered to the east of the northern section of the western wall. In the southern wall of excavation area, from the top of the stone courses for the base of water valve's western wall to the western side of the water valve's eastern wall, excavation revealed Ming period cultural layers to be superimposed on

Yuan period layers. On the excavation area's southern wall joined to the southern end of the western wall, no Yuan layers have been discovered, which suggests that the western wall of water valve was damaged in the Ming period.

At the western section of the excavation area's northern wall, Yuan cultural layers were found to the east of the top stone course of the water valve's western wall. The eastern section is roughly the same as the western section, but Yuan layers extend upward from the river course onto the remaining stone courses of the northern section of the water valve's eastern wall, which indicates that the western wall of water valve was abandoned in the Yuan period.

Two sections of the main city-wall extended, respectively, from the western and eastern sides of the water valve's walls and belonged to the northern city-wall of "Small Zhou City" and "Great Song City" that was first built in the Five Dynasties period and repaired and still used in Northern Song and Southern Song times. The rammed-earth wall-body of the western main-city-wall section is yellow, with yellow clay lump mixed in, and poor in quality of ramming, having no clear division between rammed courses, and measures only about 2 m in remaining height. The eastern section is better in condition, about 5 m in remaining height from the top to the water valve bottom.

The main body of water valve consists of the western and eastern stone-built walls, which pass through an opening of the main city-wall, with the northern ends joined to the bent walls in the water valve's northern part. The stone-built walls are 5 degrees in azimuth, intersecting the main-city-wall sections at a right angle, about 2.4 m wide, and 7.1 m apart from each other for the inner sides. The eastern wall reaches 3.6 m in remaining height for the maximum size, built in 20 courses. Atop the walls are stones scattered sporadically. The western wall left over only the base course of stones owing to the change of the river course and destruction in later times. Between the inner sides of the walls is the passageway of the water valve. The base course of stones is superimposed on a livid lining layer made of stones mixed with quantities of tile fragments. The eastern wall intruded a rammed-earth structure of the Five Dynasties period, so the water valve was built no earlier than that time.

Near the top of the eastern wall, a vertical slide begins to extend downward. It is square in plan and measures 0.26 m each side and about 3.40 m in height. The

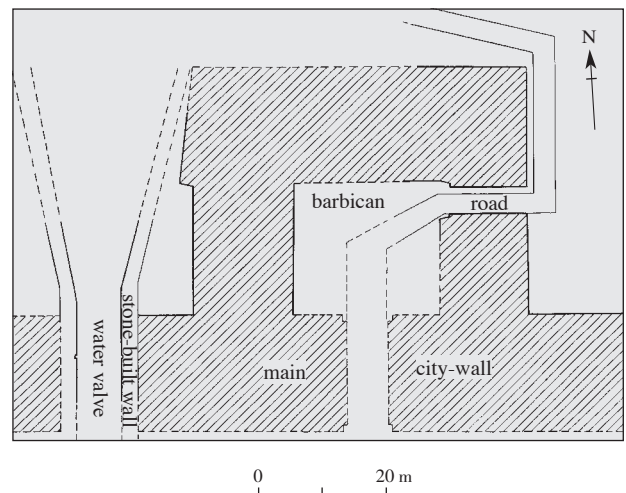


Fig. 2 Map of the water valve at the Northern City-gate



Fig. 3 Plan of the water valve site at the Northern City-gate



Fig. 4 Eastern stone-built wall (photo taken from west to east)

lower opening is above the base course of stones, and a remaining brick was found in the northwestern corner of the bottom. The whole slide is made of L- or Π-shaped long narrow stones (Fig. 4).

The passageway is identical with the stone-built walls in azimuth, intersecting the main-city-wall sections at a right angle. The deposits in the passageway, on the riverbed inside the water valve, belong mainly to the Yuan and Ming period. The water-valve vault boundaries are not clear; the major remains are heaps of the bricks maybe falling down from the vault, which were found between the fourth row of wood stakes outside the eastern wall and the third row of stakes outside the western wall, in the river course south of the northern main-city-wall and north of the slide, covering an area about 8 m long from the north to the south and about 5 m wide from the west to the east. The bricks are varied in size, mostly 7 cm in thickness, and lime plaster was used in a large amount for joint pointing.

The “bent walls” are the “八”-shaped structures joined to the water-valve walls. Excavators revealed only those in the north of the passageway. These bent walls are identical in shape and share the same technique with the stone-built walls of water valve. Both of them are built of long narrow stones. The stones for the bent corners are wrought bevel-surfaced so that the wall turns could be made smooth without breaks, and lime plaster was used for pointing up the stonework. The remains of the eastern bent wall are 2.1 m high in 12 courses, 11 m long for the excavated part north of the corner, 19 degrees in bevel for the top and base of the

turns, 15 degrees or 17 degrees for the farther northern part and 19 degrees for the northernmost section. The western one left over only six courses of stones, about 1.06 m in total height and about 6.5 m long from the north to the south. The corners are built course upon course alternately of whole stones and sectional ones, a technique similar to that of the slide.

Foundation stakes were excavated 13 from below the damaged base stone-course of the water-valve’s eastern wall. They are 15–20 cm in diameter and about 40 cm in the interval between the wood cores. Their tops are even and

roughly at the same level. Atop the stakes is a layer of livid lining material mixed with quantities of tile fragments, about 20 cm thick and, in nature, similar to the lining layer in the river course west of the eastern stone-built wall.

Between the western and eastern stone-built walls are wood stakes neatly arranged in north to south rows—five in the some 2.1 m wide area west of the eastern wall and four in the area (*ca.* 1.7 m wide) east of the western wall. They are 16–22 cm in diameter and apart from each other at an interval of *ca.* 50 cm for the wood core. No stakes have been found between the two stake areas, in the middle of the river course. According to their distribution and external features, these stakes can be roughly divided into three categories: bank-protecting wood stakes, “ground nails” and tall stakes for preventing passing-through boats from running into the water-valve walls.

Between the third and fourth stake rows, excavation discovered planks about 10 cm thick. As revealed so far, those on the eastern side extend some 12 m from the north to the south; on the western side, only a stretch about 2.5 m long was recovered. All these planks are planted in the silt within the river course. They intruded the lining layer below and must have been furnished for fixing ground nails and strengthening foundations.

Some stone slabs and horizontal logs are inlaid between above-mentioned stakes. The former must have been “clothes washing stones” recorded in the *Yingzao Fashi* 营造法式 (Building Standards), and the latter might have had the same use as the former.

II. Objects

The unearthed objects are largely from the deposits in the river course. They fall into porcelain, bronzes and ironware, a lot of which are restorable.

1. Porcelain

Quantities of porcelain shards and a number of roughly intact articles were unearthed from the Yuan and Ming layers in the river course. They date from the Tang to Ming period.

Most of the shards from the Yuan layers belong to Longquan 龙泉, Jingdezhen 景德镇 and Cizhou 磁州 wares; the rest include remains of Jizhou 吉州, Junyao 钧窑, Yixing 宜兴, Shouzhou 寿州, Yueyao 越窑, Changsha 长沙, Gongxian 巩县, Fanchang 繁昌, underglaze red and north China greenish-white wares. In type the bowl comes first in quantity, and the dish, pot, incense burner, cup, vase and jar occur in a certain amount. They are coated with green, yellow and white glazes. The body is principally white, gray or black.

Yuan blue and white goblet with dragon design, one piece (04YSBS1216). It is slant-bellied and white-bodied. The outer wall is decorated with dragon design; the bottom, with four-petal sunflower design; and the inner wall, with double-dragon motif in the Shufu 枢府-*fu*-glaze style. Its mouth diameter is 13.2 cm and 10.9 cm high (Figs. 5:5; 6).

Yuan blue and white goblet with the character “*shou* 寿” (longevity), one piece (04YSBS1217). It is slant-bellied and white-bodied. The outer wall is painted with chrysanthemum design; the inner wall, in the upper part, with cloud pattern; and the bottom bears the character “*shou* 寿.” Its mouth diameter is 13.3 cm and 11.1 cm high (Figs. 5:4; 7).

Yuan Longquan ware cups, five pieces, roughly the same in shape. One of them (04YSBS1210) has an everted mouth, a straight belly and a slightly convex bottom with a cut in the center. The body is coated with green glaze. Its mouth diameter is 7.5 cm and 3.7 cm high.

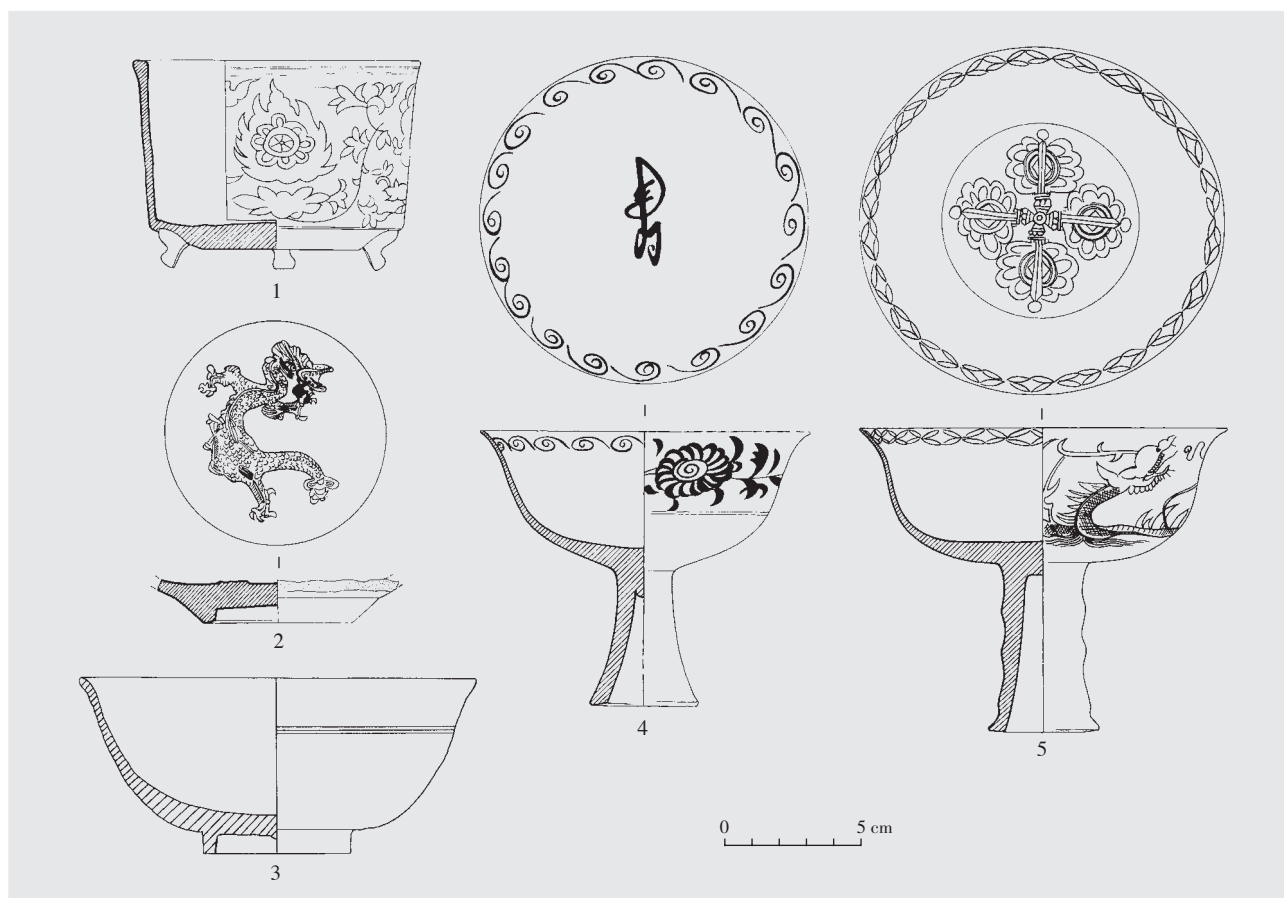


Fig. 5 Unearthed porcelain wares

1. Ming red-and-green-painted *zun*-vase-shaped incense burner (04YSBS629) 2. Yuan dragon design bowl-bottom of Longquan ware (04YSBS769) 3. Yuan bowl of Longquan ware (04YSBS1226) 4. Yuan blue and white goblet with the character “*shou* 寿” (04YSBS1217) 5. Yuan blue and white goblet with dragon design (04YSBS1216)

Yuan Longquan ware bowls, two pieces: one is intact and the other is the bottom of a broken bowl. The former (04YSBS1226) has a flared mouth, a curved belly, and a ring-foot. The body is gray and is coated with glaze on the outer surface. Its mouth diameter is 16.1 cm (Fig. 5:3). The latter (04YSBS769) has a gray body coated with green glaze (Fig. 5:2; 8).

Ming red-and-green-painted *zun*-vase-shaped incense burner, one piece (04YSBS629), yielded from

the Jingdezhen Kiln. It has a straight mouth, a slightly slant wall, a flat base and three legs. The outer wall is red-painted with six designs of the Eight Treasures: conch, umbrella, canopy, lotus, fish and wheel, which adorned with red-stemmed and green-leaved floral design. Its mouth diameter is 10.2 cm and 7.3 cm high (Figs. 5:1; 9).

2. Bronze mirrors, four pieces.

Mirror with sea animal and grape design, one piece



Fig. 6 Blue and white goblet with dragon design (Yuan period, 04YSBS1216)



Fig. 7 Blue and white goblet with the character “shou 寿”(Yuan period, 04YSBS1217)



Fig. 8 Bowl bottom of Longquan ware (Yuan period, 04YSBS769)



Fig. 9 Red-and-green-painted *zun*-vase-shaped incense burner (Ming period, 04YSBS629)

(04YSBS1068), belonging to the Tang period, broken. It has a straight edge and is decorated with auspicious birds and grapes in the outer zone and three (the original object must have had four) sea animals in the inner zone. Its diameter is *ca.* 12.3 cm (Fig. 10:2).

Mirror with a scene of the variety play *Liu Yi Chuan Shu* 柳毅传书, one piece (04YSBS1367), belonging to the Song period. It has a straight edge, a flat rim and a perforated knob. The decorations are: in the upper zone—sheep-herding dragon's daughter, Liu Yi and sheep under a tree on the left, a horseman on the right and a seal on his upper left; in the lower zone—two carps swimming in water as the main design. Its diameter is 17.1 cm (Figs. 10:3; 11).

Mirror with the character “*shou* 寿”, one piece (04YSBS154), belonging to the Song period. It is badly corroded by rust. The utter zone is unclear, the inner zone has the character “*shou* 寿” in relief, and the knob is small. Its diameter is 14.65 cm.

Mirror with four-dog design, one piece (04YSBS947), belonging to Song-Yuan times. The obverse is a little

convex. The reverse bear the inscription in relief “*Shang de qin wang jing* □□□ *qian jin fei yue yu zhao dan chi shi zi ming xin* 赏得秦王镜□□□千金非阙欲照胆持是自明心” arranged clockwise. The inner zone is cast with four tail-raised-to-rump animals, between each two of which is a projective nipple. The vertically arranged two are depicted in a running position, head turning backward; the horizontally arranged are also running, with the head stretched ahead. They seem dog figures. The knob is shaped like a bridge. Its diameter is *ca.* 15 cm (Fig. 10:1; 12).

3. Copper and iron objects

Copper and iron coins were unearthed in a great quantity, totaling nearly 900. Among them the Song copper coins come first in number, Tang “*Kai yuan tong bao* 开元通宝,” Yuan “*Zhi yuan tong bao* 至元通宝” and Southern Song iron coins occur quite often, and “*wu zhu* 五铢” coins are rare.

Iron mold with the character “*yuan bao* 元宝,” one piece (04YSBS350). It has a socket at the upper end and a contracted waist. Inside is the mirrored inscription

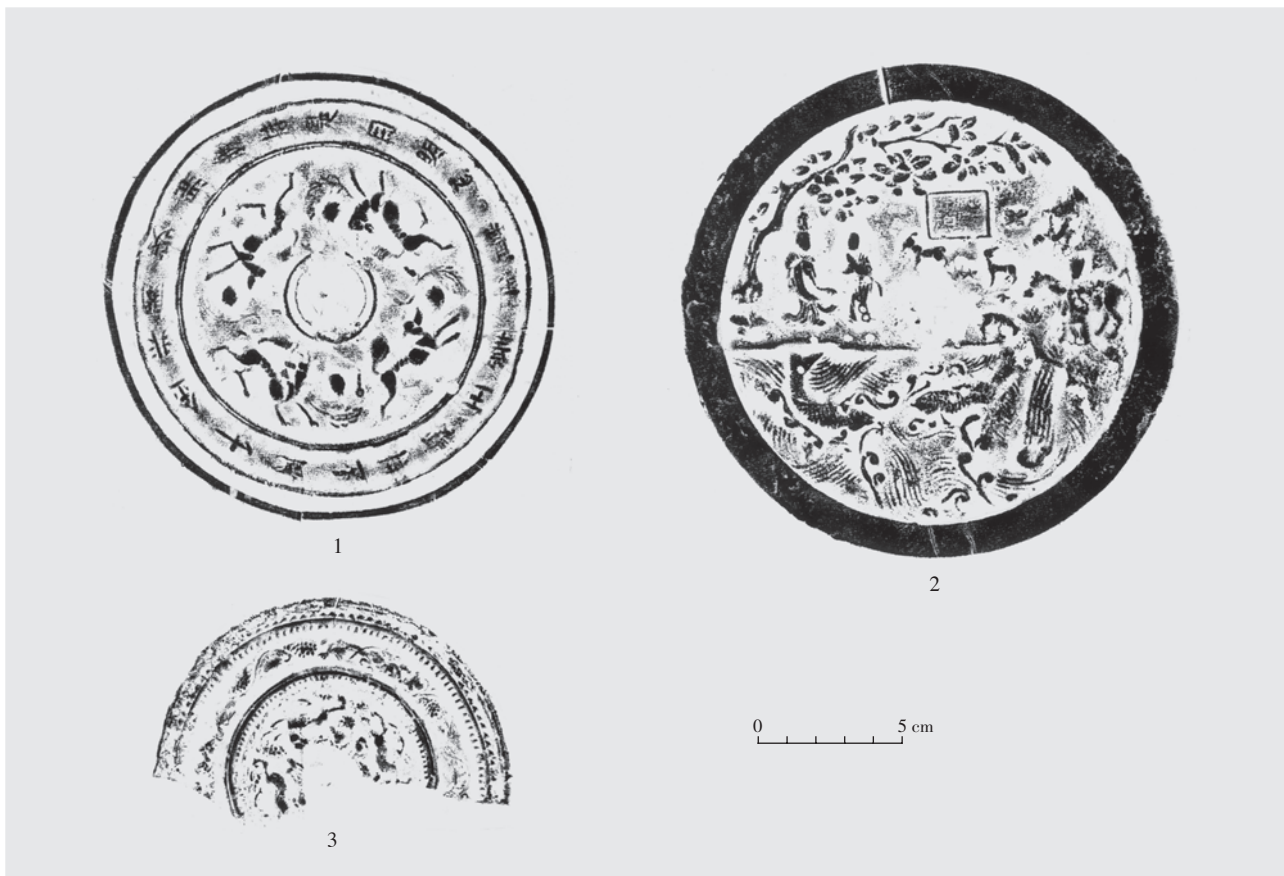


Fig. 10 Unearthed bronze mirrors (rubbings)

1. four-dog design mirror (04YSBS947) 2. sea animal and grape design mirror (04YSBS1068) 3. bronze mirror with a scene of the variety play *Liu Yi Chuan Shu* (04YSBS1367)



Fig. 11 Bronze mirror (Song period, 04YSBS1367)



Fig. 12 Bronze mirror (Song-Yuan period, 04YSBS947)

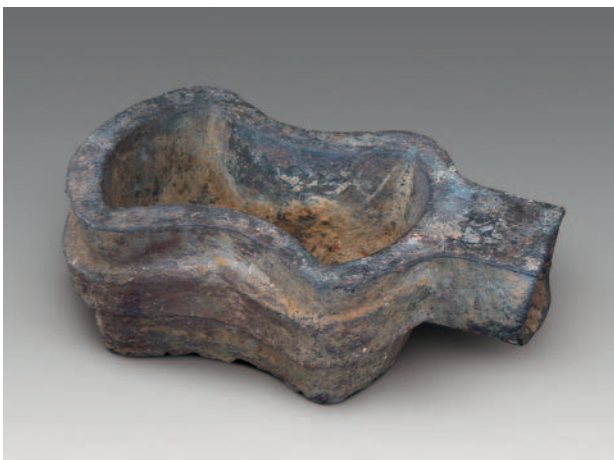


Fig. 13 Iron mold (Yuan period, 04YSBS350)

“*Yuan bao* 元宝” in relief, and the handle bears the character “*da* 大” in relief. Its weight is 7.785 g, 23.2 cm long, and 8.6 cm high (Fig. 13).

In addition, there are gilt bronze spoons, hairpins and ear-picks, iron forks, scissors, nails, sickles, axes, knives, bars, hooks, pots, seats and implements related with boat sailing, such as iron chains and picks.

4. The rest of finds include 33 inscribed bricks of the Song period, one ivory Chinese chess piece and the broken glass yielded from the Ming cultural layers.

III. Significance of the Excavation

As the “Map of the Song Three Cities” in the *Jiajing Weiyang Zhi* 嘉靖维扬志 (Chronicles of Weiyang Compiled in the Jiajing Reign) indicates, the official river of the Great Song City ran through the City from south to north, passing by the western sides of the southern and northern city-gates. It shows definitely that a “water valve” was furnished in the place where the northern city-wall crossed the Yudai River in the Great Song City. The location of the site is just at this point. The excavation has clarified that the rammed-earth city-wall revealed on the site functioned from the Five Dynasties to Yuan period, the water valve was built no earlier than the Five Dynasties period and abandoned in the Yuan Dynasty, and the valve of the passageway collapsed in Ming times. Although no Southern Song and earlier layers have been found inside the water valve, judged by the stratigraphic evidence related with the water valve and the barbican at the northern gate of the Great Song City and the building techniques of the water valve, including the size and bonding technique of bricks and pointing with lime plaster, it can be concluded that the site revealed this time is right the water valve on the western side of the northern gate of the Great Song City.

The excavation on the site provided a detailed annotation to the related record in the *Yingzao Fashi* (Building Standards). The western and eastern stone-built walls are both 5 degrees in azimuth, completely identical with the whole City in this respect. The bent corners of the eastern and western walls have azimuths of 19 degrees and 351 degrees respectively, i.e. either of the eastern and western embankments turns out by 14 degrees, and the angle between the two bent walls is 28 degrees. Inside the two bent walls, the distance between the highest stakes is about 7.85 m, and the linking line between these stakes is 95 degrees in azimuth, roughly intersecting the river course at a right angle. All these data show that the water valve was built on the basis of an all-round

planning.

The water valve was joined to the Caohe River and led eastward to the Grand Canal and northwestward to the ancient Hangou 邗沟 Canal and then to Shugang 蜀岗. Along with the northern gate and barbican of the Great Song City, it constituted an important hub for controlling the land and water communications in the northern Yangzhou during the Song-Yuan period. With the

remains of the water valve preserved in a good condition, the discovery of the site has important significance to the complete revelation of the Great Song City's features. It provided valuable material data for studying the water communications and historical aspect of Yangzhou City in Song-Yuan times, and has great significance to researching into the historical culture of Yangzhou and reconstructing all aspects of this ancient city.

Note: The original paper, published in the *Kaogu* 考古 2005.12: 20–40 with 20 illustrations, 11 plates and one table, is written by Wang Bo 汪勃, Liu Tao 刘涛, Yin Zhihua 印志华 and Chi Jun 池军. The present summary is prepared by Wang Bo and English-translated by Mo Runxian 莫润先.