

Excavation on the Taiye Pond Site in the Daming Palace of Tang Chang'an City

Joint Sino-Japanese Archaeological Team of the Institute of Archaeology, CASS
and
Nara Cultural Properties Research Institute

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inflow channel

The Taiye Pond 太液池 in the northern part of the Daming Palace 大明宫 in Chang'an city 长安城 was also known as the Penglai Pond 蓬莱池. It was the most important pond garden of the Tang imperial family. The site of the pond is in a sunken area near the foothills at the northern side of the Longshouyuan 龙首原, south of the Sunjiawan Village 孙家湾村 of the Daming Township 大明宫乡, in the Weiyang District 未央区 of modern Xi'an city 西安市, in Shaanxi Province 陕西省. The pond is divided into two parts, known as the East Pond 东池 and the West Pond 西池. The East Pond shaped like a drop of water, its area of 33,000 sq m is now under modern structures. The West Pond is oval in shape; its area of 140,000 sq m is now agricultural land and orchards.

The archeological work at the Taiye Pond started with large-scale drill surveys from 1957 to 1959, which revealed primarily the location and size of the pond area (Fig. 1). In the winter of 1998, the Archaeological Team of the Tang City at Xi'an, the Institute of Archaeology, CASS, carried out another reconnaissance in the area,

discovering an island in the middle of the West Pond. In the spring of 2000, the archeological team carried detailed excavations along the southern bank of the West

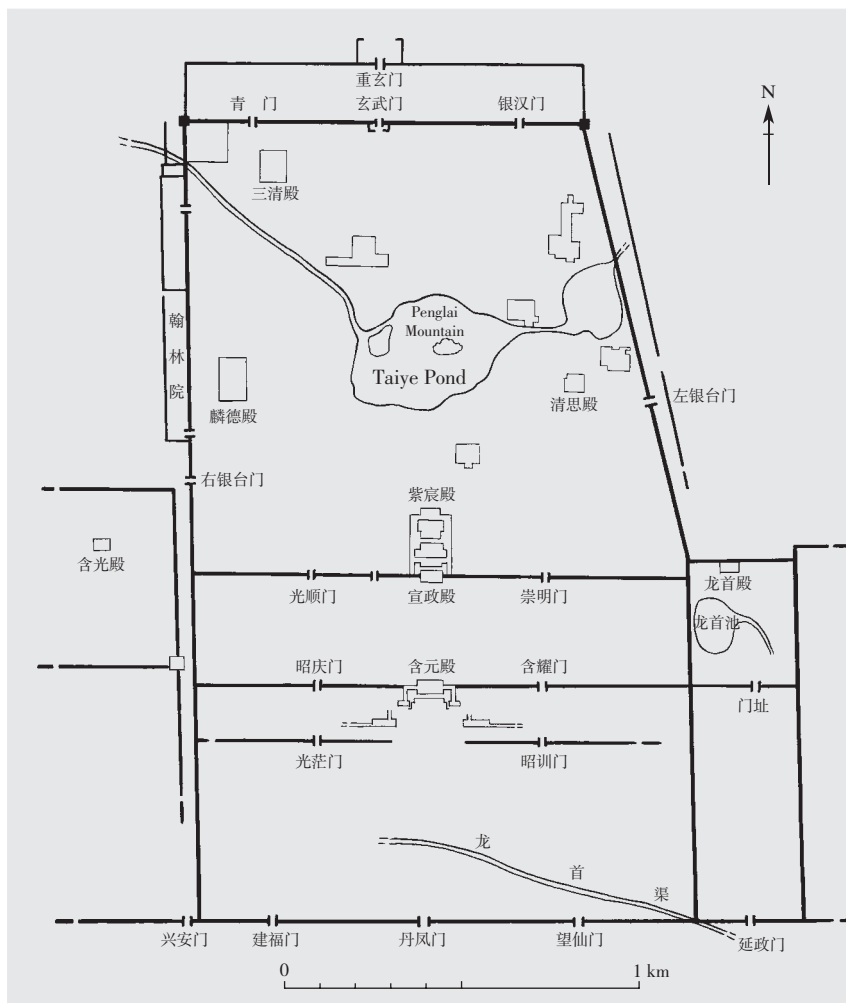


Fig. 1 Location of the Taiye Pond site of the Tang Daming Palace

Pond, in order to understand more clearly the relations between the strata and also the related architectural remains at the site.

I. Excavation Circumstances and Site Stratigraphy

A five-year plan of large-scale excavation and research at the Taiye site began to be carried out in the latter part of 2001. From the beginning to December of 2002, the Joint Sino-Japanese Archeological Team carried out three major excavations at the middle and the northwestern parts of the west bank, excavating an area of 8,400 sq m (Fig. 2). The excavations helped to understand the structures on the bank, remains of nearby roads and ar-

chitectural remains, answered questions of how water flowing in and out of the pond. The following is a brief report of the excavations.

The result of the excavations showed the deposits along the west bank could be divided roughly into five strata from the surface down to the virgin soil. These include the current layer of agricultural fields, a disturbed modern layer, layer of post Tang era deposits, a layer of late Tang cultural deposits, and virgin soil. In general excavations were stopped at the late Tang deposit, at a depth of 0.4–1.5 m below the surface. The late Tang cultural remains near the west bank show a surface higher on the east side and lower on the west side; in other words, the surface is higher near the bank.

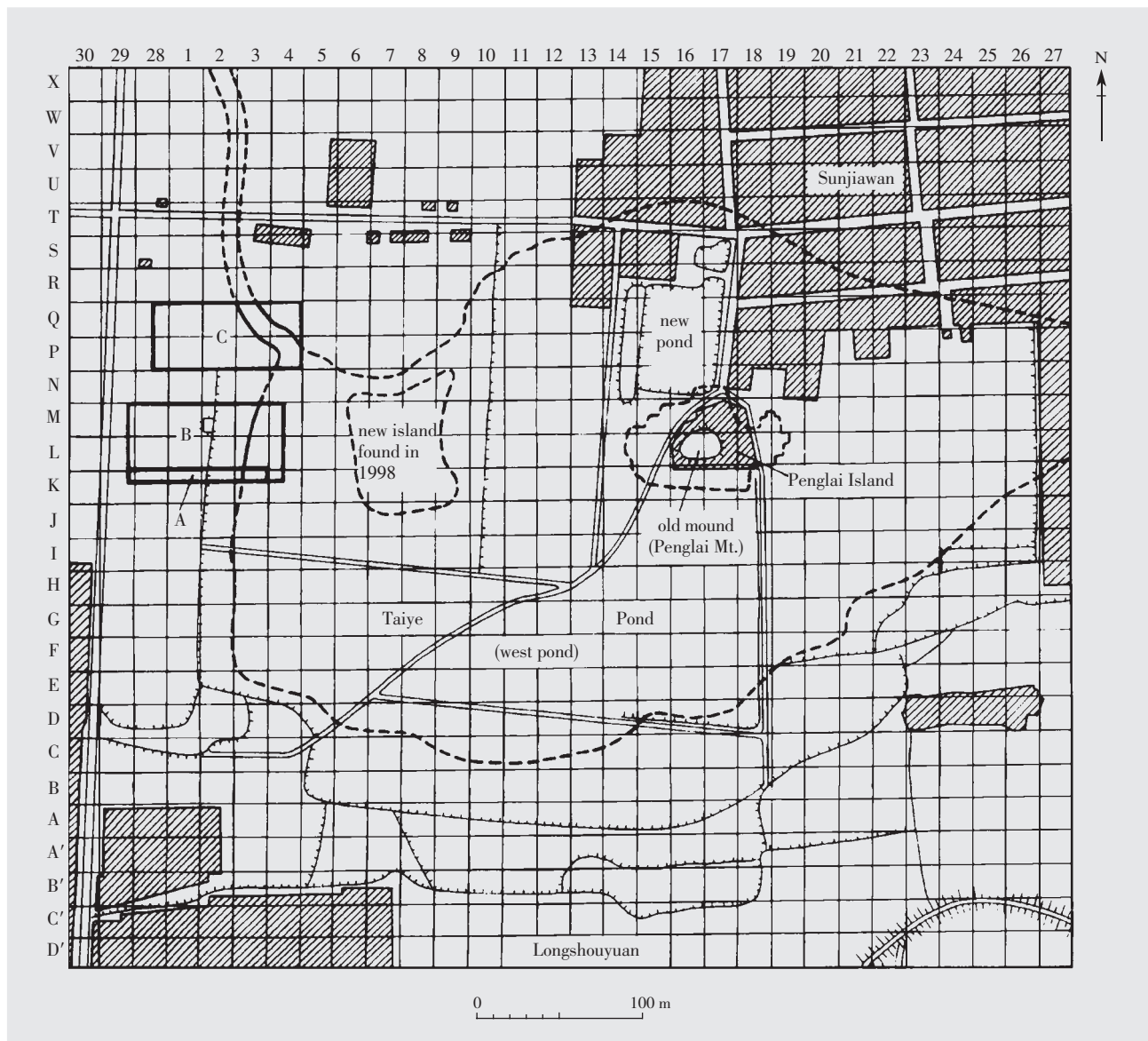


Fig. 2 Location of the excavated area in 2001–2002 of the Taiye Pond site

A. test excavated area in the autumn of 2001 B. excavated area in the spring of 2002 C. excavated area in the autumn of 2002

II. The Excavated Remains

Cultural remains exposed by the excavations include the bottom and the banks of the pond; roads on the banks of the pond, trash pits, architectural remains, drains, and the channel that carried water into the pond (inflow channel) along with attached structures (Figs. 3–6).

1. Pond bottoms, banks, and bank structures

A few pieces of Tang bricks and tiles, rocks, and snail shells were found in the dark grey mud at the bottom of the pond. The pond tilts slightly near its bottom. The shape of the banks is sloped; they go from 3 to 6 m thick. At the base of the slope we found rows of post holes; wooden posts were probably used to protect the retaining walls of the pond.

For further investigation of the banks' structure, we dug several trenches into the banks. The trenches show that the width of the west bank is 70 m from east to west, and constructed of stamped earth. Based on the types of the earth and structures, the stamped earth bank can be divided further into three joined sections from the east to the west. The east section of the bank is about 25 m long, and constructed of pure loess earth mixed with a small amount of mud from the pond bottom. On top is a road beside the pond. The middle section of the bank is 25 m long and constructed of yellowish brown earth mixed with charcoal and pieces of broken tile. On the top remains of a house was found. The west section of the bank is 15 m long, and constructed of pure loess. On top, the remains of a covered walkway were found. At the bottom of the west and east sections was a layer of bricks, tiles, and slabs; under this layer was light grey mud.

West of the bank was a deposit of unstamped loess; on top of the loess deposit, we found drains and stone column bases.

2. Roads

Three roads, with the remains of wheel marks on their dirt surfaces, were found (L1–L3). L1 is the grand road, 15–25 m wide, next to the west bank, running southwest to northeast. L2 is located between the covered walkway and the drains, running in the same direction as L1 and continuing northeast beyond the excavated area. The known width of L2 is 6.5 m. L3 is found on the northwest corner of the pond, on the south bank of the channel where water entered. It runs east to west, and the remaining section is 11 m wide. Based on the wheel marks, the three roads were connected with each other.

3. Trash pits west of the grand road next to the pond

Along the west side of the grand road were a line of 15 trash pits dated to the Tang era (H10–H24). The shape and depth of the pits varies. Some of the pits have bricks laid around the pit walls; at the bottom of such pits are the remains of calcium deposited from the water. Those were probably leach fields. Some other shallow pits contain calcium deposits, they probably were pits for trees or plants.

4. Houses

The remains of a total of five houses were found (F1–F5). Based on the stratigraphy, the houses were built in two different periods.

Early houses: two of the houses (F4, F5) have been identified as early buildings. The remains of F4 include 7 square stone column bases, several pits and holes for columns, and on the east side a retaining wall of stamped earth (Fig. 7). The distance between the stone column bases is different: from east to west the distance is 4.05 m, while from north to south the distance is 3.7 m. From this we can learn the width and depth of the rooms of the house. The remaining stamped earth wall is 0.05–0.7 m high and 2–2.5 m wide at the base. The remains indicate that house F4 opens to the west, had a single room. The roof of the house was single-sloped, and covered a linear veranda running northeast to southwest.

House F5 is about 6 m north of F4. This house is poorly preserved with only 4 square stone column bases and several post pits remaining. The remains of F5 indicate that the house was 4.1 m wide and 3.7 m deep. It had two verandas, one each on the southeast and northwest. Because of later disturbances it is unclear whether or not F4 and F5 were once connected to each other.

Later houses: three of the five houses have been identified as later constructions. All of them (F1–F3) are vernacular buildings. The damage to the houses is substantial: F1 was left with only a few bricks from the walls of two rooms at the corners; all that remains in house F2 are 6 square or rectangular stone column bases and a few bricks from the four side walls of the building. F2 sits on the north and faces south, tilting slightly to the southwest. F3 is 2.5 m north of F2; it also sits on the north and faces south. The remains of F3 include 4 bricks on the southwest corner, 3 stone column bases on the southeast side, and a dent from a column base.

5. Drainage system

The drainage system has major and branch channels.

The main channel (G1) is located in the western section of the excavated area, running northeast to southwest. The known measurements of the channel

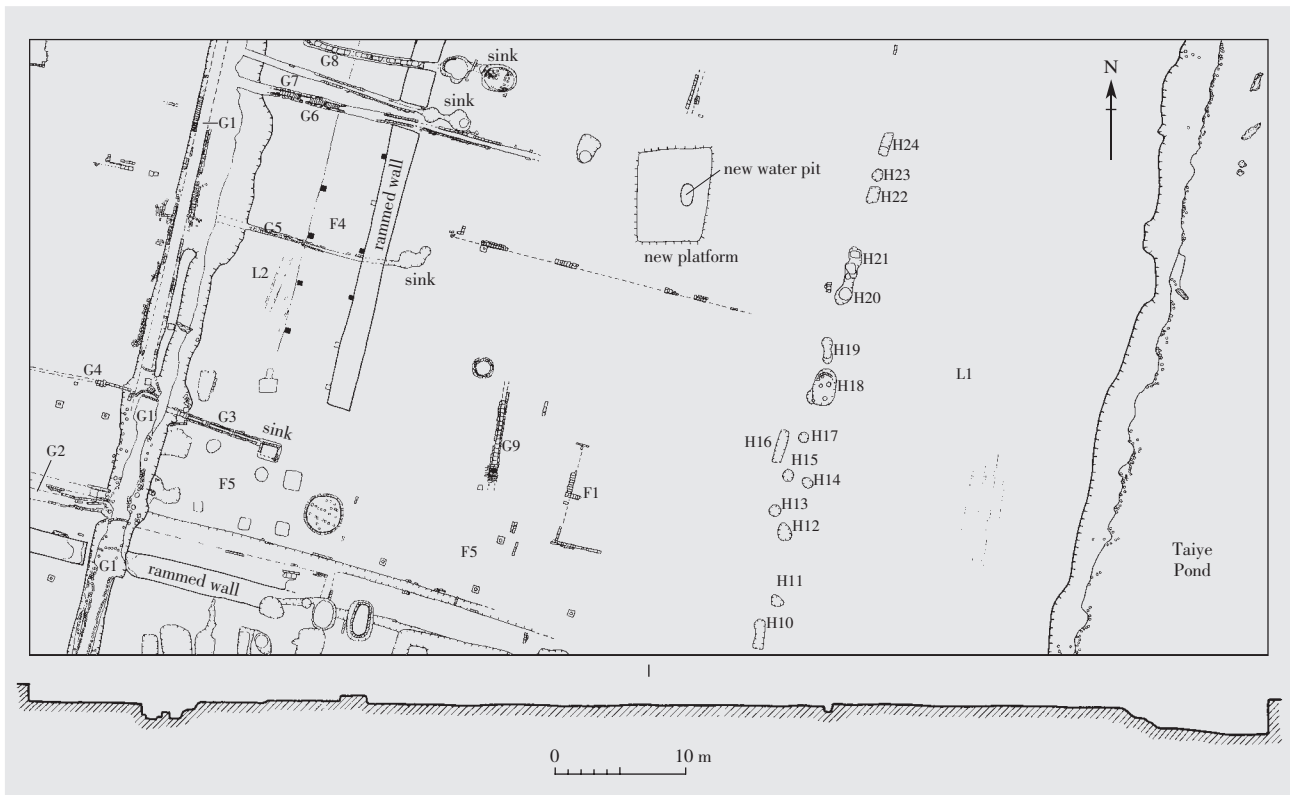


Fig. 3 Plan and cross section of the excavated area of the Taiye Pond site in the autumn of 2001 and the spring of 2002



Fig. 4 The excavated area of the Taiye Pond site in the autumn of 2001 and the spring of 2002

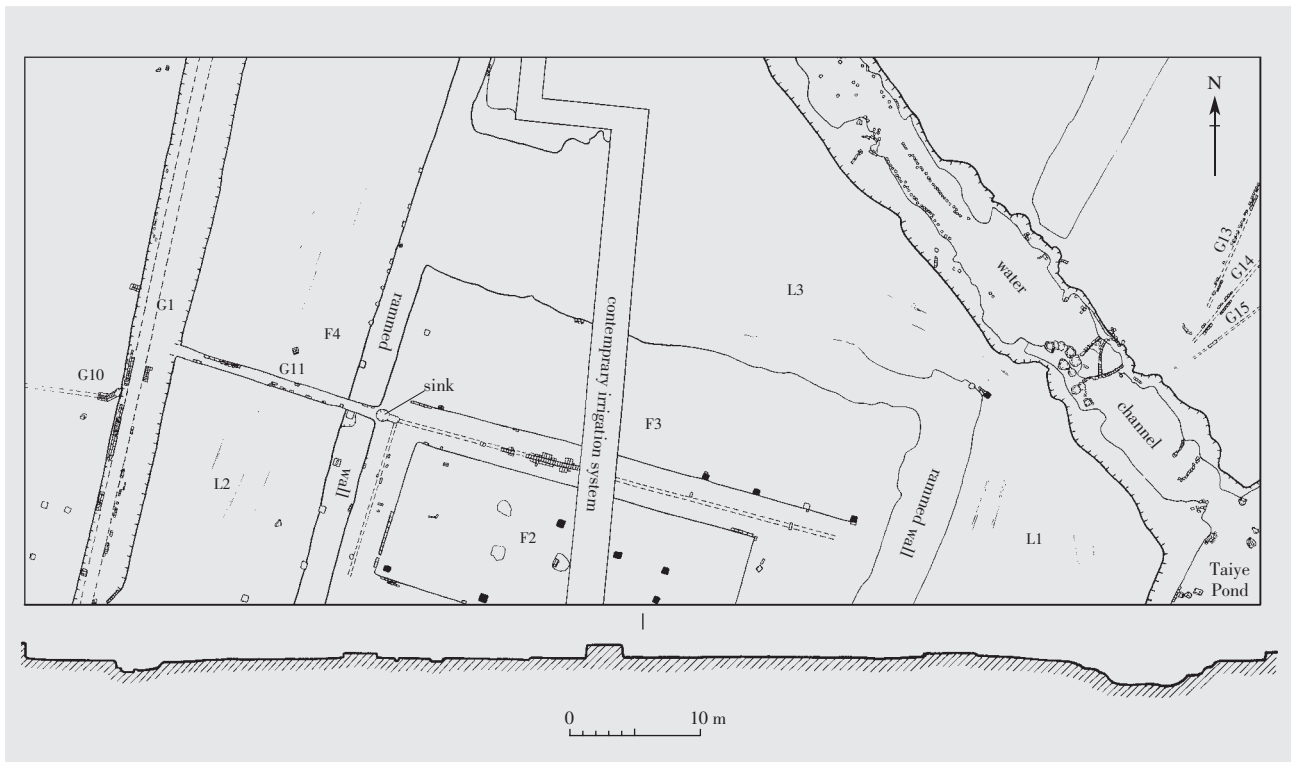


Fig. 5 Plan and cross section of the excavated area of the Taiye Pond site in the autumn of 2002



Fig. 6 The excavated area of the Taiye Pond site in the autumn of 2002



Fig. 7 Covered walkway F4 (photo taken from south to north)



Fig. 8 Drainage channel G1 (photo taken from south to north)

are 98 m long and 1.2–1.5 m wide. From the bottom of the channel to the top is 0.76–1.18 m (Fig. 8). The northern part of the bottom of the channel still has bricks along the two side walls, with 0.85 m between the walls. The side wall on the west is still vertical, but on the east the wall is sloped due to damage. No bricks are preserved on the flat bottom of the channel. On the southern part of the channel, we found post holes along the side walls; the posts were probably used for supporting the two walls. It is also possible that once a bridge or culvert was built there. We found also four brick walls crossing the southern part of the channel; it is difficult to understand the functions of these walls. From the surface level of the channel, water was drained from north to

south.

The side channels (G2–G11). On the east and west side of the main channel are 10 side channels. The side channels are lined with either bricks or roof tiles. Among them, G2, G4, and G10 are on the west side, and the rest on the east side. They are perpendicular fashion connect to the main channel. Some of them have leach fields at the end.

6. Inflow channels and water barrier

The earlier of the two inflow channels (Q2) was found under the later inflow channel (Q1) buried by mud. Two parallel lines of post holes were found, and they were probably used to support the channel walls. The distance between the post holes is 1.5 m, and the channel as excavated is 16 m long. Compared to the later channel, the earlier one is narrower and more precisely constructed.

The remains of the earlier channel also include rocks that line up in a semi-circle. The bottoms of the rocks are buried in mud from a later period, indicating later use of the early structure.

The later channel is located at the northwest corner of the pond, running southeast to northwest. The remaining width is 1.2–8 m and the

depth is 1.61–1.96 m. The winding channel walls are made of stamped earth; the north wall is vertical and south wall sloping. The channel is filled with dark-colored dirt along with a great deal of broken bricks, pieces of tiles, porcelain shards, and snails.

The water barrier was found inside of Q1, about 13 m southeast of the opening of the inflow channel. It is constructed of three brick walls and 9 oval-shaped boulders. The 9 boulders stand in a semi-circle along the south bank of the channel. North of the boulders a single vertical wall connects the north and south banks of the channel, and there are two supporting walls next to the vertical wall. A square-shaped rock with a round hole was found at the bottom of the vertical wall. At the

bottom of the three walls was grey colored silt, and underneath the silt were broken floor bricks and slabs. This whole structure was probably used for incoming water. Based on the building materials and the method of construction, this water barrier was built in late Tang, before people abandoned the channel.

In addition to the water barrier, we found remains of two short stone walls near the inflow channel. They were obviously used for slowing down the incoming water.

III. Cultural Remains

Cultural artifacts found in the late Tang stratum include bricks, tiles, and objects made of ceramic, stone, iron, and bronze. Coins were also found (Figs. 9 and 10).

Bricks and tiles are the main artifacts. These include regular and square-shaped bricks, flat tiles, tubular tiles, eile-ends, and ridgeline ornaments. Hand prints are found on some of the rectangular-shaped bricks, others have in-

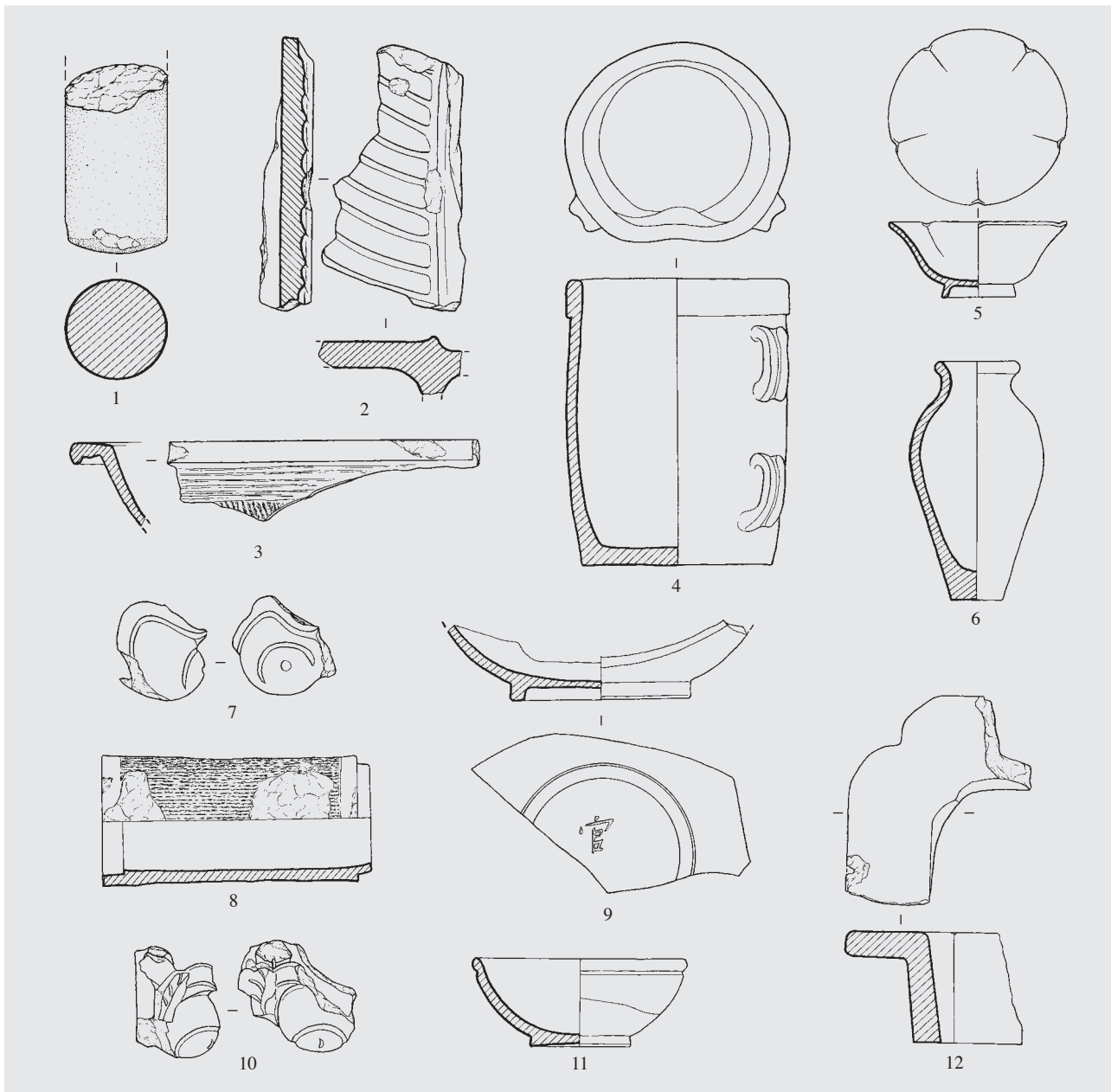


Fig. 9 Unearthed objects

1. stone pillar (T28④:46)
2. ceramic ridgeline ornament (T3Q4:26)
3. ceramic *weng* urn (T2M④:11)
4. ceramic water container (T4L④:29)
5. porcelain type C bowl (T29L④:14)
6. ceramic *guan* jar (T4L④:26)
- 7, 10. ceramic animal's eye (T3Q④:28, 29)
8. ceramic pipe (T28M④:29)
9. porcelain bottom of bowl (T28L④:27)
11. porcelain type A bowl (T1M④:93)
12. stone flowerpot (T28K ④:52) (scales: 3, 8, 1/10; 9, 2/5; the rest 1/5)

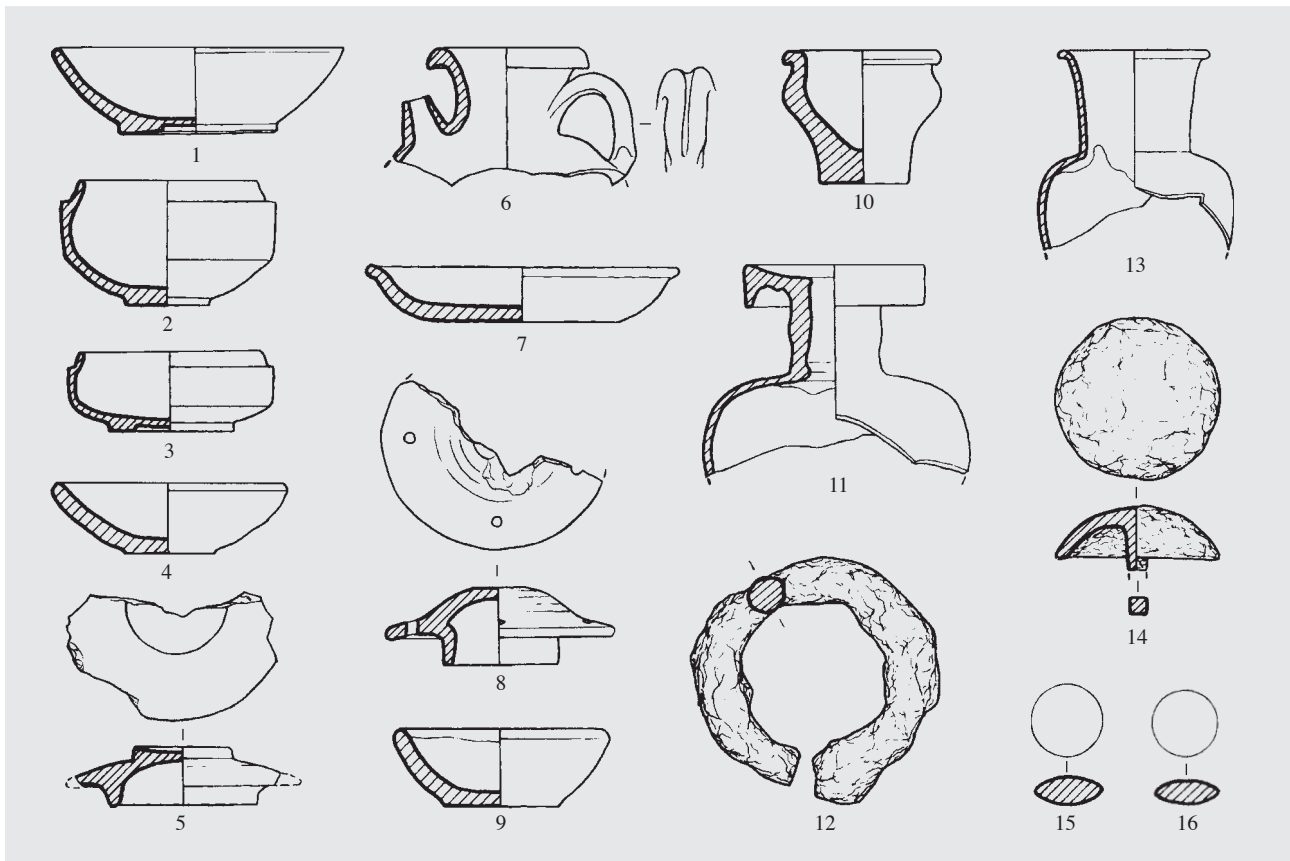


Fig. 10 Unearthed objects

1. porcelain type B bowl (T3K ④:12) 2, 3. porcelain round containers (T28M ④:36, T1M ④:98) 4, 9. glazed ceramic cups (T4L ④:27, T1L ④:71) 5, 8. glazed ceramic lids (T3Q ④:33, 32) 6. porcelain pitcher (T28K ④:88) 7. porcelain plate (T1L ④:78) 10. ceramic *guan* jar (T1L ④:60) 11, 13. ceramic tri-color jugs (T1L ④:94, 93) 12. iron ring (T4Q ④:51) 15, 16. stone go (T28M ④:51, 61) (scales: 2, 15, 16. c. 1/2; the rest c. 1/4)

scriptions of craftsmen's names, the date when the bricks were manufactured, and names of the kilns. For example “*Jiang Zhao Ji* 匠赵吉”(Craftsman Zhao Ji), “*Zuo ce ren wu* 左策壬午”(Zuoce made this in the Renwu year), “*Liu wang guan zhuan* 六王官砖”(brick made by official kiln of Liuwang) (Fig. 11), and “*Shi yao* 使窑”(Shi kiln). The dominant decoration of the square bricks is lotus flowers; the rest are decorated with divine animals and grapevines, four leaves, vines and flowers (Figs. 12–15), round flowers, and geometric patterns. The flat tiles are yellow glazed or unglazed; some of them are specially dyed, so that their surfaces are shiny and black. Some flat tiles bear the prints of craftsmen's and kiln names. For example “*Jiang wang gong yue* 匠王公约” (Craftsman Wang Gongyue), or “*Tian ba an men guan wa* 天八安门官瓦”(roof tile made by the official kiln of Anmen in the 8th year of Tianbao). Some of the tubular tiles are made of tri-color ceramic. Most of the eaves tiles are decorated with lotus flowers; only few have animal heads (Figs. 16–19). The ridgeline ornaments are mostly in the shape of a bird's tail.



Fig. 11 Rectangular shaped brick with inscriptions (T4Q ④:17)



Fig. 12 Type BII square brick with lotus pattern (TIM ④:31)



Fig. 13 Square brick with divine animals and grapevine pattern (T29L ④:5)



Fig. 14 Square brick with four leaves pattern (T4Q ④:3)



Fig. 15 Square brick with vine pattern (T4Q ④:1)



Fig. 16 Type AIII tile-end with lotus pattern (TIM ④:18)



Fig. 17 Type BV tile-end with lotus pattern (T28K ④:10)



Fig. 18 Type CV tile-end with lotus pattern (T4L ④:5)

Most of the ceramic objects are broken and are all made of gray clay; they include pipes, water containers, *guan* 罐 jars, and *weng* 瓮 urns. The porcelain objects are mostly white porcelain, including bowls, plates, pillows, round containers, and pitchers. Some of them bear “*guan* 官” (Official) marks and the pillows are valuable.

The stone objects include pillars, flower bowls, and *go* pieces. The metal objects are nails, ornaments, and coins of the “*Kai yuan tong bao* 开元通宝” and “*Qian yuan zhong bao* 乾元重宝”. Shells and white mural plaster with red paint were also found.

IV. Conclusion

The Taiye Pond was constructed either at the same time or a bit later than the Daming Palace. The Daming Palace was constructed in the 8th year of Zhenguan 贞观 reign period (634) and expanded in the 2nd year of Longshuo 龙朔 (662). In 663, the Tang court moved from the old palace to the Daming Palace. Therefore, the construction of the Taiye Pond was no later than 662.

The Taiye Pond was apparently abandoned during the late Tang. The following events most likely damaged and finally destroyed the pond and garden. In the 13th year of Zhonghe 中和 reign period (883), the Huang Chao 黄巢 rebels entered Chang’an city, burned many palaces, temples, monasteries, and government buildings. In the 3rd year of Qianning 乾宁 reign period (896), Li Maozhen 李茂贞 led another military force went into the capital and burned some palaces. Again in the 1st year of Tianfu

Note: The original report, published in *Kaogu* 考古 2003.11: 4–17, with 16 illustrations and 5 plates, is written by Gong Guoqiang 龚国强 and He Suili 何岁利. The summary is prepared by the first author and English-translated by Suzanne Cahill and Ye Wa 叶娃.



Fig. 19 Tile-end with animal’s head pattern (T1L ④:7)

天复 reign period (901), Han Quanhui 韩全海 burned Chang’an palaces; and finally in the 1st year of Tianyou 天佑 reign period (904), Zhu Wen 朱温 forced Emperor Zhaozong 昭宗 to move the capital to Luoyang 洛阳, and destroyed the rest of the palaces, official buildings, and people’s houses, and Chang’an city was left in ruins. From historical sources describing these events, we know that the Taiye Pond was finally abandoned no later than 904.

After several excavations on the west bank of the Taiye Pond, questions about the pond bank construction, roads, buildings, and water systems for inflow and drainage are answered with satisfaction. For years the functions of the two channels found at the east and west end of the Taiye Pond during the 1950s survey were unclear, and archaeologists could not figure out which of the two channels was used as inflow and which for drainage. This question is finally answered after the recent excavations. Based on the study and measurements of the strata in the west channel, we found that the silt deposits slop from the northwest to the southeast. Thus the west channel was used as inflow and the east channel (now under modern structures) was used for draining.

It is also worth to pointing out that F4 and F5 are probably the remains of the covered walkways built in the 12th year of Yuanhe 元和 reign period (817) by Emperor Xianzong 宪宗. According to *Jiu Tangshu* 旧唐书 (Old History of the Tang), in the 12th year of the Yuanhe reign period, Emperor Xianzong built covered walkways with 400 rooms along the Taiye Pond.