

Palatial Garden Pond of the Early Shang

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Key words: walled site Shang Yanshi Zhengzhou royal garden pond

Archaeological Discoveries of Artificial Ponds and Canals in the Palaces of Early Shang

To date, structural remains of artificial pond and canal in the palatial areas of the early Shang are seen in the walled sites at Yanshi 偃师 and Zhengzhou 郑州.

In 1986, the remains of an artificial pond was revealed in the walled palatial precinct of the Shang walled site at Zhengzhou. It was then mistakenly identified as the remains of sacrificial rituals of the Warring States period. During the second season of excavation in 1992, archaeologists rectified that the remains were those of a man-made pond of the early Shang. At the same time, the possible remains of a connecting canal were discovered.

The features of canal and pond of the walled palatial precinct of the Shang site at Yanshi were discovered in a sub-surface survey in the winter of 1998 and the spring of 1999. Subsequent excavation, conducted between 1999 and 2000, fully revealed the pond and the connecting canals in the palatial precinct.

Location, Structure and Functions of the Palatial Pond and Canals of the Shang Walled Site at Yanshi

The walled palatial precinct of the Shang walled site at Yanshi is located in the southern part of the site. The plan of the precinct is very close to a square with each side measures about 200m. The walled precinct was partitioned into three major areas. The southern area was the palatial district, occupied by a dozen or so large rammed earth structures. The central area was the ceremonial district, occupied by structures for different rituals. Finally, the northern area was the royal garden, which was built around a large man-made water pond. The garden, occupying about 10,000 sq m, was clearly defined by the circumferential walls of the palatial precinct in the east, west and north sides.

The rectangular-shaped pond was located in the center of the royal garden. It measured about 130m from east to west, 20m from north to south, and 1.4m deep. The now collapsed wall of the pond was lined with natural stones. The east and west walls of the pond were connected to canals lined with sandstones. The canals apparently had been rebuilt at least once. The first construction of the water channels was larger that measured about 3m wide and 1 to 1.4m deep. It was later rebuilt to a reduced width of 0.4–0.6m. The east canal was covered with stone slabs and thus became underground channel. The west canal was not covered and remained an open-air waterway. A stone bridge was built across the west canal. The present elevation of the mouth of the west canal is about 0.5m higher than that of the east canal, indicating the west canal was the supply line, wherein the east canal was the drainage line. The canals extended and went through the outer fortification wall of the settlement at the gates and connected to the moat that enveloped the settlement. A circulation system was thus formed that water of the west moat flowed through the palatial precinct and eventually emptied into the east moat (Figure 1).

The landscape of the walled palatial precinct was dominated by rows of grandiose towering structures, which created a sense of solemnity and majesty. However, it was also suppressing and even suffocating. The reflecting water in the northern part of the palatial precinct, in contrast, was heartening and refreshing. Fragrances from the various flora planted in the open space of the garden were intoxicating. This was where the Shang king relaxed in his past time. The garden was the most natural and lively setting within the walls of the palatial precinct.

The pond is deposited with relatively thick silt that contains large number of snail shells, indicating the pond had been used for a long time. The pond yielded net sinkers made of white marble and grey pottery, suggest-

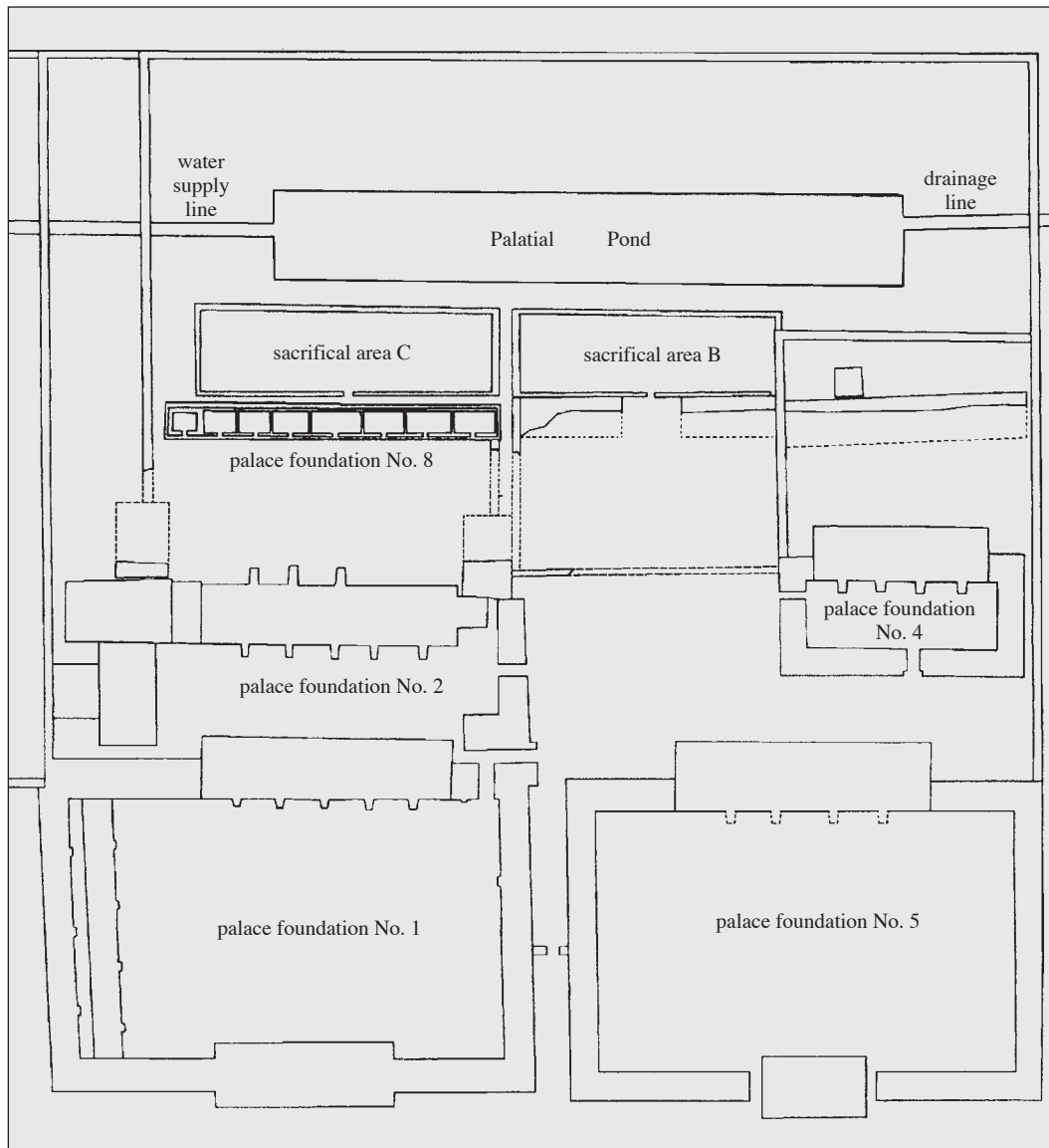


Figure 1. Schematic map of major remains of phase 3 in the palace city of Shang walled center at Yanshi

ing fish was active in the pond and the Shang king entertained himself with sport fishing.

Contemporary wells had been discovered to the south of the pond. Their existence implies that the main function of the pond was not to supply daily water to the people. Yet, the pond could have helped to maintain a high water table. It would be convenient to use the pond for washing and irrigation as well. In addition, the pond could be handy in fire fighting.

The other function of the pond was ice-making. In ancient China, ice was used for refrigeration of food, and even dead body. Officials were commissioned for these specialized tasks in the palace. Well-dug, large, circular and rectangular cellars were found on the south bank of the pond. Post holes were found on the mouths

of these cellars. Perhaps they were the ice storerooms for the Shang king.

Location, Structure and Functions of the Palatial Pond and Canals of the Shang Walled Site at Zhengzhou

The walled palatial precinct of the Shang walled site at Zhengzhou is located in the northeastern part of the site. It occupies an area of about 800m east-west and 500m north-south. Rammed earth foundations of various structures are densely distributed in the precinct. Some of them have been identified as palaces. A large stone-lined artificial pond is located in the northeastern part of the precinct. In close vicinity of the pond is an area that

has the highest density of palatial structures. To date, no large scale rammed earth foundation comparable to those identified as palatial structures has been discovered in between the pond and the north perimeter wall of the site (Figure 2).

The stone-lined pond at Zhengzhou is approximately oriented southeast to northwest. Its rectangular plan measures about 100m east-west and 20m north-south. The bottom of the pond is evenly lined with stone slabs, wherein the walls are lined with pebbles.

The canal found in the palatial precinct is an under-

ground waterway. Its squared cross-section is about 1.5m on each side. More than 30m of the canal has been excavated (terminus of the waterway has not been found). In addition, shaft-like facilities are found on the canal in constant intervals (Figures 3 and 4).

The excavators of the site argue that the stone-lined artificial pond and canal at Zhengzhou was “a large-scale reservoir that supplied water to the palatial precinct.” This author disagrees. Labeling the pond as a reservoir for the palatial precinct might have masked other but more important functions of the pond. A number of wells have been found in the palatial precinct. Wells could have adequately supplied the daily water consumption of the precinct. The presently available data suggest that the stone-lined pond and canal of Zhengzhou were hydraulic facilities identical to those at Yanshi. They

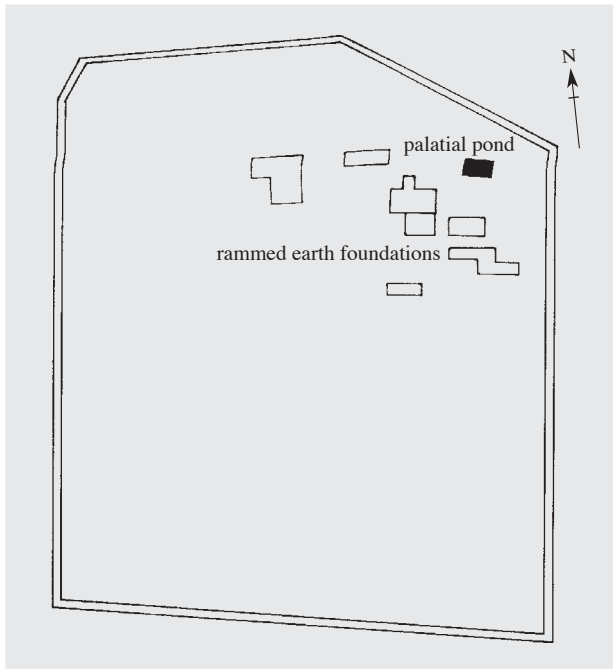


Figure 2. Schematic map of rammed earth foundations and pond in the palace city of Shang walled center in Zhengzhou

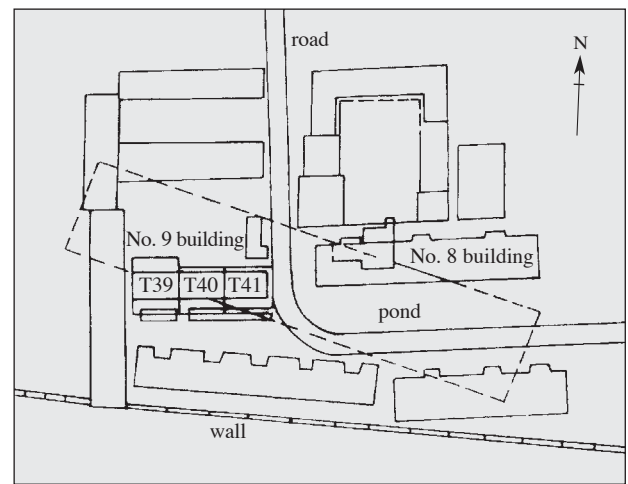


Figure 3. Schematic map of the pond in Shang walled center in Zhengzhou

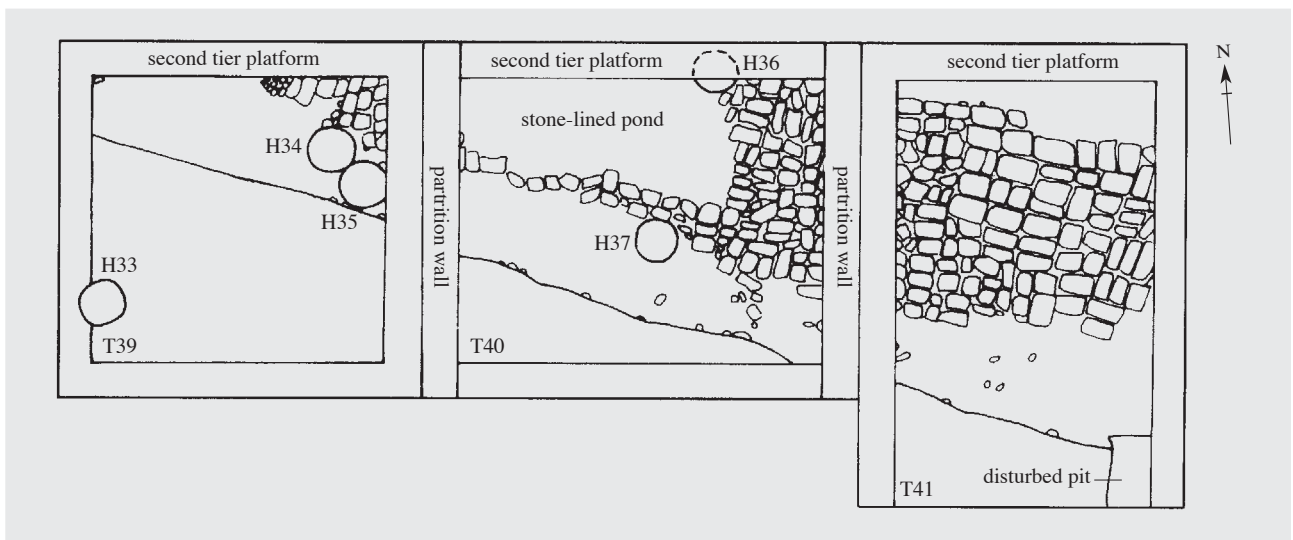


Figure 4. Part of pond in Shang walled center in Zhengzhou

bore the same functions as that of Yanshi discussed above. They were components of the man-made landscape that created a relaxing environment, raised the water table, and supplied water and ice.

Comparison between the Hydraulic Facilities of Yanshi and Zhengzhou

Location

The stone-lined pond of Yanshi is located to the north of the walled palatial precinct. Recent archaeological information indicates that a number of sizeable rammed structures are located to the west and south of the walled precinct. The area to the west is most outstanding in both number and size of the rammed structures. They were fortified with walls like the presently known palatial precinct. We therefore conclude that the palatial area of Yanshi should have comprised the excavated walled precinct, its west and its south. The artificial pond of Yanshi, therefore, is located in the northeastern part of the palatial area.

Several scholars have pointed out that the distribution of the large rammed structures of the palatial precinct at Zhengzhou is densest in the northeast and sparse in the southwest. The stone-lined pond is located in close vicinity to the densest area. In all, the stone-lined pond at Zhengzhou is located in the northeastern corner of the palatial precinct.

The locational similarity between the two artificial ponds is striking. Both are located in the northeastern corner of the palatial area. This is not a coincident. In fact, they share characteristics in the design of the palace and garden.

Form and structure of the pond and canal

The humanly-dug ponds at Yanshi and Zhengzhou are similar in their rectangular plans and dimensions. Both were lined with naturally formed stones. The Yanshi pond had both the supply and drainage channels. Stone slabs were used to cover the drainage channel. Like the Yanshi pond, the Zhengzhou pond was not a pool of still water. The excavated stone-lined water channel was related to the pond. The ponds and canals of the two sites are similar in form, scale and structure. These similarities are indicative of the close cultural relationship between the two sites.

Date

Excavation at Yanshi yielded evidence of rebuilding of the east and west canals. The earliest Shang ash pits that intruded the top of the canal are relatively dated to

phase II section 4 of the Yanshi Shang Culture, marking the *terminus ad quem* of the rebuilding of the canal. We have obtained the following stratigraphic relations of the Yanshi pond: a. The cultural stratum, ash pits and wells superimposed on or intruded the pond are determined to be phase III section 6 of the Yanshi Shang Culture; b. Fragments of pottery shards recovered from the cracks of the stone lining are determined to be shards of phase II section 4 to phase III section 5 of the Yanshi Shang Culture; c. Pottery shards recovered from the ash pits intruded by the pond are identified as to those of phase II section 4 of the Yanshi Shang Culture. These several lines of evidence suggest that the excavation of the pond was no earlier than phase II section 4 of the Yanshi Shang Culture and its abandonment was no later than phase III section 6 of the Yanshi Shang Culture. However, analysis of other data about the palatial precinct and pond suggests that the first construction of the pond should be as early as phase I of the Yanshi Shang Culture. First, during the excavation of the northwestern corner of the pond, we recovered a fragmentary section of “stone embankment” used to reinforce the opening of the pond. Similar stone structures were seen in the north and south banks of the early drainage channel. Second, the pond is located in the center of the northern part of the walled palatial precinct. It is 25m from both the east and the west walls of the phase I walled precinct, 50m from the west wall of the phase II walled precinct, and finally more than 70m from that of the phase III walled precinct. Apparently, the pond was specifically designed for the palaces of phase I. We therefore tentatively argue that the Yanshi pond was first built during phase I of the Shang Culture.

The stratigraphic relations of the stone-lined pond in the palatial precinct of Zhengzhou are as follows: The pond superimposes on stratum 6, a layer of Upper Erligang deposit of the Shang. The canal was laid on stratum 7. It cut into the rammed earth foundation of stratum 8, a layer of Upper Erligang deposit. Pottery shards yielded from stratum 8 and stratum 6 are that of the early Erlitou phase (corresponds to section 6 of the Yanshi Shang Culture). We therefore determine that the construction and use of the stone-lined pond at Zhengzhou is dated to phase I of the Upper Erligang Shang Culture, which is contemporary to phase III section 6 of the Yanshi Shang Culture.

An intriguing observation emerges when comparing the relative dates of the Yanshi pond and Zhengzhou pond: the abandonment of the Yanshi pond synchronized

with the construction of the Zhengzhou pond. The abandonment of the former and the emergence of the latter occurred during phase III section 6 of the Yanshi Shang Culture (corresponds to the later half of phase I of the Upper Erligang Culture at Zhengzhou). This was exactly the time when the walled fortification at Yanshi stopped existing as the capital of the Shang polity. At the same time, Zhengzhou dug the pond in the walled palatial precinct and erected several new palatial structures. This is indicative that the center of gravity of the Shang Culture had shifted from Yanshi to Zhengzhou. We should not overlook the historical message contains in the archaeological phenomenon. The abandonment of the pond as well as the entire walled settlement at Yanshi and the simultaneous construction of the pond and the prosperity of Zhengzhou perhaps are the archaeological reflection of the event “[King] Zhongding 仲丁 relocated [the capital] to Ao 囂” in Shang history.

The Origin and Significance of the Palatial Ponds and Canals of Early Shang

The artificial ponds and water systems of the two Shang walled sites at Yanshi and Zhengzhou were ingenious hydraulic designs. Perhaps there was a developmental phase predated their constructions.

According to *Wuyue Chunqiu* 吴越春秋, “Build the inner wall to protect the ruler; build the outer wall to settle the people.” Yet, the building of the wall, to a certain extent, is building a barrier disrupting the intimate relationship between human and nature. It is particularly true to the king, who lives in the palace and seldom ventures beyond the many layers of walls. In case when he ventures out, an entourage must follow. It is rarer for the queen and the concubines to have the opportunity to venture beyond the palace wall. Garden specifically designed for the royal family household emerges. Palatial garden, therefore, was the by-product of the civilized society–city and state.

According to the classical texts, the ruler who built the first royal garden pond was Jie 桀 of the Xia.

According to *Yi Zhoushu* 逸周书, Jie excavated “a large pond.” Other classical texts, such as *Hanshi Waizhuan* 韩诗外传, *Lienü Zhuan* 列女传, *Xin Xu* 新序, and *Diwang Shiji* 帝王世纪, document that Jie built a “liquor pool.” Therefore, construction of royal artificial pond in China could be traced back to the times no later than the late Xia.

According to the written classics of ancient China, artificial pond and canal were located in the vicinity of imperial palaces, or the palaces themselves were located on the lakeshore. To date, the remains of more than a dozen ponds and canals of ancient capitals have been revealed by archaeologists. The artificial ponds and canals at the walled sites of the Shang in Yanshi and Zhengzhou are two of the earliest archaeological examples. The excavation of pond and canal to create an artificial landscape for the royal palace has a history of at least 3500 years.

The discoveries of artificial ponds and canals at the Shang walled sites at Yanshi and Zhengzhou are significant in several areas. For example, they have substantially enriched the contents of palatial culture of the Shang and widened the archaeological study of the Shang. They provide invaluable material for the study of the Shang society, the palatial design of ancient China, and the development of hydraulic engineering.

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Notes: The original paper, published in *Kaogu* 2006.11: 55–65 with four figures and one table, is written by Du Jinpeng 杜金鹏. This summary is prepared by the author himself and English-translated by Lee Yun-Kuen 李润权.