

Palatial Garden Pond at the Shang City in Yanshi, Henan

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Key words: Shang city at Yanshi palatial garden pond

In the spring seasons of 1999 and 2000, we conducted comparatively large-scale excavations of the garden pond in the northern part of the palace district of the Shang city in Yanshi 偃师, Henan 河南. Covering an area of over 6000 square meters, the excavations uncovered traces of a pond and waterways, among other

remains (Figure 1).

The strata accumulated in the pond district are relatively simple and pure. They can be divided into 6 layers, the deepest of these lying at about 4m. The first and second layers consist of plowed earth and sediment; the third dates to the Ming, Qing, and Republican eras; the fourth is from the Tang and Song eras; the fifth is from the Han and Six Dynasties eras; and the sixth dates to the Eastern Zhou era.

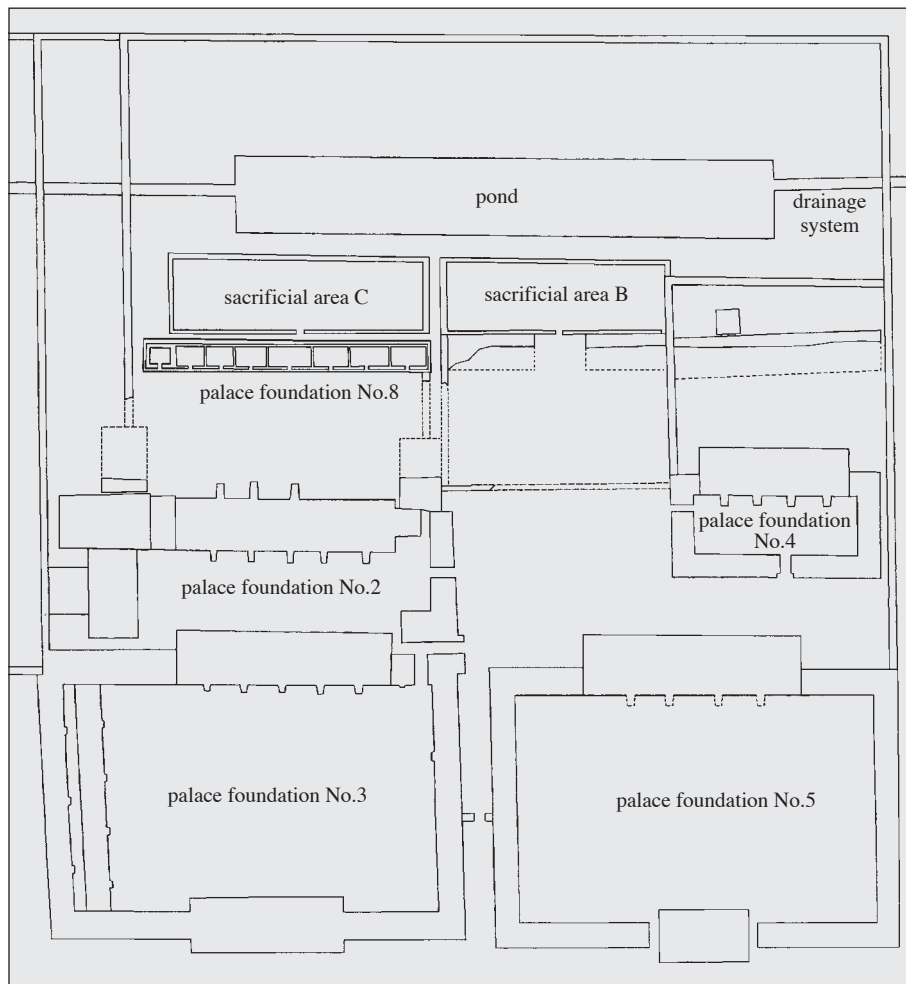


Figure 1. Schematic map of major building remains of phase 4 at the Palace city of Shang walled center in Yanshi

The Pond Ruins

The pond was located in the middle of the residences in the north section of the palace, 25m from the eastern palace wall and 25–7m from the north palace wall. It formed an inverted trapezoid shape oriented to 101 degrees (based on the north wall). Its basic form was that of a rectangular, dipper-shaped pit, the four walls lined with stones of varying sizes. Portions of the pit mouth had undergone varying degrees of erosion. The remaining part of the pit mouth measured 128m from east to west and approximately 19–20m from north to south. The four walls were gently sloped, and the central part of the pit bottom

varied from 1–1.4m in depth (on the basis of the nearby layers of naturally formed soil, the greatest depth of the pool can be fixed at 2m). The bottom was higher in the west than the east.

The stone walls had undergone extensive degradation. The stones of the mouth portion had already completely fallen away, and the west, north, and east walls, as well as the east portion of the south wall and the majority of the remaining portions of the lower half, could barely be made out, the fallen stones having for the most part formed loose piles near the walls (Figure 2). In order to preserve the remaining portions of the stone walls, the excavation project organized the upper layers of stones that had already fallen, as well as the fallen stones of the northwest corner and the middle portion of the north wall; the project also disassembled and analyzed the eastern portion of the pond. The surviving portions of the stone wall ranged from 0.4–1m in height. Based on these figures, the pond originally measured only 127m from east to west and 17.5–18.5m from north to south, and the stone wall was 0.5m thick. The ramparts of the stone wall were comparatively complete, their four cor-



Figure 2. Palatial garden pond (photo taken from west to east)

ners nearly forming right angles, and though the slope formed by the surface of the walls was generally greater than 90 degrees, certain portions were close to perpendicular. Moreover, a few small stones were arranged outside the southeast and northwest areas of the pond, spread along the border of the pond's mouth and measuring about 0.6–0.7m wide. Outside the northwest corner of the pond, the accumulation of small stones was comparatively dense and untidy. Dissection revealed the pile to be 0.4m thick, generally consisting of 2 layers, with certain areas containing 3 layers. The ramparts were constructed entirely from natural stones from Mt. Mang 芒山, to the north of the Shang city at Yanshi; most were whitish-gray in color and comparatively solid, with a few comparatively soft, red stones mixed in.

The eastern portion of the accumulation within the pond was divided into 4 layers. Layers 1 and 2 were distributed across the eastern portion of the pond. The relics these layers yielded fell into the middle (phase 6) and early (phase 5) phases of the third period of the Shang culture of the Shang city at Yanshi. Layer 3, dating to the late phase (phase 4) of the second period of the Shang culture of the Shang city at Yanshi, was distributed across the entire pond and formed a 3–4.5m belt around the pond's edges. This layer consisted of a mixture of large numbers of fallen stones, pottery shards, snail shells, and other materials. In particular, there was a complete layer of snail shells in the southeast corner. Because so many stones had fallen into this layer, the excavation did not reach the layer's bottom in the areas located along the sides of the pond. An additional fourth layer, consisting of greenish-gray sediment, lay beyond and beneath the stones lining the pond.

Ruins of the Western Waterway

The western waterway was located to the west side of the pond. The waterway arose from a moat outside the first western gate of the main body of the Shang city at Yanshi. Turning beneath the gateway road, it entered the north area of the palace compound and linked up with the pond. Excavation uncovered 54m of the portion lying within the palace compound. The floor and two sides were made up of stones. From west to east, the waterway passed through the second- and first-period enclosing walls of the palace compound (since sufficient excavations have not yet been conducted, this report will not touch on the relationship between the waterway and the third-period enclosing wall). Oriented

to 100 degrees, it proceeded basically in an east-west direction. Excavation made it clear that the waterway had undergone two periods of use. During the second period, the originally laid foundation was still used, but the central portion of the original waterway was reconstructed in smaller, narrower form (Figures 3 and 4).

The early waterway was 3m wide and almost 1m deep, with steep, straight walls and a layer of flat rocks spread across its floor. The stone walls lining it were 0.6–0.7m wide and 0.8–0.9m thick. The center of the waterway was 1.6m wide. The inner portions of the north and south walls, as well as the margins of the inner edges and the central area of the waterway, all had provisions for setting up pillars, beneath most of which were placed foundation stones. The floor of the waterway was quite even; according to measurements taken with a level, the height of the stones differed by no more than 10cm across the entire length of 54m excavated.

The reconstructed waterway was formed by fitting new stones snugly to the two walls of the original waterway. For the most part, the original stone walls retained their shapes, though a few sections were partially removed. After reconstruction, the waterway was 0.5m wide; the newly constructed stone walls were 0.45–0.5m wide and nearly 0.8m high. Where it passed through the first and second period western palace walls, the waterway was comparatively narrow, with slabs of stone covering it and comparatively large numbers of stone fragments atop it. This was particularly true of its intersection with the second period wall, at which a double-layered waterway was employed to strengthen security; stone slabs were placed in the middle as dividers, forming upper and lower levels. The upper was 0.2–0.3m high and the lower 0.3m high. The floor of the lower level was lower than that of the waterways on the two sides of the city wall. Except at the western palace wall and other individual locations, covering stones for the rebuilt western waterway were not discovered.

The internal stratigraphy of the western waterway consisted of 5 layers, mostly composed of accumulated silt; no items were excavated beyond a few snail shells.

Ruins of the Eastern Waterway

The eastern waterway was located on the east side of the pond. Arising from the east side of the pond, it flowed from west to east, crossing through the eastern palace wall before turning and following beneath the gateway

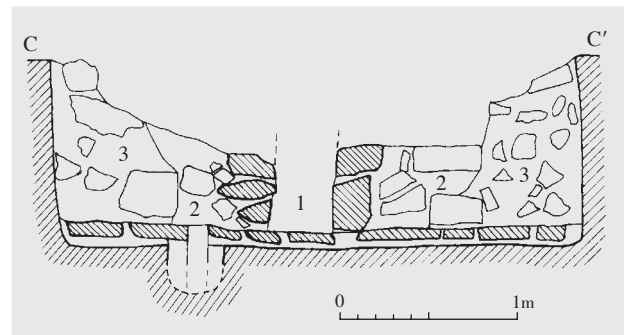


Figure 3. Cross section of the western waterway of the palatial garden pond

1. reconstructed waterway 2. reconstructed parts 3. stone walls of the early waterway



Figure 4. Part of western waterway (photo taken from west to east)

road of the first eastern gate to join up with the moat outside the eastern wall of the main city. The portion excavated within the palace compound was 32m long. The walls and floor were made up of stones. Excavation revealed that this waterway had also undergone two periods of use. The originally laid foundation was used during the second period, but the central portion of the original waterway was reconstructed in smaller, narrower

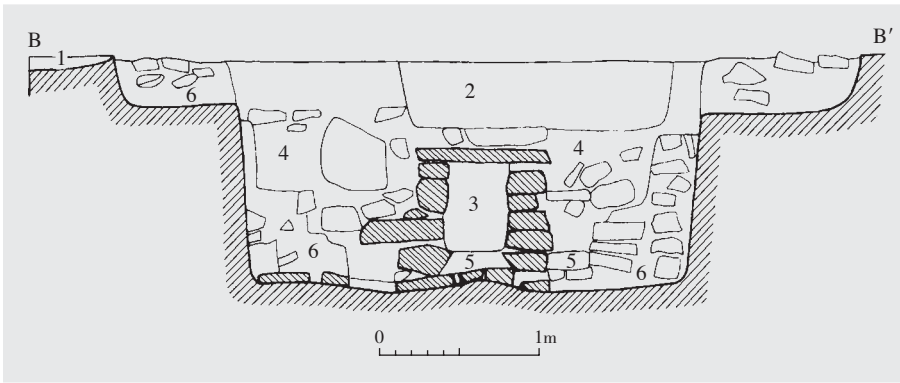


Figure 5. Cross section of the eastern waterway of the palatial garden pond
1, 2. ash layers 3. reconstructed waterway 4. reconstructed parts 5. silt in the early waterway 6. stone walls of the early waterway



Figure 6. Part of palatial garden pond and eastern waterway (photo taken from west to east)

form, and the waterway was concealed underground by covering the top with large stones that were in turn covered with soil (Figures 5 and 6).

The early waterway was 1.5m wide at the center and 1.4m deep. Its horizontal cross-section formed the convex shape of an inverted \square -shape; The upper portion was 4.65–4.80m wide at the mouth and 0.3–0.4m deep, while the lower portion was 2.7m wide and 1m deep. The floor of the waterway had been intentionally paved and packed and was covered with a layer of sheet rock; the stone walls lining the trough were 0.6m thick below and 1.3–1.5m thick above.

The eastern waterway was rebuilt similarly to the western one, except that the damage to the original stone of the walls was much more extensive. Cutting away the surface showed that the portion of the rebuilt water-

way lying inside the palace was 0.35–0.38m wide at the center and 0.5–0.6m deep, with stone walls measuring 0.6–1.2m thick. The layer of covering stones consisted mainly of stone strips generally ranging from 0.7–0.9m in length, the longest measuring 1.32m, with occasional triangular stones mixed in. The layer of soil atop the covering stones was 0.2–0.4m thick and had undergone minor processing. At the point of contact, the western section of the eastern waterway reached nearly 1m into the pond. When the waterway was rebuilt, the eastern wall of the palace was partially demolished and repaired after the reconstruction of the waterway was complete. The silt found within the eastern waterway consisted of two distinguishable layers.

Conclusions

1. Dating of the pond and waterways

Dating of the eastern wa-

terway

Refuse pit H211 dates to the later phase (phase 4) of the second period of the Shang culture of the Shang city at Yanshi. Since we hold that it was formed when soil was transported from another location to bury the stones covering the newly rebuilt waterway, the date of H211 should provide a *terminus post quem* for the reconstruction of the waterway. Refuse pits H201 and H203, also dating to the later phase (phase 4) of the second period of the Shang culture of the Shang city at Yanshi, intruded the north and south stone walls of the early waterway, respectively; this illustrates that the early waterway was abandoned no later than that period. At the same time, the rebuilding of the waterway was already complete, and the modified waterway had already been put into operation. Based on these points, the early

waterway must have been rebuilt during the later phase (phase 4) of the second period of the Shang culture of the Shang city at Yanshi.

Dating of the western waterway

Both the intake and outflow channels underwent initial construction and rebuilding. All signs indicate that they formed a combined system along with the pond, and so their initial construction and rebuilding should have been basically synchronous. The rebuilding of the waterway should therefore also date to the later phase (phase 4) of the second period of the Shang culture of the Shang city at Yanshi.

Dating of the stone-walled pond

The cultural remains intruded by the pond included refuse pits H241 and H219, located in the northeast corner of the pond, both of which dated to the later phase (phase 4) of the second period of the Shang culture of the Shang city at Yanshi. Judging from stratigraphic characteristics, we hold that the mounds of reddish-brown natural earth buried in pits H241 and H219 were probably deposited as relics of the process of constructing the foundation of the pool's northeast corner before the stone walls were installed. Of the refuse pits breaking into the pond, the earliest is H216, also dating to the later phase (phase 4) of the second period of the Shang culture of the Shang city at Yanshi. Analyzing based on its shape and stratigraphic characteristics, we hold that the accumulation contained in pit H216 was left behind by the strengthening of the pond's northeast corner. These points illustrate that the stone walls of the pond must have been installed during the second period of the Shang culture of the Shang city at Yanshi. Moreover, H241, H219, and H216 were all located in the northeast corner of the pond, their positions overlapping each other. Based on the assumption that the northeast corner of the pond underwent continuous reinforcement, it is possible that the terrain of this area was comparatively low and that nearby rainwater gathered here and flowed out into the center of the pond, thereby causing constant erosion of the northeast corner that necessitated its frequent repair.

The third layer of deposits in the pond was superimposed the stone walls. This layer, formed relatively early during the process of use following the installation of the stone walls, dated to the later phase (phase 4) of the second period of the Shang culture of the Shang city at Yanshi. This too demonstrates that the *terminus ante quem* for the beginning of use of the completed stone-walled pond was no later than the later phase (phase 4)

of the second period of the Shang culture of the Shang city at Yanshi. Moreover, this third later extended over the entire interior of the pond as well as an area of 3–4.5m outside the pond's boundaries. Large numbers of fallen stones, pottery shards, and snail shells were mixed into the layer, particularly in the southeast corner, which contained a complete layer of particulate snail shells. The layer contained a relatively large number of pottery vessels, as well as stone spinning wheels, deer antlers, pottery net-weights, jade net-weights, and other artifacts. This demonstrates that the pond still contained water and continued to be used; it illustrates further that, though portions of the pond's stone walls had collapsed by no later than the later phase (phase 4) of the second period of the Shang culture of the Shang city at Yanshi, they had not yet undergone extensive restoration.

The second stratum within the pond dated to the early phase of the third period (phase 5) of the Shang culture of the Shang city at Yanshi. No refuse pits dating to this period that intrude the pond have been discovered, suggesting that the pond was still in use during this period.

The pond was destroyed in earnest during the middle phase of the third period (phase 6) of the Shang culture of the Shang city at Yanshi. The strata from this period within the pond contained numerous refuse pits, and many more intruded the pond itself; some of these were even wells dug in the middle of the pond to obtain water. Remains such as the first stratum within the pond, as well as pits H223, H225, and others, all dated to the middle phase of the third period (phase 6) of the Shang culture of the Shang city at Yanshi (Figures 7–18). The pits and strata dating to this period had two major characteristics: one, that the accumulated deposits contained numerous reddish chunks of burnt soil mixed with mud and natural fibers, formed when wood, bone, and mud walls used in construction were burnt in large-scale fires; and two, that most of the pits yielded a certain number of stones, with some containing large numbers thereof. These characteristics indicate that the pond was already completely dry and that the stone walls had experienced serious damage; in other words, they indicate that the pond had probably already been abandoned by no later than the middle phase of the third period (phase 6) of the Shang culture of the Shang city at Yanshi.

Dating of the early pond

A variety of considerations indicate that the large pond had been constructed by no later than the later phase of the second period (phase 4) of the Shang culture of the Shang city at Yanshi. First, as described above, both



Figure 7. Ceramic basin from palatial garden pond at the Shang city in Yanshi



Figure 8. Ceramic steamer from palatial garden pond at the Shang city in Yanshi



Figure 9. Ceramic tripod from palatial garden pond at the Shang city in Yanshi



Figure 10. Ceramic tripod from palatial garden pond at the Shang city in Yanshi

the eastern and western waterways were rebuilt during the later phase of the second period (phase 4), so their initial construction should have taken place earlier. Second, the walls of the pond were shored up with stones at the same time when the two waterways were rebuilt. Third, the use of small stones to surround the boundary,

discovered in the northwest corner, was technically similar to the placement of stones around the two sides of the mouth of the early eastern waterway. Fourth, with respect to positioning, the pond was located in the middle of the residences in the northern section of the palace compound, 25–7m away from the north and east walls



Figure 11. Ceramic jar from palatial garden pond at the Shang city in Yanshi



Figure 12. Ceramic jar from palatial garden pond at the Shang city in Yanshi



Figure 13. Ceramic stemmed plate from palatial garden pond at the Shang city in Yanshi



Figure 14. Ceramic steamer from palatial garden pond at the Shang city in Yanshi

of the palace compound and from the first-period western wall, but a full 50m away from the western wall of the second period. Here, the east, north, and first-period western walls were all remnants of the initial construction of the palace compound. Obviously, the large pond was planned in accordance with the composition

of the palace compound of the first period. Based on the above four points, we hold that the construction of the large pond probably occurred during the first period of the Shang city at Yanshi, making it contemporaneous with the construction of the palace and the appearance of the sacrificial district. The walls of the early pond



Figure 15. Ceramic tripod from palatial garden pond at the Shang city in Yanshi



Figure 16. Ceramic basin from palatial garden pond at the Shang city in Yanshi



Figure 17. Ceramic stemmed plate from palatial garden pond at the Shang city in Yanshi



Figure 18. Ceramic vessel from palatial garden pond at the Shang city in Yanshi

were not yet lined with stones; stones were used only to reinforce the rim and prevent erosion by rainwater.

2. The nature of the waterways and pond

The relationship of the waterways and the pond

As described above, the western waterway crossed beneath the road passing through the first west gate of

the main city, penetrating directly into the moat outside the western city wall, while the eastern waterway passed beneath the road of the first west gate of the main city and proceeded to the moat outside the eastern city wall. The floors of both waterways were quite level, and the floor of the western waterway was 0.5m higher than that

of the eastern. First of all, the western waterway was probably an intake path and the eastern one a drainage path. Second, the eastern waterway must have had water gates or other facilities for controlling the volume of water; otherwise a steady water level could not have been maintained in the pond. Third, the water in the pond must have been able to maintain circulation. Fourth, there must have been a dam or other such installation on the moat near the first western city gate in order to raise the position of the water and allow it to flow through the intake path into the pond. Based on the above four points, we hold that there was a human-designed and -maintained water circulation system at the Shang city at Yanshi, its ultimate goals being to move water from the western moat into the large pond and to keep the pond water circulating and vital.

The applications of the pond

The palace compound of the Shang city at Yanshi had a highly developed and complete system of rainwater drainage. The system was distributed along the east-west direction, shunting excess rainwater, waste water, etc. from the palace and sacrificial districts out toward the eastern and western walls of the compound via a number of waterways, but without a single waterway moving northward toward the large pond. Clearly, maintaining the purity of the water in the large pool was considered important at the time. Additionally, the large number of wells excavated in the palace district illustrates that the drinking water used at the time came from

underground wells, while the water in the large pond was not used for drinking. Furthermore, the pond was located in the north section of the palace compound. Along with the palace building and sacrificial districts in the southern section, it constituted one of the three major features of the compound, a highly distinctive status. The numerous ceramic net weights, as well as net weights of smooth, finely textured, white jade, contained in the third stratum within the pool show that fishing activities were once undertaken there. We therefore hold that the northern portion of the palace compound was a garden pond centered on the large pond and intended to support entertainment and leisure activities for the royal household.

3. Significance of the discovery of the garden pond ruins

The ruins in the palace compound of the Shang city at Yanshi are the earliest example of the construction of a reservoir to support a royal garden pond installation found in China to date. At the same time, the circulation system formed by the large pond, intake and outlet waterways, etc., likewise constitutes the earliest city water conservation system known in China. Their discovery makes it possible to trace the history of the construction of royal “pond parks” and pleasure gardens directly back into the early years of the Shang period and has great significance for research into capital and palace institutions and the history of landscaping, water conservancy, and urban planning.

Note: The original report, published in *Kaogu* 考古 (Archaeology) 2006.6: 13–31, with 15 illustrations and 3 plates, is written by Wang Xuerong 王学荣, Gu Fei 谷飞, Cao Huiqi 曹慧奇, Li Zhipeng 李志鹏. This summary is prepared by the first author and English-translated by Nick Vogt.