

Excavations at the Liangchengzhen Site in Rizhao, Shandong Province from 1998 through 2001

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The Liangchengzhen 两城镇 site is in the Donggang 东港 District, Rizhao 日照 City, Shandong 山东 Province, about 20 km away northwest of Rizhao City. Located in the middle and on the west side of the village, the site extends from the top of a north-south low mound to the bottom of it. It is 6 to 17 m in altitude. Pottery shards of all ages distribute widely within as well as adjacent the site, among which most are of the Longshan culture. The coring conducted during the period from 1999 through 2001 demonstrates that the cultural deposits distribute in an approximately rounded square area, about 1000 m from north to south, 1050 m from west to east, covering an area of ca. 1,000,000 sq m.

During the autumns and winters from 1999 through 2001, the Joint Archaeological Team conducted consecutively three large-scale excavations, exposing about 1400 sq m in total.

The Longshan 龙山 culture remains are the richest at the Liangchengzhen site. A number of Eastern Zhou burials and one Han Dynasty tomb were also found within the excavated area. The stratigraphy of the east profile of T2400 is described as follows:

Layer 1, top soil, about 15–18 cm thick.

Layer 6, Longshan culture sediments, about 15–18 cm deep, and 54–70 cm thick. It can be further divided into four sub-layers.

Layer 7, Longshan culture sediments, about 70–87 cm deep, and 22–40 cm thick. It can also be further divided into four sub-layers.

Under layer 7 are the yellowish sterile soils.

I. Formation Process of the Remains in the Excavated Area

The Longshan culture remains can be divided into six

consecutive periods.

Period one. Houses were built on top of the sterile soils. There were few burials. Houses did not overlay or intrude into each other, but they were not built at the same time.

House F39 was first built on top of the sterile soil. Two burials were found at the locations of about 5 to 7 m southeast of the house and they were dug into the sterile soils. Three layers of paved activity floor, each of 1 to 3 cm thick, were formed along with the uses of the house. Behind the house and also to its west and east sides, sediments of mainly grayish soils were gradually piled up. A group of houses appeared on top of F39.

House F65 is closely related to F39. Located to the southwest of F39, F65 has a doorway facing east. These two houses share one yard that has seven layers of paved activity floor. If we add the earlier three layers, in total there are ten layers of paved floors, indicating these two houses co-existed for some periods of time.

Period two. After F39 and F65 were demolished, two huge pits of more than 1 m deep appeared in the south of the yard. A thick layer of sediment was formed on top of the pits and the abandoned houses. This suggests that no houses were built during this short period.

Period three. Two layers of houses were built on top of the sediments of Period two. In the lower layer, there are two houses F62 and F63, located respectively on the east and the west sides, and both of them only have postholes, no walls or foundation ditches were found. In the upper layer, there are two ground houses F61 and F60, located respectively on the east and the west sides. These two houses were basically built on top the lower layer two houses with small shift.

Period four. There is a thin layer of paved earth on top

of the houses of Period three. Two well preserved houses remains were found on top of this paved earth layer. Multi-layer activity floors and hearths are all well preserved. Other well preserved elements also include relatively high walls and outdoor activity floors. F54 is on the east side, and F59 is on the west side, both of which were used for a lengthy period of time.

Period five. Two house foundations with postholes F57 and F56, located also on the east and the west sides respectively, were found on top of the Period four houses F54 and F59. On top of the foundation of the western house F56, there is another house foundation (F55) of which the living floor no longer exists because of the damage over time.

Period six. A significant number of Longshan culture features, including ash pits and burials, are found under the top soil. They all intruded into the house foundations of Period five.

The above consecutive depositional and using process of the Longshan culture remains was revealed in the excavated area of the Liangchengzhen site from 1999 through 2001. These multi-layered house foundations used to be thought as a “platform house”. In fact, the so-called “platform” is likely the house foundations of previous periods.

About 14 archaeometric dating have been analyzed for the Liangchengzhen site, including 11 ¹⁴C dates and 3 TL dates. After calibration, the earliest ¹⁴C date is 3638–3514 BCE, and the latest one is 1689–1579 BCE. The rest of them are mostly within 2600–2000 BCE. The 3 TL dates are respectively 1759±295 BCE, 1121±224 BCE, and 1232 ± 296 BCE, all evidently younger than the ¹⁴C dates.

II. Features and Artifacts

A rich amount of Longshan culture features were found at the Liangchengzhen site, including circular moats, house foundations, ash pits and burials.

1. Circular moats

Our coring data indicate that there are three circles of moats at the Liangchengzhen site. The inner circular moat covers an area of approximately 200,000 sq m, mostly under modern villages. The middle circular moat is slightly larger than the inner one. Except the eastern side uses the river course, the other three sides all expand outwards. The outer circular moat basically covers the whole Liangchengzhen site. Take T005 as an example. Located on the middle section of the north side of the outer moat, T005 is 18 m long by 2 m wide. Here the

topography is a slope descending from west to east. The sediments of the moat are right under the layer of modern time. These sediments can be divided into three layers, and all were flooded deposits during the Longshan culture period when the moat was used.

2. House foundations

More than 40 house foundations of the Longshan culture were found. The houses are all ground buildings of circular, square or rectangular plan shapes. Their walls can be divided into adobe walls, rammed earth walls and earth walls with inside wooden posts.

The house floor was paved with clays, and it usually has multiple hard smooth layers. Located mostly on the northwestern corner inside the houses, the ovens are usually circular and on the ground. The area where oven is located is usually blackish brown or reddish brown due to burning.

The doors mostly face south. Some well-preserved houses have good outdoor activity grounds. House F65 is described as follows.

F65 is a circular building with adobe walls, consisting of walls, a door, a central post, an indoor activity floor, an oven and the protective slopes for the walls. The diameter of the wall is 3.84 m, the indoor diameter is 3 m, and the building covers an area of 11.6 sq m, with a living area of 7 sq m (Fig. 1). The survived height of the adobe walls is 0.28–0.40 m, and about 0.43 m wide. The adobes were piled up layer by layer with fine mud served as adhesive, and the spaces between the adobes did not overlap. The adobes were made of brownish clays, usually 24–54 by 41 cm, and 4–8 cm thick.

Four layers of living floors were found inside the house. A layer of paved earth was found on top of the upper level living floor, and surface of the living floor no longer exists. On the basis of the amounts of the ovens on each living floor, it can be concluded that each one was used for a different period of time. The ovens on each floor are usually on the northwestern corner of the room, approximately oval in plan shape, and they are usually on the floor or slightly higher. Due to long time burning, the oven surfaces are usually blackish brown or dark red. An oval posthole was found in the middle of the room, 28–34 cm in diameter, and about 46 cm deep.

Located on the middle of the eastern side, about 95 degrees, the door is fan-shaped, about 84 cm wide inside and 98 cm wide outside. A rectangular adobe with a rock on each side is paved in the middle of the doorway, suggesting this is likely related to the room door.

3. Ash pits

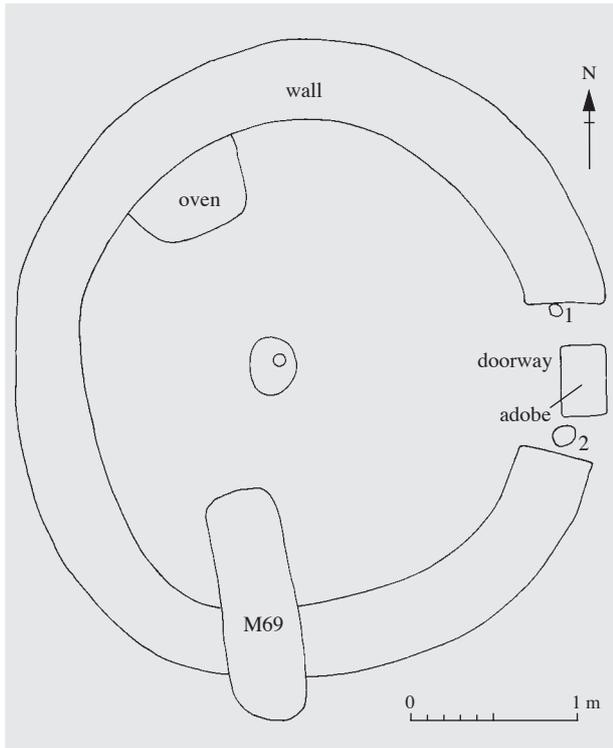


Fig. 1 Plan of house F65
1, 2. stone pebbles

About 500 ash pits were found. Some of the pits are large, circular with vertical walls. Others are irregularly shaped with different sizes. H238 is described as follows.

H238 is right under the top soil, circular with a diameter of 1.9 m and a depth of 1.38 m. The pit walls expand slightly outwards, and the bottom is flat (Fig. 2). The sediments inside the pit can be divided into seven layers, among which the top six layers are probably discarded rubbish, but the lowest layer, about 12 cm thick, has tight structure with a smooth thin layer of grayish white earth, suggesting it was likely intentionally furnished. Six postholes were found on the bottom of the pit, and they form a circular shape. A small round pit was found in the middle of the pit, inside there is a broken ceramic *gui*-tripod. This pit probably had special functions. A large quantity of ceramic shards and broken stone tools were found inside the pit. The reconstructed ceramic vessels include *ding*-tripods, jars, pedestal dishes, *dou*-pedestal bowls, cups and lids, etc. (Fig. 3).

4. Burials

More than 50 burials of the Longshan culture were found, and they were all located inside the settlement. These burials have rectangular vertical pits, and mostly do not have coffins. The ones with coffins usually have a second-level ledge made of worked earth. Most burials are east-west oriented with the heads facing east. Only

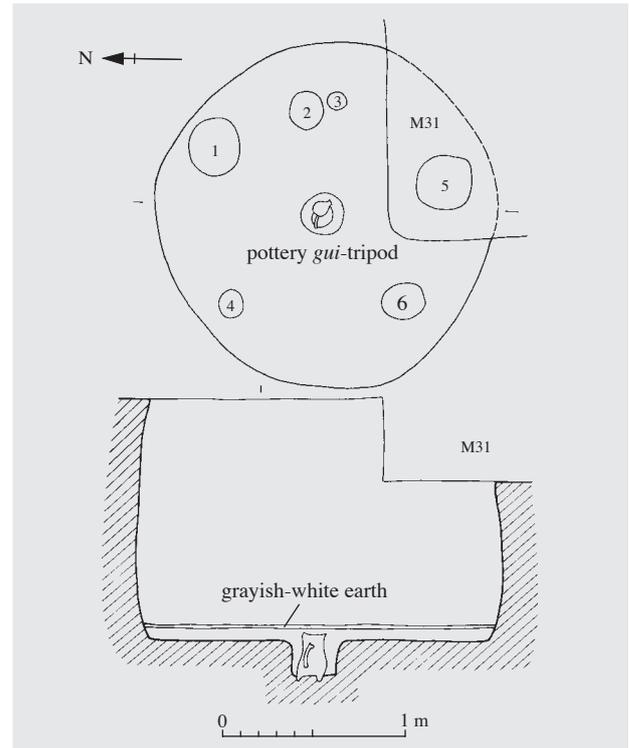


Fig. 2 Plan and cross-section of house H238
1-6. postholes

few small burials are north-south oriented. Pottery accounts for most of the funerary objects. Few middle-sized burials have turquoise ornaments.

M33. It has a rectangular vertical pit, 2.8 by 1.34–1.56 m, and 0.9 m deep. The refills are tightly structured yellowish earth. The survived wooden ashes suggest that there are one inner coffin and one outer coffin. The outer coffin is 2.55 m long and 1.06 m wide. The inner coffin is in the southern part of the outer coffin, 2.1 m long and 0.6 m wide. The head of the human skeleton faces east, and the body is in an extended position with the face upward. A pile of densely packed turquoise slides and small jade beads was found on the left arm (Fig. 4).

A significant amount of funerary objects were found in this burial. Most of them are pottery placed on top of the second-level ledge. Some objects fell into the southern and northwestern corners of the outer and inner coffins when the coffins collapsed. The pottery vessels were badly broken, and the fragments of the same vessel were usually put in different locations, suggesting the vessels were broken before they were put into the burial. The pottery vessels include tripods, jars, basins, pedestal bowls, cups and lids (Fig. 5).

M38. It has a rectangular vertical pit, 1.78 m long, 0.38–0.41 m wide, and 0.75 m deep. The refills are tightly structured grayish brown earth. Not well preserved,

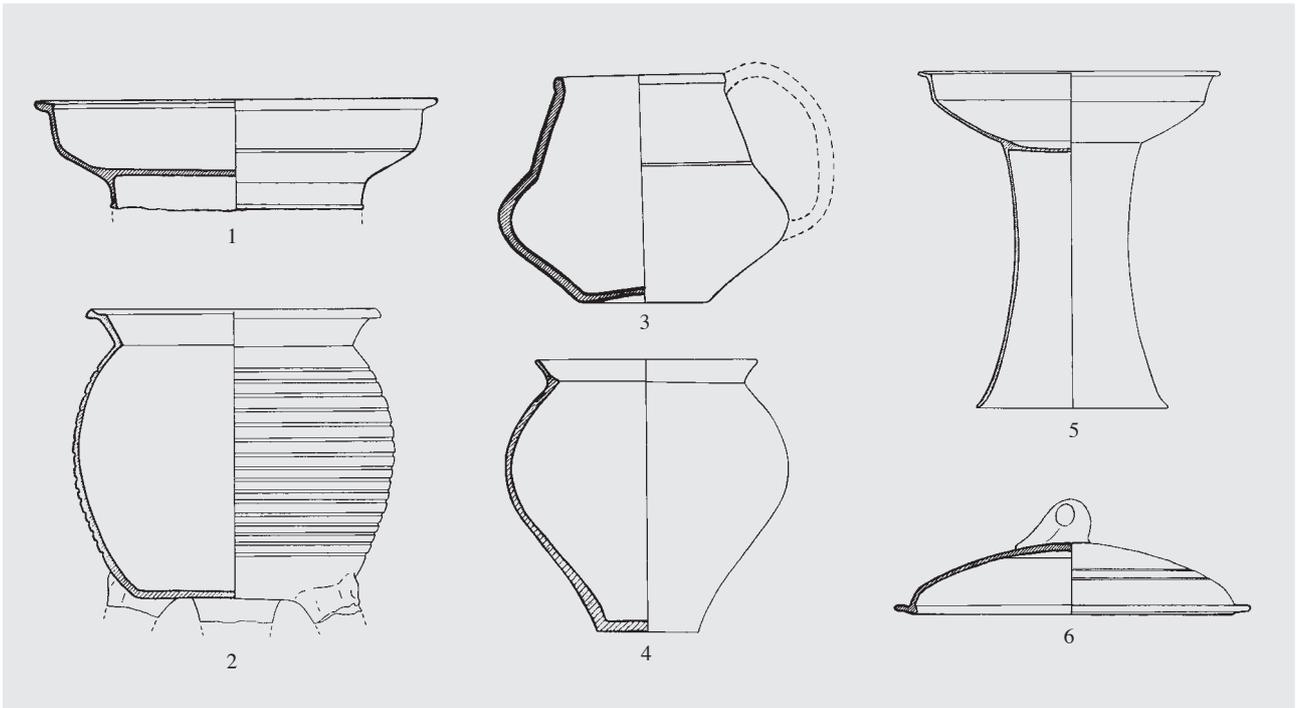


Fig. 3 Ceramic objects from pit H238

1. plate (H238:34) 2. *ding*-tripod (H238:14) 3. cup (H238:12) 4. *guan*-pot (H238:27) 5. *dou*-stemmed plate (H238:21)
6. lid (H238:4) (scales: 1. c. 1/7; 2, 4, 5. c. 1/4; the rest c. 1/2)

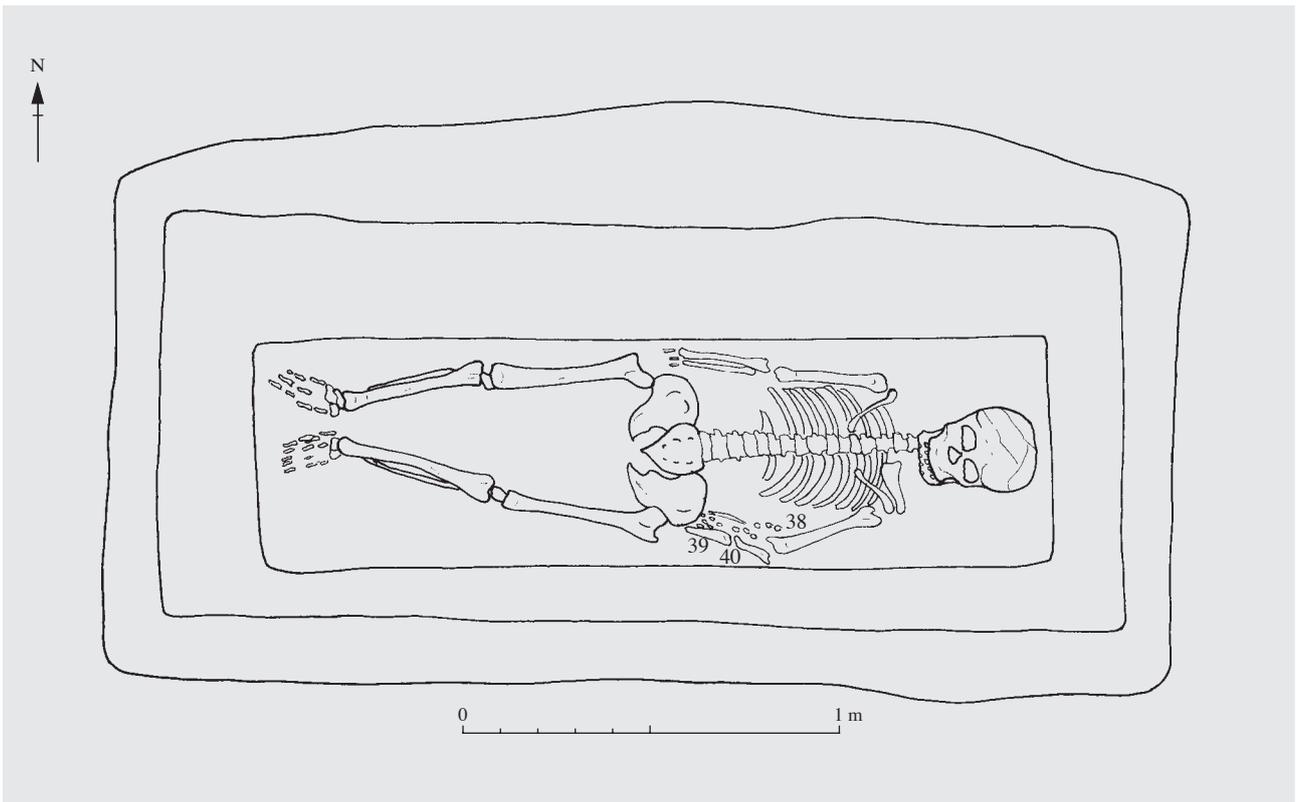


Fig. 4 Plan of the bottom of burial M33

38. turquoise artifacts 39. jade beads 40. animal's bone (1–37. objects are fragmentary and scattered around with no specific locations)

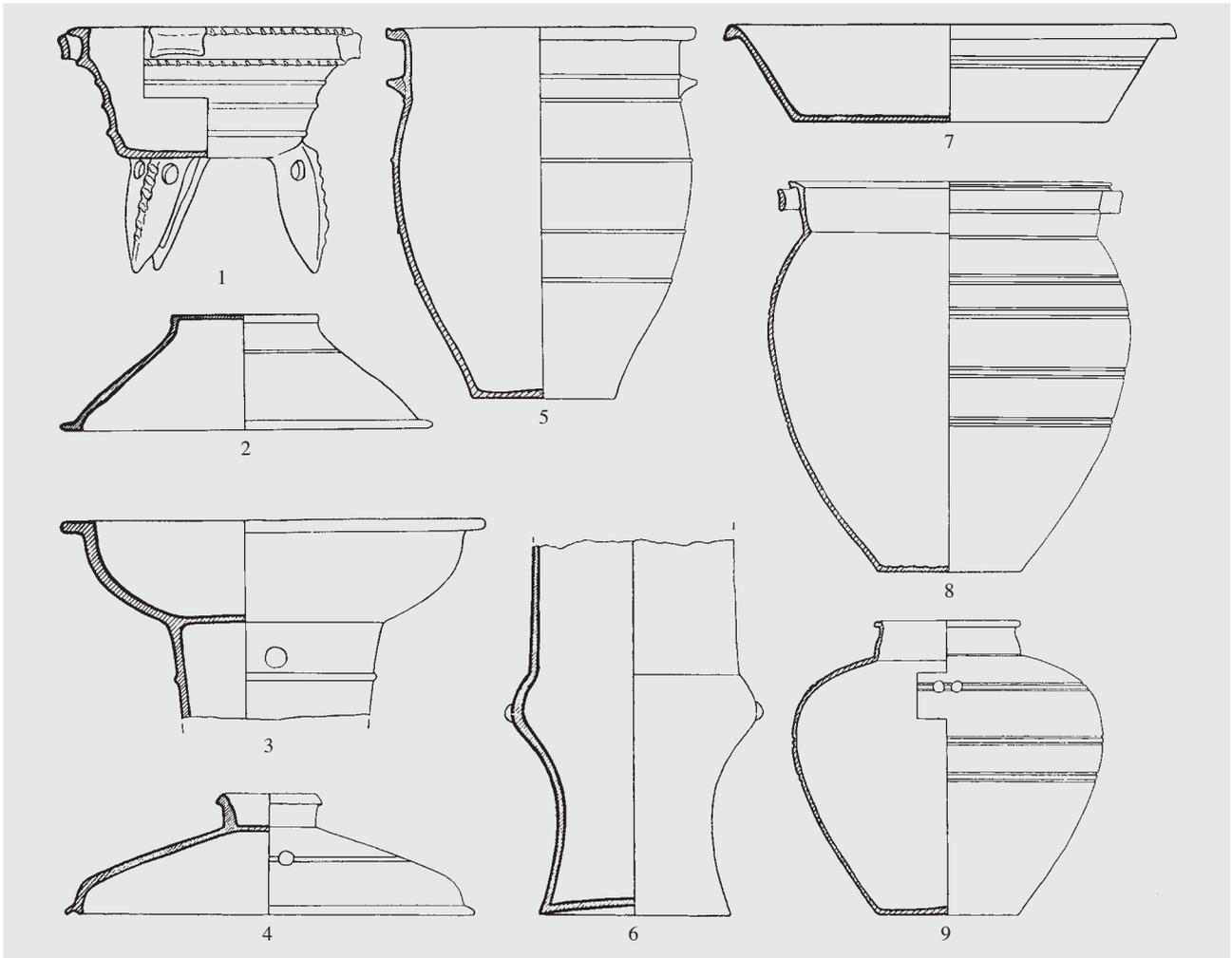


Fig. 5 Ceramic objects from burial M33

1. *ding*-tripod (M33:6) 2, 4. lids (M33:22 and 24) 3. *dou*-pedestal bowl (M33:33) 5, 8, 9. *guan*-pots (M33:26, 35 and 32) 6. cup (M33:9) 7. basin (M33:37) (scales: 1, 2, 7. c.1/3; 3, 4. c.1/2; 5, 8, 9. c.1/6; the rest c.1/2)

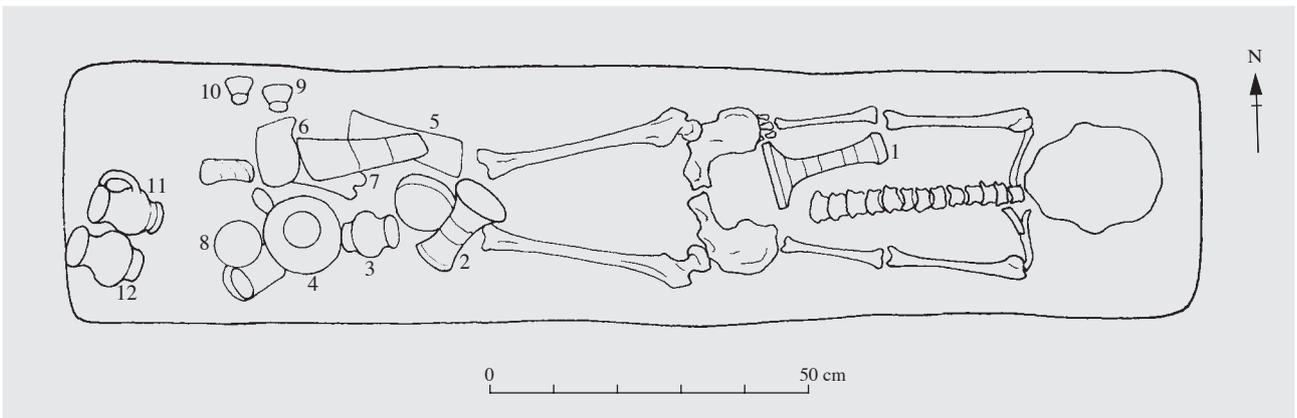


Fig. 6 Plan of burial M38

1, 2, 4–6, 11, 17, 19, 20. ceramic cups 3, 12, 16, 18. ceramic *guan*-pots 7, 14. ceramic *ding*-tripods 9, 10, 13, 15. ceramic lids (15–20. beneath other objects)

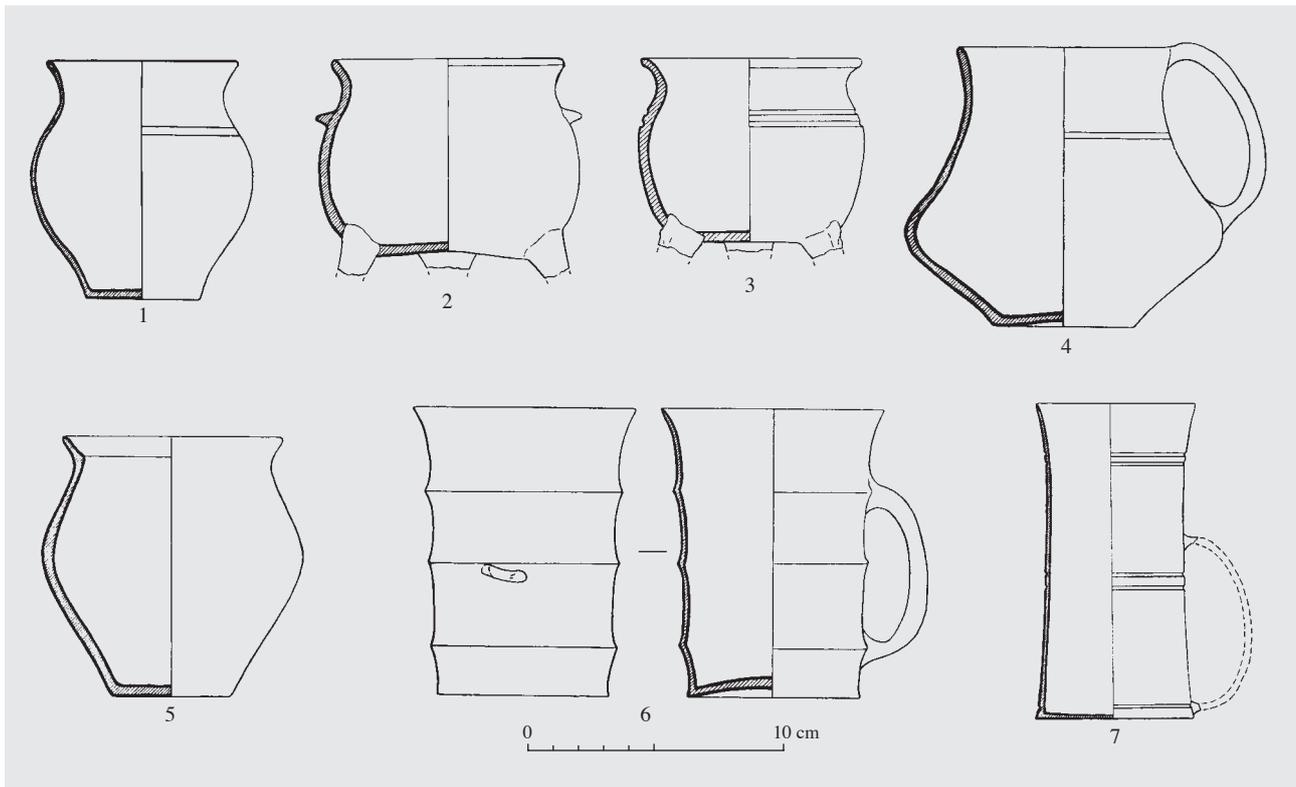


Fig. 7 Ceramic objects from burial M38

1, 5. *guan*-pots (M38:12 and 3) 2, 3. *ding*-tripods (M38:14 and 7) 4, 6, 7. cups (M38:11, 2 and 8)

the human skeletons oriented towards east with an extended position facing up. The bones are small, and the whole skeleton is about 1.48 m long, suggesting the dead was a young adult (Fig. 6). There are 20 funerary objects, and all are pottery. Except one cup is placed at the waist of the dead, others are put in the lower part of the body. The pottery vessels include tripods, jars, kettles, cups, high pedestal cups and lids, etc. (Fig. 7).

III. Conclusion

The excavations and coring at the Liangchengzhen site have identified the accurate coverage and size of the site. We have discovered three circular moats and traces of the city walls. Our discoveries demonstrate that the site had been occupied from the early period through the late period of the Longshan culture, and most of the remains can be dated to the early and the middle periods. We have

a basic understanding of the general pattern of the Longshan culture settlement, especially the construction methods of the houses and their relationships. We also achieved an understanding of the distributional patterns of the burials and their relationships. These are the basic data for further studying the social relationships of that time period. Rice farming was the dominant agricultural economy. We also discovered the earliest wheat so far known in eastern China. Our project is truly a multi-disciplinary study, including surveys using radars before the excavations, analysis of the topography and micro-morphology, chemical analysis of the house floors, studies of human bones and fauna, study of flora, chemical analysis of beverage residues, stone and pottery studies. These studies can serve as references for similar studies in Chinese archaeology.

Note: The original report, published in *Kaogu* 考古 2004.9: 7–18, with 11 illustrations, is written by Luan Fengshi 栾丰实, Yu Haiguang 于海广, Fang Hui 方辉, Cai Fengshu 蔡凤书, and Ann Underhill 文德安. This summary is prepared by Luan Fengshi and English-translated by Jiao Tianlong 焦天龙.