

## The excavation of the house remains of Yangshao Culture at Xiahe Site in Baishui County, Shaanxi

Shaanxi Provincial Institute of Archaeology

### Abstract

In 2010, the Shaanxi Provincial Institute of Archaeology excavated the Xiahe Site located at Xiahexi Village in Baishui County, Shaanxi Province. The outstanding findings included three large-sized house structures featuring pentagonal plans, inner and outer walls, and lime-plastered floors made from calcareous nodules (*liaojiang*). F1 was the largest of the three structures. The assemblage of material remains comprised mainly potsherds, as well as some stone, bone and shell artifacts. The potsherds from F1 showed pottery assemblage of pointed-bottomed bottle, bowl, basin, jar, *zeng*-steamer and lid. That from F2 showed pottery assemblage of pointed-bottomed bottle, bowl, basin, jar and vat. The style of material remains chronologically placed the Xiahe occupation to the late Miaodigou Phase. The findings are significant to the study of architecture, settlement pattern and economy of the Yangshao Age.

**Keywords:** Houses-Neolithic Age; Miaodigou Culture; Xiahe Site (Baishui County, Shaanxi); Yangshao Age

### Introduction

The Xiahe Site situates in Xiahexi Village, Xigu Township, Baishui County, Shaanxi Province. The Shaanxi Provincial Institute of Archaeology has conducted several archaeological reconnaissance and excavations on the site since 2003. The 2010 excavation term uncovered an area of 1000sq m, revealing the remains of three large house structures, 42 ash pits and two hard-packed surfaces dated to the mid-Yangshao Age, and one historical burial dated to the Jin Dynasty (Figure 1). The uncovered area was located at the south edge of the site. It has an altitude of 656m above the sea level, and rises 76m above the adjacent riverbed. In

general, the terrain of the site is sloping from the northwest to the southeast. The Neolithic occupation is bracketed by the loess tableland at Leicun Village to the north and a gully and the valley of Baishui River to the south. Its eastern part has been destroyed by the modern terraced field. The cultural deposition of the uncovered area reported here was thinnest in the northwestern quadrant and thickest in the southwestern quadrant. Seven geological and cultural strata of deposition were identified. The distribution of Stratum 3 was limited to the southeastern part of the excavated area; whilst the distributions of Strata 4 to 7 were limited to the southwestern corner of the excavated area.

Stratum 1 was the till zone that composed of 15–30cm

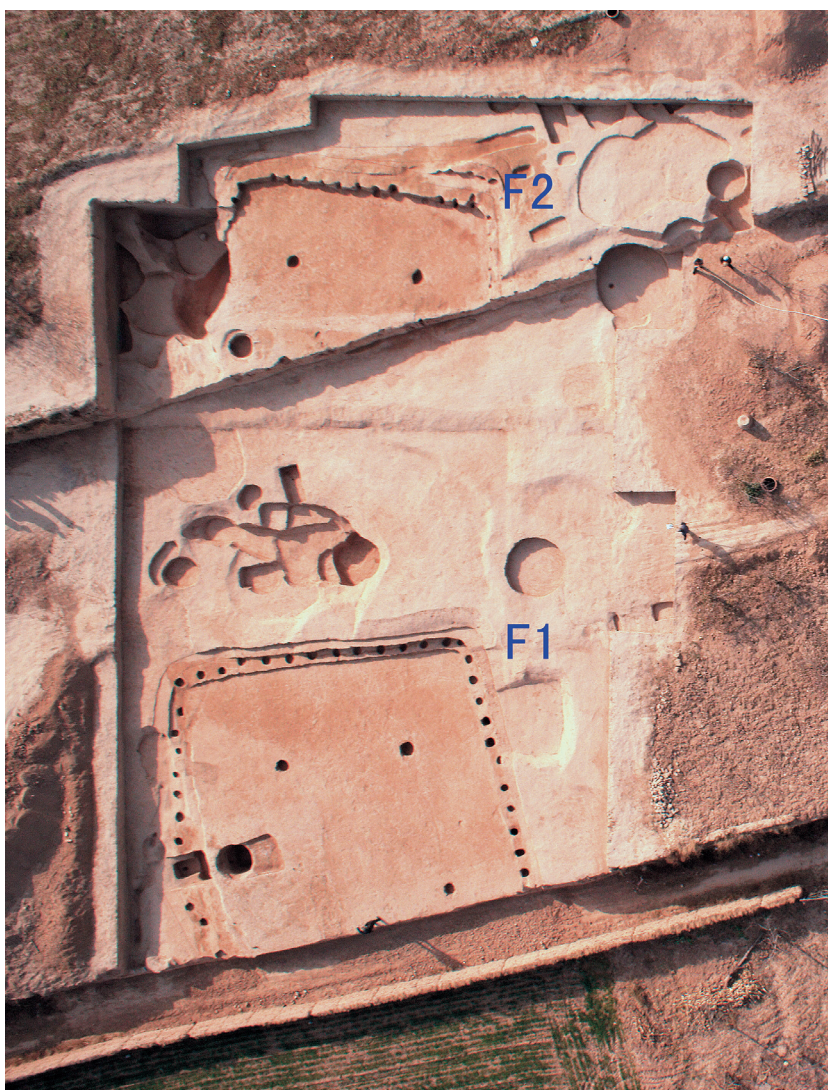


Figure 1 The full-view of the excavation area in 2010 (top is west).

of yellowish-brown soil. Stratum 2 was a layer of 50–100cm yellowish gray soil mixed with blue porcelain and Yangshao potsherds. The deposition was dated to the Ming and Qing Dynasties. The semi-subterranean foundations of F1, F2 and F3 opened underneath this stratum. Stratum 3 was a layer of 0–50cm deposition yielding celadon, white porcelain and black-glazed potsherds dated to the Song and Yuan Dynasties. Stratum 4 was the youngest of the four Yangshao layers; the 0–35cm brownish gray deposition comprised considerable amount of Yangshao potsherds, with the orange wares dominated the gray wares, and of equal amount of fine and sandy wares. Most of the potsherds were plain, followed by surface decorations of string mark and cord mark, small number of appliqué, basket pattern, bowstring mark, and painted designs. Recognizable vessel shapes included bowl, basin, jar, vat, and pointed-bottomed bottle. Stratum 5 was the second youngest Yangshao layer deposited with 0–40cm of brownish-gray soil. The majority of the artifacts yielded from this stratum were orange potsherds, followed by gray potsherds, in which the fine and sandy ones took almost equal amounts. Surface decorations of the potsherds, in the descending order of quantity were plain, string mark, cord mark, appliqué, and painted designs. Recognizable vessel shapes included bowl, basin, jar, and pointed-bottomed bottle. Stratum 6 was the third youngest Yangshao layer comprising 0–50cm light gray soil. No potsherd was recovered from this stratum. It overlaid a 0–10cm hard packed surface connected to the doorway of F2. Finally, Stratum 7 was the oldest Yangshao deposition of the excavation. It comprised 0–20cm brownish gray deposition with equal amounts of orange and gray potsherds, with fine wares being the majority, followed by sandy wares. Most of the potsherds were plain, followed by those decorated by string mark, cord mark, painted designs and appliqué. Recognizable vessel shapes included vase, cauldron, bowl, and jar. Underneath Stratum 7 was primary loess.

The most significant findings of the 2010 fieldwork season were the remains of three large house structures of the Yangshao Age. They were numbered as F1, F2 and F3. The following is a concise description of their major characteristics.

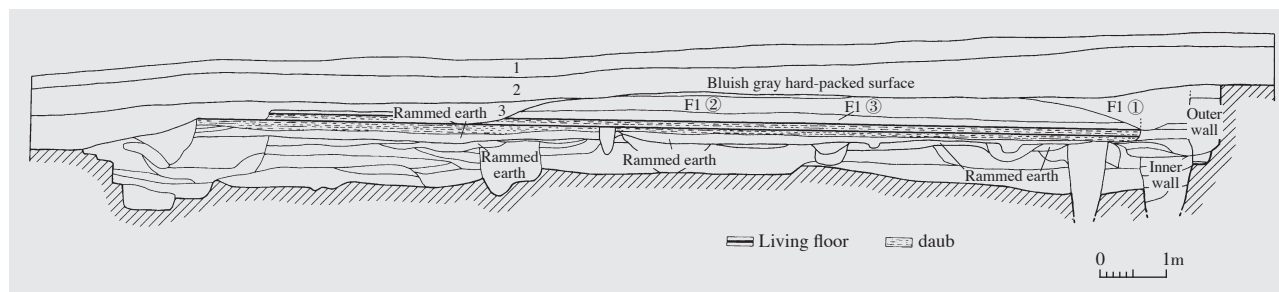
## F1

1. The stratigraphy and deposition. The northern half of F1 opened underneath Stratum 2. Its southern half, intruding into the primary loess, was superimposed by Stratum 3 and intruded into by ash pits H30, H40, H41 and H42. The base of Stratum 3 had a layer of bluish gray activity floor 0.3–0.5cm thick that extended from the center to the southern part of the feature. The doorway, inner and outer walls and the floor in the south had been seriously disturbed. The eastern part of the feature was cut away by modern farmland, exposing a section for observation. The northwestern part of the feature was more-or-less intact.

The deposition formed after the abandonment of F1 could be divided into three layers. Layer 1 and Layer 2 were debris of the collapsed walls. Layer 3, distributed all over the feature, was likely the remains of the collapsed roof. Underneath the three layers of deposition were two layers of lime-plastered living floor underneath which was the primary loess (Figure 2).

2. Form and structure. F1 was a pentagonal semi-subterranean structure. The door opened to the south with an orientation of 170° (measured from the axis passing through the centers of the doorway and the hearth). The remaining structure and the remaining living floor occupied 263.4sq m and 217sq m, respectively. Whilst the restored structure occupied 364.85sq m and the restored living floor occupied 304.5sq m. The structure comprised a doorway, a composite hearth, the living floor, the walls, postholes and a semi-subterranean foundation (Figures 3 and 4).

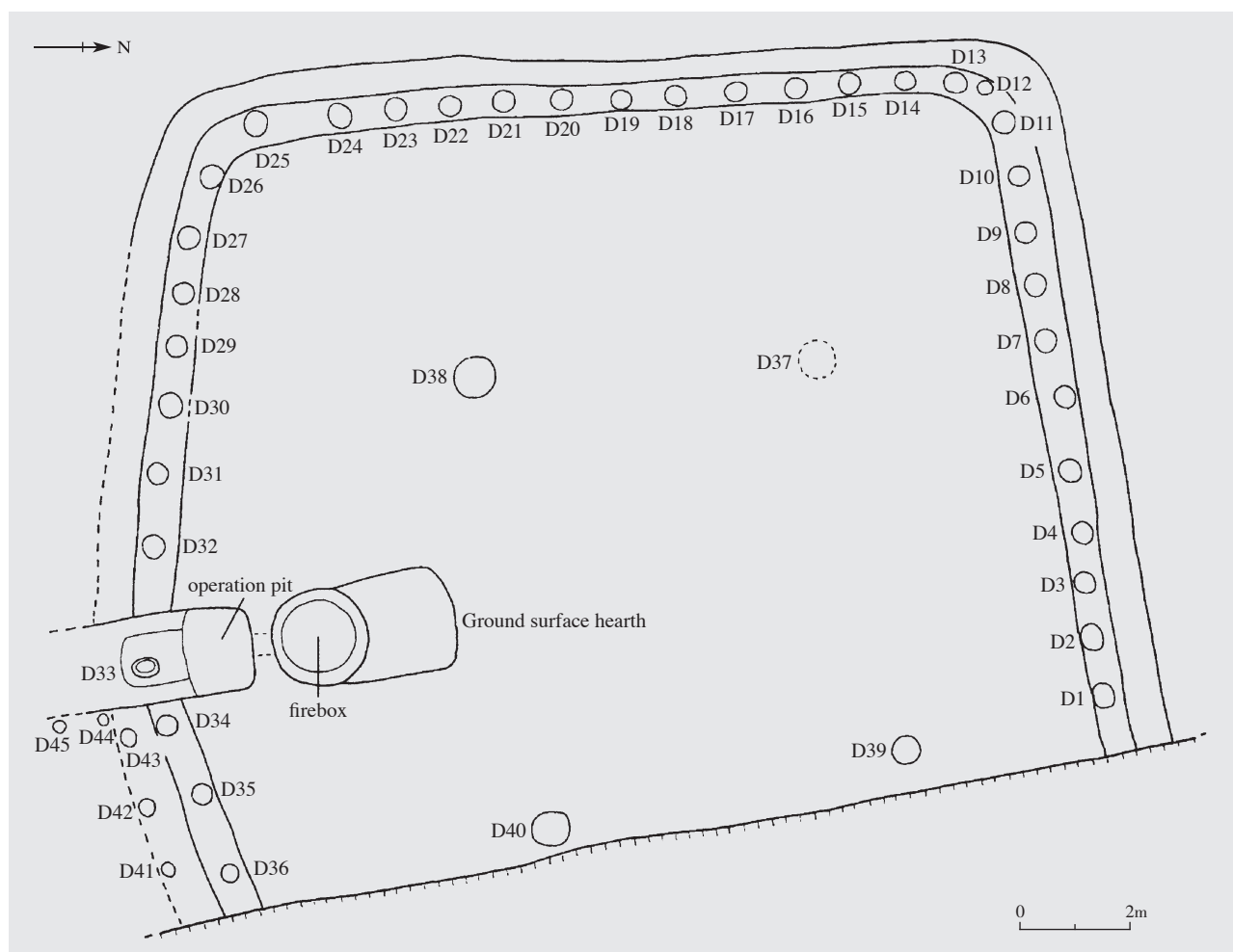
(1) The doorway. The sloped rectangular doorway located on the south central part of the feature. The southern half of the doorway had been heavily disturbed. Its northern end leveled with the upper living floor; it then gently sloped down to the southern end at a gradient of 13° to a depth of 60cm below that of the upper living floor. The remaining doorway measured 1.6m east-west and 1m north-south. The northern end of the doorway had a north-south rectangular pit that measured 1.1m long, 90cm wide and 40–65cm deep. The edges of the pit were



**Figure 2** The cutaway section of the foundation of F1.

1. The till zone; 2. Yellowish gray soil; 3. Yellowish gray soil; F1 ①. Yellowish gray soil; F1 ②. Yellowish gray soil; F1 ③. Bluish gray soil.





**Figure 3** The plan of F1.  
D1–D45. Postholes.

lined with a thin strip of burnt earth. A posthole (D33) was located in the south-east-south of the feature. The doorway and the pit had straight and coarse walls, leveled primary loess floor without hard packed surface.

(2) The composite hearth. The composite hearth was located next to the northern end of the doorway. It comprised an operation pit, a fire channel, a firebox, and a ground surface hearth (Figure 5).

The operation pit was a rectangular shallow pit located to the immediate north of the doorway and was 50cm south of the firebox. It measured 1.6m long and 1–1.1m wide with straight walls and leveled floor. Its remaining depth was 1.5m.

The round-cornered rectangular barrel-shaped fire channel situated in between the operation pit and the firebox. It sloped down northward and leveled with the firebox in the north. It measured 40cm wide, about 60cm long, and 70–80cm high. A layer of clay burnt into bluish gray color 2–3cm thick wrapped around its walls, followed by reddish burnt clay 20–30cm thick.

The firebox situated 50cm to the north of the operation room. It had a circular plan with a larger opening and

a smaller base. It measured 1.8m in opening diameter, 1.3m in base diameter, and 2m deep. A 2–3cm layer of daub was applied on the walls and base of the firebox. Continuous exposure to intense heat had turned the wall and base surfaces into thin layers of bluish gray petrified earth followed by reddish burnt earth. The firebox had several petrified layers, indicating that it had been repeatedly amended. Deposit of potashes and charcoal were recovered from the firebox.

Ground surface hearth. The trapezoid hearth located to the north of the firebox. It measured 1.6m long, 1.9m wide in the north, 1.7m wide in the south, and 20cm deep. The uneven petrified bottom of the surface hearth was covered with ashes.

(3) The living floor. The eastern part of the pentagonal living floor had been destroyed. The remaining living floor measured 12.2m in the north and 17.5m in the south. The floor had four layers. Layer 1 was 2cm of compact and coarse lime stucco surface. Layer 2 was 8cm of pure and compact yellowish daub. Layer 3, the lower living floor that measured 2cm thick, was a compact and smooth lime surface. Layer 4 was made of compact yellowish



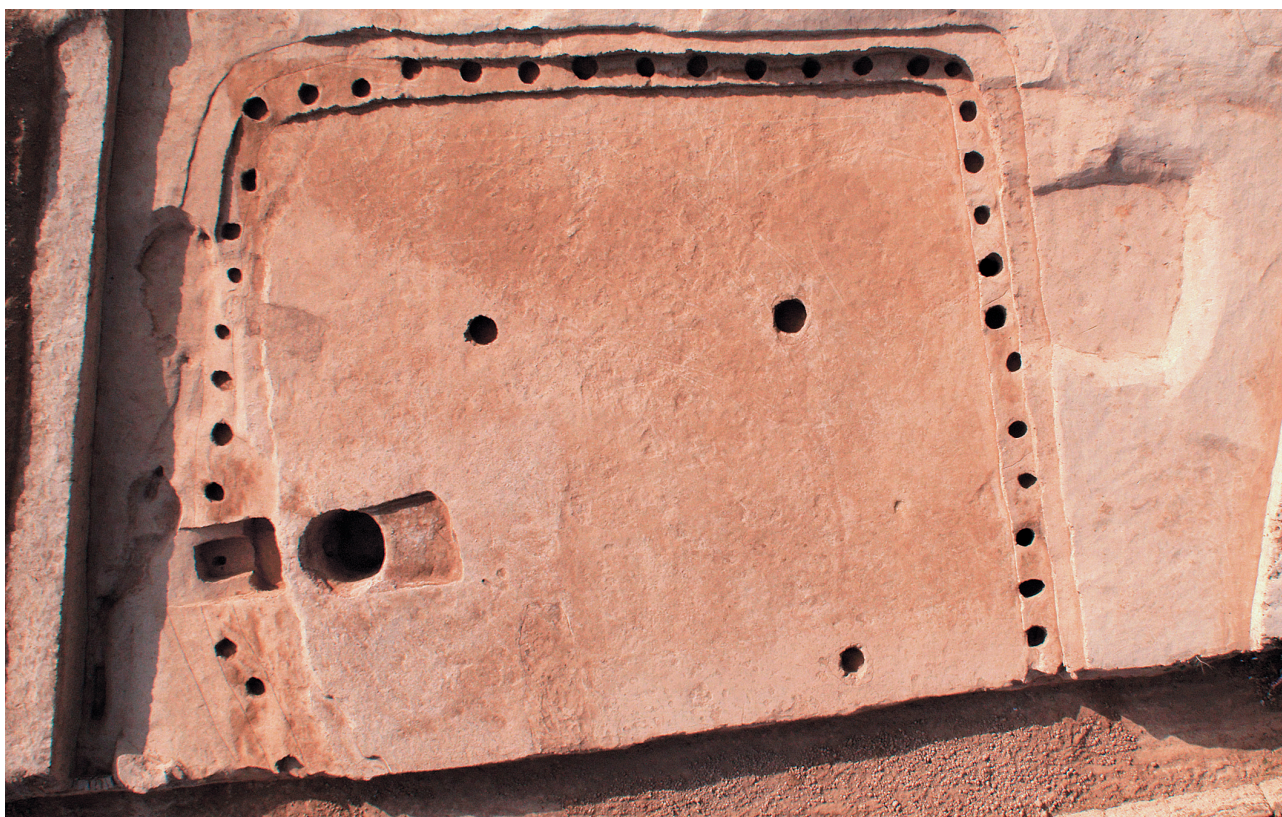


Figure 4 The full-view of F1 (top is west).



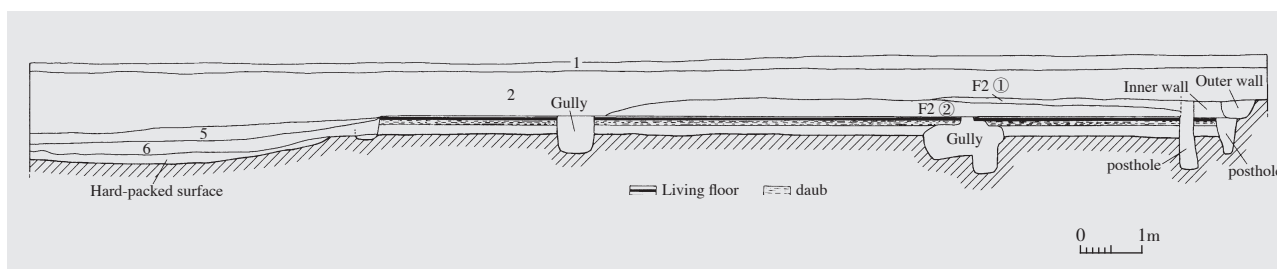
Figure 5 The firebox, ground surface hearth and operation pit of F1 (top is north).

gray daub that measured 8–15cm thick. Underneath Layer 4 was the structure's foundation.

(4) The wall body. Only the west wall was preserved. It comprised an outer wall and an inner wall. The remaining height of the west wall measured 0–55cm. The outer wall measured 50–80cm thick, and the inner wall measured 50–70cm thick. The remaining wall bodies tilted inward. Plaster of daub was seen on parts of the wall surface. We speculate that the inner wall was actually a loess platform less than 1m high; whereas the outer wall was the real wall of the house structure. Both walls were constructed in layers and in sections. No ramming mark was observable. The sections measured 0.5–3.5m long. The east profile of the north wall showed the wall was built in 10 layers with each layer measured 5–75cm thick.

(5) Postholes. A total of 45 postholes were found in F1. They included 35 postholes in the inner wall, three in the outer wall, one in the doorway, two for the doorway shelter, and four in the living area. Posthole D8 in the middle of the north wall measured 45cm in diameter and 1.2m in depth. The cylindrical posthole had a leveled bottom and smooth wall. Fillings of the posthole were blocked by a layer of daub plaster 10cm below the living floor. A second layer of reed daub plaster that measured 40cm in diameter was found inside the posthole and 50cm below the living floor. A layer of 20cm of light gray potash was found at the bottom of the posthole. Underneath the ash deposition was the primary soil. Red pigment (test pending) was found in the upper half of





**Figure 6** The cutaway section of the foundation of F2.

1. The till zone; 2. Yellowish gray soil; 3. Yellowish gray soil; 4. Brownish gray soil; 5. Brownish gray soil; 6. Light gray soil; F2 ① . Yellowish gray soil; F2 ② . Light gray soil.

the north wall of D8. The four postholes distributed in the living area measured 60–70cm in diameter and 40cm deep. They were cylindrical in shape, had flat bottoms and smooth walls plastered with daub.

(6) The foundation. The pentagonal semi-subterranean foundation measured 1–1.2m deep in its east side. Underneath the living floor was layers of rammed earth and discontinuous distribution of earth fillings.

## F2 and F3

1. The stratigraphy and deposition. Features F2 and F3 were located to the west of F1. Their semi-subterranean foundation opened underneath Stratum 2, about 50cm below the present ground surface, and intruded into the primary loess. Their southern part was intruded into by ash pits H6 and H7 and their eastern part was disturbed by the modern farmland. Feature F2 superimposed over and intruded into feature F3. In fact, F2 was a downsized restoration of F3, which was destroyed by fire. Both features were seriously damaged. Small parts of the wall body, living floor and postholes were the only uncovered remains.

The simple deposition of the features comprised two layers. Layer 1 was a yellowish gray deposition comprising large quantity of burnt clay and daub clods from the collapsed walls. Layer 2 was a light gray deposition tempered with small number of baked clay nodules and charcoal, which were likely remains of the collapsed roof (Figure 6).

2. Form and structure. Both F2 and F3 were pentagonal semi-subterranean structures facing the south. F2 oriented at 180°. Its remaining structure occupied 112sq m; wherein its remaining living floor occupied 92sq m. Feature F3 oriented at 170°. Superimposed by F2, the larger F3 was roughly estimated to occupy 300sq m. F2 comprised a doorway, a composite hearth, living floor, the wall bodies, postholes and the foundation (Figures 7 and 8).

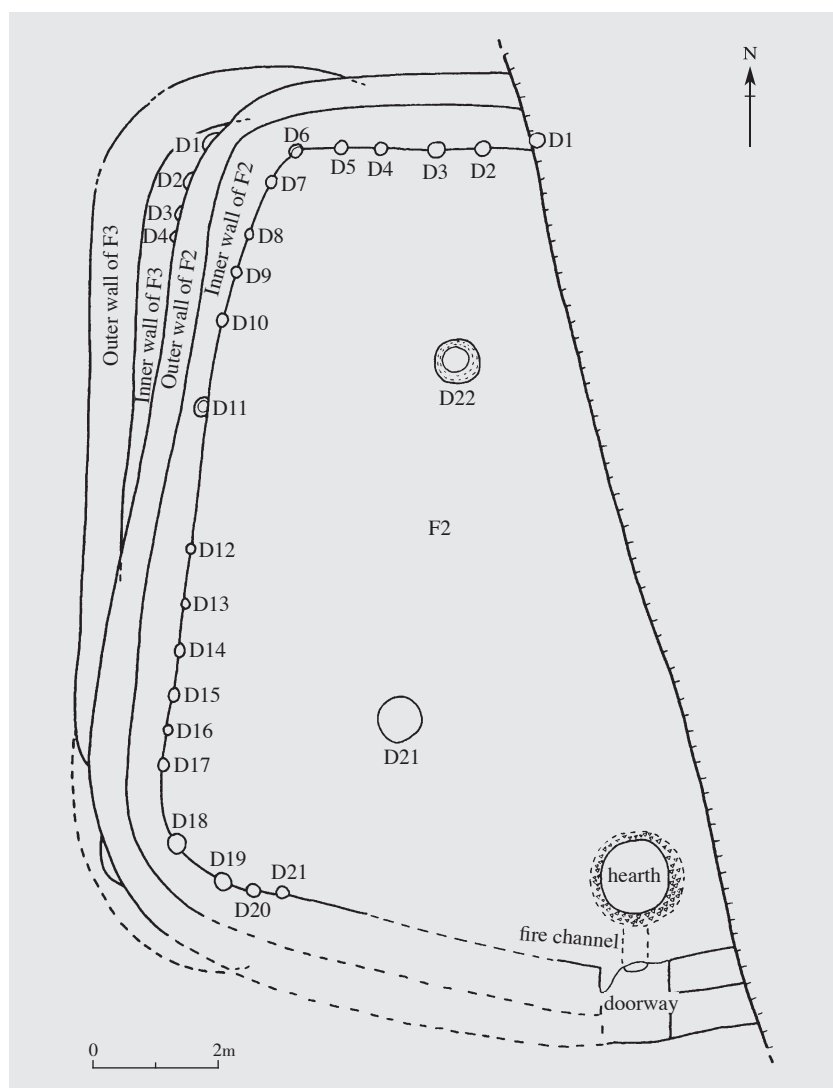
(1) The doorway. The doorway was located in the center of the south wall of the structure. The disturbed feature was estimated to be 1.1m wide and 60cm long. The north end of the doorway connected to the fire

channel of the hearth. It sloped towards the then ground surface to the south. It had a hard packed surface 0–10cm thick. The doorway of F3 was completely removed for the construction of F2.

(2) Composite hearth. The hearth comprised a firebox and a fire channel. The fire channel was between the doorway in the south and the firebox in the north. The round-cornered rectangular barrel-shaped fire channel was dug into the living floor, higher in the south, sloped downward to the north and leveled with the firebox. Its walls showed a bluish gray hard-burnt surface, followed by a layer of burnt earth. The walls were plastered with a layer of daub. Two hard-burnt layers had been formed. The firebox comprised two layers. The first layer was loose yellowish gray earth; wherein the second layer comprised ashes (Figure 9). The firebox of F3 was superimposed by the firebox, living floor and doorway of F2. Because of that, its shape and structure could not be made clear. It measured 1.4m in diameter and 90cm in depth. Its walls and base were lined with a bluish gray hard-burnt surface.

(3) The living floor and foundation. The living floor of F2 had a pentagonal plan. The remaining dimensions measured 4.1m in the north, 8.8m in the south, and 13m from north to south. The living floor comprised five layers of deposition. Layer 1 was a compact and smooth light gray lime-plastered surface 1cm thick. Layer 2 was a layer of yellowish gray earth 2cm thick. Layer 3 was the living floor of the abandoned F3. It was a 6cm thick layer of compact and smooth lime-plastered surface that the upper half was baked to a reddish hue, and gradually turned white in the lower half. The living floor showed spots of soot and traces of red pigment. Small pebbles, calcareous nodules and small amount of fragmented potsherds were recovered from the living floor. Layer 4 was an 8cm thick layer of compact yellowish gray daub plaster. Layer 5 was the primary loess, the top of which 13–15cm thick was baked to a reddish hue.

(4) The wall body. Like F1, F2 had both inner wall and outer wall. The former measured 55–70cm thick and the latter measured 45–65cm thick, and 26–40cm in remaining height. The walls were plastered with a straw and mud daub. Traces of red pigment were found on the



**Figure 7** The plans of F2 and F3.  
D1–D22. Postholes.



**Figure 8** The full-view of F2 (S–N).

plastered surface. The eastern inner wall of F2 directly superimposed over the lime-plastered living floor of F3. The postholes of the west wall and the inner wall intruded into the living floor of F3. The inner and outer walls of F2 destroyed the north wall and most of the west wall of F3. F3 also had an inner wall and an outer wall. Because of the intrusion of F2, only parts of the north wall, the west wall and the southwestern corner of F3 remained intact. Its inner wall measured 0–50cm wide and 0–50cm in remaining height. The walls were burnt into a reddish color. Charred wood wattle posts were found in the walls. The outer wall measured 0–90cm in remaining width and 0–35cm in remaining height. They were made of loose yellowish brown loess.

(5) The postholes. Among the 22 postholes found, two of them located in the living area and the rest were built in the inner wall. The inner wall postholes measured 15–40cm in diameter, most of which measured around 20cm. Measured from the living floor, they were 65–90cm deep. They were spaced at uneven intervals varying between 42cm to 1.4m. The two living floor postholes were symmetrical. They measured 50–65cm in diameter and 30–40cm in depth. They had round bottoms. The daub plasters were hard-burnt, which joined the hard-burnt living floor of F3, which suggests that F2 reused some of the postholes of F3. The exposed wall bodies of F3 indicated that they comprised outer supporting posts and two different sizes of wattle studs. The diameters of the four supporting postholes of the inner wall measured 35–45cm. They were spaced at about 60cm intervals. The larger postholes of the wattle studs measured 5–15cm in diameter, with spacing at 5–10cm intervals. The postholes of the smaller wattle studs measured 3–6cm in diameter, with spacing at 3–4cm intervals.

### Conclusions

The artifacts recovered from the three large house structures of Xiahe Site



comprised mainly potsherds and some stone, bone implements and shell ornaments. The pottery assemblage of F1 included pointed-bottomed bottles, bowls, basins, jars, *zeng*-steamers, and lid, etc. The pottery assemblage yielded from F2 included pointed-bottomed bottles, bowls, basins, jars and vats. The pottery style is comparable to that of the Stage III of Phase I of the Quanhucun Site in Huaxian County and Phase V of Yuanzitou Site in Longxian County. Although the double lip feature of the pointed-bottomed bottles diagnostic to Miaodigou Culture declined, it is still within the realm of Miaodigou and distinguishable from the squared lip typical of the pointed-bottomed bottles of Phase IV of Banpo Site. In addition, the large amount of painted potsherds unearthed with them bear heavy characteristics of Miaodigou Culture. We argue that the relative date of F1 and F2 was in the late phase of Miaodigou Culture.

The pentagonal house structures of Xiahe Site were common in Miaodigou Culture. They were seen at Miaodigou Site in Shanxian County, Quanhucun Site in Huaxian County and Xipo Site in Lingbao County. However, the Xiahe house structures had some unique characteristics. For example, the lime-plastered floor of Xiahe was made from calcareous nodules, which is the earliest lime-plastered floor ever found in the archaeology of China.

The three house structures of Xiahe were tremendous in size. For example, the living floor of F1 occupied 304.5sq m. It is the largest house structure of this period ever found to date. To build a tremendous structure like



Figure 9 The hearth of F2 (S-N).

this needed significant amount of resources, and thus indicating that the social organization of Xiahe had reached a certain degree of complexity and the control of resources had fallen to few hands. These structures themselves were likely to have special status in the settlement.

### Postscript

The original report published in *Kaogu* 考古 (Archaeology) 2011. 12: 47–57 with nine illustrations and two pages of plates was written by Wang Weilin 王伟林, Zhang Pengcheng 张鹏程, Li Gang 李岗 and Yuan Ming 袁明. This abridged version is prepared by Zhang Pengcheng and translated into English by Lee Yun Kuen 李润权.