

Searching for Shang's Beginnings: Great City Shang, City Song, and Collaborative Archaeology in Shangqiu, Henan

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The Sino-American project *Investigations into Early Shang Civilization* (abbreviated below as the Shangqiu Project), began with the signing of an agreement of principle on March 31, 1990, following several years of negotiations between the American principal investigator, Professor Kwang-chih Chang (Harvard University) and the Institute of Archaeology, Chinese Academy of Social Sciences, Beijing. This was among the first international collaborative archaeological fieldwork projects ever permitted by the government of the People's Republic of China, having been made possible by the passage of cultural relics legislation in China in February of the same year. The Chinese and American sides were aware that this work would establish broad precedents for subsequent cooperative projects. As such, this was designed to be multi-year as well as collaborative in all aspects, and most importantly, interdisciplinary, meaning it would strive to bring into play other scientific fields long ignored in the Chinese archaeological practice, such as geoarchaeology, geophysics, remote sensing, zooarchaeology, and palaeobotany, and would apply archaeological field techniques (such as screening, soil sampling, and flotation) that would allow the collection of data required for the application of analytical techniques from these and other disciplines.

Ever since the introduction of scientific archaeology in China in the 1920s and the excavations at Anyang since 1928 (Li 1977), much debate has centered on the still unanswered question of where the Shang originated. Crucial to resolving this debate is locating *Da Yi Shang*, or Great City Shang, the most important pre-dynastic capital of the Shang state. Great City Shang is thought to have been not just an early political center but also to have remained the principal cult center of the Shang kings throughout the dynastic period (ca. 1600-1045 BC). Even as the Shang kings moved their political capital across the landscape of the middle Yellow River region throughout the six centuries of Shang dynastic rule, they would still return to Great City Shang to make offerings to the highest Shang ancestors and inform them of the affairs of state.

Locating Great City Shang—the narrowest objective of the Shangqiu Project—is, however, a daunting task, as its most probable location is in the region of deep Yellow River alluvium in the Shangqiu District of eastern Henan Province (Figure 1). Because of sediments up to ten meters thick covering Neolithic and Bronze Age cultural deposits there, except for a few surveys and test

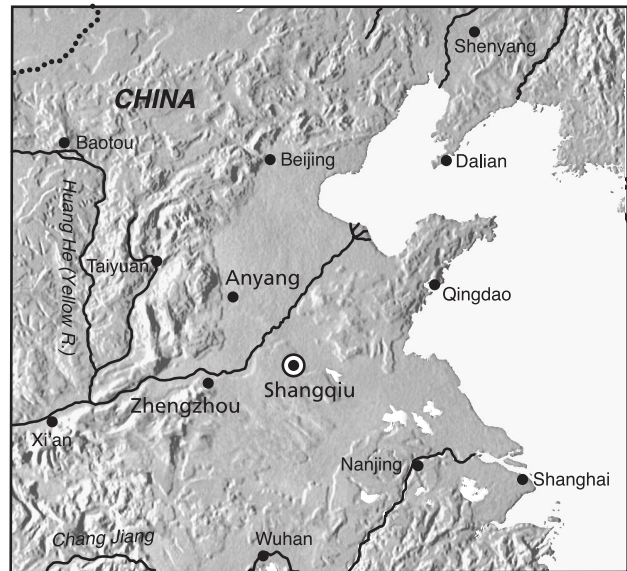


Figure 1. Map showing the location of Shangqiu in the North China Plain.

excavations of mound sites, archaeologists had done little work in the area prior to the Shangqiu Project (Li 1947; Chang 1983a: 508; Chang and Zhang 1998: 5-6; Shangqiu 1981, 1982, 1983). Thus, the Shangqiu Project also has a broader objective: to establish the areal chronology and reconstruct the regional landscape and interacting regional cultural systems during the late Neolithic, Predynastic, and Early Shang periods in the eastern Henan region.

Recent technological innovations, particularly in geoarchaeology, remote sensing, and geophysical prospection, have opened up new possibilities for locating deeply buried features in the Yellow River flood deposits. The Shangqiu Project is being undertaken with the belief that a multi-disciplinary archaeological research program that incorporates these new technologies, combined with an anthropological orientation, could make great headway into resolving both the traditional, more historically directed question of where Great City Shang was located, as well as the more anthropological questions concerning the formation of the Shang state and its accompanying great civilization. What follows is a discussion concerning the nature of the debate over the origins of the Shang, the approach taken by the Shangqiu Project, and our research results.

THE SHANG, GREAT CITY SHANG, AND SONG, IN THE HISTORICAL TRADITIONS

WHAT IS SHANG?

Before any further discussion of Shang origins, we first need to clear up a source of much confusion, and this concerns what is meant by the term "Shang." "Shang" has been used by scholars in multiple—and usually unspecified—ways. The word Shang is rooted in a place

name: this place name appears in Shang oracle bone records and refers to the Shang capital, though there still is no common agreement as to the original meaning of the character “Shang” (although K.C. Chang believes the character derives from the ritual function of the place; see Chang 1995). By extension of it being a place name, the term Shang can be used to refer to the Shang state, a specific polity in the North China Plain known to have been ruled by 30 kings during its dynastic period. The term can also be used to refer to the rulers of this polity: this usage encompasses the kings during the dynastic period and the earlier predynastic lords and kings, as well as the high-ranking lineages closely related to them. The term Shang can also take on social meanings, referring more generally to the elite levels of society within the Shang state or even more broadly to all people or social groups incorporated under the Shang polity’s political control (the scope of this incorporation can vary widely depending on how one defines or identifies control). Most commonly—and in the usage that leads to the most confusion—the term Shang is used simply to refer to a perceived cultural sphere—usually defined by similarities in material culture: this sphere most likely covers an area well beyond the actual boundaries of Shang political control. Lastly, Shang is used as a chronological indicator whereby cultural remains from well outside the Shang cultural sphere are still called Shang because they fall within the time period of the Shang Dynasty.

In the Shangqiu Project, when we say that we are looking for the origins of the Shang, we are referring specifically to the process of the acquisition of political authority by those who were the direct ancestors of the Shang kings: these are the 14 predynastic Shang lords and kings—the founders and leaders of the Zi clan which came to be the royal clan of the Shang dynastic period and from whose highest-ranking lineage the Shang kings were drawn. Great City Shang, then, refers specifically to the location, presumably a large, earthen-walled settlement, that served as the ritual and political center for the Zi clan and the predynastic Shang lords and kings. Inscriptions made by the late Shang kings on oracle bones recovered at Anyang also indicate that Great City Shang continued as the Zi clan’s major ritual center throughout the dynasty.

WHERE DID THE SHANG ORIGINATE?

Since the term Shang can be used in multiple ways, the question of where Shang originated can also be ambiguous. This question has a cultural aspect, whereby it is asking out of what cultural sphere or spheres did the cultural behaviors that are associated with the elite level of the Shang state arise. This question also has an historical aspect: it is asking where did the predynastic Shang lords first establish the Shang polity and their authority to rule.

In addressing the question of Shang origins, two

schools of thought have emerged over the last three decades. The first school, led by Prof. Zou Heng of Peking University, uses pottery typology as its main source of evidence to trace Shang origins to northern Henan and southern Hebei provinces (see Zou 1980). Zou and his students base their argument on formal similarities and supposed developmental trends of pottery through time. They believe they can locate the predynastic Shang and the early Shang by locating pottery that dates to the appropriate time period (ca. 2000-1600 BC) that has the greatest formal similarity to the Late Shang-period pottery found at Anyang. Not surprisingly, Zou finds this pottery in the general region of Anyang, in northern Henan and southern Hebei. This pottery is now classified as belonging to several cultural phases: the Zhanghe, Huiwei, and Xiaqiuyan. Zou has grouped these together into what he inappropriately labels as the “Xian Shang,” or “Proto-Shang,” culture, meaning he assumes this to be the material culture of the Shang people during the predynastic period (other archaeological cultures in China are usually named after type sites).

These arguments by Zou and his followers have an inherent weakness in that they have not put forth any bridging arguments to link the production of material culture and its formal traits with the socio-cultural and political entities whose members supposedly made it. While they may have identified a continuous tradition in pottery production, they have still failed to satisfactorily link this pottery to the Shang. Thus, despite the name chosen for this archaeological culture (“Proto-Shang”), it still remains far from proven that the predynastic Shang lords and Great City Shang are to be found in this region. Zou’s approach conflates two definitions of the term “Shang”: a “Shang” entity defined and determined strictly in a material cultural sense (i.e., based only on the archaeologists’ classification of utilitarian pottery) is taken to be equivalent to the political Shang state and its ruling lineages. This is a fundamental flaw that must be reconciled before Zou’s view can be accepted. Unfortunately, a majority of archaeologists in China still have come to accept Zou’s view despite this inherent weakness: this is why a more anthropologically-informed approach is called for.

A second approach to tracing the origins of Shang is based in long-held interpretations of the earliest reliable historical texts in Shang-period inscriptions and in historical geography. This “traditionalist” approach places predynastic Shang origins to the eastern part of the North China Plain, in the general region of eastern Henan and the surrounding areas still further to the east. The research orientation of the Shangqiu Project, formulated by its principal investigators (Zhang and Chang 1997, Chang and Zhang 1998) is based in this traditionalist approach, but informs it with anthropological theory. While Zou Heng’s approach makes no consideration of the nature of socio-political organization and

social identity and their reflection in material culture, Chang's anthropological approach stresses isolating the elite levels of Shang society from the common.

Chang's approach traces the cultural origins of Shang society to this eastern region of the North China Plain because of the presence there during the late Neolithic period (ca. 3000-2000 BC) of certain cultural elements later used by the dynastic Shang elite to signal their privileged positions. When consideration is made as to what aspects of material culture might best represent Shang identity, it turns out that a majority of what seem to be elite cultural elements at Anyang have antecedents not in the local late Neolithic and early Bronze Age cultures of northern Henan, but rather in this region further to the east. These elite cultural elements include rich grave furnishings, wooden burial chambers and "second-level ledges" (*ercengtai*, a platform built around the burial chamber at the base of the tomb to receive grave goods), the use of human victims in graves, the use of turtle shells in divination, white pottery, bone spatulae, bone engravings, turquoise inlay, jade (including *cong* tubes as well as other items), and certain animal motifs (Chang 1976, 1983b). The discovery of the earliest sacrificial cattle pit by the Shangqiu Project at the late Neolithic Longshan culture site of Shantaisi allows us to add cattle sacrifice to this list as well. Thus, the best indicators for the cultural origins of Shang point to the late Neolithic eastern cultural sphere.

The historical aspects of Shang origins are informed by numerous details presented in a variety of early literature dating from the mid-first millennium BC and later, as well as in the oracle bone divination records of the late period Shang kings at Anyang, in which we find clues as to the location of Great City Shang. In Chang's view (Chang 1991; Zhang and Chang 1997; Chang and Zhang 1998), like that expressed earlier by the eminent Sinologist Wang Guowei (1959 [1921]) and oracle bone specialist Dong Zuobin (1945), Great City Shang should be located near the city of Shangqiu (literally, the "Ruins of Shang") in eastern Henan.¹ Wang Guowei best put forth the textual evidence for placing Great City Shang (which was simply called "Shang" in the predynastic period) at Shangqiu, and we will quote him here at length (Wang Guowei 1959 [1921]):

The name of the state of Shang was derived from the place name Shang. The "Basic Annals of Yin" chapter of the *Shiji* [written ca. 100 BC] says, "Xie [the founder of the Shang royal clan] was enfeoffed at Shang." Both Zheng Xuan and Huangfu Mi [early commentators on the *Shiji*] thought this place named Shang referred to the Shang [character] in [the place called] Shangluo [in Shaanxi province],

but they were probably wrong. The ancient state of Song [11th c. – 286 BC, thought to have been located in modern Shangqiu, Henan] was in reality named Shangqiu. The character *qiu* in this place name means "ruins." The Song called the place Shangqiu, or the "ruins of Shang," just as we call the ruins south of the Huan River [in Anyang] Yinxu, the "ruins of Yin." Thus, the place named Shang was located in the territory of the ancient state of Song.

In the *Zuozhuan* [a Confucian classic traditionally thought to have been compiled ca. 5th BC], under the entry for the First Year of Duke Zhao, we read, "The Sovereign Emperor [Yao] did not approve of this, and removed E Bo to Shangqiu, to preside over the star Chen. The ancestors of Shang followed him [meaning they took over his official position in Shangqiu], and hence Chen is the star of Shang." Again in the *Zuozhuan* (Ninth Year of Duke Xiang) we read, "Now the official under Taotang [Yao] in charge of regulating the calendar according to the Fire Star [Antares] was E Bo, who dwelt in Shangqiu, and sacrificed to the star Dahuo, by Fire, regulating the seasons. Xiangtu [a Shang ancestor] came after him [also living in Shangqiu and conducting the sacrifices], and hence Shang paid special regard to the star Dahuo." Again in the *Zuozhuan* (Seventeenth Year of Duke Zhao), we read, "Song is the region corresponding to the ruins of Dachen." Thus, Dahuo was the equivalent of Dachen, and the capital city of Song was in fact the old home of Zhaoming and Xiangtu. In his *Chunqiu shili*, Du Yu [AD 222-284] locates Shangqiu at Suiyang in the state of Liang [located just west of the present-day Shangqiu city during the Han Dynasty (2nd century BC – 2nd century AD)], and he maintains that Song, Shang, and Shangqiu were three different names for the same place. His views are correct. (*Based on unpublished translation by K.C. Chang.*)

In other words, the place named Shang (and which came to be known as Great City Shang and Shangqiu—"the ruins of Shang") is said to have been inhabited by the predynastic lords of the Shang named Xie, Xiangtu, and Zhaoming; this Shang thus served as the political center of the Shang state during its formative period. Xie was the founding ancestor of the Shang royal clan, the Zi clan, and was said to have been born from the egg of a dark bird; Xiangtu was his son; and Zhaoming, his grandson (*Shiji*, "Yin benji"). We also know that the location of this place named Shang is strongly indicated by its continuing association in a variety of texts with later cities that were reportedly built upon its ruins: City Song and Suiyang, as well as the Ming Dynasty city of Shangqiu. When the Shangqiu Project began, all of these cities were "lost": no physical traces of them remained on the present ground surface, and their actual locations had become the stuff of legend. Therefore, finding these

¹ It should be noted that not all scholars agree that Da Yi Shang, or Great City Shang, was located near Shangqiu. Paul Wheatley (1970: 161; 1971: 36-52) and David Keightley (2000: 57-58), for example, have argued that Great City Shang was instead the last Shang capital Yin, near Anyang.

cities, each of which would be a key indicator in locating Great City Shang, as well as an important archaeological discovery in its own right, became a major goal of the Shangqiu Project: the project's multidisciplinary program of geoarchaeological coring, geophysical prospection, remote sensing, and cartographic analysis was established to locate these cities and Great City Shang.

ON CITY SONG

The earliest of the cities associated with Great City Shang, City Song, was constructed shortly after the fall of the Shang dynasty (ca. 1045 BC), when Weizi Qi, a brother of the last Shang king, was enfeoffed there. According to the *Shiji* ("Zhou benji"), when King Wu of Zhou conquered the Shang, he allowed a Shang prince, Lufu (or Wu Geng), along with two of the Zhou king's brothers, Guan Shu Xian and Cai Shu Du, to lead the remaining people of Shang. With the death of King Wu, these three rose in rebellion against Zhou. The Duke of Zhou, regent to the Zhou king Cheng, crushed the rebellion, and Wu Geng and Guan Shu Xian were executed. However, one of Wu Geng's uncles (and brother of the last Shang king), Weizi, was enfeoffed by the Duke of Zhou at Song to take over Wu Geng's role. City Song was constructed as the capital of this state on the site of former Great City Shang so that Weizi and his descendants could continue to carry out the sacrifices to the Shang ancestors. It was essential to the Zhou kings that the Shang ancestral sacrifices continue to be offered, as Zhou political authority was originally based in the Shang ideological system and the Shang ancestral sacrifices were at the heart of it.

The state of Song and its capital evolved over time along with the great socio-political changes that occurred over the eight centuries of the Zhou period, and at times Song became recognized as one of the powerful, hegemonic states. The Song state finally fell in 286 BC (though the capital might have moved away from City Song shortly prior to this), when it was conquered by the state of Qi as part of the political consolidations occurring among the rival territorial states of the Warring States period.

Historical records concerning City Song, although limited, still indicate what must have been a majestic city. The city was composed of two walled enclosures: these are usually called the inner city and the outer city, although there are also a few references to the division of the city into eastern and western sectors instead of inner and outer (see Yan Daoheng 2000: 134). Both of these forms have been found at other Eastern Zhou city sites (for examples, see Li Xueqin 1985), though an inner/outer city plan may be the earlier, ritually-prescribed pattern while the east/west city plan may be the result of later expansion on an earlier city. At City Song, the inner city is said to have contained luxurious palace compounds and facilities for the entertainment of the

duke of Song, and was perhaps located in the eastern half of the outer city (Shou Xinmin 1996: 372). At least three of the palaces are named in the *Zuozhuan* ("Ai Gong" 26th year): the Gonggong (Ducal Palace); the Wogong (Fertile Palace), thought to be one of the "inner" palaces; and the Dagong (Great Palace), which was probably the Song ancestral temple (Ibid.).

The outer city, a large enclosure made of formidable rammed-earth walls, is said to have surrounded the inner city and to have held various residential areas (called *li*), and in later times the markets and manufacturing areas. The noble lineages of the Song state probably each had their own residential district, probably within its own wall, within the outer city. The outer city of Song most likely had four walls oriented to the cardinal directions, with great gateways in each wall, and major thoroughfares crossed the city from each gate. The names of seven of the Song gates have been passed down through the historical record: the Lumen (Black Gate) in the south or southeast, outside of which ran the Sui River; the Tongmen (Pawlonia Gate) in the north; the Yangmen (Poplar Gate) in the east; the Caomen Gate in the northwest; the Zemen (Marsh Gate) in the southeast; the Mengmen (Dodder Gate) in the northeast; and the Sanglinmen (Mulberry Grove Gate), said to be in the outer wall, probably in the south. There was also at least one more gate, unnamed in the textual record, in the west (*Guidefu zhi*: zhuan 11, p. 163; Shou Xinmin 1996: 372; Yan Daoheng 2000: 134-135).

That City Song had a Sanglin Gate is of particular interest. The Sanglin, or "Mulberry Grove," was the name of the Song state altar. This name actually derives from a royal Shang ritual practice, where the "Mulberry Grove" was a sacred spot that served as an *axis mundi* in the Shang king's shamanistic journey to the ancestral realm: King Tang, the Shang dynastic founder, is said to have offered his own body in the Mulberry Grove in order to end a five year great drought (*Lüshi chunqiu*, "Shun min"). The Mulberry Grove tradition also has strong ties to the Kongsang cosmology of the eastern cultural sphere, and it is another trait that links the Shang to the east (see Allan 1991: 41-45; Chang 1993: 25; Cohen 2001: 277-281). Several other ritual altars at City Song, each with a connection to the Shang kings, are mentioned in the historical traditions, and these serve as further evidence of City Song's ritual role. The Bo Altar was located outside of the south gate. Bo was the name of the first dynastic Shang capital, and sacrifices to the Shang dynastic founder, King Tang, were made at the Bo Altar. This altar is also thought to have been where sacrifices were made to the Earth Spirit—a Shang practice. There also might have been an altar outside of the west wall where offerings were made to Pangeng, the Shang king who moved the Shang to their last capital, Yin (Yan Daoheng 2000: 135-136).

Details of the avenues and lanes that crossed City Song

must await future excavation, but historical texts that describe other major Eastern Zhou-period (771-221 BC) cities hint at the bustling administrative, residential, manufacturing, and market areas that must have been present. For example, a description of the city of Linzi in the nearby state of Qi (in modern-day Shandong province) says, “on the roads of Linzi, carts rub hubcaps and men rub shoulders; their blouses form a canvas wall. When they raise their sleeves it forms a tent. When they shake off their sweat it turns to rain” (trans. Nienhauser 1994: 106, from *Shiji*, “Su Qin liezhuan”, 2257).

Despite the important place that the state of Song holds in Zhou history, discussions of City Song in the historical traditions are extremely limited.² What is known of this city is essentially what has been described here. The little that we do know is strongly indicative of Song’s direct ties to Shang. Locating City Song is a major step in locating the activity area of the predynastic Shang and their capital, Great City Shang. Finding City Song itself also fills in what is a tremendous gap in the historical record. As is described below, the Shangqiu Project has discovered and traced a great rammed-earth city wall, 2.9 to 3.6 kilometers long on each side, of the Zhou period that must be the remains of City Song. Future excavations could bring to light a magnificent city lost for millennia.

Wang Guowei, above, also wrote that Great City Shang is associated with the city called Suiyang, which followed City Song, and flourished during the Qin-Han (221 BC-AD 220) through Northern Wei (AD 386-

² Other passages in the *Zuozhuan* relate how the rulers of Song were particularly noted for their code of chivalry. Two examples, translated by Herlee Creel (1970: 258-259), provide amusing examples. In *Zuo Zhuan* (22nd Year of Duke Xi), there is an entry (corresponding to the year 638 BC) that describes the cool reaction of the Duke of Song to an invasion by a powerful army from the state of Chu, Song’s neighbor to the south:

“The men of Song were all drawn up in battle array before the forces of Chu had finished crossing the river, and the Minister of War said to the Duke [of Song], ‘They are many and we are few. I request permission to attack them before they have all crossed over.’ The Duke replied, ‘It may not be done.’ After they had crossed over, but not yet formed their ranks, the Minister again asked leave to attack, but the Duke replied, ‘Not yet.’ The attack was not begun until the enemy was fully deployed.

The army of Song was disastrously defeated. The Duke himself was injured in the thigh, and his guards of the palace gates were all killed. The people of the state all blamed the Duke, but he said: ‘The gentleman does not inflict a second wound, or take the grey-haired prisoner. When the ancients fought, they did not attack an enemy when he was in a defile. Though I am but the unworthy remnant of a fallen dynasty [the Shang], I would not sound my drums to attack an enemy who had not completed the formation of his ranks.’”

The extreme limits of this chivalry are illustrated in a passage in *Zuo Zhuan*, 21st year of Zhao Gong. During an intrastate war, the son of a later Duke of Song found himself in chariot battle against another powerful Song soldier, apparently (as Creel notes) more expert with bow and arrow. “Before the Duke’s son could fire a single shot, the other had loosed one arrow that narrowly missed and had another ready. At this the Duke’s son cried, ‘If you don’t give me my turn to shoot, you are a base fellow!’ His opponent held his fire, and the Duke’s son shot him dead.”

535) dynasties. Suiyang apparently developed as a city with eastern and western sectors. Since many of the structures and gates of Suiyang took their names from those of City Song, it is clear that Suiyang developed out of City Song, and there is also the possibility that at least parts of City Song were incorporated into it (Yan Daoheng 2000: 133-134). This same location became known as Song-cheng during the Sui dynasty (AD 589-618) and remained so until AD 1200, when it was once again called Suiyang. During the Ming dynasty (AD 1368-1644), this place came to be known by its current name of Shangqiu, although there have been at least two constructions of this city: an earlier Ming city that was wiped out by a flood of the Yellow River in 1502, and the present walled city that dates from 1511 (Wenwu Dituji 1991; Shangqiu 1991 : 57-59).

Through historical evidence, all of these cities have been traditionally located at Shangqiu, but prior to the Shangqiu Project, because of the ten meters of Yellow River sediments that blanket the region, actual physical evidence of all but the 1511 city was lacking. In order to verify the historical records, and to be able to locate Great City Shang in a convincing way, it was essential that the physical remains of associated cities be found. This has become one of the key achievements of the Shangqiu Project: geoarchaeological coring and geophysical prospecting have allowed us to map the city walls of at least two of these cities (City Song and the original Ming Shangqiu, the latter of which might also represent the location of the earlier city Suiyang), and excavations have been carried out through three sections of the City Song wall (discussed further below).

HISTORICAL GEOGRAPHY AND ORACLE BONE INSCRIPTIONS PLACING GREAT CITY SHANG IN SHANGQIU

In addition to this sequence of later cities reportedly built upon or near the ruins of Great City Shang, there are a number of other features in the area, related either to the predynastic Shang or to the rituals directed toward the Shang ancestors by their descendants in the Song state during the Western Zhou period (1045-771 BC). No other area of China possesses so many long-held localized traditions associating it with Great City Shang.

The most important of these is a large mound known as the E Bo Tai (Mound of E Bo) that lies just southwest of the Ming dynasty walled city of Shangqiu Xian (Figure 2). As mentioned above, E Bo is linked with the Fire Star—the star of the Shang—and the Shang ancestors Zhaoming and Xiangtu took over his sacrificial duties and territory and thereby established Shang power at what became Great City Shang. This Mound of E Bo is traditionally regarded as either the location of his offerings, or the site of his tomb. Coring by the Shangqiu Project crew revealed that the mound is made of rammed



Figure 2. View of E Bo Mound, located southwest of Shangqiu Xian.

earth and dates at least as early as the Han dynasty. On the top of the mound today is the E Bo Miao (E Bo Temple), built ca. 1297-1307 (Chen 1998).

East of Shangqiu Xian, in the small village of Weigudui in Yucheng Xian, lies the purported burial place of Yi Yin, the Prime Minister to Tang, the first dynastic king of Shang. Another marker in the Shangqiu region's historical geography is the traditional burial place of Weizi Qi, the Shang descendant and founder of City Song, which lies a dozen kilometers southwest of Shangqiu in Qinggangsi. There is also a temple dedicated to Weizi, built in 1527, within the Ming city of Shangqiu.

Among the most compelling arguments placing Great City Shang in the Shangqiu area is that made by the eminent oracle bone scholar Dong Zuobin. Through some 150 divination records culled from tens of thousands of bone pieces excavated at Anyang, Dong (1945: *xia* 9) was able to reconstruct a ten month military campaign by the last Shang king, Di Xin, that took the Shang army south and east from Anyang as far as the Huai River valley and back. Since the divination records typically contain a date in the Shang calendrical cycle and the name of the location where the king was, Dong was able to reconstruct a detailed itinerary of the Shang army's movements (for examples of these inscriptions, and further discussion, see Shima Kunio 1958: 390-403; Chen 1956: 255-258, and 301-310; Zheng Jiexiang 1994: 352-386, and Keightley 2000:137). What is of special importance here is that Di Xin passed through Shang, or Great City Shang, on his way out to campaign and again on his return trip to Anyang: by calculating the number of days traveled, the general directions and distances between various places, Dong was able to locate Great City Shang at modern Shangqiu. It also was not by coincidence that Di Xin stopped at Great City Shang, for the inscriptions read that the king "*gao yu Da Yi Shang*," meaning the king performed a "telling ritual" at Great City Shang. The king was performing what must have been among the most solemn of Shang rituals: before he could go out on this major affair of state he first had to go to the most important of the Shang's ancestral temples—those of the founders of his clan—and there report

to his ancestors what he was about to do (see Chen Mengjia 1956: 2558); on his return, he again had to go to the ancestral temple to report on his success. This was a ritual practice most likely performed by the Shang kings throughout the six centuries of Shang dynastic rule. In recognizing the need to both allow to continue and control the ritual power of this Great City Shang locale, the Zhou kings placed the state of Song there with the weakened descendants of Shang to continue the Shang sacrifices. For the Shangqiu Project, then, finding City Song should mean that we are close to Great City Shang.

FIELDWORK IN SHANGQIU

During the past decade, the Shangqiu Project has undertaken a three-pronged approach in its effort to locate and investigate sites of the predynastic and early Shang periods. Geological coring has provided data that allows us to reconstruct the Holocene landscape in this part of eastern Henan and has also located numerous paleosols and ground surfaces of the Neolithic, Bronze Age, and later periods. This coring program has been coordinated with remote sensing and geophysical survey work in an effort to test new technologies in archaeological research in the North China Plain. The third aspect of the project has been archaeological excavations: three Neolithic through Bronze Age sites in the Shangqiu area were excavated in order to clarify the poorly understood cultural chronology of this region during the time period of Great City Shang.

GEOARCHAEOLOGICAL EXPLORATIONS

Geoarchaeological explorations have proceeded at Shangqiu since 1990 under the direction of Jing Zhichun and George Rapp, Jr. of the University of Minnesota. Geological coring using both manual and truck-mounted drills has had several distinct goals: to define the Holocene subsurface stratigraphy below the present flood plain on local and regional scales; to examine the distribution of archaeological sites in the context of a changing landscape; to evaluate the impact of fluvial geomorphologic processes on the development, preservation, and visibility of Neolithic and Bronze Age sites; and to predict and detect the location of settlement sites situated on previous flood plains that now lie deeply buried. It is worth noting that coring has a long history of use in China by tomb robbers and, later, by archaeologists as a site detection tool, but prior to this project it has not been effectively used to reconstruct the environmental landscape related to archaeological sites.

During nine seasons of geological work carried out between 1990 and 1998 in the Shangqiu area, more than 800 cores (many to a depth of nine meters or more) have been drilled and analyzed, providing palaeo-landscape information of this region that has been and will continue to be of fundamental importance to this project. The coring has revealed that the Shangqiu region has under-

gone major environmental changes during the Holocene period, with three major episodes of landscape evolution: prolonged landscape stability until about 2000 years ago; gradual flood plain accretion with the development of a cumulative soil; and, over the past 1000 years, rapid vertical aggradation of the flood plain caused by dramatic flood events. These events make an accurate understanding of the distribution of ancient sites difficult to achieve, and the identification of numerous upland and mound sites should be tempered by our increasing understanding that lowland sites also existed, but are now deeply buried under relatively recent sediments. The geoarchaeological investigations carried out for this project are providing significant insights into the impact of a changing landscape on the spatial and temporal distribution of ancient sites in this part of Henan province. For a more detailed discussion of these results, readers are directed to Jing Zhichun et al. 1995, 1997; and Jing and Rapp 1998.

The most important result of the coring program came in the spring of 1996, when the coring team, working in flat, open wheat fields just west of Shangqiu Xian, discovered a massive, completely buried rammed earth wall. The wall was gradually traced out to reveal a city enclosure measuring between 2.9 to 3.6 kilometers on each side. Subsequent excavations (described below) through this wall reveal that it dates from the Eastern Zhou period, and is in all likelihood the fabled remains of City Song.³

GEOPHYSICAL EXPLORATIONS

The second branch of the project—the application of geophysical remote sensing methods—goes hand in hand with geological coring: coring can provide stratigraphic information that can help determine where the geophysics might be useful, and is also essential to determine the nature of anomalies detected geophysically. Likewise, geophysics can efficiently cover large expanses of ground in a search for patterns of anomalies that might indicate buried archaeological features, and can therefore help to guide subsequent coring.

The application of geophysical remote sensing to archaeology has a long history in the West, but this project represents one of the first efforts to apply it to the detection and analysis of Chinese archaeological sites. Geophysical surveys at Shangqiu since 1992 have tested a variety of techniques to determine their applicability for the detection of subsurface anomalies, both cultural and natural, in this area that presents a rather daunting set of challenges. These site-specific issues that must be overcome include the large size of the search area (at a minimum, between 50 and 100 km²); the lack of stone or brick architecture (the dominant building technique in late Neolithic and early Bronze

Age China was pisé or rammed earth, made of the same alluvial loess that continued to be deposited over the area in later times); the depth of deposits (Shang-period and Zhou-period cultural layers are between 9 and 10 m beneath the present surface, although rammed earth foundations and walls rise much closer to the surface), and the high water table (about 5 meters below surface in normal years, although it has been considerably lower in recent years due to several years of below normal rainfall).

Survey instruments have included ground-penetrating radar (or GPR) (Sensors and Software PulsEKKO IV), proton precession magnetometer (Geometrics 34), cesium magnetometer (Geometrics 858), electromagnetic sensors (Geophex Gem-2), and electrical resistivity (Oyo Corp.), with varying results. The GPR fitted with a 100MHz antenna, while promising in its ability to penetrate the local soils to a depth of 9-10 meters, and to resolve shallow rammed earth at a high resolution, proved too slow in operation for the area that needed to be covered. Work in the spring of 1997 showed that electrical resistivity could detect buried rammed earth with surprisingly high resolution (on the order of one meter), and work in the fall of 1997 showed that the cesium magnetometer in gradiometric configuration was an excellent detector of buried rammed earth walls and other linear features, complementing the EM data that resolved different types of anomalies. The combination of high resolution and ease and speed of use make the cesium magnetometer and the EM a promising combination for future surveys of large areas, while the resistivity and GPR promise excellent results in more focused areas, such as tracing out the length and direction of walls and foundations that have already been partially located. These technologies are most effective in close cooperation with a coring program (Sino-American Field Project 1998).

SHANGQIU PROJECT EXCAVATIONS

Although the cultural and historical importance of the Shangqiu region have long been recognized by archaeologists, up until recently only a limited amount of work had been done in the region: this was due to the region's deep deposits of Yellow River alluvium that obscure all but the highest mound sites. The first survey of the Shangqiu region was carried out as early as 1936, when Li Jingdan (1947), of the Anyang excavation team, was sent there to search for Shang remains that would date earlier than those at Anyang, including Great City Shang. Li was able to locate only a few mound sites containing what he believed to be Neolithic remains. Work in the Shangqiu region was not revived again until the 1970s and 1980s, when a series of surveys and small-scale excavations were undertaken in eastern Henan by the Institute of Archaeology of the Chinese Academy of Social Sciences. Again, only a limited number of mound

³ It should be noted that the expertise of the project's geoarchaeologists has proven most effective as well in a separate project at Anyang, where coring has detected the major late Shang walled city known as Huanbei City (see Tang Jigen, this issue).

sites were identified containing late Neolithic Longshan, Erligang Shang, Late Shang, and other subsequent cultural remains (Heze 1980, Shangqiu 1978, 1981, 1982, 1983). However, archaeological remains dating to the early second millennium—the time period of the predynastic and early dynastic Shang, and of Great City Shang—remained unclear. A cultural gap was thought to have existed, and a new model of Shang movement across the landscape, based on this lacuna seen in the data and a supposed expansion of Shang Erligang remains out from Zhengzhou, emerged to explain it: the supposed absence of predynastic and early dynastic Shang sites in the region was assumed to be a reflection of the Shang people not having reached the Shangqiu area until the middle of the Shang period.

However, a more likely scenario was not a cultural gap, but rather, that the limited amount of work done, which consisted mainly of non-systematic survey of elevated areas already locally known to have surface remains, had simply failed to locate sites of this time period. Work had also been limited exclusively to mound sites, so if sites actually did exist on the lowland flood plains during the early Bronze Age period—and this is actually where Bronze Age city sites are typically found to be located throughout the North China Plain—archaeologists would have missed them. Furthermore, a prevailing assumption from early times up until the time of the Shangqiu Project was that the Shangqiu area in the Neolithic and early Bronze Age had the same flooding risk as was known from recent historic times (AD 12th to middle 19th centuries), when the frequent and devastating flooding of the Yellow River was one of the most important factors in the selection of settlement localities. Many archaeologists thus believed that lowland settlements and cities would not have been constructed in the Shangqiu region due to a supposed high risk of floods.

Field research by the Shangqiu Project in the geology, geomorphology, and archaeology of the Shangqiu region in eastern Henan, however, has readily demonstrated that these previous assumptions are questionable in terms of both the regional archaeological configuration and the potential impact of geomorphic processes on Neolithic and Bronze Age sites (Zhang and Chang 1997; Chang and Zhang 1998; Jing et al. 1995, 1997): there is no cultural gap during the early Bronze Age period, and, as mentioned above, Yellow River flooding was not significant until much later in the historical period. Below we briefly discuss the results of the Shangqiu Project's excavations at three Neolithic sites in the Shangqiu region: Panmiao (excavated spring 1994) in Shangqiu County; Mazhuang (excavated fall 1994), near Shaji'nan, in Yucheng County; and the Shantaisi site (excavated 1995-1997) in Zhecheng County. These excavations, conducted by the project's Sino-American team, have been able to fill

in the gaps in the cultural sequence, a sequence we now know extends in the region from the Middle Neolithic (5000-3000 BC) period through the Warring States (481-221 BC) and Han (206 BC - AD 220) periods and later, including cultural materials from the early Bronze Age Yueshi culture (1800-1450 BC), which is contemporaneous with the period of Great City Shang's original settlement.

THE PANMIAO SITE

The Panmiao site (34°18' N, 115°36' E) is located 22 km south of the walled Ming dynasty town of Shangqiu Xian, the current seat of Shangqiu County. A number of stone-lined and hollow-brick tombs of the Warring States and Han period had been previously identified at the site through informal surveys; indeed, many of these tomb bricks have been dug up by local villagers over the years for use in modern house construction. Geological coring at the Panmiao site carried out by the Shang project (see Jing et al. 1995, 1997; and Jing and Rapp 1998 for a general report) confirmed that unlike most of the other known Neolithic sites in the region, which were situated on now-buried natural rises or mounds (and thus allowing them to be seen still slightly elevated above the present surface through the deep surrounding alluvium), the Panmiao site was situated on the lowland of the flood plain at the time of its earliest anthropogenic deposits, which date to the Longshan culture period (ca. 2400-1800 BC). Thus, people indeed inhabited the flood plains during the Late Neolithic and early Bronze Age periods.

The Panmiao excavations in 1994 were carried out in two excavation zones and exposed an area of 180 square meters. The Panmiao excavations employed dry screening of cultural deposits (probably the first time this was consistently done in China) and a soil sampling regime to collect samples for geological, palaeobotanical, and palynological analyses.

Cultural remains recovered from Panmiao can be grouped into three cultural periods: the late Neolithic Longshan culture period, the early Bronze Age Yueshi culture period, and the Iron Age Warring States period. The chronological sequence of the Longshan culture to the Yueshi culture is now known to be quite common at sites of the Yueshi culture, which is centered in Shandong Province and extends into eastern Henan. Certain traits of the early Yueshi culture pottery also seen in the local Longshan culture phase give some support to arguments for the local development of the Yueshi culture out of the local Longshan culture phase known as the Wangyoufang phase. The Yueshi culture at Panmiao also seems to continue into the latest chronological phases of the Yueshi culture, equivalent to the late Lower or early Upper Erligang period (Cohen 2001: chapter 6): these materials, along with Yueshi materials from the Shantaisi site, are thus extremely important in

terms of understanding the material culture of the Shangqiu region at the time of the original settlement of Great City Shang.

The presence of Yueshi culture sites in the Shangqiu region has demonstrated that there actually is no cultural gap in the archaeological record of the early Bronze Age period. The debate in China has now shifted as to whether or not it is possible that Shang peoples could have resided in an area in which the Yueshi culture is found, as remains of the Yueshi culture have come to be associated with an early ethnic group from the east known as the Eastern Yi: the drawing of rigid social boundaries around material cultural groups in the culture-historical approach of Chinese archaeology compels most archaeologists in China to exclude a Shang presence in an area where the Yueshi culture is found. As Cohen (2001) argues in some detail, such an exclusion fails to recognize the complexities of the interrelationships between material culture patterning and social identity, the deep cultural roots of the Shang founders in the eastern cultural sphere (which included the Yueshi culture), and the distinct possibility that there was no salient "Eastern Yi" identity (especially one opposed to a "Shang" identity) during the Yueshi culture period.

The Panmiao site's early cultural remains were somewhat limited because the cultural levels had been disturbed by a rather densely packed cemetery of the Eastern Zhou through Han periods, with graves primarily from the Warring States period. Forty-four graves were identified, many of them with large pits, coffin chambers with second level shelves, rammed earth fill, and/or of impressed hollow-centered tomb brick construction, and 37 were excavated within the 200 square meters opened at the site. The Panmiao cemetery has further potential significance to the Shangqiu Project in terms of its possible contemporaneity with finds that may come from the Eastern Zhou walled city thought to be City Song.

THE MAZHUANG SITE

During the fall of 1994, the project excavation team moved to the village of Mazhuang, in Yucheng County, also in the Shangqiu District. The Mazhuang site (34°11' N, 115°46' E) is located 25 km southeast of Shangqiu Xian, in Yucheng County. An area of 203 square meters was excavated, and cultural materials recovered included later materials from the Han through Ming period, late Shang ceramics similar to those found in neighboring Shandong, and a small number of Longshan vessels. However, the most abundant remains discovered were those in the lowest cultural level, which appears to be contemporaneous with the Yangshao culture to the west and the Dawenkou culture to the east (5000-3000 BC).

This lowest cultural level at Mazhuang contained 22 burials: the burial goods and other artifacts from this cul-

tural level share affinities with both the Yangshao and the Dawenkou cultures, and further comparative studies are currently underway that should result in the most appropriate cultural label for these materials. These burials lacked grave pits, but most contained one or two ceramic vessels, usually painted, as well as other grave goods of bone, ivory, stone, and shell. Although some of these burials contained relatively complete skeletal materials, many had been disturbed by animal burrowing and contain only partial skeletons. In addition, several of the human skeletons showed evidence of tooth extraction. The regular arrangement of the burials strongly indicates that those that were excavated are only a portion of a larger cemetery that would extend further toward the northeast of the site. Much of the Mazhuang pottery is painted, mostly with red colors, and designs are often found in registers. There is also a large number of bowl-shaped vessels with colored bands around the rim area from differential oxidation states brought about in firing. Vessel forms include *ding* tripods, bowls, pots, *hu* bottles, pedestaled bowls with perforated, high or low ringfoot stands, *zun* urns, and *gu* goblets. If the ceramic ware, decorations, and vessel forms support a Yangshao classification for the Mazhuang materials, then this site would mark the easternmost extent that Yangshao materials have been discovered in China. The Mazhuang materials predate the issue of Shang origins, but other research concerning Middle Neolithic period regional differentiation, economy, material production, burial practice, etc., will benefit from the data recovered at Mazhuang.

THE SHANTAISAI SITE

The Shantaisai site (approximately 34°07' N, 115°11' E) is situated approximately 50 km southeast of Shangqiu Xian and 13 km west of the Zhecheng County seat. Once a large mound, only a small remnant of it remains above the present ground surface, while cultural deposits at the site extend below the surface to cover an area 200 m by 200 m. Excavations at Shantaisai were carried out over five seasons of fieldwork from 1995 to 1997, and an area of over 350 square meters was excavated. The Shantaisai site is primarily represented by a deep and extremely rich late Neolithic occupation of the regional Longshan culture phase. Closer to the surface were shallower Yueshi culture and Late Shang deposits with pottery similar to that found in neighboring Shandong sites, but much of these cultural levels had been removed by agricultural and road construction activities near the site.

Major discoveries at Shantaisai include a large, multi-roomed, rammed-earth structure (F2) from the Longshan period. This building featured a row of at least six connected rooms; white plastered floors and walls; and ceremonial caches of ceramic vessels, antler, animal bones, stone tools, and shells, as well as child burials, related to the various construction phases of the floors and walls. This structure was constructed upon a

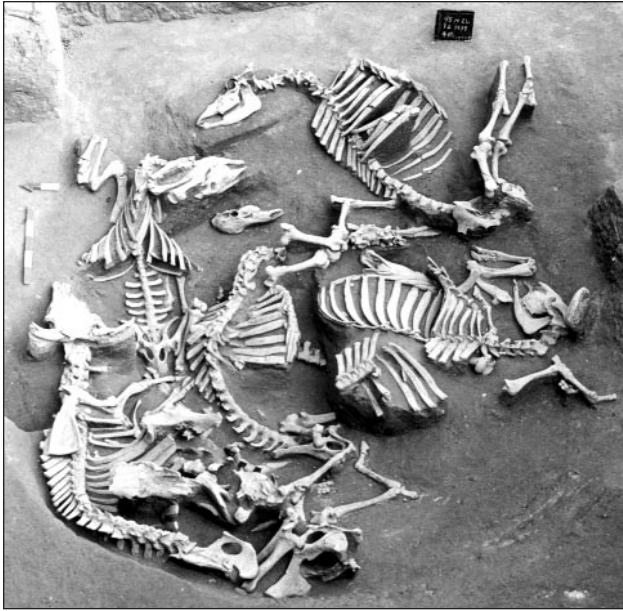


Figure 3. Longshan culture period pit excavated at the Shantaisi site, Zhecheng County, Shangqiu District, containing articulated cattle and a deer skull.

rammed earth platform, which itself had been built upon an earlier rammed earth platform.

The second major discovery at Shantaisi was a Longshan period pit (H39) most likely used for cattle sacrifice (Figure 3). The pit contained articulated remains of at least nine cattle and the cranium of one muntjac deer. This may in fact be the earliest such sacrificial pit found in China. Furthermore, a cattle pit such as this one may very well be directly ancestral to a quintessential part of the Shang ritual complex, for the Shang kings commonly offered cattle sacrifice to their ancestors. This is seen in the oracle bone inscriptions at Anyang, and pits containing articulated skeletons of cattle have been excavated at Anyang and in earlier elite Shang period contexts, particularly at Xiaoshuangqiao (Song and Zeng 1993 and 1996; and Tang Jigen, this volume). Cattle sacrifice is not found in pre-Shang period contexts in other regions, such as at sites of the so-called “Proto-Shang” culture: this is another clue, therefore, that the Shang had their origins in the east, and it strengthens the proposition that the Shang had their predynastic roots in the Shangqiu region.

In addition, well over 100,000 Longshan-period pottery sherds were recovered from Shantaisi, and over 400 ceramic vessels have been reconstructed. These materials will help redefine the eastern Henan Longshan culture phase commonly referred to as the Wangyoufang phase or the Zaolütai phase (Shangqiu 1978; Zhongguo and Henan 1987; Luan 1997:283-300; Li Boqian 1983). A small amount of “eggshell” pottery was also found at Shantaisi: this pottery, which is literally eggshell-thin, is considered a high-status ware due to its rarity, the high degree of sophisticated ceramic technol-

ogy required to produce it, and its common appearance in elite contexts such as large, rich burials.

Tools recovered at Shantaisi include stone arrowheads, stone shovels, stone adzes, shell knives, shell sickles, bone arrowheads, bone awls, bone darts, and ceramic spindle whirrs. These tools were found in various small caches associated with the building foundation F2 and in the many “ash pits” found in the cultural levels. Many faunal remains were also found at the site and include domesticated pig, cattle, dog, sheep, and goat, and wild fauna such as red deer, deer, turtle, and a large number of fish bones and scales. The site also contained many well-preserved carbonized botanical remains. Preliminary analysis of flotation samples shows a wide variety of wild and domesticated grasses, including both foxtail and broomcorn millet, as well as small beans.

The scale of the building foundation at Shantaisi and the diversity of its ceramic assemblage are beyond those found at the other two sites, and there are many indications that it may be a site the scale and complexity of which exceed many other Longshan sites found in eastern Henan. The wealth of ceramic, lithic, faunal, and botanical materials and other ecofacts excavated at Shantaisi should greatly further our understanding of the site and its place in the greater cultural and natural contexts. It also fills in many gaps concerning the cultural developments from the Longshan to the Yueshi, and the predynastic Shang in general. Studies of Neolithic materials excavated at Panmiao, Mazhuang, and Shantaisi by the Shangqiu Project should help to clarify the nature of the predynastic and Early Shang culture that emerges from them.

CORING AND EXCAVATIONS AT CITY SONG

Following six seasons of geoarchaeological and geophysical fieldwork at locations around Shangqiu, including concentrated efforts in the area to the south and southwest of Shangqiu Xian, in the spring of 1996 the Shangqiu Project team discovered a thick rammed earth feature while doing wide-diameter geological cores from a truck mounted rig. In this core, this feature began five meters below the ground surface and continued down for another seven meters in depth. The thickness of the rammed earth was indicative of a wall, and indeed, when coring teams with Chinese “Luoyang spades” and Dutch augers started tracing this feature outward, they soon were able to plot a long, north-south wall. Two more seasons of coring in 1996-1997 traced not only the complete length of this wall, which extended for over three kilometers, but also the lengths of the three other walls of what we now know to be a city of the Eastern Zhou period (Figure 4).

This city wall could be no other than that of City Song: its location was where City Song is said to have been in the historical traditions, and this city dated to the Eastern Zhou time period, as well as having possibly

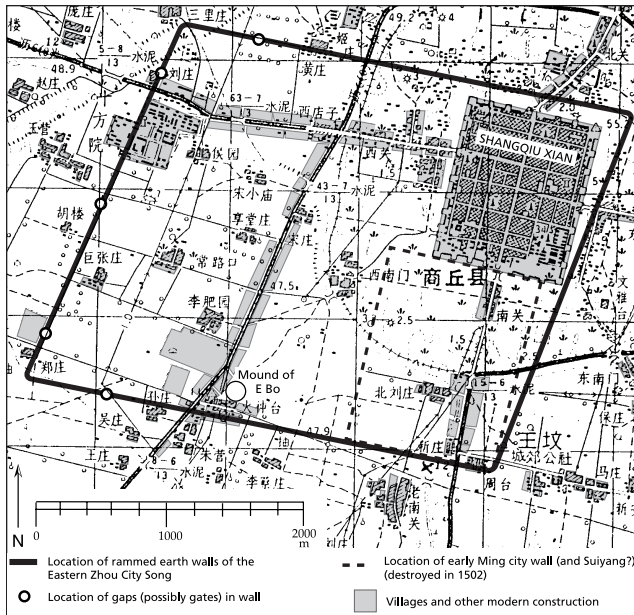


Figure 4. Map showing the location of City Song of the Eastern Zhou period and the early Ming city destroyed in 1502 (both determined by Shangqiu Project coring), and the current walled city of Shangqiu Xian (1511-present) and its surrounding villages.

earlier construction phases. The city wall traced by coring turned out to be almost rhomboidal in shape, with rounded corners. The city is oriented so that the east and west walls run almost to the northeast. The lengths of the walls measure 3010 m (west), 3252 m (north), 2900 m (east), and 3350 m (south), enclosing an area of 10.2 square kilometers. The west wall and the western portions of the south and north walls appeared to be the best preserved, while the construction and activities related to the later cities such as Suiyang and both Ming-period Shangqiu cities (the lost earlier city Shangqiu of the Ming dynasty was also identified by the Shangqiu Project's coring regime, immediately south of the present walled city) disturbed many portions of the Eastern Zhou wall sections in the east. Cores showed that City Song's walls stood roughly 10 meters high and were 12-15 meters wide across the top and probably ca. 25 meters wide at the base. The walls also appear to have a narrow rammed-earth-filled foundation trench dug into the original ground surface some 1-2 meters deep, on top of which the base of the wall was constructed at ground level. Coring also revealed gaps in certain parts of the walls, 12-30 meters wide, whose structure and placement suggest that they were city gates. There were at least three of these gaps in the west wall and one at the west end of both the north wall and the south wall. Cores directly to the exterior of the south wall also showed that a moat was present outside the city wall.

In order to better understand the construction phases and dating of the wall, the Shangqiu Project team decided to excavate exploratory trenches through several of

the better-preserved sections of the wall. The first trench, through the south wall, was placed ca. 400 meters east of the southwest corner. It measured 4 meters wide and 32 meters in length. Because of the relatively high water table in the Shangqiu area and the danger of wall collapse, the excavations could only proceed to a depth of 5-7 meters, leaving another 4-5 meters to the base of the wall. Two other trenches were also excavated in subsequent field seasons, one in the south portion and one near the mid-point of the west wall.

The excavations of the first exploratory trench showed that the width of the wall widens with depth, from about 5 meters wide at its top, to 10 meters wide at 2 meters deep, to 15 meters wide at 4 meters deep. At 7 meters depth, the rammed earth of the wall continued beyond the excavation trench, but it is estimated that the width of the wall at this point is about 22 meters. It also became clear in the excavations that the wall was not built during a single construction episode. Different phases of wall construction and repair can be detected through changes in the color and texture of the rammed earth and the way in which the tamped layers were formed (including changes in their thickness, slope, distinctiveness, and ramming tool marks). At least six different types of rammed earth, each representing different episodes of construction and repair, are found. Cultural materials recovered from within the rammed earth layers of the city wall in the first trench were limited but included ceramic roof tiles and pottery sherds, all dating generally to the Eastern Zhou period.

The second and third trenches were opened in order to secure better dating of the wall. Abundant pottery sherds were recovered from the city wall in these trenches. One of the rammed earth construction phases was found to contain many sherds that dated to no later than the Spring and Autumn period (ca. 770-475 BC) and a small amount of sherds that dated earlier than the Spring and Autumn period. A stratigraphically earlier construction phase contained a large number of pottery sherds that dated no later than the Western Zhou period (ca. 1045-770 BC). It thus appears that at least one phase of this wall's construction dates before the Spring and Autumn period and may extend back to the period of the Shang dynasty's fall and the beginning of the Western Zhou (for more details see Sino-American Field Project 1998).

The significance of finding this large Eastern Zhou, and possibly Western Zhou, city cannot be overstated. There is no reason to believe that the city walls found at Shangqiu are those of any other city than City Song itself, the same majestic capital of the state of Song described in the *Zuozhuan* and other Eastern Zhou and Han sources noted above that had been lost for millennia. City Song is a spectacular discovery in its own right, but for the Shangqiu Project's goal of locating

Great City Shang, this discovery takes on even deeper significance. As City Song was built for the descendants of Shang on the site of their ancestral ritual center, Great City Shang, finding City Song may mean that we are but one step away from finding the Shang city.

RESEARCH RESULTS

The Shangqiu Project's results, like those of the other international, interdisciplinary projects now underway in China, can be measured on multiple levels. First there are the actual research results from twelve years of fieldwork and laboratory analyses, as have been described briefly above. In addition to these, the Shangqiu Project, as one of the pioneering collaborative archaeological projects in China, has hopefully produced other broader, but perhaps less tangible, benefits for the field of archaeology in China and the United States.

To summarize the above discussion, specific field research results by each team have done much to advance our knowledge concerning the Shangqiu region during the late Neolithic and Bronze Age periods. The geoarchaeological team has been able to reconstruct the complexities of landscape evolution during the Holocene period in the Shangqiu region. This has demonstrated that the thick Yellow River alluvium that blankets the region and has plagued archaeologists who have tried to work there is actually a relatively recent phenomenon, and the landscape formation processes that would have impacted human settlements in the region during the distant past would have been quite different from what has been experienced in recent history, with the landscape of the late Neolithic and Bronze Age being much more stable and free of calamitous Yellow River flooding events. Coring by the geoarchaeological team, in tandem with geophysical prospection, was also able to locate various buried features of rammed earth in Shangqiu area, including the walls of what were previously lost cities: City Song and the Ming dynasty Shangqiu destroyed by a flood in AD 1502, as well as, possibly, Suiyang.

The archaeological excavations at Panmiao, Mazhuang, and Shantaisi have been able to fill in many of the gaps in the cultural history of this little-explored region. We now have a much fuller view of the Shangqiu region's cultural evolution from the Middle Neolithic onward, and the excavations provide particularly important data for the crucial transformational period from the late Neolithic to the early Bronze Age. In particular, the Longshan culture remains from Shantaisi strongly support the possible emergence of Shang cultural practices from a cultural sphere that includes the local eastern Henan region. Yueshi culture remains from the excavations also demonstrate that the region was inhabited during the time period in which Great

City Shang should be found. Archaeological excavations at City Song have demonstrated that its construction phases correspond well to what is known of the city through the historical record: that physical remains of City Song can be found here from the Eastern Zhou and possibly Western Zhou periods is highly supportive of the hypothesis that Great City Shang is located here as well.

The search for Great City Shang has long been recognized as one of the most difficult tasks facing Chinese archaeology, and the primary cause of this difficulty is the ten meters of historic-period Yellow River flood deposits in the rather broad target area of Shangqiu. In the past, archaeologists have been unable to deal with this challenging combination of deep alluvium and broad coverage area. With recent technological developments in geophysical prospection methods, it was felt that the means to be able locate Great City Shang might finally be available. However, these new technologies had never been tested against the particular conditions of the Shangqiu region. Through trial and error, the geophysics team was able to assess the effectiveness of each instrument in the Shangqiu landscape and determine which held promise for the particularly difficult job of finding rammed earth features within a similar geological matrix. In many ways, this project presents the most difficult combinations of conditions for remote sensing work, and if these methods can work to uncover ancient sites at Shangqiu, they should work at a wide range of Chinese archaeological sites that are either less deeply buried or contain stone or brick architecture that would have a more obvious visible or botanical signature on the surface.

The Shangqiu Project has brought together an interdisciplinary range of specialists who traditionally have not actively collaborated in Chinese archaeological projects. The search for Great City Shang has seen experts on Shang oracle bone writings comparing notes with space scientists working with satellite-derived imagery, and finds illiterate wheat farmers discussing soil color differences with geophysicists carrying state-of-the-art survey equipment. We have found that this project is not only building bridges between Chinese and American scientists, but also among Chinese scientists at institutes that have not normally cooperated on research projects, due to informal but well entrenched barriers between and among disciplines.

As the benefits of bringing in specialists from the natural sciences and other disciplines to address archaeological questions become more widely recognized, a trend is now emerging toward the incorporation of new research questions and methods not traditionally included in Chinese archaeology. The Shangqiu Project is not alone in establishing this new

trend, and it can now be seen in a series of projects in China, both international and local. This trend should continue to develop, bringing with it the promise of exciting new approaches to understanding China's past. □

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