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Archaeology of the Lu City: Place Memory and Urban Foundation in Early China

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Besides the concentration of residents, the florescence of marketplace and craft production, and a sense of security afforded by collective defense, the notion of city often also includes the idea of it as a sacred place, which helps connect people with their past and their religion. By comparing the Zhou state-building narrative from textual sources with patterns observed in our landscape archaeology research of the Lu 魯 city in the Qufu 曲阜 region, we argue that the place memory associated with the legacy of past political developments served as an important foundation for the creation or renewal of urban tradition in early China.

The Zhou conquest of the hegemonic Shang state during the last decades of the second millennium BCE did not merely mark a dynastic change. Rather, the Shang-Zhou transition gave rise to important political and ritual institutions that were significant in defining the conceptual framework for later Chinese civilization. The great challenge for the Zhou state founders was to consolidate a large domain inherently characterized by great cultural and historical diversity. In order to control its large territory, the Zhou kings implemented the *fengjian* 封建 (to assign and establish) system by granting land, people, historical relics, gifts, and titles to members of royal lineages and high elite, making them lords of the regional states (Creel 1970; Hsü and Linduff 1988; Li Feng 2006, 2008). These lords acknowledged the political and ritual authority of the royal house by offering military assistance, services, and tributes in the form of finished products, raw materials, and local produce. Having served as their seats of political authority, the capitals of these regional states evolved to be great cities during the Eastern Zhou period (Falkenhausen 2006, 2008).

In a debate on the lineage seniority attributed to 506 BCE in *Zuozhuan* 左傳, invocator Tuo 佗 (Ziyu 子魚), the chief priest of the Wey 衛 state, recounted the colonizing missions associated with the founding lords of three major Zhou regional states during the early Western Zhou period, namely the states of Wey, Lu, and Jin 晉

[Figure 1].¹ The royal investiture addresses incorporated into Tuo’s speech highlighted the symbolic and logistical consideration of Zhou state-building in a newly established political domain with great cultural diversity. The Zhou founders instructed these lords to govern the local population according to the historical notions of political authority specific to their region (Yang 1990:1534-40). Place memory provided Zhou rulers the spatial definition of legitimacy, and helped these Zhou military colonies to incorporate the memory communities associated with each of these historically significant places (Li Min 2016). The construction of these military colonies in the name of the past helped the Zhou cope with cultural diversity and the historical notion of legitimacy.



Figure 1: Locations of Western Zhou royal centers (Zhouyuan 周原, Feng-Hao 豐鎬, Luoyi 洛邑) and major Zhou regional states (Jin, Wey, Lu) mentioned in invocator Tuo’s speech in 506 BCE (based on Li Ling 2003 Figure 1)

Li Min’s (2016) case study of the construction of Luoyi in the Luoyang Basin and the establishment of the Jin state in the Jinnan Basin shows that the Zhou state-building processes in the two great basins were guided by historical precedents and a historical landscape that dates back approximately a thousand years before the conquest of Shang. These two major Zhou political centers were built in the two basins that, prior to the Zhou conquest, were sparsely populated for over two centuries. From an archaeological perspective, however, these two basins were not empty in the historical sense, since some of the most important instances of political development from the late third to the early second millennium BC took place there.

Through the construction of cities in these two basins in the name of the historical legacy associated with *Xia* 夏墟, the “Ruins of Xia,” the architects of the Zhou state transformed the basins into well-populated Zhou political strongholds that effectively

¹ Completed by 300 BCE, *Zuo*zhuan was compiled as a commentary to the Lu state chronicle *Chunqiu*, the Spring and Autumn Annals, during the middle first millennium BCE (Yang Bojun 1990; Schaberg 2001; Pines 2002; Durrant et al. 2016). As China’s first great work of history, this layered text contains stories about the past told by storytellers in Eastern Zhou society.

closed the gap between the east and west (Li Min 2016).² Place memory, therefore, provided the cultural foundation for Zhou's geographic choice to establish its political centers. The claim to the past not only reconstituted the regional society in the two basins, but also created a new framework for the Zhou claim to legitimacy under the notion of the Heavenly Mandate, which came with its assumptions of dynastic change.

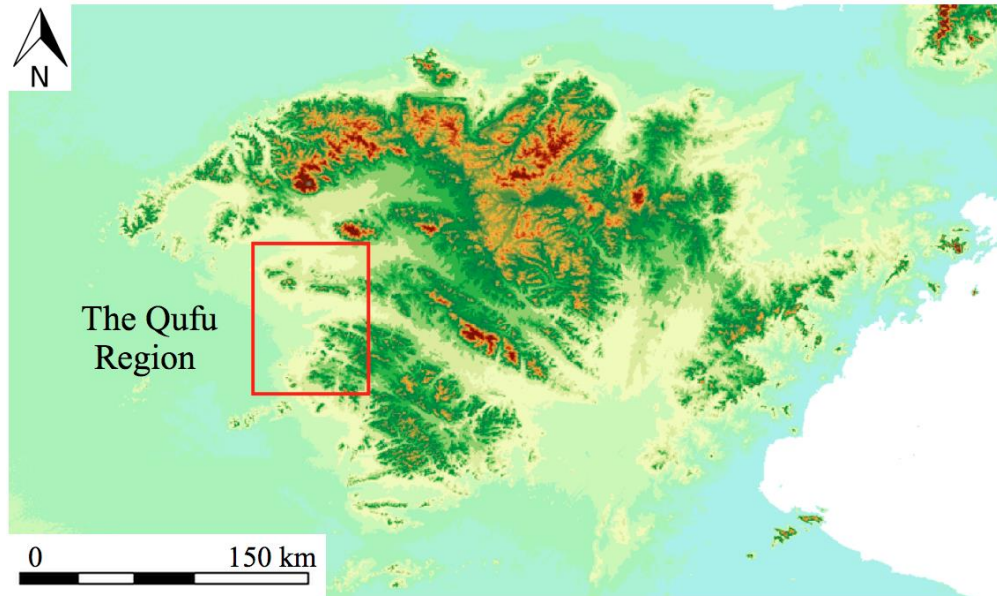


Figure 2. The location of the Qufu region in coastal Shandong, eastern China.

In this paper, we focus on urban development in the Lu state in the Shang heartland and its transformation from a Western Zhou military colony into a full-blown urban center during the Eastern Zhou period [Figure 2]. For the consolidation of Zhou control in the eastern part of Shang heartland, invocator Tuo's speech highlighted the state-building strategy for the important state of Lu granted to the heir of the Duke of Zhou, the dynastic founder and architect of Zhou political thoughts and ritual institutions:

To the Lord of Lu was allotted a grand chariot, a grand banner, the jade half disk of the Xia ruling line, the Fanruo bow of Fengfu, and six houses of Yin people, the Tiao, Xu, Xiao, Suo, Changshao, and Weishao lineages. These six houses were made to lead those who shared their ancestral lineages, to gather together their collateral houses, and to guide their many dependents in following the Zhou Duke's models. With that, the Lord of Lu assumed his command from the Zhou ruling house, and in this way he was appointed to take up his duties in Lu, in order to display the notable virtue of the Zhou Duke. To him were allotted lands and fields and dependents, invocators, lineage ritualists, diviners, scribes, regalia, statutory documents, officials, and sacrificial vessels. Taking the people of Shangyan as his own soldiers, our lord was given his command in the Boqin and enfeoffed at the Ruins of Shaohao (Yang 1990:1536 translated by Durrant et al. 2016: Lord Ding 4.1e).

² Zhou historiography places the Xia dynastic regime to approximately 2100 to 1600 BCE. The Xia narrative in Zhou sources probably incorporated the Longshan legacy and the Erlitou legacy from the late third to the second millennium BCE (Li Min 2016).

The seven lineages of the Shang subjects each performed different trade crafts; e.g. they were potters, flag makers, bridle makers, knife smiths, fence makers, and awl makers. These professional assignments provide clues to the practical logistics of state-building. Invocator Tuo's speech went on to describe the investiture of Lord Kangshu of the Wey state at the Ruins of Yin 殷墟, where Boqin 伯禽 and Kangshu 康叔 were instructed by the Zhou king to lead their people by means of Shang regulations, and surveyed the land in accordance with Zhou models.

Although these state-building narratives were incorporated into texts compiled centuries after the founding of the Western Zhou, which could be subject to political manipulations in the course of their creation, transmission, and transcription, their claims about the past are archaeologically testable. The discoveries of Western Zhou elite cemeteries at Tianma-Qucun 天馬曲村 for the lineage of Lord Shuyu 叔虞 of the Jin state, at Xincun 辛村 for the ruling lineage of Lord Kangshu of the Wey state, at Liulihe 琉璃河 for the ruling lineage of Lord of Shao 召 of the Yan 燕 state, and at Chenzhuang 陳莊 for a lineage of the Grand Lord 太公 of the Qi 齊 state in the eastern plains attest to the general accuracy of these historical narratives about Zhou colonization (Guo 1964; Beijingshi 1995; Shandongsheng 2010, 2011; Zou 2000).

The bronze inscriptions from early Western Zhou indicate that Zhou leaders had a sophisticated knowledge of a vast landscape. The inscription on an early Western Zhou Yihou Ze 宜侯矢 *gui* 簋 vessel excavated from the Yandunshan 煙墩山 cemetery in the lower Yangzi River basin provides an example of Zhou geographic knowledge. The investiture statement incorporated into the inscription of the bronze vessel described the place of Yi as having over 300 river valleys and 35 villages. The people granted to the lord were grouped into four categories, i.e. the king's men in the region were listed according to their lineage names, and the local people of the region (the place of Zheng from where the lord was transferred,) were described as a group led by seven chiefs, with commoners listed in numbers (Hsü and Linduff 1988:156; Li 2006:322; Shaughnessy 1989).

For the Lu state granted to Lord Boqin, a son of the Duke of Zhou, invocator Tuo's account of the investiture address followed the same pattern of distribution: naming war treasures, administrators, six artisan lineages from the conquered Shang communities, royal instructions, and the historical landmarks associated with the past groups that once inhabited the region. Unlike the Zhou states of Wey and Jin, however, the place memory associated with the Lu state, known as the Ruins of Shaohao 少昊之墟, was tied to the legacy of a distant past rather than recent dynastic regimes from the second millennium BCE. For authors of *Zuo zhuan*, Shaohao was a legendary confederation of the coastal region that predated the beginning of the dynastic era in the late third millennium BCE. The strategic goal of the Lu state, however, aimed at suppressing the communities of Shangyan 商奄. This investiture address to Lord Boqin serves as an important clue for our archaeological inquiry into urban formation in the Qufu region (Rosen et al. 2015; Li et al. forthcoming).



Figure 3. Corona satellite image of the Zhou and early imperial Lu city site at Qufu (Image source: USGS DS1115-2167DF040_40_c September 21, 1971 Longitude 116.99 Latitude 35.59)

Archaeology of the Lu City at Qufu. The Lu city at Qufu remains one of the best-preserved Bronze Age city sites in China. Its rammed earth wall and city moat enclosed an area of approximately ten square kilometers, with many sections of the wall still well preserved today [Figure 3]. While archaeological reconnaissance of the Lu city site began in the early twentieth century, our current understanding of the Eastern Zhou to early imperial urban plans comes from a major archaeological campaign directed by Zhang Xuehai in the 1977-78 season (Shandongsheng et al. 1982). Zhang's team from the Shandong Provincial Institute of Archaeology systematically probed the urban area within the city wall in five-meter intervals, revealing extensive remains of a palatial structure, administrative remains, craft production, and urban residences.

Subsequent excavations of Zhou cemeteries within the city provided further evidence for two culturally distinct ceramic assemblages, reportedly representing the incoming Zhou lineages and the local Late Shang (Yinxu Phase) population conquered by the Zhou. The marked differentiation in wealth and status within both groups, and their co-existence within the city, suggests a complex cultural dynamic, whereas social distinctions were not necessarily delineated along cultural or ethnic boundaries.

The pioneering works of Zhang Xuehai left three unresolved issues in

understanding the emergence and expansion of the Lu city at Qufu. First, the chronology and cultural diversity of the Western Zhou settlement inferred on the basis of ceramic typology remains inconclusive (Falkenhausen 2006:173-177, 186-200). Second, the presence of archaeological evidence dating to the initial phase of the Western Zhou colonization remains contested. The evidence associated with the first Zhou settlers is very thin at best (Wang 1988; Falkenhausen 2006:176). Without absolute dating on archaeological remains from secure context, these issues cannot be resolved on the basis of ceramic typology alone.

Finally, Zhang Xuehai’s archaeological research on the Lu city has its spatial and temporal limitations. Since the research focused on urban formation during the Zhou and early imperial period, we have no evidence of pre-Zhou remains at the site to evaluate the account of Ruins of Shaohao as the foundation of the Zhou military colony. Additionally, the entire investigation was confined within the walled enclosure, and we know virtually nothing about the changes in site distribution and patterns of field system in the physical landscape surrounding the city.

Building up this long tradition of archaeological research in Qufu, our research on the landscape archaeology of the Lu city hopes to address these unresolved issues by connecting the ancient city with its physical, cultural, and historical landscape. Our study of ancient urbanization and landscape transformation at Qufu focuses on these questions: What are the changing patterns in the cultural landscape through millennia? How did the establishment of the Zhou military colony affect the landscape? As the Zhou military stronghold grew into a flourishing city during the second half of the first millennium BCE, how did its expanding urban economy transform the landscape? The landscape archaeology project at Qufu is an important step towards a historical anthropology incorporating archaeology, ethnography, and cultural history to study long-term changes in historical landscape.

Methodology. Our field research consists of two major components: an intensive survey and a geomorphological survey. Aided by spatial analysis of high-resolution satellite images, our intensive survey records the density of archaeological remains in the immediate suburb and rural hinterland of the Lu city, providing us with a diachronic view of the changing settlement pattern (Li Min et al. forthcoming). Our geomorphology survey documents the human impact on the landscape by making observations on deep sections exposed by urban construction around the ancient city (Rosen et al. 2015). Buried approximately six meters under the modern surface, remains of agricultural canals, ditches, and rice paddies with diagnostic ceramics within them provide rare glimpses of the agricultural hinterland of the Lu city (Rosen et al. 2015). This archaeological landscape as a palimpsest could be produced by the first prehistoric occupation in the region, the establishment of Western Zhou military colony in the region, and its urban expansion during the Eastern Zhou and early imperial period [Table 1].

<u>Central Plains</u>		<u>The Qufu Region in Shandong</u>	
Miaodigou	ca. 4000-3300 BCE	Beixin	ca. 5300-4100 BCE
Miaodigou II	ca. 2900-2500	Dawenkou	ca. 4100-2300
Taosi/Wangwan III	ca. 2300-1800	Shandong Longshan	ca. 2300-1800

Erlitou	ca. 1750-1520	Yueshi	ca. 1800-1500
Erligang (Early Shang)	ca. 1580-1300		
Yinxu (Late Shang)	ca. 1250-1046	The political base for Shangyan group	
Western Zhou	ca. 1046-771	Lu state served as a Zhou stronghold	
Eastern Zhou	770-256	Lu city expanded to a major Zhou city	
Imperial Qin	221-206	Lu remained a major city in early	
Imperial Han	206 BCE-220 CE	imperial China	

Table 1. The chronology of archaeological cultures in the Central Plains and in the study region (dates based on Xia Shang Zhou 2000; Qiu et al. 2006; Li Xinwei 2013; He 2013; Luan 2013; Qin 2013)

Results. At the early stage of this long-term landscape archaeology survey project, the results are preliminary and uneven because of the different methods used. This paper primarily draws from data from the Qufu landscape archaeology project for analysis. The results are presented in three phases of settlement history at Qufu, namely the prehistoric occupation, the Western Zhou colonization, and the Eastern Zhou urban expansion.

1. Prehistoric Settlement Pattern. As part of the Huai River drainage basin, the Wen-Si River valley was a central hub for the florescence of prehistoric communities associated with the Dawenkou 大汶口 material culture (ca. 4100-2300 BCE). A significant number of Dawenkou cemeteries known to date are located within a day's journey from Qufu, e.g. the Wangyin 王因 cemetery (approximately 28 kilometers southwest of Qufu), the Dawenkou cemetery (approximately 45 kilometers north of Qufu), the Yedian 野店 cemetery (30 kilometers south of Qufu), the Nanxingbu 南興埠 cemetery in Qufu (approximately 6 kilometers south of Qufu), and Xixiahou 西夏侯 in Qufu (approximately 9 kilometers southeast of the Lu city) (Zhongguo 1964, 2000; Zhongguo 1964, 1986; Shandongsheng 1984; Shandongsheng and Shandongsheng 1985; Shandongsheng and Ji'nanshi 1974). The Wangyin site (6 hectares), for example, has 899 burials from the Dawenkou period in its cemetery, representing one of the largest cemeteries in prehistoric China (Zhongguo 2000).

These communities experienced significant population growth and an expansion of social differentiation during the fourth and third millennium BCE (Pearson 1981, 1988; Underhill 2000). Their elite status was marked with pig feasting, elaborate drinking wares, and a concentration of wealth (Kim 1994; Fung 2000; Underhill 2002; Liu 2004; Luan 2013). Although we have come across Dawenkou ceramics at the Shouqiu mound approximately 3 kilometers east the Lu city and Jiulongshan 九龍山, approximately 10 kilometers south of Qufu, no major Dawenkou settlements were identified in and around the Lu city.

Located 15 kilometers east of the Lu city at Qufu, a small mound site at Yinjiacheng 尹家城 represents a regional center during the Longshan 龍山 period (ca. 2300-1800 BCE)(Shandong 1990). Although the mound site has been reduced to less than a hectare by modern destruction, the Longshan settlement at Yinjiacheng produced twenty houses and sixty-five tombs, including some of the largest tombs in the Longshan world. The elite tomb M15, for example, measures 5.8 meters long, 4.36 meters wide, and 1.55 meters deep. The nested coffins were plundered not long after the burial, leaving

the skeletons scattered in the tomb chamber, an example of the widespread ritual violence against elite burials during the Longshan period (Li Min 2016).

Its grave goods include twenty young pig mandibles, twenty-three elaborate feasting and drinking vessels, and alligator skin plates, likely once attached to wooden drums (Shandong 1990:44). The deceased was likely a chiefly figure of a local polity within a short distance from Qufu. The elaborate Longshan ceramic assemblage at Yinjiacheng indicates that this community was part of a close-knit Longshan exchange network or a large coastal confederation (Sun 2013; Li Min 2017).



Figure 4. Location of geomorphology sections in the southern suburb of Lu city at Qufu (Image source: Google Maps)

Our geomorphology survey identified the first significant human impact on the river valley in the deep section exposed by the construction for the Shangri-La Hotel 香格里拉賓館, approximately 1.5 kilometers south of the Lu city [Figure 4]. The marshy backswamp deposits had been cut into U-shaped features, possibly indicative of canals for drainage or irrigation. These channels were subsequently filled with gleyed sandy silt deposits. AMS C14 dates from two charcoal samples date these deposits to the middle Dawenkou period, i.e. cal. 3270-2910 BCE (sample taken from upper canal fill, ca. 6 meters below surface) and cal. 3630-3370 BCE (sample taken from lower canal fill, ca. 6.2 meters below surface)(Rosen et al. 2015).

The early Holocene stream system consisting of a stable regime of slow floodplain accumulation lasted for several thousand years in the early to mid-Holocene, preceding the Dawenkou occupation of the region. It coincided with the episode of strong summer monsoons; its cessation during the Dawenkou period corresponded to the

weakening of the monsoonal system, and resulted in the reduction of stream flow and smaller, more constrained overbank flooding (Rosen et al. 2015:1645). The cessation of backswamp development and the presence of canal construction coincided with the period of major population expansion of the Dawenkou society observed in settlement data, when very large Dawenkou settlements flourished in the tributary valleys of the lower Huai River drainage basin during the fourth and early third millennium BCE (Luan 2013).

Based on his analysis of the temporal and geographic assumptions of the legendary narratives in Zhou sources, historian Tang Lan (1977) argues for a cultural connection between the prehistoric communities associated with the Dawenkou-Longshan material culture and the legendary Shaohao confederation in Zhou sources. Archaeologists working in the region have endorsed Tang Lan's argument (Gao and Shao 2005; Luan 2013). The story in *Zuozhuan* about Confucius visiting Tanzi 譚子, a descendent of the Shaohao clan, assumes the great antiquity of the legendary confederation and the loss of its social memory in Zhou society (Yang 1990:1386-89).

As textual references to the Shaohao legacy are sketchy in details, an exact match between historiography and archaeology is neither possible nor necessary. We could infer from these accounts, however, that the Dawenkou-Longshan society was active in a region that later became the hotspot for the Shaohao narrative during the Zhou period. The absence of major centers in the Shandong region during the second millennium BCE—the period dominated by the Xia and Shang dynastic regimes in Zhou historiography—is presented in contrast to the Zhou royal speeches about the Jinnan basin, the Luoyang basin, and the Henei basin (the plains between the Taihang mountain range and the archaic lower Yellow River), which were identified by the legacies of Xia and Shang in the Zhou state-building enterprise (Li Min 2016).

Within the Qufu region, the Yinjiacheng site saw a new phase of occupation associated with the Yueshi 岳石 material culture, contemporaneous with the Erlitou 二里頭 material culture of the early second millennium BCE (Shandong 1990:164-243). The Yueshi ceramic assemblage features a significantly reduced repertoire of vessel forms from the highly elaborate Shandong Longshan assemblage at Yinjiacheng. Its production technique focused on high coiling instead of the technique used by Longshan potters' fast wheels.

This gap in political history during the second millennium BCE also concurs with a long period of social decline after the collapse of the Shandong Longshan society. At a regional level, the number of Yueshi sites is so low that the region appears to have been sparsely populated by the time of Early Shang (Erligang 二里崗) expansion into the region during the middle second millennium BCE (Fang Hui 2013). Although the Shang expansion from the Erligang to Yinxu phases led to a gradual revival of population in Shandong, the regional society did not regain its glory in the late third millennium BCE (Li Min 2008; Fang Hui 2013). The Zhou representation of Shandong as a land of antiquity without major political centers in the second millennium BCE, therefore, concurs with the political landscape in archaeological observation.

2. Western Zhou Colonization. From the perspective of the Zhou royal centers in the Luoyang basin (approximately 500 kilometers west of Qufu) and the Guanzhong basin (approximately 900 kilometers west of Qufu), these legendary stories of past confederations helped the architects of the Zhou envision their world (Li Min 2016).

Despite textual references to strong pro-Shang resistance by the forces of Shangyan in the region, no regional center of the Late Shang (Yinxu Phase) was identified in Qufu. Settlements with a diagnostic Shang ceramic assemblage, however, were found in the plains to the east, west, and south of Qufu, e.g. Panmiao 潘廟 and Fenghuangtai 鳳凰台 in Jining 濟寧 (approximately 50 kilometers southwest of Qufu) (Guojia 1991a, 1991b), and Nanguan 南關 in Zouxian 鄒縣 (approximately 20 kilometers south of Qufu) (Guojia 1991c). The Shang ceramic assemblage at Yinjiacheng and Xixiahou in the hinterland of Qufu suggests that the region was incorporated into the Shang domain during the Upper Erligang phase of Early Shang during the middle second millennium BCE (Shandong 1990:258; Zhongguo 1986:334). The transition from Yueshi to Shang can be characterized as an abrupt change in material culture, possibly representing a Shang military expansion into the region. The Shang sites in the region, however, are not comparable with Dawenkou-Longshan settlements in their density and scale.

Zhang Xuehai's probing survey and extensive excavations inside the Lu city did not produce any archaeological evidence for Shang agricultural fields, workshops, or settlement remains. Our survey in the surrounding landscape did not make any positive identification of Shang and Western Zhou ceramics either (Li et al. forthcoming). The critical evidence for Shang resistance and for the newly established Zhou military colony under the leadership of Lord Boqin, therefore, remains missing in our archaeological record. The inscriptions on a group of Late Shang style bronze vessels from the Shang-Zhou period deposit at the Ligongcun 李宮村 site, 40 kilometers west of Qufu, indicate that the vessels' elite patron was a member of the Suo 索 lineage, one of the six Shang lineages granted to Lord Boqin in the investiture address for the Lu state (Guo et al. 1990). Invocator Tuo's speech, therefore, was based on a rather reliable historical knowledge of the cultural landscape from the formative era of the Zhou political tradition.



Figure 5. A Zhou canal feature cut into the early/mid-Holocene backswamp sediment, and subsequent late-Holocene flood deposits at the Wanjia 萬家 geoarchaeological section in Qufu (Photo by Li Min)

Our geomorphology survey in the immediate suburb of the Lu city, however, produced compelling evidence for the construction of the military colony at the turn of the first millennium BCE (Rosen et al. 2015). Western Zhou irrigation ditches at the Wanjia section, approximately 50 meters east of the Shangri-La section, cut into the early/mid-Holocene backswamp sediment and subsequent late-Holocene flood deposits. Two AMS C14 dates on charcoal samples from sandy/silty alluvium in these canals date to the early Western Zhou Period (1005-900 cal. BCE and 921-831 cal. BCE)(Rosen et al. 2015:1645)[Figure 5]. These dates provide the critical evidence for the initial settlement of Qufu by Zhou communities.

It is significant to note that these Zhou agricultural fields cut directly into the Dawenkou deposits of the fourth and early third millennium BCE. These ditches suggest a similar type of land-use and irrigation from the fourth and third millennium BCE to the early Western Zhou period, indicating a long period of stability on this surface between the Dawenkou and Zhou Periods. Current evidence, therefore, suggests that the Western Zhou military colony of the Lu city was likely built at a location without existing Shang settlements and fields. Buried up to three meters underground, these fields could represent the military colony established under Lord Boqin and his successors, as outlined in invocator Tuo's speech incorporated in *Zuozhuan*.

The investiture addresses incorporated into Tuo's speech in *Zuozhuan* highlights the Zhou emphasis on land survey. This concurs with historical records of Zhou implementation of a new field system. This Zhou implementation of a new field system in newly conquered territories could have resulted in a major reconfiguration of the Zhou

landscape. Our discovery of the Western Zhou fields, therefore, might have captured the very moment that the military colony was established in an area uninhabited since the late third millennium BCE.

Dawenkou and Zhou ceramic fragments often mixed together in the uppermost 10 centimeters of the dark-brown clayey deposits that the Western Zhou canal features cut into. This indicates that little hydrological activity from the Si River took place that would have impacted this portion of the floodplain. Instead, we have a relatively stable stream system that remained within the confines of the main channel, with little overbank flow or downcutting during the Neolithic and Bronze Age (Rosen 2015:1645). The lack of major human impact on the landscape through the second millennium BCE coincides with the reduction in population and settlement after the collapse of Longshan society in approximately 1800 BCE. The founding of a Zhou military colony under the leadership of Lord Boqin of the Lu state did not lead to immediate changes in the landscape during the early first millennium BCE.

3. Expanding Urban Society in Eastern Zhou and Han. Depending on the definition of a city, Western Zhou military colonies may not represent the first episode of city-building in early China, nor were they as urban as the fully developed Eastern Zhou cities. Many of these Western Zhou military colonies later grew into full-blown urban centers during the Eastern Zhou period, which featured a great concentration of population, an expansion of the craft industry, and an elaborate high culture associated with elite residents (Falkenhausen 2006, 2008). This process unfolded in Qufu during the Eastern Zhou period after 770 BCE.

As Pauketat (2007:198) points out, a city is not a product, but rather a generative dynamo. The growth of commerce, the expansion of craft production, the transition to the Iron Age, and the increase of population from the Eastern Zhou to the early imperial period mark the peak of urbanization in Qufu. An overwhelming majority of the residential features, workshops, and cemetery excavated in the 1977-1978 season date to this period of urban growth, and the distribution of these features spans the full extent of the urban space within the rammed earth wall, which was also constructed during the Eastern Zhou period (Shandongsheng et al. 1982)[Figure 6].

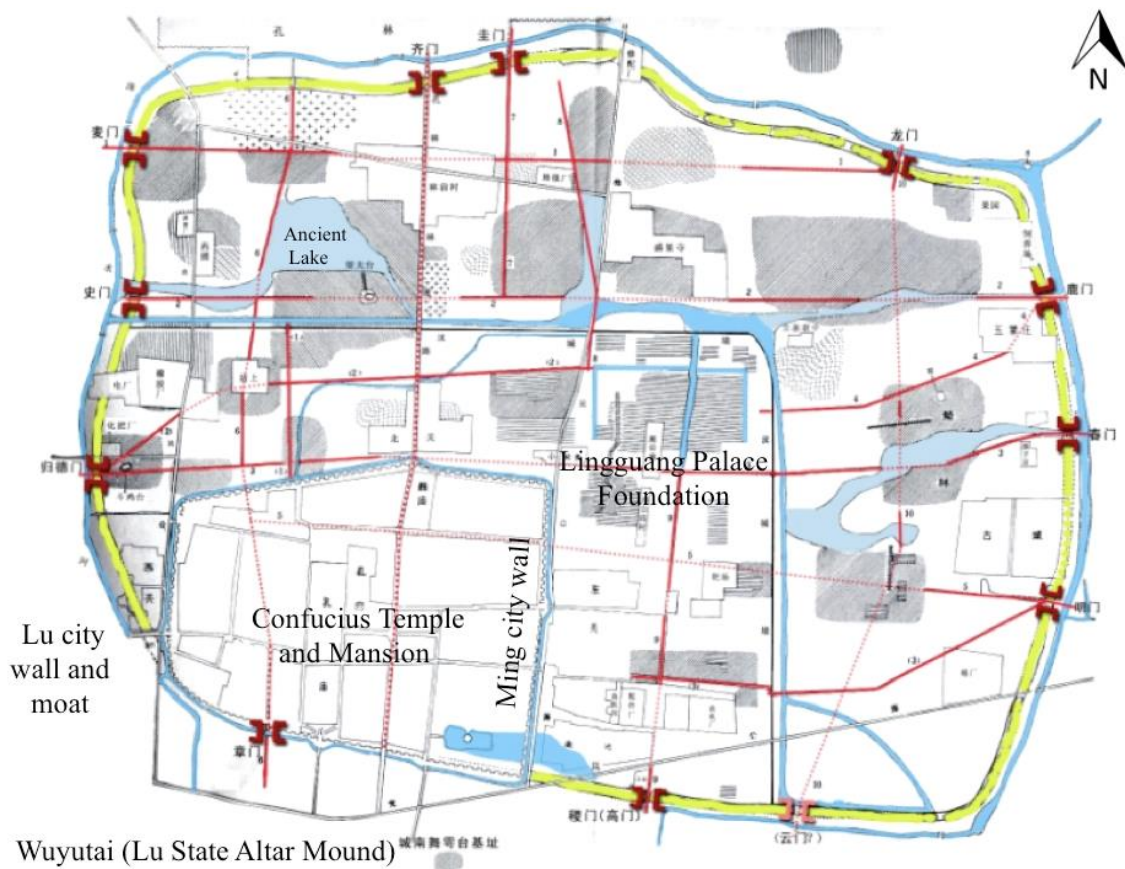


Figure 6. The distribution of residential features, workshops, and cemeteries (shaded areas) from the excavation of the 1977-1978 season (adapted from Figure 3 in Shandongsheng et al. 1982).

Outside the Lu city, massive masonry work took place in the limestone hills to the east and south of Qufu during the imperial Han period. The perfection of iron and steel technology made it possible to cut tomb shafts deep into these stone hills. In the case of the Han king's cemetery at Jiulongshan, tomb shafts tunneled over 70 meters into the hills. For lesser elite of the Han city at Qufu, the demand for limestone slabs to construct the tombs led to intensive quarrying activities using iron chisels. Our survey around the Jiulongshan hills identified dozens of Han stone-chamber tombs and stone quarries, indicating the scale and intensity of Han masonry activities (Li et al. forthcoming). These activities ran parallel to the construction of large palaces for the Han kings in the Lu city, which still has its ten-meter tall rammed-earth foundation preserved in Qufu.

The scope of urban growth and industrial expansion during the Eastern Zhou and early imperial period can be inferred from the impact on its landscape observed from geomorphological survey. The rising demand of wood as fuel for producing pottery vessels, floor bricks, tiles, iron and steel implements, stripped down the soil from the hills around Qufu, resulting in the rapid increase of erosion, where massive destructive floods led to the rapid buildup of floodplains around Qufu. The thick flood deposits above the Western Zhou irrigation channels at the Wanjia section indicate an abrupt change in the stream regime from a very stable system with low sediment yield, gentle overbank flow

events, and backswamps, to one with a rapidly alluviating system that built up meters of sediment just within the time period of the Zhou settlement (Rosen et al. 2015:1646-47).

At the Wanjia section in the southern suburb of the Lu city, several meters of lighter brown silts above the Western Zhou field signal the renewal of overbank flooding from the Si River after a long-period of stability from the Dawenkou to Western Zhou period (Rosen et al. 2015:1646). The brown color and composition of the deposit suggests that the flood sediment derived from soil formerly on the hill slopes of the upper catchment of the Si River and its surrounding tributaries. The discovery of roof tiles, pits, and a possible collapsed farmhouse dating to the Eastern Zhou Period in these brown floodplain silts suggests that the resident population of the Lu city farmed during the intervals of flooding episodes in the increasingly unstable environment, a subsequent result of deforestation (Rosen et al. 2015:1647).

The results from the probing survey and excavation inside the Lu city and the geomorphological survey of the rural landscape collectively suggest that urban growth and industrial expansion during the Eastern Zhou period caused massive soil erosion. Erosive agricultural practices and deforestation for building, fuel, industry, and farming during the Eastern Zhou period severely stripped the topsoil from the city's hinterland. Subsequently, Han Period sediment deposits are almost devoid of silt and clay. Instead, the predominantly sandy sediments in the Han deposits suggest the erosion of parent rock or the exposed C-Horizon and regolith under the soils that were previously stripped away during the Eastern Zhou period (Rosen et al. 2015:1647).



Figure 7. The physical landscape of Nishan 尼山, where a small Zhou settlement was located at the bottom of the valley (Photo by Li Min)



Figure 8. Zhou ceramics (lower) from the Fuzidong site marking the birthplace of Confucius at Nishan, Qufu (upper) (Photo by Li Min)

Beyond the urban center, rural communities in the hinterland of the Lu city were also affected by the industrial and agricultural expansion. In the mountainous region of Nishan, a small Zhou settlement was found at the Fuzidong 夫子洞 site commemorating the birthplace of Confucius (551-479 BCE)[Figure 7]. Both ceramic evidence and AMSC14 dating (543-407 cal. BCE) indicate that the settlement was active during the lifetime of the philosopher [Figure 8]. A geomorphological survey at the Nishan section identified a layer of coarse sands, suggesting a sandy sediment source with no overlaying soil deposits at the time these sands were washed down by flooding. Overlaying this Zhou Period floodplain is a deposit composed of at least two meters of thick fluvial sands with Han Period sherds resting at the base, whereas the character of the grain-size and sedimentary structures indicate that these flood deposits were laid down by well-sustained and powerful flows (Rosen et al. 2015:1647). This profound change in stream regime in the upper catchment of the Si River ran parallel with the sandy sediments observed in the suburb of the Lu city downstream.

Conclusion.

While the construction of a new city is “a rapid and radical discontinuity in the temporal, spatial, and material dimensions of history”(Pauketat 2007:196), the Zhou political rhetoric of settling on the ruins of past regimes highlights the importance of working with history and social memory. Such claims allowed the architects of Western Zhou state to tap into the emplaced social memory shared by the diverse memory communities in its vast territory. The Lu city, therefore, became a living monument for the interconnectedness of past and present in Western Zhou, Eastern Zhou, and early imperial society.

The florescence of prehistoric Dawenkou-Longshan communities during the fourth and third millennium BCE, the collapse and the decline of Longshan society

during the early second millennium BCE, the expansion of Shang settlements into this sparsely populated region during the late second millennium BCE, the establishment of a Western Zhou military colony with its field system at the turn of the first millennium BCE, and the transformation from a Western Zhou stronghold to a full-blown Eastern Zhou urban center during the late first millennium BCE, represent the major benchmarks in the settlement history of the Qufu region. Such a history involved the creation and spread of power narratives—stories—that were told and retold over generations (Pauketat 2007:206). A shared social memory about an important episode from the past contributed an enduring aura to the Chinese urban landscape, and thus deserves to be studied as a central component of urban history in early China.

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