

**The Spatial and Social Organization of Bronze Production System in Anyang**

A Thesis Presented to the Department of History

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## Timeline

All dates are from *Xiashangzhou duandai gongcheng 1996-2000 nian jieduan chengguo jianbao*

夏商周断代工程 1996-2000 年阶段成果简报 (Periodic Report of the Xia Shang Zhou

Chronology Project from 1996 to 2000) unless otherwise noted. Archaeological data are in italics.

Late Neolithic Period c. 3000 BCE – 2000 BCE

*Longshan Culture* c. 2500 BCE – 2000 BCE

Xia Dynasty c. 2070 BCE – 1600 BCE

*Erlitou Culture* c. 1900 BCE – 1500 BCE

*Erlitou Phase I* c. 1800 BCE – 1640 BCE

*Erlitou Phase II* c. 1640 BCE – 1610 BCE

*Erlitou Phase III* c. 1610 BCE – 1560 BCE

*Erlitou Phase IV* c. 1560 BCE – 1540 BCE

Shang\* c. 1554 BCE – 1046 BCE

*Erligang Culture (aka early Shang)* c. 1510 BCE – 1460 BCE

*Middle Shang* c. 1406 BCE – 1250 BCE

*Yinxu Culture (aka late Shang)* c. 1250 BCE – 1046 BCE

Western Zhou c. 1045 BCE – 771 BCE

Eastern Zhou c. 771 BCE – 221 BCE

Spring and Autumn Period 770 BCE – 475 BCE

Warring States Period 475 BCE – 221 BCE

Qin Dynasty 221 BCE – 209 BCE

Han Dynasty 206 BCE – 220 CE

\* the start time of Shang is 1554 BCE according to Li, Feng. *Early China: A Social and Cultural History*. Cambridge: Cambridge University Press, 2013. pp 53-54.

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## Chapter 1 Introduction

Bronze ritual vessels are one of the most famous representatives of Chinese civilization. This can be seen in a Chinese idiom, *wending zhongyuan* 问鼎中原, literally meaning “inquire the weight of the *ding* (a three-legged round vessel) in the Central Plain”. The story of this idiom goes back to the Eastern Zhou period (771 BCE – 221 BCE). According to *The Commentary of Zuo* (*Zuozhuan* 左傳), with the grand Zhou royal house in decline, regional states were ambitiously competing for the most powerful role. In 607 BCE, Duke Zhuang of Chu led his army to the outskirts of the capital of Zhou and sent a messenger to inquire about the weight of the *ding* vessel in the Zhou royal House.<sup>1</sup> The action of inquiring the weight of a ritual bronze vessel used in ancestral sacrifice implicitly challenged Zhou’s claim to the Mandate of Heaven, and this idiom came to refer to the attempt to seize power without legitimacy. Archaeologist Li Min points out that bronze ritual vessels are the core symbols representing kinship and legitimacy throughout the historical narratives of early China.<sup>2</sup>

The story of *wending zhongyuan* implies that the possession of bronze ritual vessels legitimizes the ruler; in fact, the ability to control and monopolize copper (the primary material for making bronze vessels) and the bronze production technology further empowered the ruling class.<sup>3</sup> When investigating the Erlitou period (c. 1900–1500 BC), archaeologist Liu Li 劉莉

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<sup>1</sup> Ruan Yuan 阮元, “Zuozhuan zhengyi 左傳正義,” in *Shisanjing Zhushu*, vol. III (Beijing: Zhonghua shuju, 1980), 367.

<sup>2</sup> Min Li, *Social Memory and State Formation in Early China* (Cambridge: Cambridge University Press, 2018), 2.

<sup>3</sup> Good definitions of “legitimacy (or authority)” and “power” and their relations are given by Tara Blackwell in her honor thesis “An Enduring Alliance until Spoken Aloud: The Official Relationship between Emin Khoja, Qianlong, and the Imperial Agents in Xinjiang” (Undergraduate Honor Thesis, San Diego, University of California, San Diego, 2020):

Power is the ability of a political leader to get something done, and authority is whether the power used is legitimate. A political leader with the backing of an empire is powerful, and able to provide his or her people with benefits. But without legitimacy, the leader is vulnerable to being replaced by the

notices that Erlitou phase II (c. 1680–1610 BCE) witnessed the start of specialized and institutionalized bronze production in China; meanwhile, bronze vessels imitating the shapes and decorations of white pottery, an item of elite consumption since Chinese late Neolithic period (c. 3000–2000 BCE), had entered the elite burial repertoire, indicating that bronze ritual vessels had become a status marker solely for the elite.<sup>4</sup> From the flourishing production of Shang and Zhou bronzes, it is not hard to see that bronzes soon surpassed white pottery to become the most significant elite luxury good. In another paper, archaeologists Liu Li and Chen Xingcan 陳星燦 further explore how the Erlitou state controlled the natural resources in the area surrounding the capital.<sup>5</sup> We thus see a correlation between bronzes and the elite power: bronzes vessels candidly represent the power dynamics of the elite class because the availability of the raw materials and the contemporary social structure affected the elite class's decisions about the production and distribution of bronze vessels.

The close relation between bronze ritual vessels and the ruling class continued into the late Shang period (1300–1045 BCE), the main focus of this paper. Written sources about late Shang are scarce, and most of them were produced nearly a thousand years after Shang was conquered (see Chapter 2). Given the correlation between bronze vessels and the elite class, the

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head of said empire or to the threat of popular uprising. With only authority, a political leader is respected but vulnerable to claims that he cannot provide his followers with their daily needs. A political leader with both power and legitimacy is a force to be reckoned with.

Although Blackwell's thesis is about the power dynamic between the Qing imperial court and local lords in Xinjiang, this definition nonetheless pertains to this thesis, only that the superior power during Zhou Dynasty is not the head of the empire but the Heaven (*tian*).

<sup>4</sup> Li Liu, "Urbanization in China: Erlitou and Its Hinterland," in *Urbanism in the Preindustrial World*, ed. Gleen Storey (Tuscaloosa: University of Alabama Press, 2006), 172–73; Xiashangzhou duandai gongcheng zhuanjia zu 夏商周斷代工程專家組, *Xiashangzhou duandai gongcheng 1996-2000 nian jieduan chengguo baogao* 夏商周斷代工程 1996-2000 年階段成果報告 (Beijing: Shijie tushu chubangongsi, 2000), 77.

<sup>5</sup> Liu Li 劉莉 and Chen Xingcan 陳星燦, "Cheng: Xia Shang shiqi dui ziran ziyuan de kongzhi wenti. 城: 夏商時期對自然資源的控制問題," *Dongnan wenhua*, no. 3 (2000): 45-60.

vessels may do a better job than texts in revealing the elite activity and power relations of the late Shang society. Moreover, compared to the Erlitou period, the organization of production in late Shang bronze foundries was more mature, as can be seen from the burgeoning number of bronze vessels, the much more complicated decoration, and the advance in bronze casting technology.<sup>6</sup> Undoubtedly, more people from different social classes were involved in making bronze in late Shang than in Erlitou.

Late Shang social history is too broad a topic to be discussed in a paper, but the bronze foundry is a nice epitome for our inquiry into the late Shang society. One reason is that bronzes were directly linked to the power of the ruling class, as demonstrated in previous paragraphs. Second, the late Shang bronze foundry reflects the negotiation among several levels of social class in late Shang. If we divide the social life of bronzes into three stages, raw material procurement, production, and consumption, it is clear that the artisans, the elite, and even cities outside of Yinxu were involved in the production and distribution of bronze vessels. Third, much data is available about the workshops in Anyang, yet they have not been studied systematically in an archaeological and anthropological approach. Therefore, in this thesis, I employ a new craft production framework to reconstruct the late Shang bronze foundry and the social relations that it embeds.

Since I intend to do interdisciplinary research on the late Shang bronze foundry, I deal with a wide variety of sources in different chapters. Chapter 2 introduces three types of sources that are most commonly used by Chinese archaeology: post-Shang texts, oracle bone inscriptions, and excavation data. This chapter gives a general overview of the history of Shang by presenting a series of major events during the Shang period reconstructed based on post-

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<sup>6</sup> Feng Li, *Early China: A Social and Cultural History* (Cambridge: Cambridge University Press, 2013), 75–79.

Shang texts. It goes on to introduce oracle bone inscriptions and the archaeological data of Yinxu, with a special focus on the subject of bronze production.

Chapter 3 starts by summarizing major frameworks in the study of Chinese archaeology, followed by traditional research topics of bronzes. After an overview of two major models of Chinese archaeology, this chapter continues to give historiography of the study of Chinese bronzes. Although the excavation of Yinxu has been carried out for almost a hundred years, the study of archaeological data has been mainly focusing on the cemeteries and the artifacts. In the recent years, while the study of the settlement pattern in Yinxu has been gaining more attention, archaeologists still tend to focus on identifying features like residential styles, tombs, and workshops, and study a specific feature across Yinxu. As I will demonstrate in this chapter, the fragmentary study of specific aspects of Yinxu contribute to a deeper level of understanding towards those features but fails to see Yinxu as a city, and the dynamic relations among those features. Thus, the end of Chapter 3 proposes a theoretical framework that enables us to connect the bronze vessels with the bigger picture. The framework that this thesis employs is the production organization framework proposed by C.L. Costin.<sup>7</sup>

In Chapter 4, I apply a part of Costin's framework of craft production to the bronze production system in Yinxu. This chapter mainly examines the organization principle the role of artisans in the bronze production system. When examining the organization principle, this chapter disputes the current hypothesis of dividing Yinxu into industrial zones by geographical

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<sup>7</sup> Cathy Lynne Costin and Rita P. Wright, eds., *Craft and social identity* (Arlington: American Anthropological Association, 1998); Cathy Lynne Costin, "Craft Specialization: Issues in Defining, Documenting, and Explaining the Organization of Production," *Archaeological Method and Theory* 3 (1991): 1–56; Cathy Lynne Costin, "Craft Production Systems," in *Archaeology at the Millennium: A Sourcebook*, ed. Gary M. Feinman and T. Douglas Price (Boston: Springer, 2001), 273–327; Cathy Lynne Costin, "Craft Production," in *Handbook of Archaeological Methods*, vol. I, II vols. (New York: AltaMira Press, 2005), 1034–1107.

vicinity. It then proposes a modified methodology of studying the organizing principle of the craft production system in Yinxu. The other half of this chapter is dedicated to the discussion of the artisan group. I identify the main problems in the current scholarships and present a better way of interpreting the social roles of the buried, which will also shed light on the future study of the late Shang artisans.



## Chapter 2 The Study of Late Shang as a Historical and Archaeological Subject

### Anyang in Historical Sources

#### Post-Shang Historical Texts

Records of the Shang dynasty appear in many post Shang sources. The most important one is a text that goes through the history of Shang from its foundation to decline, “The Basic Annals of Yin” (*Yinbenji* 殷本紀), a chapter in *Shiji* by Sima Qian 司馬遷 (c.145 – c.86 BCE). Sima Qian was a historian during the reign of Emperor Wu of the Han Dynasty (206 BCE – 220 CE). While Sima Qian made use of the existing sources about Shang history at that time, some of them are lost now. His major sources consisted of *The Book of Documents* (*Shujing* 書經), *Book of Odes* (*Shijing* 詩經), *Discourses of the States* (*Guoyu* 國語), *The Commentary of Zuo* (*Zuozhuan* 左傳), *Genealogical Records* (*Shiben* 世本), *Mencius* (*Mengzi* 孟子), and *Classic of Ritual* (*Dadaili* 大戴禮).<sup>8</sup> Besides *Shiji*, other sources on Shang history include the *Bamboo Annals* (*Zhushu jinian* 竹書紀年), unearthed in 281 CE in a tomb that belonged to Duke Xiang of Wei, dating back to the Spring and Autumn period (771 – 476 BCE). The *Bamboo Annals* records the history from the legendary Xia 夏 dynasty to the twentieth year of Duke Xiang of Wei (299 BCE).<sup>9</sup> Finally, in 2008, Tsinghua University acquired a collection of bamboo strips that date back to the Warring States period (475 – 221 BCE). The collection has been preserved

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<sup>8</sup> Kwang-Chih Chang, *Shang Civilization* (New Haven: Yale University Press, 1980), 3. For convenience, the references to the ancient Chinese classics are made to the *Shisanjing zhushu* compiled by Ruan Yuan 阮元 in the 1815. This paper uses the version published by Zhonghua shuju in 1980, in a series of four volumes.

<sup>9</sup> Fang Shiming 方詩銘 and Wang Xiuling 王修齡, *Guben zhushu jinian jizheng jizheng* 古本竹書紀年輯證 (Shanghai: Shanghai guji chubanshe, 1981), 1. While whether the Xia dynasty existed is controversial, the date range of Xia is generally believed to be 2070–1600 BCE. For a detailed discussion of the existence of Xia dynasty, see Li 2013, 52-53.

and later was published in volumes of books. The Qinghua Bamboo Strips record some anecdotes of the Shang period, and thus have become a valuable resource for the study of the history of Shang. Before the archaeological excavation of the last Shang capital started in 1928, the scattered information about Shang in these texts were scholars' main sources to study the early Chinese history.

In the following sections, I will describe the major events in Shang history, as illustrated in *Shiji*, supplemented by other sources, and examine the reliability of the Shang history that they portrayed.

### The Rise of the Shang Clan

The genesis of the Shang clan is recorded in the *Book of Odes* and *Shiji*. One account is given in the poem “Dark Bird” (Xuanniao) in the *Book of Odes* in the following lines:

By Heaven sent down, the swallow came to earth,  
And gave to our great Qi his mystic birth.  
The sire of Shang, his children long abode  
In Yin-land, waxing great.<sup>10</sup>

The poem “Long Origin” (Changfa) in the *Book of Odes* goes:

Even then the house of Sung began to be great.  
God viewed its daughter's son with favoring grace; —  
He founded Shang; to him its kings their lineage trace.  
He, the dark king, ruled with a powerful sway,  
Success attendant on his glorious way.  
First with a small state charged, then with a large,  
He failed not well his duties to discharge.<sup>11</sup>

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<sup>10</sup> James Legge, *The Book of Poetry* (Trübner, 1876), 481. All translations of the *Book of Odes* (or *Shijing*) are offered by Legge unless otherwise noted. The original text goes: 天命玄鳥, 降而生商, 宅殷土芒芒. The author changes Legge's original version of Wade-Giles system into Pinyin system when translating the sources in this paper. The translation of the title of Xuanniao and Changfa is offered by the author, based on the interpretation in *Shisanjing zhushu*.

<sup>11</sup> Legge, 481. “有城方將, 帝立子生商. 玄王桓撥, 受小國是達, 受大國是達.”

The poems claim that the ancestor of the Shang clan, Qi 契, was the son of a dark bird, generally believed to be a swallow, while Qi's mother has a surname of Song 媯.<sup>12</sup> Qi himself was known as the “dark king” in the “Long Origin”. According to *Shiji*, Qi's mother mistakenly swallowed an egg of a dark bird while she was bathing.<sup>13</sup> The genesis of the Shang clan was entangled with mythical elements in the historical sources. Archaeologist Kwang-Chih Chang (1931–2001) noted that the theme of the “bird-egg birth” is widely seen in the ancient historical sources from the eastern coastal part of China.<sup>14</sup>

### **Tang's founding of the Shang**

While Qi was the founder of the Shang clan, according to the historical texts, they did not established the Shang dynasty until the reign of Tang 湯. Since Tang marked the beginning of the Shang dynasty, the thirteen lords (including Qi) before him were recognized as the “predynastic lords” of Shang.<sup>15</sup> Aside from Qi, other predynastic lords are not at all well-known in the existing historical texts.

However, the texts do mention that the Shang people had frequently moved their capital after the reign of Qi. By the time of the reign of Tang, the first King of the Shang dynasty, the capital had been moved eight times. King Tang is frequently mentioned in historical texts. For example, he was known as Wu Tang 武湯 (literally meaning the “martial Tang”) in the poem “Dark Bird”:

Thereafter God give to the martial Tang his charge,  
That he should to each state assign its boundary.

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<sup>12</sup> Yan Wenming and David R. Knechtges, eds., *The History of Chinese Civilization*, vol. I (Cambridge: Cambridge University Press, 2012), 193. All romanization of Chinese words are changed into pinyin by the author.

<sup>13</sup> Sima Qian 司馬遷, *Shiji* 史記, ed. Zhaoqi Han, vol. III (Changsha: Yuelu shushe, 2012), 40.

<sup>14</sup> Chang 1980, 4. Similar myths are also seen in Manchurian/Korea royal myths.

<sup>15</sup> For a list of predynastic lords, see Chang 1980, 4.

Tang grandly thus possessed the regions nine.<sup>16</sup>

It is evident from the poetry that Tang led many war campaigns to “assign the boundary” of Shang. According to the *Bamboo Annals*, Tang “had seven names and led nine campaigns.”<sup>17</sup> Both *Mencius* and *Shiji* record his campaigns. According to *Mencius*, Tang lived in the royal capital called Bo 亳, whose original territory was 70 *li* 里 (one *li* is about 500 meters) across. He established the Shang dynasty after being involved in eleven military campaigns.<sup>18</sup> Although the texts have discrepancies regarding the number of military campaigns that Tang was involved in, he nonetheless gathered political and military strength by constantly conquering neighboring states.

Tang started his conquest with a nearby state called Ge 葛, because the Lord of Ge refused to carry on proper sacrifices.<sup>19</sup> Historians have tried to identify the states conquered by Tang during this period, but only three can be recognized based on existing documents.<sup>20</sup> The last, as well as the most famous campaign that Tang carried out, was the one overturning the last king of the Xia dynasty, Jie 桀. Jie was a dissolute and cruel tyrant, who cultivated no virtues and did harm to common people.<sup>21</sup> Both *Mencius* and *Shiji* attribute Tang’s multiple triumphs to

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<sup>16</sup> Legge, *The Book of Poetry*, 481. “古帝命武湯，正域彼四方。方命厥后，奄有九有。”

<sup>17</sup> Fang and Wang 1981, 21. “湯有七名而九征。” All the translations in the *Bamboo Annals* are translated by the author unless otherwise noted.

<sup>18</sup> Mencius, *The Works of Mencius*, ed. James Legge (Clarendon Press, 1895), Liang Hui Wang II, Teng Wen Gong II.

<sup>19</sup> *Shiji* 史記, III:41; Mencius, *The Works of Mencius*, Teng Wen Gong II. The original Record in *Shiji* is, “葛伯不祀，湯始伐之。” In *Mencius* it says, “湯居亳，與葛為鄰，葛伯放而不祀。”

<sup>20</sup> Qu Wanli 屈萬里, “Shiji Yinbenji ji qita jilu zhong suozai yinshang shidai de shishi 史記殷本紀及其他紀錄中所載殷商時代的史實,” in *Qu Wanli xiansheng wencun*, vol. II (Taipei: Lianjing chubangongsi, 1985), 549.

<sup>21</sup> *Shiji* 史記 III, 37. “桀不務德而武傷百姓。”

his moral superiority over his enemies.<sup>22</sup> After Tang conquered Xia and killed Jie, the legitimacy of Shang's ruling status was solidified.

### **Pan Geng's Relocation of the Capital to Yin and Wu Ding's Renovation**

The next important king in the history of Shang is called Pan Geng 盤庚 in *Shiji* and Xun 旬 in *Bamboo Annals*. According to *Shiji*, by the time Pan Geng came to power, Shang's capital had been moved another five times since Tang's rule.<sup>23</sup> However, *Bamboo Annals* reports that the Shang people only moved their capital three times after Bo, to places called Xiao 囂, Bi 庇, and Yan 奄.<sup>24</sup> Later in his reign, Pan Geng once again decided to move the royal capital from Yan to Yin 殷. It took a great effort to convince his people, most of whom did not favor the move.<sup>25</sup> His compelling words of persuasion were later recorded and occupy three chapters of the *Book of Documents*. The decision turned out to be a wise one, because, in the words of Sima Qian, the move “tranquilized the people, and revitalized the fortunes of Yin.”<sup>26</sup> The result of the move was even more influential than what was recorded in *Shiji*: Yin was the capital of Shang for the following two hundred years, and today, it is known to scholars as the most important site during the late Shang period.

King Wu Ding 武丁, the nephew of Pan Geng, had the most remarkable political achievement among the late Shang kings.<sup>27</sup> According to the *Book of Documents*, he labored in

<sup>22</sup> Chang 1980, 9.

<sup>23</sup> *Shiji* 史記 III:47. “盤庚渡河南，復居成湯之故居，乃五遷，無定處。”

<sup>24</sup> Fang and Wang 1981, 26–29.

<sup>25</sup> *Shiji* 史記, III:47. “殷民咨胥皆怨，不慾徙。”

<sup>26</sup> *Shiji* 史記, III:47. “百姓由寧，殷道復興。”

<sup>27</sup> *Shiji* 史記, III:47-48. “帝盤庚崩，弟小辛立，是為帝小辛……帝小辛崩，弟小乙立，是為帝小乙。帝小乙崩，子帝武丁立。”

the field before he held power, after which he continued to be industrious.<sup>28</sup> He led many military campaigns and expanded Shang's territory. "Dark Bird" celebrates Wu Ding's achievements:

A thousand *li* extends the king's domain,  
And there the people to repose are fain.  
Lo! to the four seas thence our borders spread,  
And from the space within there come to aid  
Our temple service many chiefs arrayed.<sup>29</sup>

According to "Dark Bird," during Wu Ding's reign, the territory of Shang spread once again, and Shang was in its heyday, both economically and politically. In fact, the oracle bone inscription, a direct records of Shang's divination unearthed in the early twentieth century, also show that Wu Ding was a dedicated king who regularly perform rituals to the ancestors, and military campaigns were indeed constantly carried out during his reign.

### King Wu of Zhou's Expedition towards Shang

The last king of Shang was King Chow 紂. According to *Shiji*, he indulged in moral improprieties and finally led to the downfall of the Shang dynasty. He enjoyed music, wine, and women, and neglected his responsibility of performing sacrifices to the spirits. He demanded too much from the people, searching for all the curiosities to fill the palace room. His atrocities outranged his people and the aristocrats, some of whom attempted to rebel. Chow increased the cruelty of his punishment to punish the rebels, and thus the aristocrats became more estranged from the Shang court.<sup>30</sup> Most of the rebelled aristocrats turned to Xibo Chang 西伯昌 (the title

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<sup>28</sup> Ruan Yuan 阮元, "Shangshu zhengyi 尚書正義," in *Shisanjing zhushu*, vol. I (Beijing: Zhonghua shuju, 1980), chap. Wu Yi.

<sup>29</sup> Legge, *The Book of Poetry*, 482. "邦畿千里, 維民所止, 肇域彼四海. 四海來假, 來假祁祁."

<sup>30</sup> *Shiji* 史記, III:49. "(帝紂)好酒淫樂, 嬖於婦人.....慢於鬼神" "厚賦稅.....收狗馬奇物, 充仞宮室." "百姓怨望而諸侯有畔者, 於是紂乃重刑辟."

means the “Chief of the West.” Xibo Chang was also known as King Wen of Zhou 周文王), who was virtuous and charitable; Chow’s power thus gradually declined.<sup>31</sup> In 1045 BCE, the son of Xibo Chang, King Wu of Zhou 周武王, overturned the ruling of Chow and founded the Zhou dynasty.<sup>32</sup> It is not hard to see that his anecdote follows a similar pattern as Tang’s conquest of Xia: a new and virtuous person raised against and defeated the immoral king.

The atrocity of Chow can be seen in almost all the existing historical texts. However, it is worth noticing that the oracle bone inscriptions tell a totally different story about Chow, as we will see in Chapter 3.

### Shang Chronology, Genealogy, and Previous Settlements

Despite the availability of various textual sources, the previous section has hinted at a fact that there are at least three problems that the texts can’t settle—the chronology, the royal genealogy, and previous settlements of Shang. Archaeology offers tremendous help in all three areas. *Shiji* places the kings in a relative order without providing the precise number of years. In the *Bamboo Annals*, Shang “had 29 kings and expanded 496 years.”<sup>33</sup> According to *Mencius*, the Shang dynasty lasted for “over 500 years.” In *Taiping Yulan* 太平御覽, a historical record compiled in the Song dynasty (960 – 1279 CE), Shang lasted for 622 years.<sup>34</sup> The problem of the Shang chronology remained a controversy until the late 1990s.

In 1996, a four-year project to reconstruct an accurate chronology of the Three Dynasties, known as the Xia-Shang-Zhou Chronology Project 夏商周斷代工程, was officially launched by the PRC government. This project gathered experts in history, archaeology, paleography,

<sup>31</sup> *Shiji* 史記, III:49. “西伯歸, 乃陰修德行善, 諸侯多叛紂而往歸西伯. 西伯滋大, 紂由是稍失權重.”

<sup>32</sup> Xiashangzhou duandai gongcheng zhuanjia zu 2000, 38–48.

<sup>33</sup> Fang and Wang 1981, 38.

<sup>34</sup> Qu 1985, 560.

astronomy, and geology, to determine an approximate chronology for Xia, Shang, and Zhou.

With the help of the carbon-14 dating technology, the project gave the approximate range of the Shang dynasty, from 1600 BCE to 1045 BCE.<sup>35</sup> Despite some minor disagreements, this chronology is widely accepted.<sup>36</sup>

The genealogy of the Shang kings had long been another subject of contention. As in the case of Tang who had seven names, other kings also had multiple names in different sources. To make things more difficult for the historians, the Shang genealogy provided in the texts sometimes contradict each other. For example, in the narrative of *Shiji*, King Zu Yi 祖乙 passed the throne to his son Zu Xin 祖辛, and Zu Xin was succeeded by his brother Wo Jia 沃甲. However, in the *Bamboo Annals*, Zu Yi was succeeded directly by Kai Jia 開甲 (Kai Jia is believed to be another name of Wo Jia in *Shiji*).<sup>37</sup> Archaeological evidence once again offered great help. The discovery of oracle bones in 1899 revealed that the Shang people performed divination using animal bones, and inscribed the content of divinations onto some of the bones afterwards. Since many divinations were inquiries about the ancestral sacrifices, historian Wang Guowei 王國維 (1877 – 1927) compiled a list of the Shang kings in relative sequential order based on those bones. His result showed that Sima Qian's genealogy was surprisingly accurate for the most part.<sup>38</sup>

<sup>35</sup> Xiashangzhou duandai gongcheng zhuanjia zu 2000. Archaeologist Li Feng accepts 1554 BCE to be a more accurate start date of Shang, based on a recent result of Carbon 14 dating. Li 2013, 53–54.

<sup>36</sup> A good overview of the criticisms towards the chronological project can be found in Edward L. Shaughnessy, “Lun Xia-Shang-Zhou duandai gongcheng 論夏商周斷代工程,” in *Sandai sunyi ji* 三代損益記 (Shanghai: Shanghai guji chubanshe, 2020), 13–47.

<sup>37</sup> *Shiji* 史記, III:46; Shiming Fang and Xiuling Wang, *Guben zhushu jinian jizheng jizheng* 古本竹書紀年輯證, 28. In *Shiji*, “祖乙崩, 子帝祖辛立. 帝祖辛崩, 弟沃甲立, 是為帝沃甲.” In *Bamboo Annals*, “[十四]《紀年》曰: 祖乙勝即位, 是為中宗, (居庇)..... [十五]《紀年》曰: 帝開甲踰即位, 居庇.”

<sup>38</sup> Wang Guowei 王國維, “Yinxu buci zhong suojian xiangong xianwnag kao 殷墟卜辭中所見先公先王考,” in *Guantang jilin* 觀堂集林 (Beijing: Zhonghua shuju, 2004); Wang Guowei 王國維, “Yinxu buci



Another mystery that historians try to solve is how many times Shang people moved their capitals, and whether those places can be located. As mentioned before, the capital of Shang had moved eight times by the time of Tang. The *Book of Documents* agreed with this number, but only recorded the names of three capitals. After referencing to various historical records, Wang Guowei identified the eight capitals, yet he warned that since all the records are old, it was not wise for scholars to be too credulous.<sup>39</sup> However, one thing that most scholars agree on is that all the capitals were scattered on the two sides of the Yellow River.<sup>40</sup> Actually, moving the capital from one side of the Yellow River to the other was explicitly recorded in *Shiji* as well.

Shang is the earliest state whose historical records have been preserved up to the present. While those records provide a significant amount of information for historians, they also suffer from the ambiguity and contradictions in various textual sources. In the late nineteenth century, the mystery of the Shang dynasty was gradually unveiled, starting with the discovery of the most valuable primary source on Shang history and the last capital of Shang.

### The Oracle Bone Inscription

Back in the 1880s, villagers in Xiaotun 小屯 village of Anyang 安陽 started to dig out oracle bones from the field. Unaware of the value of those bones, villagers either used them to fill the deserted wells or sold them to pharmacies, in which case they were called “dragon bones” 龍骨, a traditional Chinese medicine made from ground-up animal bones. It was not until 1899 that a Qing official and literatus, Chen Yirong 陳懿榮 (1845–1900), noticed the characters on the “dragon bones,” which he believed to have important scholarly value. The discovery of

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zhong suojian xiangong xianwnag xukao 殷墟卜辭中所見先公先王續考,” in *Guantang jilin* 觀堂集林 (Beijing: Zhonghua shuju, 2004).

<sup>39</sup> Qu 1985, 566.

<sup>40</sup> Qu 1985, 570.

the oracle bones not only drastically changed the historiography of the early Chinese history by providing a direct access to the Shang people's own writing, but also confirmed the fact that the last capital of Shang, Yin, is located exactly at the present-day Xiaotun village near Anyang. Scholars also refer to the last capital of Shang as Yinxu 殷墟, literally meaning the “ruins of Yin.”

Before Chen's “discovery” of oracle bones in 1899, the bones were sold at a price of “six *qian* 錢 per *jin* 斤” (one *jin* is about 590 grams).<sup>41</sup> But shortly after 1899, the price of the bones skyrocketed to “twenty-five *qian* per character.”<sup>42</sup> The profit drove more people to the field, looking for oracle bones. According to statistics published in 1994, from 1899 to 1928, a total of 100,000 pieces of oracle bones with writing on them were found. However, since none of bone-hunters were trained archaeologists, their excavation caused severe damage to the surrounding environment and the archaeological context.<sup>43</sup> Chinese archaeologists were concerned about the destruction of the site of Yinxu, and in August 1928 a series of careful and extensive archaeological survey in Xiaotun village was conducted under by archaeologist and historian Dong Zuobing 董作賓. In his report, he stated that he believed that there were more oracle bones to be found in Yinxu, and urged the state to carry out a scientific excavation.<sup>44</sup> In fall 1928, the Institute of History and Philology of the Academia Sinica 中央研究院歷史語言研究所 carried

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<sup>41</sup> Chen Mengjia 陳夢家, *Yinxu buci zongshu* 殷墟卜辭綜述 (Beijing: Zhonghua shuju, 1988), 2.

<sup>42</sup> Dong Zuobing 董作賓 and Hu Houxuan 胡厚宣, *Jiaguwen nianbiao* 甲骨文年表 (Shanghai: Shangwu yinshu guan, 1937), 1.

<sup>43</sup> Zhongguo shehui kexueyuan kaogu yanjiusuo 中國社會科學院考古研究所, *Yinxu de faxian yu yanjiu* 殷墟的發現與研究 (Beijing: Kexue chubanshe, 1994), 7.

<sup>44</sup> Dong Zuobing 董作賓, “Minguo shiqinian shiyue shijue Anyang Xiaotun baogaoshu 民國十七年史語所試掘安陽小屯報告書,” *Anyang fajue baogao* 1, no. 1 (1929): 3–36.

out a scientific excavation at Yinxu. This marks the start of the century-long investigation of Yinxu.

Osteomancy, the use of animal bones to perform divination, was widely practiced in Eurasia and North America during the Neolithic period. In the case of China, such a practice continued to the Bronze Age (Shang and Zhou period) as well as the Qin and Han period. In the Shang period, the date, content, and occasionally the result of the divination were inscribed onto some of the bones, and such records are known as the “oracle bone inscriptions” 甲骨文.

Archaeologist Rowan Flad argued that the procedure of osteomancy was systematically associated with the court-based divination and became “a crucial source” of state power during the late Shang dynasty in Anyang.<sup>45</sup>

The oracle bones found in Anyang were mostly made from scapulas (shoulder bones) of cattle or water buffalo and the plastron of turtles, although cranium, ribs of the bovid, and deer antlers were occasionally used.<sup>46</sup> Uninscribed oracle bones make up more than 90% of the excavated Shang oracle bones, yet the inscribed ones have received much more attention.<sup>47</sup> The content of the inscriptions includes sacrifices, military campaigns, hunting expeditions, weather, agriculture, sickness, and the fortune of the next ten-day week (*xun* 旬).<sup>48</sup> The oracle bone inscriptions are direct records of the activity and concerns of the Shang elite, making them valuable primary sources for the study of Shang history.

Inscriptions about bronze-casting activities are scarce. Only two pieces have been identified.

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<sup>45</sup> Rowan K. Flad, “Divination and Power,” *Current Anthropology* 49, no. 3 (June 2008): 404–5.

<sup>46</sup> David N. Keightley, *Sources of Shang History: The Oracle-bone Inscriptions of Bronze Age China* (Berkeley: University of California Press, 1978), 6–8.

<sup>47</sup> Flad, “Divination and Power,” 406.

<sup>48</sup> Keightley, *Sources of Shang History: The Oracle-bone Inscriptions of Bronze Age China*, 33–34.

[1] 丁亥卜, 大[貞:] 王其鑄黃呂□凡利。夷.....  
 Crack-making on *dinghai* (day 24), Da [divined]: the king shall cast a yellow bronze □  
*pan* (盤); (it will be) beneficial. It would be.....<sup>49</sup> (Figure 2.1)

[2] 王其鑄黃呂, 奠血, 夷今日乙未利。  
 The king shall cast a yellow bronze, (and) perform animal blood sacrifice; it will be  
 beneficial today, *yivei* (day 32).<sup>50</sup> (Figure 2.2)



Figure 2.1 《殷墟文字甲編》no. 29687.



Figure 2.2 《英國所藏甲骨集》no.2567

<sup>49</sup> 《殷墟文字甲編》29687. The English translation is offered by the author unless otherwise noted.

□ indicates that one graph is missing from the original inscription;

[ ] indicates that a graph is now missing in the inscriptions, but that one with this meaning would, according to the translator's view, have been in the original, undamaged text;

( ) indicates that the translator supplies the meaning for clarity where no graphs are missing.

For the interpretation of 凡, see Deno Fumi 出野文莉, "Jiaguwen [Fan] Fuhao Zhi Yuanyi 甲骨文「」符號之原義," in *Di ershiqi jie zhongguo wenzixue guoji xueshu yantaohui lunwenji* 第二十七屆中國文字學國際學術研討會論文集 (Taizhong: Guoli taizhong daxue, Zhongguo wenzi xuehui, 2016), 259, <http://charactercl.blogspot.com/2016/05/27.html>; David N. Keightley, *Working for His Majesty* (Berkeley: Institute of East Asian Studies, University of California, Berkeley, 2012), 30. Keightley's translation is "Crack-making (*bu*) on *dinghai* (day 24), Da [divined]: (We) expect (*qi*) to cast yellow bronze (?) ... produce a *pan* (盤); it will be beneficial, and will..." I have doubt about translating "*qi*" into "expect", so I choose to do a word-for-word translation.

<sup>50</sup> 《英國所藏甲骨集》2567. Keightley translated it as "His Majesty will expect (*qi*) to cast yellow bronze (?), perform the *xue* ritual; let the present day *yivei* (day 23) be beneficial." I expanded on Keightley's translation of "奠血," to "perform animal blood sacrifice," based both on the previous study of the *xue* sacrifice and the archaeological findings.

[1] (Figure 2.1) is asking whether it would be beneficial if the king were to cast a bronze *pan* 盤, a type of high-foot vessel (Figure 2.3). [2] (Figure 2.2) is divining about a similar thing, except that the name of the intended vessel is not specified. Both of them indicate that the date on which the casting started was vital since they both asked whether it would be auspicious to do the casting on a certain date. Furthermore, [2] implies that when the king ordered some vessels to be made, Shang people would perform sacrifice that involved animal-killing. This is supported archaeologically by the discovery of sacrificial pits near the bronze workshops. It is clear that not much about the bronze casting activities can be directly inferred from the oracle bone inscriptions.



Figure 2.3 Shiqiang Pan 史牆盤. Pan vessel with inscriptions, dates back to the Western Zhou period. It was excavated in 1976, and is now stored in Shaanxi lishi bowuguan.

Luckily, this is not the end of the investigation. Scholars also try to study the bronze casting activities from the perspective of the artisans. Some scholars identify the oracle bone character *gong* 工 as artisans. However, not all scholars accept such a view, and many debates emerge. Historian David Keightley rejects the translation of the late Shang oracle bone inscriptions *gong* 工 and *duo gong* 多工 as “artisans” and “many artisans”. He interprets the

graph 工 as “strike”, because he believes the earliest form of the graph 工, 𠄎, is depicting some form of striking, chipping, or hitting, actions that relate to various craft production.<sup>51</sup> Historian Sun Yabing 孫亞冰 argues that *gong* should be interpreted as officials in general. Sun’s reason for not explaining *gong* as artisans is that most of the inscriptions that contain the graph *gong* are unrelated to craft production.<sup>52</sup> However, historian Chang Shumin 常淑美 believes that *gong* does refer to artisans, because such an interpretation fits into the current hypothesis about the Yinxu industrial zones (see the next section). Chang believes that *zuogong* 左工 (“left artisan”) and *yougong* 右工 (“right artisan”) refer to the artisan groups in the western and eastern industrial zones, respectively.<sup>53</sup> Based on the research so far, it is hard to get inspirations about the late Shang craft production system from the oracle bones, so we must turn to other sources of information.

### The Excavation of Yinxu

To study the artisans and bronze production activities in Yinxu, it is important to start with a brief overview of the site. Originally carried out in 1928, the excavation of Anyang can be divided into two phases: from 1928–1937, the excavation was carried out by the Institute of History and Philology of the Academia Sinica. This phase ended in 1937 shortly before the full-scale Sino-Japanese war broke out. The excavation was suspended for over a decade until it was

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<sup>51</sup> Keightley 2012, 34–49.

<sup>52</sup> Sun Yabing 孫亞冰, “Cong jiaguwen kan shangdai de shiguan zhidu—jianshi jiaguwen ‘gong’ zi 從甲骨文看商代的世官制度——兼視甲骨文‘工’字,” *Jiaguwe Yu Yinshang Shi*, no. 00 (2014): 26–38.

<sup>53</sup> Chang Shumin 常淑敏, “Handicraft Industry Relics at Yin-ruins and Interpretation of ‘Sigong’, ‘Duogong’ and ‘Baigong’ in Oracle Inscriptions 殷墟的手工業遺存與卜辭‘司工’‘多工’及‘百工,’” *Jianghan kaogu*, no. 03 (2017): 87.

resumed in 1950, after the establishment of the People's Republic of China in 1949. From 1950 to now, the excavation of Yinxu has been carried out by the Institute of Archaeology, Chinese Academy of Social Sciences 中國社會科學院考古研究所.

During the first phase of excavation, nine years after Dong Zuobing's report in 1928, a total of fifteen excavations were carried out at eleven sites in Yinxu. Archaeologists identified the "Palace Area" 宮殿區 in Xiaotun village (see figure 2.4). Its grandiose buildings made it the most important site, both for the late Shang people and the modern archaeologists. Scholars believe that the buildings have religious significance.<sup>54</sup> Another important site is the royal cemeteries at Xibeigang 西北岡, about 2.5 km to the north of the Palace Area. In Xibeigang, archaeologists found ten big tombs with tomb ramps, one unfinished big tomb, and more than 1000 sacrificial pits (another 700 sacrificial pits were found in 1977–1978). The size and burial goods of the big tombs indicate that they belonged to the late Shang kings, while the correspondence between the tombs and the kings is still under debate.<sup>55</sup>

Since 1950, another forty excavations have been carried out at seventeen sites in Yinxu. As the excavations steadily expand outwards from the palace, the boundary of Yinxu has been constantly enlarged. During this phase, several bronze foundries, bone workshops, stone workshops, pottery kilns, drainage systems, and a defense moat have been found, along with more residential areas and cemeteries.<sup>56</sup> Besides archaeological excavation, many scientific analysis of the data and artifacts were also carried out, including the Xia-Shang-Zhou Chronology Project. The archaeological sources contribute to the study of the Shang family structure, social hierarchy, ritual systems, and economic activities. Moreover, further excavation

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<sup>54</sup> Zhongguo shehui kexueyuan kaogu yanjiusuo 1994, 13, 41–42.

<sup>55</sup> Zhongguo shehui kexueyuan kaogu yanjiusuo 1994, 13, 93–104.

<sup>56</sup> Zhongguo shehui kexueyuan kaogu yanjiusuo 1994, 21–23.

around Anyang also led to the discovery of Shang cities in Zhengzhou 鄭州 and Huanbei 洹北. Although the fieldwork in those sites is less intensive, scholars believe that they were both Shang capitals before Yinxu, and they are of extreme importance in providing comparative data on the settlement pattern and production organization for the study of Yinxu. Our knowledge about the social, political, and economic life in Yinxu increases as more archaeological data emerges.

### **Yinxu's Spatial Arrangement**

Yinxu was the last capital of the Shang Dynasty and the biggest city in the late Shang period (1250–1046 BCE). Based on the oracle bones and the shapes of bronze and pottery, scholars have divided the late Shang settlement in Yinxu into four phases:

Phase I: c. 1370–1260, roughly from the reign of Pan Geng to early Wu Ding

Phase II: c. 1260–1200, roughly from late Wu Ding to Zu Jia

Phase III: c. 1200–1085, roughly from Bing Xin to Wen Ding

Phase IV: c. 1085–1046, roughly from Di Yi to Di Xin.<sup>57</sup>

Yinxu is located in the northwest of the city of Anyang, Henan, near the modern village of Xiaotun. The Huan River 洹河 penetrates the city from northwest to southeast, dividing the city into northern and southern parts. (Figure 2.4)

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<sup>57</sup> Xiashangzhou duandai gongcheng zhuanjia zu 2000, 50–52.



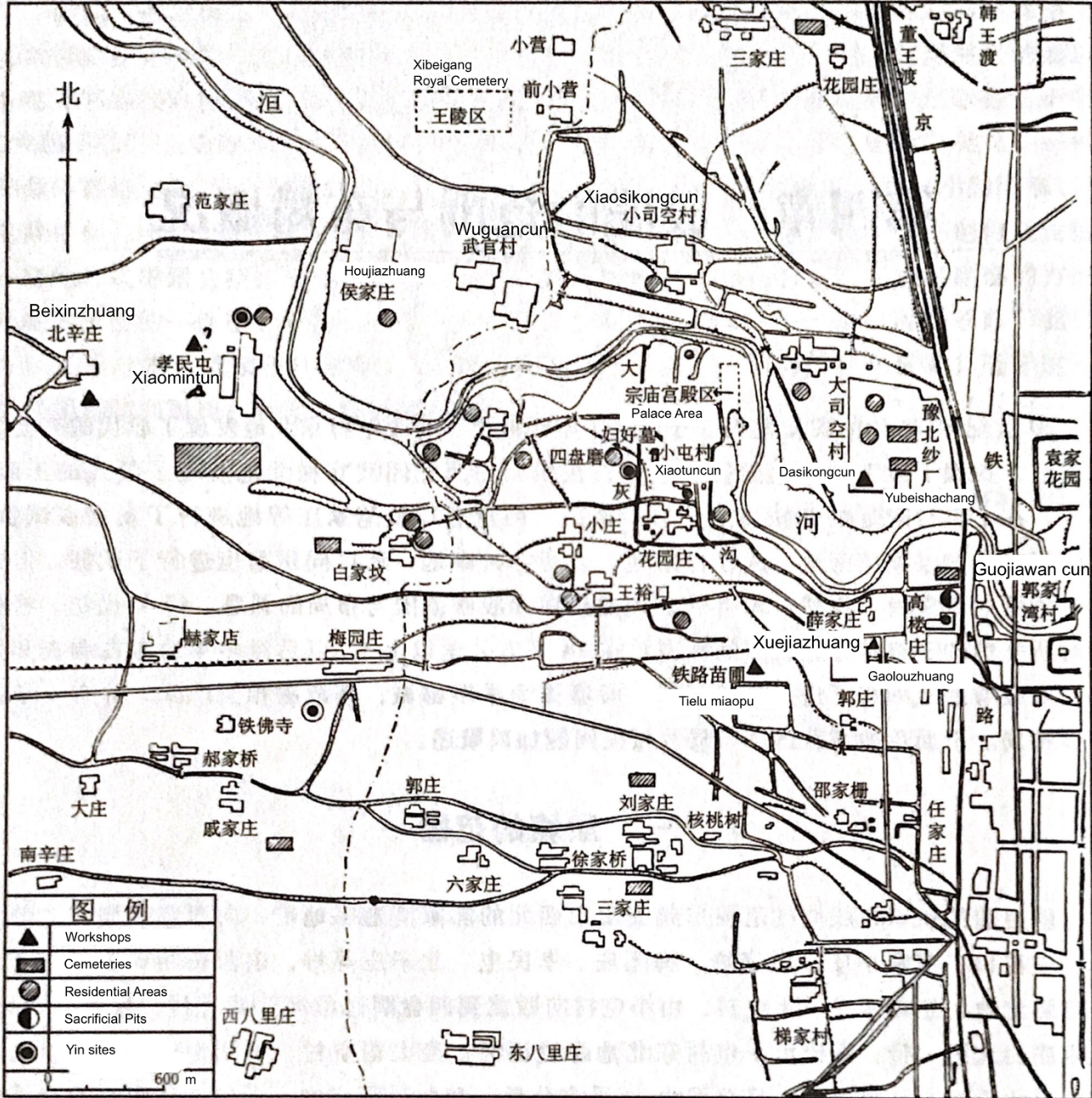


Figure 2.4 Map of YinXu (redrawn from Zhongguo shehui kexueyuan kaogu yanjiusuo, *Yinxu de Faxian Yu Yanjiu*, 40)

The river is surrounded on both sides by habitation clusters, workshops, and tombs. The estimated size of Yinxu has changed as the excavation proceeded. From what has been learned so far, the city of Anyang expanded 6 km east to west from Guojiawan 郭家灣 to Beixinzhuang 北辛莊, and 4 km south to north from Tielu miaopu 鐵路苗圃 to Houjiazhuang 侯家莊. Within the approximately 24 sq. km, the Shang remains were densely populated. If scattered findings around the peripheral area are included, the city of Yinxu is estimated to be 30 sq. km.<sup>58</sup> The expansion of Yinxu was a gradual process. During the early period of Phase I, Yinxu was too small to be considered a city, but as it developed, Yinxu doubled in size.<sup>59</sup> Generally speaking, the research and excavation of the southern part of Yinxu focuses on the palace area near the Palace Area at Xiaotun Village, surrounded by habitation settlements and workshops; while the focus of the northern part lies in the Xibeigang Royal Cemetery, which contains thousands of sacrificial pits and royal tombs, near the present-day Wuguancun 武官村 and Houjiazhuang.

The excavation of cemeteries in Yinxu reveals some clues about the family structure in late Shang. Based on the excavation of Shang cemeteries at Anyang Xiqu 安陽西區 (the western district of Anyang), archaeologists discovered that the 1003 tombs excavated can be divided into eight groups based on the differences in burial styles, burial goods, and the orientations of the tombs. This fact led to the conclusion that the tombs from the same group have a shared cultural background and some kind of connection; thus, within this cemetery, the eight groups very likely corresponds to eight different clans. Furthermore, an analysis of the burial goods shows that within a group, some tombs had more luxurious tomb goods than others, indicating that the

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<sup>58</sup> Li Liu and Xingcan Chen, *The Archaeology of China: From the Late Paleolithic to the Early Bronze Age* (Cambridge: Cambridge University Press, 2012), 356; *Zhongguo shehui kexueyuan kaogu yanjiusuo* 1994, 39–41.

<sup>59</sup> *Zhongguo shehui kexueyuan kaogu yanjiusuo* 1994, 41.

owner of those tombs probably had have higher political and economic status than others.<sup>60</sup> The cemetery at Anyang Xiqu thus can be seen as a “public” cemetery for eight clans, where people from the same clan, despite the differences in social status, were buried closely together.

It is now widely accepted that the settlements (*yi* 邑) in Yinxu was organized such that people from the same clan would live in the same settlement.<sup>61</sup> Historian and archaeologist Zhen Ruokui 鄭若葵 sees Yinxu as a big settlement of Shang (*dayishang* 大邑商) that contains several clan settlements (*zuyi* 族邑) and a royal settlement (*wangyi* 王邑).<sup>62</sup> He also tries to identify the locations of the clan settlements in Yinxu, but some of his analysis was not very well-grounded due to the deficiency of archaeological data.<sup>63</sup> Archaeologists Tang Jigen 唐際根 and Jing Zhichun 荆志淳 argue that the clan settlements, rather than being independent, were dynamically connected to form a bigger, organic settlement of Shang; yet the royal settlement at Xiaotun had more significance than other clan settlements, in terms of its location and the scale of the buildings. They further argue that a typical settlement in Anyang includes residential areas, storage pits, wells, sidewalks, streets (imprints of chariots are found in some places), drainage systems, reservoirs, and workshops. The drainage systems and the sidewalks further connected the clan settlements within the big settlement of Shang.<sup>64</sup>

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<sup>60</sup> Zhongguo shehui kexueyuan kaogu yanjiusuo 中國社會科學院考古研究所, “Excavation of the Yin Tombs in the Western Section of Yin-Hsu 1969–1977 年殷墟西區墓葬發掘報告,” *Kaogu xuebao*, no. 1 (1979): 114.

<sup>61</sup> Tang Jigen 唐際根 and Jing Zhichun 荆志淳, “Anyang de ‘Shangyi’ yu ‘dayishang,’ 安陽的‘商邑’於‘大邑商’” *Kaogu*, no. 9 (2009): 75.

<sup>62</sup> The term *dayishang* 大邑商 already appeared in the Oracle Bone Inscriptions.

<sup>63</sup> Zheng Ruokui 鄭若葵, “Yinxu ‘Dayishang’ zuyi buju chutan 殷墟‘大邑商’族邑佈局初探,” *Zhongyuan wenwu*, no. 03 (1995): 83–93.

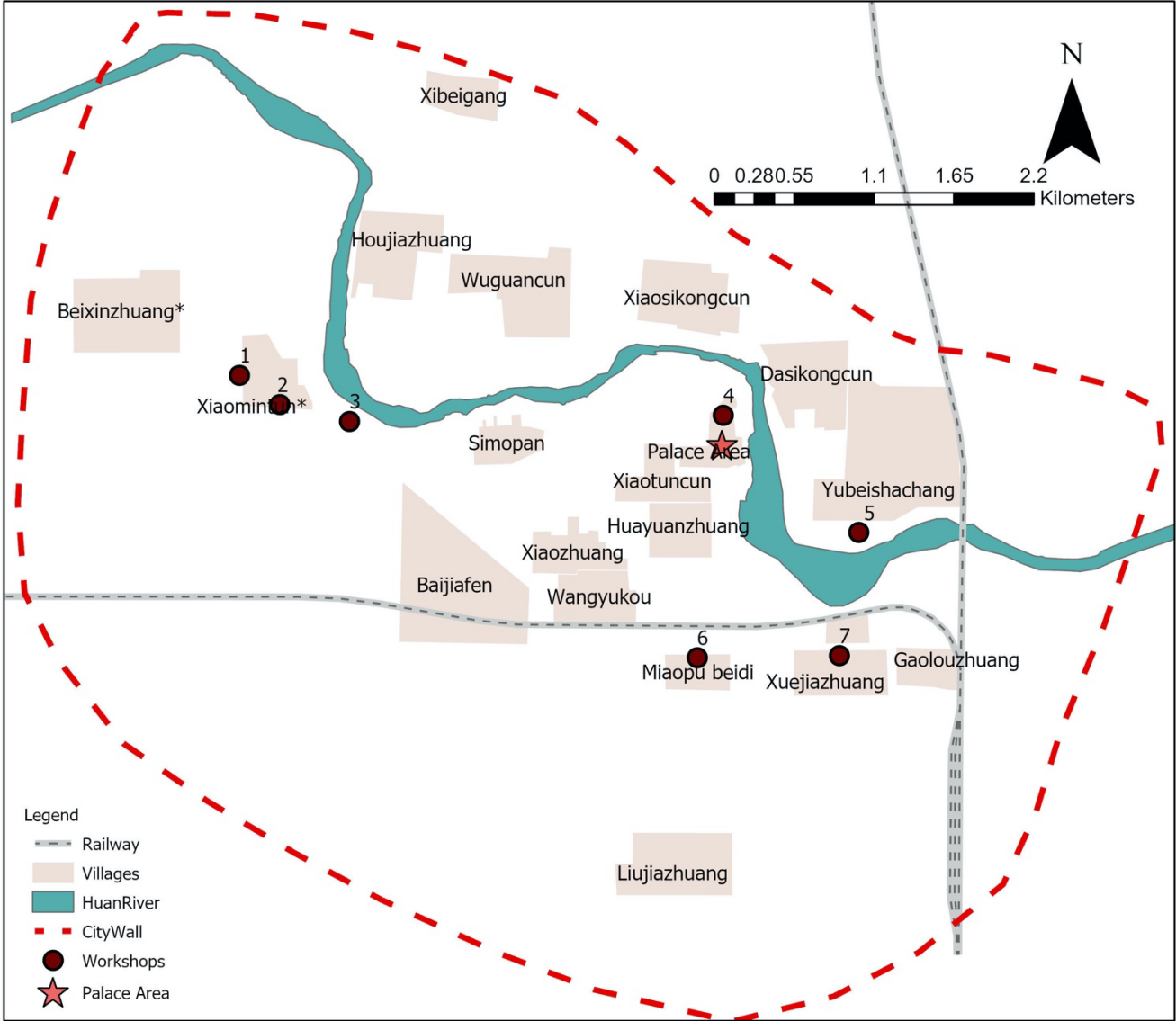
<sup>64</sup> Tang and Jing 2009, 76–78.

## Bronze Foundries in Yinxu

As discussed above, the oracle bone inscriptions do not give many clues about the bronze casting activities. A more direct way to study the bronze production system is to look at the bronze foundries in Anyang. This paper follows the nomenclature in traditional Chinese archaeology, where the important features are named after the name of the place they were found. According to *Yinxu de faxian yu yanjiu* 殷墟的發現與研究, previous excavations have identified several bronze foundries: one is in northeastern Xiaotu Village, thus named Xiaotun Northeast 小屯東北; one is found in southern Dasikongcun, thus named Dasikong South 大司空南; another is found in northern Tielu Miaopu, thus named Miaopu North 苗圃北. One foundry is found at and named after Xuejiazhuang 薛家莊, and three are found near Xiaomintun 孝民屯, named Xiaomintun South 孝民屯南, Xiaomintun West 孝民屯西, and Xiaomintun Southeast 孝民屯東南 respectively.<sup>65</sup> Figure 2.5 gives the locations of these foundries. Since its publication in 2007, two more important foundries were found at Renjiazhuang South 任家莊南 and Xindian 辛店.<sup>66</sup> The locations of the bronze foundries, like the locations of all the other workshops, are inferred from abnormally high concentrations of craft production debris.

<sup>65</sup> Zhongguo shehui kexueyuan kaogu yanjiusuo 1994, 78–86.

<sup>66</sup> Anyang shi wenwu kaogu yanjiusuo 安陽市文物考古研究所, “Henan sheng Anyang shi Xindian shangdai zhutong yizhi fajue ji xueshu yiyi 河南省安陽市辛店商代鑄銅遺址發掘及學術意義,” *Sandai Kaogu*, no. 00 (2017): 52–62; Anyang shi wenwu kaogu yanjiusuo 安陽市文物考古研究所, “Henan Anyang shi Renjiazhuang nandi shangdai wanqi zhutong yizhi 2016-2017 fajue jianbao 河南安陽市任家莊南地商代晚期鑄銅遺址 2016-2017 發掘報告,” *Zhongyuan wenwu*, no. 05 (2018): 9–26.



<b>Id</b>	<b>Type</b>	<b>Source</b>	<b>Location</b>	<b>DistancePA</b>
2	Bronze	Liu, 2012; He, 2019; Li, 2003	Xiaomintun South	3057
3	Bronze	2000-2001 Xiaomintun dongnan; Li, 2003; He, 2019	Xiaomintun Southeast	2570.199951
6	Bronze	1980-1982 Baogao; 1980-1982 Miaopubeidi; 1982-1984 Miaopubeidi; Li, 2003; Faxian, 2007; 2007 Xinanzhuang; He, 2019.	Miaopu Beidi	1474.670044
1	Bronze	1958-1961 Baogao; Li, 2003; He, 2019.	Xiaomintun West	3357.139893
7	Bronze	Zhao, 1958; Zhou & Liu, 1957; Li, 2003; Faxian, 2007, He, 2019.	Xuejiazhuang	1663.319946
5	Bronze	Li, 2003; He, 2019	Dasikong South	1120.199951
4	Bronze	Li, 2003; Faxian, 2007; He, 2019	Xiaotun Northeast	181.279999

Figure 2.5 Bronze foundries in Yinxu. Map created by Yuwei Zhou.

Archaeologists He Yuling 何毓靈 and Meng Xianwu 孟憲武, et al., divide Yinxi into four industrial zones 工業區: the central, southern, western, and eastern industrial zone.<sup>67</sup> In the industrial zones, bronze foundries, bone workshops, stone workshops, and pottery kilns were densely populated. Xiaotun Northeast (No. 4 on figure 2.5) belongs to the central industrial zone; the date of this foundry is still under debate, but its approximate range is from the middle Shang period to phase II of Yinxi.<sup>68</sup>

Foundries at Miaopu North (No. 6 on figure 2.5), Renjiazhuang South (not shown on figure 2.5, and Xuejiazhuang (No. 7 on figure 2.5) belong to the southern industrial zone.<sup>69</sup> Miaopu North foundry started as a small production site during phase I, and gradually expanded during phases II and III. It reached its heyday by phase IV, and was likely to be under the direct control of the royal family in this phase.<sup>70</sup> Renjiazhuang South foundry was in use since phase II, and was more frequently used during phase III and IV.<sup>71</sup> In 1952, the Henan Provincial Cultural Relics Team 河南省文物工作隊 identified a bronze foundry, a pottery workshop, and a bone workshop to the south of Xuejiazhuang. Xuejiazhuang foundry is geographically adjacent to both the southern and eastern industrial zones. Thus to answer whether the Xuejiazhuang foundry belongs to either industrial zones or form its own small-scale industrial zone with the other nearby workshops, we still need more data from archaeological excavation. At the same time, the relationship between the elite tombs to the north of Xuejiazhuang and the normal tombs to the

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<sup>67</sup> He Yuling 何毓靈, “Lun Yinxi shougongye buju jiqi yuanliu 論殷墟手工業佈局及其源流,” *Kaogu*, no. 06 (2019): 75–88; Meng Xianwu 孟憲武, Li Guichang 李貴昌, and Li Yang 李陽, “Yinxi ducheng yizhi zhong guojia zhangkong xia de shougongye zuofang 殷墟都城遺址中國家掌控下的手工業作坊,” *Yindu xuekan* 35, no. 04 (2014): 13–20.

<sup>68</sup> He 2019, 76–77, 80; Meng, Li, and Li 2014 15.

<sup>69</sup> He 2019, 77.

<sup>70</sup> *Zhongguo shehui kexueyuan kaogu yanjiusuo* 1994, 85.

<sup>71</sup> *Anyang shi wenwu kaogu yanjiusuo* 2018, 25.

south of Xuejiashuang needs to be taken into account when discussing the craft production organization.

Xiaomingtun bronze foundry is located at the western industrial zone. Archaeologists have found three foundries at western (No. 1 on figure 2.5), southern (No. 2 on figure 2.5), and southeastern Xiaomintun (No. 3 on figure 2.5), respectively, making it the largest bronze industrial zone yet found in Yinxu.<sup>72</sup> Its foundries were in use in phase II and became more active in phase III and IV.<sup>73</sup> Dasikong South bronze foundry (No. 5 on figure 2.5) belongs to the eastern industrial zone, which contains mainly a small bronze workshop, a bone workshop, and a pottery workshop.<sup>74</sup>

In Meng and He's theories, the northern Yinxu seems to be a void area for craft production. However, in 2016, a bronze production site was found to the north of Yinxu at Xindian. Xindian foundry was in use from phase II to phase IV. Although it is geographically away from Yinxu (10 km from the Palace Area), the remains nonetheless resemble the ones found in Yinxu.<sup>75</sup> Whether Xindian belongs to Yinxu, and whether the workshops in Xindian can form the northern industrial zone are still in need of investigation.

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<sup>72</sup> Meng, Li, and Li 2014, 16.

<sup>73</sup> Zhongguo shehui kexueyuan kaogu yanjiusuo 1994, 86.

<sup>74</sup> Meng, Li, and Li 2014, 17.

<sup>75</sup> Anyang shi wenwu kaogu yanjiusuo 2018, 61.

### Chapter 3 Theories, Frameworks, and the Social Life of Bronze

#### Models of Shang Archaeology

Long before the introduction of scientific archaeology to China in the early 1900s, there was a well-founded model for the study of Shang. The model was established mainly by *Shiji* and reinforced by numerous works of scholarship afterward. The “Three Dynasties Model,” as it was labeled by archaeologist Robert L. Thorp, depicted an idealized, continuous, and monocentric heritage, where the three dynasties, Xia, Shang, and Zhou originated from the same ethnic group.<sup>76</sup> Moreover, in this vision, the three dynasties followed a model similar to what historian Herrlee G. Creel called “The Decree of Heaven” (or “The Mandate of Heaven”, *tianming*): The succession to the throne was hereditary, and the downfall of the dynasty was due to an increase of luxurious lifestyle and the immorality of the last ruler. In such a situation, Heaven (*tian* 天) withdrew the royal family’s power to rule and selected another more virtuous person, who became the founder of a new dynasty. However, Creel argues that such a model is problematic, as I am going to discuss in the next paragraph. In fact, he proposed that the “Decree of Heaven” was an invention of the Zhou, who may have wiped out and recreated the history of Shang as a part of Zhou’s political propaganda.<sup>77</sup>

In *Shiji*, Sima Qian attributed the downfall of the Xia Dynasty to the cruelty of King Jie. King Tang of Shang defeated Jie because, as he supposedly said, “Heaven has charged me [Tang] to destroy them.”<sup>78</sup> Similarly, the decline of the Shang was due to the immorality of King

<sup>76</sup> Robert L. Thorp, “Shang Wenhua de Kaoguxue Moshi He Jieshi,” in *Zhongguo Shang Wenhua Guoji Xueshu Taolunhui Wenji*, trans. Lianggao Xu (Beijing: Zhongguo dabaikequanshu chubanshe, 1998), 334.

<sup>77</sup> Herrlee G. Creel, “The Decree of Heaven,” in *The Birth of China* (New York: Frederick Ungar Publishing Co., 1937), 367–75.

<sup>78</sup> *Shiji* 史記 I: 41. “今夏有罪，天命殛之。”



Chow. When King Wu of Zhou waged war against King Chow of Shang, King Wu said, “I am reverently carrying out Heaven’s mandate to punish [Shang].”<sup>79</sup> However, Creel questioned Sima Qian’s version of the history because there was no evidence supporting the theory that King Chow of Shang was immoral. In fact, the oracle bone inscriptions, which later were proven to be divination records from the reign of Chow, do show that Chow “attended to divination and was zealous in the performance of his religious duties.” Furthermore, Creel points out that “the idea of the Decree of Heaven was not familiar to the Shang people.”<sup>80</sup> This argument was bolstered by later studies showing that the deity “Heaven” did not appear in the Shang pantheon, but was introduced to the Zhou from the west.<sup>81</sup> Together with a noticeable discrepancy in the number of written sources preserved from the Shang and Zhou period respectively, Creel concluded that the history of Shang and probably Xia was altered by the Zhou people, in order to reinforce its legitimacy of ruling.<sup>82</sup> The political landscape of the “three dynasties” portrayed by Sima Qian loses its legitimacy with a closer examination of primary texts.

Moreover, Sima Qian’s idealized figure of a centralized, monoethnic ruling power in the Three Dynasties period was further weakened by the archaeological evidence. According to anthropologist V. Gordon Childe, the recurring sets of material culture remains can be used to

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<sup>79</sup> *Shiji* 史記, I:58. “故今予發維共行天罰。” Translated by the author.

<sup>80</sup> Creel 1937, 370.

<sup>81</sup> Robert Eno, “Shang State Religion and the Pantheon of the Oracle Texts,” in *Early Chinese Religion*, vol. I, II vols. (Boston: Brill, 2009), 41–102; Sanping Chen, “Son of Heaven and Son of God: Interactions among Ancient Asiatic Cultures regarding Sacral Kingship and Theophoric Names,” *Journal of the Royal Asiatic Society*, 3, 12, no. 3 (November 2002): 289–325; Guo Moruo 郭沫若, “Xianqin tiandao guan zhi jinzhhan 先秦天道觀之進展,” in *Guo Moruo quanji, Lishi bian, di yi juan* 郭沫若全集歷史編第一卷 (Beijing: Zhongguo renmin chubanshe, 1982), 317–76.

<sup>82</sup> Creel 1937, 374. Creel presented several evidence of the Zhou wiping out books of the Shang period. First, the oracle bone inscriptions have a character for book (*ce*); second, there were many reference to the Shang books in the Zhou period, but nothing was passed down; third, the Zhou generated and preserved a large amount to written sources, including the *Book of Documents*, *Book of Odes*, *Book of Changes*, and *Book of Rites*, etc.

trace and identify a “cultural group,” and they are the material expression of societies or ethnic groups.<sup>83</sup> However, Thorp notes that there is not enough evidence to show that the three dynasties were consecutive stages of one culture.<sup>84</sup> As the “Three Dynasties Model” became less compatible with both historical and archaeological sources, more models have emerged.

Generally speaking, Chinese archaeology, according to the observation of archaeologist Lothar von Falkenhausen, has developed from a monocentric to a multicentric point of view. Instead of considering the Central Plain (*zhongyuan* 中原) as the only origin of Chinese culture that gave birth to early Chinese dynasties, the new model broadens its geographic dimension and recognizes the roles that other cultures play in the formation of three dynasties.<sup>85</sup> Such a model was proposed first by archaeologist K. C. Chang (1931–2001) in the fourth edition of his *Archaeology of Ancient China*, and was named the “Chinese interaction sphere.”<sup>86</sup> This model depicts a geographical area encompassing various political entities and aims to study the interactions among them, including war, trade, competition, and imitation. The similarities in their political ideology and material culture are products of intense cultural interaction among these political entities.

K.C. Chang’s model is widely accepted by academia and has shifted the text-based study of Chinese archaeology to an anthropology-based one. Later scholars have introduced more anthropological concepts to this field. Archaeologist and historian Li Feng expands the definition of “political entities” by categorizing the political entities from Yangshao culture (c. 5000–3000 BCE) to Longshan culture (c. 3000–2000 BCE) as “chiefdoms” with various levels of

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<sup>83</sup> V. Gordon Childe, *The Danube in Prehistory* (Oxford: Oxford University Press, 1929), 5–6.

<sup>84</sup> Thorp 1998, 334.

<sup>85</sup> *Zhongyuan* 中原 correspond to the present-day Henan province in the middle to lower Yellow river area.

<sup>86</sup> Liu and Chen 2012, 17.

complexity, and the Erlitou period as a transition period from “the pre-state society of free-standing chiefdoms to the state.”<sup>87</sup> His categorization is based on the complexity of the social structure in different periods. The period from Longshan to Erlitou receives much scholarly attention as a way to investigate the “early state formation.” Chang’s model has not only fundamentally reoriented the study of ancient China but has also inspired various research themes in the study of Chinese bronzes.

### The Study of Chinese Bronzes

Archaeologist Li Liu identifies five major themes in the study of Chinese ritual bronzes in general. The first is the study of the classification, typology, and spatial distribution of bronzes. The second focuses on analyzing the symbolic and functional meaning of the decorations and motifs on bronzes. The third theme is a material scientific one, developed along with the archaeology of natural resources and popular among recent scholars, investigating the mineral components and the origins of the raw materials of bronzes. The fourth theme studies the bronze casting techniques and production procedures. The last theme researches the political-economic aspect of bronze production.<sup>88</sup>

While Liu’s categorization is fairly comprehensive, I propose to add a sixth popular theme to the picture, the study of bronze inscriptions and thus the lineage and family structure of Shang. Liu probably omitted this for two reasons. First, this theme is primarily historical, while Liu is a professionally trained archaeologist; and second, Liu’s research focuses on the Erlitou period, but the bronze inscriptions did not appear until the early Shang period. During the Shang

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<sup>87</sup> Li 2013, 30–40, 53.

<sup>88</sup> Liu Li, “‘The Products of Minds as Well as of Hands’: Production of Prestige Goods in the Neolithic and Early State Periods of China,” *Asian Perspectives* 42, no. 1 (2003): 2.

period, while few bronze vessels have long inscriptions, they nonetheless had the owners' names, or the clan emblems inscribed in the inner wall (Figure 3.1).<sup>89</sup> By the time of the late Shang period, the number of inscribed bronzes, and so were the clan emblems, increased. The study of clan emblems and their distribution reveals the lineage and the family structure of Shang and has been a popular subject of study for historians.<sup>90</sup>



Figure 3.1 Rectangular Bronze Ding-cauldron (left) and the inscribed name of the owner (right) 司母辛铜方鼎(左) 司母辛铜方鼎铭文(右). The inscription on the left reads “Mother Xin” (*simuxin* 司母辛), the temple name of Fu Hao. Fu Hao was a famous royal consort of King Wu Ding of Shang.

A second observation I would add to Liu’s schema is that five of the six themes fit into three stages of the social life of bronzes, with theme five penetrating through all: raw material

<sup>89</sup> Ma Chengyuan 馬承源, *The Chinese Bronzes* 中國青銅器 (Shanghai: Shanghai guji chubanshe, 2018), 349. All the Shang bronze inscriptions are under 50 characters, and there were only several cases where the inscriptions exceed ten characters. An inscription up to five characters is more commonly found in the Shang period.

<sup>90</sup> Systematic studies of the clan emblems are: He Jingcheng 何景成, *Shang Zhou qingtongqi shizu mingwen yanjiu* 商周青銅器氏族銘文研究 (Jinan: Qilu shushe, 2009); Luo Youcang 雒有倉, *Shang Zhou qingtongqi zuhui wenzi zonghe yanjiu* 商周青銅器族徽文字綜合研究 (Hefei: Huangshan shushe, 2017). A more comprehensive historiography and research subject of clan emblems see Luo, 5-13.

procurement (theme three), bronze production (theme four), and circulation of ritual bronzes (themes one, two, and six). While such categorization helps us to see the development of social and political economy in early China, it is important to recognize that these subjects are interconnected and mutually indispensable. A series of Liu's papers discuss the three stages of the social life of bronzes during the Erlitou period, which may shed light on the study of Shang bronzes.

First, the investigation of ancient bronze mining sites and natural resources belongs to the procurement stage. Liu and Chen study the state control of the natural resources in the Erlitou and Shang periods.<sup>91</sup> Both Erlitou and an early capital of Shang, Yanshi, were located in an alluvial plain in the Yiluo region (*yiluo pingyuan*), where the fertile soil benefited agriculture and surrounding mountains served as natural defenses. However, the trade-off was that natural resources indispensable for urban development and craft production were located approximately 200–300 km from Erlitou and Yanshi. Liu and Chen thus argue that early stages of Erlitou and Yanshi extended their military control over these distant states to ensure raw material procurement. They identify Dongxiafeng (approx. 150 km northwest of Erlitou) as a possible provider of salt, Huizui (approx. 15 km southeast of Erlitou) as a possible provider of lithic tools, and Tonglvshan (approx. 100 km northwest of Erlitou) as a possible provider of copper mineral. When it comes to the late Shang period, more evidence has shown that the salt production in the modern city of Lijin in northern Shandong was under the direct control of the Shang state. In this period, archaeologists have also found bronzes with elite clan emblems in the mining sites in the Yangzi river region, which signals that the late Shang state might have sent members of the royal

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<sup>91</sup> In Chinese archaeology, the archaeological cultures are usually named after the name of the site. In this case, Erlitou refers both to the site and the Erlitou period, which is widely accepted to be the early Shang period.

family to reinforce centralized control over these areas.<sup>92</sup> The control of natural resources was extremely important in Erlitou state formation.

The studies of typology, decorations, and inscriptions of bronzes (themes one, two, and six) belong to the circulation stage. In fact, they have been the most popular subject of study for Chinese bronzes. The bronze vessels are classified based on their purposes into weapons, ritual vessels, musical instruments, etc. The study of typology suggests that if we trace the development of a single type of vessel in space and time, we may obtain a sequence of stages or the unique features that a type of vessel would take in a certain period.<sup>93</sup> The study of typology, not limited to bronzes but for all kinds of artifacts, helps to identify anthropological “cultures” and suggests the interrelationships among cultures. For example, archaeologists notice a connection between the two contemporary settlements in Erlitou and Huizui because the crafting, agricultural, and construction tools excavated at Huizui resemble the ones from Erlitou.<sup>94</sup> The use of bronze typology to investigate cultural interaction is more common in the Shang period. The site Panlongcheng in present-day Hubei province has long been recognized as a Shang city because of the close similarity between the pottery and the bronzes in Panlongcheng and those in Yinxu.

The traditional study of bronze decoration identifies the decorative elements.<sup>95</sup> The models proposed by sinologist Bernhard Karlgren (1889–1978) and by art historian Max Loehr (1903–1988) establish the periodization of Shang and Zhou bronzes based on their décor.<sup>96</sup> However, as more bronzes have been unearthed, the complex decorations became too

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<sup>92</sup> Liu and Chen 2000, 45–60; Liu 2006, 181.

<sup>93</sup> Ma 2018, 20; Chang, *Shang Civilization* 1980, 26–27. For more information on the study of bronze typology, see Ma 2018, 19–313, and Chang 1980, 23–27.

<sup>94</sup> Liu 2006, 181.

<sup>95</sup> Ma 2018, 314–48.

<sup>96</sup> Chang 1980, 28–31.

complicated to fit into those models. Some scholars started to seek the religious, mythical, and political meanings behind the decorations.<sup>97</sup> The most recent scholarship believes that the bronze styles were influenced by political interactions among cultures, the availability of resources, the aesthetic standards of the artisans, and the development of bronze casting technology. And the study of bronze decoration, in return, may shed light on the various themes. As archaeologist Lianggao Xu 徐良高 notes, since the differences in culture, geographical environment, and lifestyle between Shang and other cultures gives rise to distinct vessel types, motifs, and ideology, the discovery of Shang bronzes outside of the Shang capital “is a convergence of ideology, religion, and political structure reflected upon the material culture.”<sup>98</sup> While we are not sure whether there was a “convergence of political structure and religion” behind such a discovery, there was certainly a level of acceptance and recognition, both in terms of ideology and possibly political legitimacy, between Shang and its contemporary cultures.

It is not hard to see where theme five, the study of political economy, comes in. The study of the procurement and circulation processes signifies the existence of a tributary system during the Erlitou period between the urban center and its hinterland. The Erlitou urban center extracted resources like salt and metal, and tools like lithic tools from the sub-urban centers (Dongxiafeng, Tonglvshan, and Huizui respectively) and the latter were the focal points of the various Erlitou hinterland areas.<sup>99</sup> For example, in the procurement process of copper, the raw material for bronzes, the copper might be smelted near the mining site, and the elite in the

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<sup>97</sup> Roderick Whitfield, ed., *The Problem of Meaning in Early Chinese Ritual Bronzes: Colloquies on Art and Archaeology in Asia No. 15* (London: School of Oriental and African Studies, University of London, 1993).

<sup>98</sup> Xu Lianggao 徐良高, “Wenhua yinsu dingxing fenxi yu Shangdai ‘qingtong liqi wenhuaquan’ yanjiu,” in *Zhongguo Shang wenhua guoji xueshu taolunhui wenji* (Beijing: Zhongguo dabaikequanshu chubanshe, 1998), 232.

<sup>99</sup> Liu 2006, 188; Liu and Chen 2000, 57.

hinterland was probably responsible for obtaining the ingot.<sup>100</sup> While this may imply the existence of a lower level tributary relationship in the sub-urban centers and other settlements in the hinterland area, such a hypothesis awaits more evidence. The distribution of elite goods implies a tributary economic environment. The fact that the white pottery, a traditional elite status marker, was not produced in Erlitou, and yet still appeared in Erlitou elite tombs, together with a specialized production of bronze ritual vessels at Erlitou, indicates that Erlitou was a part of a larger prestige goods network.<sup>101</sup> Furthermore, the appearance of white pottery in the Erlitou site and the lack of bronze ritual vessels found outside of Erlitou urban center suggest that the circulation of prestige goods was not reciprocal in the network: while elite goods produced elsewhere made their way into the urban center, the exportation of ritual vessels from the center was restricted. It is not hard to conclude that the Erlitou urban center had military, political, and possibly economic dominance over other states in that period.<sup>102</sup>

While the procurement and circulation stages reveal the political landscape in early China, an examination of the bronze production stage alludes to the power dynamic within the city, which is also the main focus of this paper.

The production of bronze vessels (theme four) received little scholarly attention until the late 1990s. The first reason is that compared to other themes, the analysis of the production of bronze vessels neither speaks directly to the question of cultural identity as the study of bronze decoration, nor sheds light on early state interactions as the study of bronze typology. Another reason for the study of craft production being untouched for a long time is that scholars lacked a proper theoretical framework to analyze the existing data.

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<sup>100</sup> Liu and Chen 2000, 57.

<sup>101</sup> Liu 2006, 173.

<sup>102</sup> Liu 2006, 188.



Then, why is production organization so important, and what can we learn from it? Metallurgist Ursula Martius Franklin is one of the very first people to apply the general theories of craft production in archaeology to the specific case of Chinese bronzes. Franklin's approach regards "forces and relations of production as the activators of all social development," and looks at early Chinese societies "as an organic entity growing with time toward levels of greater and greater internal complexity."<sup>103</sup> The study of bronze production is thus the study of the driving force behind social development, which, to be more specific, contains the study of technological development, human relations, and social structure.

Franklin's main contribution is the proposition of the idea of holistic and prescriptive processes in piece-molding Chinese bronzes. The holistic approach requires the artisans to have a judgment of the whole production process, which is sequential and linear. For example, when making an iron sword, an artisan receives his raw material with a clear image of the final product in mind. Moreover, the sequential production process implies that one cannot start decorating the sword until he has finished making a sword from the original ingot. In a prescriptive process, on the other hand, the production process can be seen as "sequences of unit processes," in which the outcome depends more on the completion rather than the sequence of the units. In a prescriptive process, there could be technological abstractions between two process units, meaning that specialized mold makers might not know anything about smelting ingot; in this way, the whole production process requires autonomous and specialized skill sets and an effective oversight of the entire operation.<sup>104</sup> According to Franklin, the prescriptive process has a higher chance to

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<sup>103</sup> Ursula Martius Franklin, "The Beginnings of Metallurgy in China: A Comparative Approach," in *The Great Bronze Age of China : A Symposium* (Los Angeles: Los Angeles County Museum of Art, 1983), 94.

<sup>104</sup> Franklin 1983, 96–97.

produce standardized shapes and décor and is more likely to be a product of a complex, hierarchical society.

Liu's investigation of the production of Erlitou bronzes is primarily based on Franklin's framework. She believes that the Erlitou culture demonstrates a set of characteristics that enables a prescriptive process of bronze production, including state control of resources, people, and knowledge. And the implied stratified workshop organization may stimulate the social complexity of Erlitou.<sup>105</sup> Franklin argues that the Chinese metallurgy technology, whose originality is still under debate, followed the indigenous pattern of pottery production.<sup>106</sup> She sees the approach of "chemically" altering the properties of bronzes by changing the composition as being inspired by changing the nature of the pottery vessels by controlling the constituents like clay, sand, and temper. She further argues that the piece-mold technique originally designed for ceramic production, as well as the management of kiln temperature, are necessary prerequisites for the subsequent development of bronze metallurgy technology in early China.<sup>107</sup> Liu confirmed Franklin's arguments and added her own observation. She further noted that the forms of the earliest bronze vessels emulated "their pottery predecessors found in Neolithic mortuary context," which suggests a continuation of the ritual system from which the bronze vessels inherited.<sup>108</sup> This might also suggest a gradual transition of the indicator of elite power from white pottery to bronzes. Liu further notes that the bronze foundry was located close to the royal palace in the Erlitou site, which is the only locale yet found to have evidence of producing

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<sup>105</sup> Li Liu, "China: State Formation and Urbanization," in *The Oxford Handbook of Archaeology* (New York: Oxford University Press, 2009), 434.

<sup>106</sup> For more about the debate on the originality of Chinese bronze casting technology, see Gina Barnes, *Archaeology of East Asia* (Oxbow Books, 2005), 181–87.

<sup>107</sup> Franklin 1983, 95–96.

<sup>108</sup> Liu 2009, 433.

ritual vessels and using piece-mold techniques.<sup>109</sup> These observations speak to the fact that bronze metallurgy and distribution was of vital importance to the Erlitou elite, and the state control of such power is the symbol of the political, cultural, and economic dominance of the Erlitou elite in that period.

However, Liu's discussion of bronze production stays merely at the political level, and fails to see the process of bronze production as, in Costin's words, "a transformational process involving skills, aesthetics, and cultural meaning."<sup>110</sup> Her discussion downplays the human agents in the production process, with limited attention to the production technology. This is because Franklin's framework focuses primarily on the cultural and political implications of the bronze production system. While some of Franklin's framework is supported by some scholars, it is repudiated by others. In his dissertation investigating the production system of late Shang bronze foundries, archaeologist Yungti Li argues that Franklin's thesis "remains chiefly a set of illuminating definitions" that "does not provide interpretive models for archaeological data."<sup>111</sup> That is to say, she fails to provide concrete examples showing how the holistic and prescriptive processes can be identified in the archaeological sites. Li also suggests that Franklin simply links "mass production" with a "prescriptive process." The direct correlation between the two fails to see the complexity of the craft production system in the late Shang society. He gives an example that while stone tools were massively produced, stone knapping was more likely to be a holistic process.<sup>112</sup>

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<sup>109</sup> Liu 2009, 433.

<sup>110</sup> Cathy Lynne Costin 2005, 1036.

<sup>111</sup> Yungti Li, "The Anyang Bronze Foundries: Archaeological Remains, Casting Technology and Production Organization" (Cambridge: Harvard University, 2003), 21.

<sup>112</sup> Li 2003, 21–22.

Franklin's framework, although fostered some scholarly discussion on the socio and political implication of bronze production, cannot support more complex and specific inquiries about the bronze production in late Shang society.

### Costin's Craft Production Framework

A more mature framework in craft production, the one that I use in this paper, is proposed by archaeologist Cathy Lynne Costin, in her articles "Craft Production System," "Craft Specialization," and "Craft Production."<sup>113</sup> Her approach extracts methodology from case-specific examples, as a guide to analyze future archaeological data regarding the craft production system. She starts by defining "crafting" to be a "transformational process involving skill (knowledge, talent or proficiency, effort), aesthetics, and cultural meaning and consider the results of that crafting (verb) to be crafts (noun)."

According to Costin, the study of craft production has three main objectives. The most basic one is to perceive the production system as an integration of "technology," "human agents," and "organizing principles," and such integration is shared among all of the craft production systems. After identifying the basic factors, the second objective proceeds to "explain why historically specific production systems have developed," which requires scholars to take the historical and archaeological background of the individual culture into the discussion. Finally, the third objective is to "identify and explain cross-cultural regularities and variability in craft production systems and their role in general social evolution."<sup>114</sup> It is clear that each of these three objectives is built upon the previous ones, and thus an insight into a specific craft

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<sup>113</sup> Costin 2001, 273–327; Costin 1991, 1–56; Costin, 2005.

<sup>114</sup> Costin 2005, 1036.

production system has to follow such a sequence to be considered comprehensive. Liu's approach, built upon Franklin's framework, jumps directly to the third objective, investigating the role that the production system plays in social evolution, without concretely identifying the craft production factors and the development of Erlitou bronze production. Thus, Costin's framework can lead us to build a more complete picture of the late Shang bronze production system.

To describe the production process in terms of “technology,” “human agents,” and “organizing principles,” Costin proposes to look at the six main constituents involved: artisans, means of production, organization and social relationship of the production, objects, relations of distribution, and finally, consumers. The artisans—the people who produce the goods—and the consumers—the people or the institution that prescribed the use of the product—are the two human components in the production system. The artisans transform the means of production, including raw materials, tools, and knowledge of production, into the objects—the crafted goods. And the relations of distribution constantly affect the organization of the production.<sup>115</sup>

The next chapter aims to apply Costin's framework to exploring the bronze production system in late Shang. Rather than diving straight into rebuilding workshop culture or exploring the social implication of the bronze production system, I start from the easiest questions, such as identifying the components of a production system: artisans, raw materials, and production loci. This establishes a structural approach to the study of Chinese bronze production. During this process, I try to identify aspects of bronze production that previous scholarship had focused on, aspects of bronze production that my paper contributes to, and the aspects that need to be explored in future research.

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<sup>115</sup> Costin 2005, 1040–41.

The application of the archaeological framework to the study of Chinese bronze production does not mean to tailor the Chinese Bronze Age history to fit the existing theories. Rather, as archaeologist K.C. Chang pointed out, it is meant to understand the differences and similarities between the materials in China and anthropological theories. The materials from China either bolster or contradict the existing theories; if there is contradiction, the new materials may contribute to a better theoretical framework.<sup>116</sup> The study of Bronze Age Chinese historical and archaeological materials is fundamentally an investigation of how those materials can contribute to what we have understood so far, and how we can improve our knowledge of ancient cultures.

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<sup>116</sup> Kwang-Chih Chang, *Kaoguxue zhuanli liujiang* 考古學專題六講(Beijing: Wenwu chubanshe, 1986), 13–14.

## Chapter 4 Reexamining the Bronze Production in Late Shang

In her framework, Costin proposes six main constituents of the craft production system: artisans, organization and social relationship of the production, means of production, objects, relations of distribution, and consumers. Previous studies have been focusing primarily on the last four constituents, as discussed in Chapter 3. Traditional Chinese archaeology tends to pay more attention to the art-historical and material analysis of the excavated object, and has thus developed a well-established typology system for the types, shapes, and decorations of the bronze objects.<sup>117</sup> Recently, an increasing amount of attention has been dedicated to the procedure and technology of bronze production.<sup>118</sup> The distribution of bronzes and the consumers are incorporated into the study of late Shang burials, interconnected with the study of the Shang lineage system.<sup>119</sup>

In this chapter, I will focus primarily on the first two constituents in Costin's framework: organization and social relationship of the production and artisans since they are usually overlooked in the traditional study of Chinese archaeology.

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<sup>117</sup> Ma 2018.

<sup>118</sup> Liu Shizhong 劉詩中, "Zhongguo qingtong gongyi jishu yanjiu 中國青銅器工藝技術研究," in *Zhongguo Shang wenhua guoji xueshu taolunhui wenji 中國商文化國際學術討論會文集* (Beijing: Zhongguo dabaikequanshu chubanshe, 1998), 413–24; Yungti Li 2003; Liu Yu 劉煜, Yue Zhanwei 岳占偉, He Yuling 何毓靈, and Tang Jinqiong 唐錦琼. "Yinxu chutu qingtong liqi zhuxing de zhizuo gongyi 殷墟出土青銅禮器鑄型的製作工藝," *Kaogu*, no. 12 (2008): 80–90; Yue Zhanwei 岳占偉 and Jing Zhichun 荆志淳, "Shiyan kaogu shi tansuo gudai jishu de zhongyao fangfa--yi Yinxu zhitao he rongtong shiyan weili 實驗考古是探索古代技術的重要方法--以殷墟製陶和鎔銅實驗為例," *Sandai kaogu*, no. 00 (2018): 376–95; Liu Yu 劉煜. "Shilun Yinxu qingtongqi de fenzhu jishu 試論殷墟青銅器的分鑄技術," *Zhongyuan wenwu*, no. 05 (2018): 82–89.

<sup>119</sup> Luo Youcang, 2017.

## Organization of Bronze Production System in Yinxu

One of the studies on the late Shang artisan group suggests that the production activity was clan-dominated. Archaeologist Hua Sun argues that, based on the post-Shang sources, some surnames designated people's occupation during the Shang period:

According to *Zuozhuan* [*The Commentary of Zuo*], after the Zhou conquered the Yin, it moved some of the vassal lords. The Duke of Lu was given six Yin clans, including the Suo (Rope-maker), Changshao and Weishao (both Ladle-maker); Kangshu was given seven Yin clans including the Tang (Potter), Shi (Banner Maker), Pan (Girth-strap-maker), Qi (Knife-sharpener), Fan (Fence-maker), and Zhoukui (Awl-maker).<sup>120</sup>

Sun argues that the combination of surnames with occupation indicates a certain level of craft specialization, and the text in the *Commentary of Zuo* also speaks to a continuation of the clan-dominated craft production model into the Zhou period.<sup>121</sup> While it is reckless to argue that the craft production is indeed clan-based in Yinxu based merely on the much later textual source, excavated evidence increasingly supports the clan-dominated craft production mode. In a recent archaeological excavation at the bronze foundry at Renjiazhuang in southern Yinxu, archaeologists expanded their focus to include the surrounding burials and residential area. An analysis of the archaeological evidence leads to the proposition that there existed a “integrated living-working-burying” (*ju-zang-shengchan sanwei yiti*) mode of production in the late Shang period, because there was no clear boundary between the foundry and the nearby cemetery, residential areas, and roads.<sup>122</sup> Such a discovery incentivizes scholars to take a more holistic approach in studying the craft production system in Yinxu.

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<sup>120</sup> Yan and Knechtges eds. 2012, 299. *Zuozhuan* is first written during the Spring and Autumn Period, at least 270 years after the downfall of Shang.

<sup>121</sup> Yan and Knechtges eds. 2012, 299.

<sup>122</sup> Anyang shi wenwu kaogu yanjiusuo 2018, 26; He 2019, 85.



Archaeologists Yuling He and Xianwu Meng both argue for the existence of four “integrated living-working-burying” industrial zones (central, southern, western, and eastern industrial zones) in Yinxu. In each of the four areas, workshops were densely located, and a high concentration of production activities was carried out.<sup>123</sup> The concentration of artisans into specific neighborhoods is not uncommon in other archaeological contexts. As Costin points out, similar situations are found in Mesopotamia, Harrapa, and Andes.<sup>124</sup> While He’s and Meng’s hypotheses are tempting and well-illustrated, there is a significant lack of support of the geographical evidence—He’s article incorporates only one simplified map (figure 4.1), yet Meng’s paper does not contain maps at all.

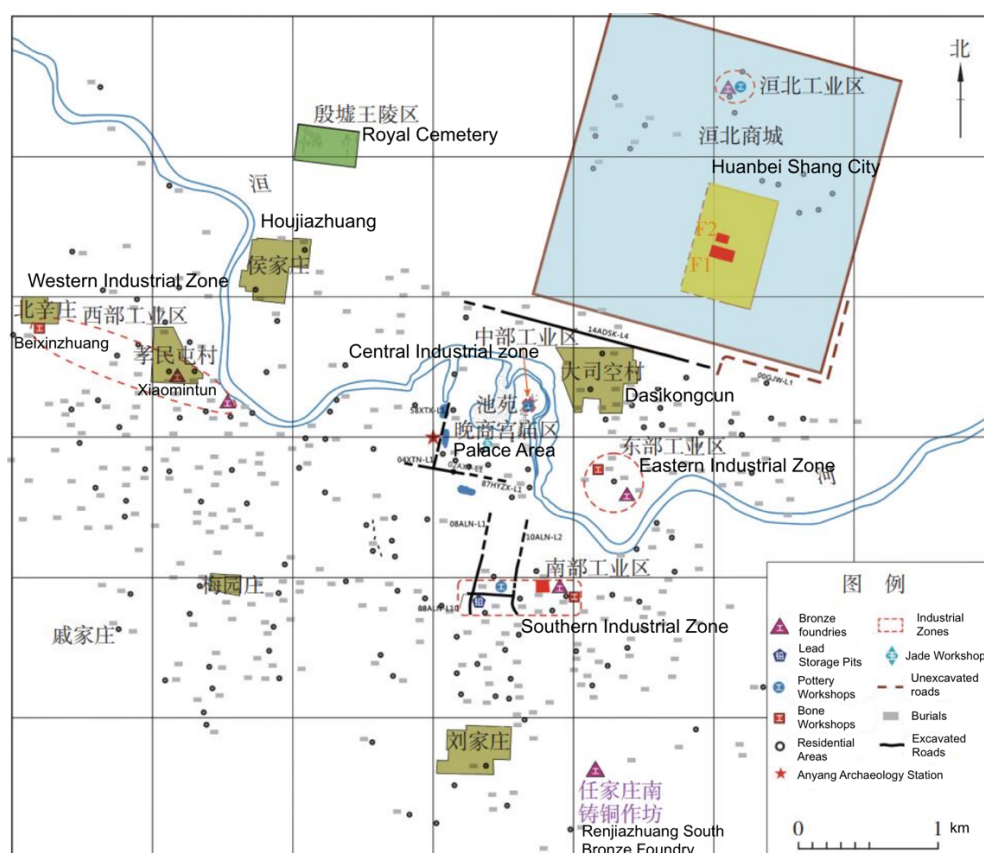


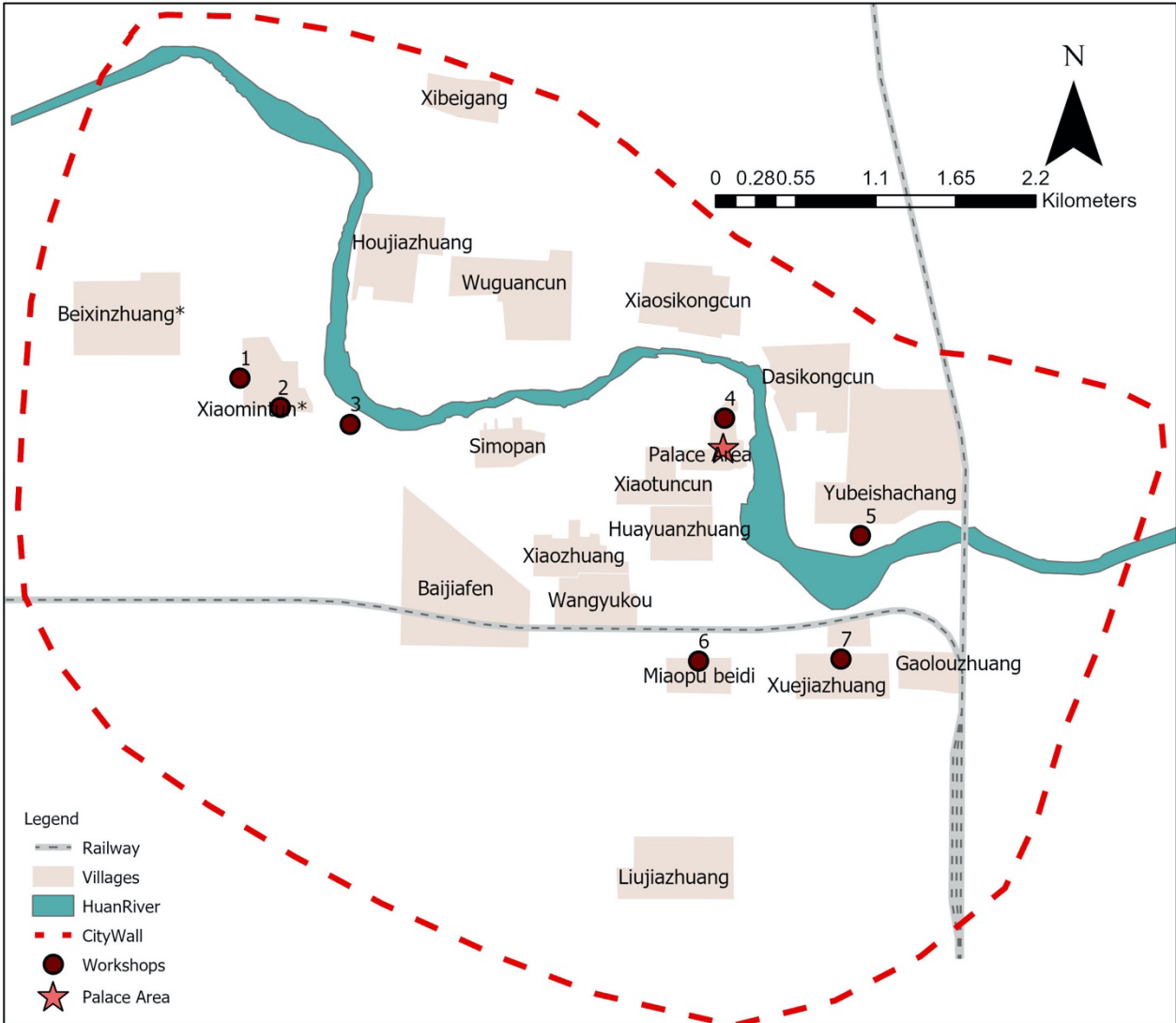
Figure 4.1 Workshops in Yinxu. Redrawn based on He, Yuling. “Lun Yinxu Shougongye Buju Jiqi Yuanlu.” *Kaogu*, no. 06 (2019), 76.

<sup>123</sup> He 2019; Meng, Li, and Li 2014.

<sup>124</sup> Costin 2001, 295.

He's hypothesis is an expansion of Meng's, by including more newly excavated workshops into the framework, and more detailed cross-reference to the craft production organizations in middle Shang and Western Zhou sites. However, in both of their hypotheses, the only criteria identifying industrial zones is the geographical proximity. That is, if two workshops are geographically close together, they belong to the same industrial zone. He's hypothesis has two main deficiencies. First, some workshops do not have strong geographical affiliations to the industrial zones He assigns. In other words, some workshops may be far away from the rest of the workshops in an industrial zone; and some workshops, while He argues that it belongs to one zone, is geographically closer to another zone. Second, He's hypothesis fails to analyze the workshop organization from an emic perspective—he downplays the agency that people play in the picture. As an indispensable component of the late Shang society, the craft production system must have been under strong influences of various factors in the society. And such influences can be traced archaeologically by analyzing the spatial relationships not among the workshops but between the workshops and their surrounding residential areas, cemeteries, and transportation routes. If we simply rely on geographical proximity to study the industrial zones, we fail to see the craft production system as an organic and dynamic component of the late Shang society.

To better examine He's hypothesis, I gather maps and textual information from over 30 archaeological reports about the bronze workshops, and construct a new map using ArcGIS based on the most up-to-date satellite image of Yinxu (figure 4.2). As a more simplified and accurate version of figure 4.1, figure 4.2 contains only the bronze foundries in Yinxu. According to He's hypothesis, foundries 1, 2, and 3 are in the western industrial zone; foundry 4 in the central industrial zone; 5 in the eastern zone; 6 and 7 in the southern zone.



<b>Id</b>	<b>Type</b>	<b>Source</b>	<b>Location</b>	<b>DistancePA</b>
2	Bronze	Liu, 2012; He, 2019; Li, 2003	Xiaomintun South	3057
3	Bronze	2000-2001 Xiaomintun dongnan; Li, 2003; He, 2019	Xiaomintun Southeast	2570.199951
6	Bronze	1980-1982 Baogao; 1980-1982 Miaopubeidi; 1982-1984 Miaopubeidi; Li, 2003; Faxian, 2007; 2007 Xinanzhuang; He, 2019.	Miaopu Beidi	1474.670044
1	Bronze	1958-1961 Baogao; Li, 2003; He, 2019.	Xiaomintun West	3357.139893
7	Bronze	Zhao, 1958; Zhou & Liu, 1957; Li, 2003; Faxian, 2007, He, 2019.	Xuejiazhuang	1663.319946
5	Bronze	Li, 2003; He, 2019	Dasikong South	1120.199951
4	Bronze	Li, 2003; Faxian, 2007; He, 2019	Xiaotun Northeast	181.279999

Figure 4.2 Bronze Foundries in Anyang. Map created by Yuwei Zhou.

In figure 4.3, I use the seven bronze foundries as centers to create concentric circles. The circles indicate different distances from a foundry to its surrounding area; on top of the bronze foundries, I also identify the approximate location of the jade and bone workshops.

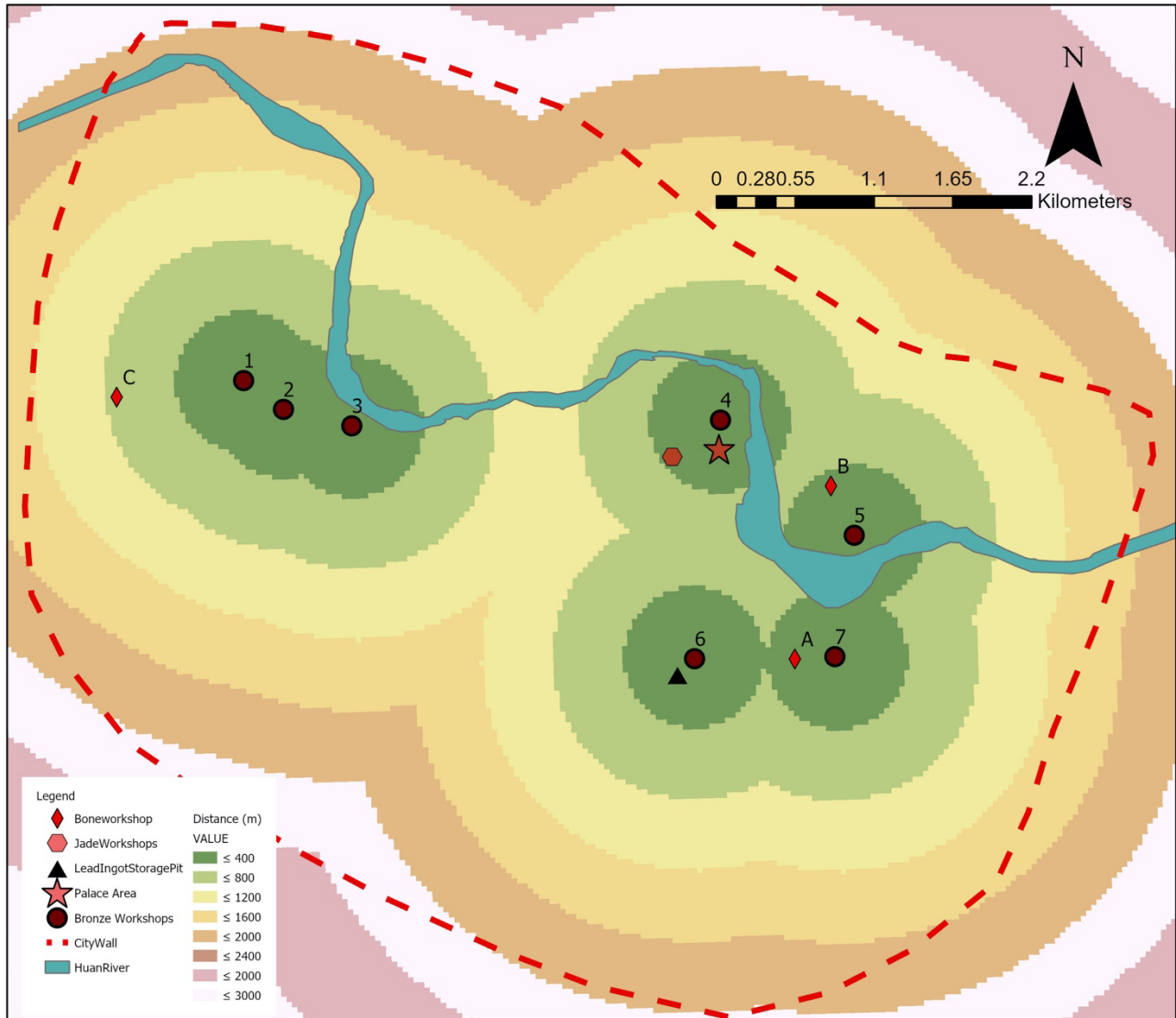


Figure 4.3 Relative Distance from the Bronze Foundries to Other Workshops in Yinxu. Map created by Yuwei Zhou.

Figure 4.3 shows that within four industrial zones, the workshops are usually located in close vicinity to one another (<400 m, no further than 800 m). We do see clusters of workshops

in different areas of Yinxu, which supports He's argument for "industrial zones". However, some workshops do not display a strong geographical affiliation towards the designated industrial zones as He argues. One example is the bone workshop C (Beixinzhuang bone workshop), which is almost 800 meters from foundry 1 (Xiaomintun West foundry) and about 1000 meters from foundry 3 (Xiaomintun Southeast foundry). Besides, foundry 7 (Xuejiazhuang foundry) and 5 (Dasikong South foundry) are geographically closer together. They may belong to the same industrial zone if there was a bridge on the Huan River. Moreover, if being in the same industrial zone implies sharing certain resources, the fact that the lead ingot storage pit is not located right between foundry 6 (Miaopu North foundry) and foundry 7 (Xuejiazhuang foundry) weakens the connection between them. Thus, whether foundries 6 and 7 are in the same industrial zone is in doubt. He's hypothesis, while opens up another perspective to look at the craft production system in Yinxu, awaits more advanced investigations.

One main barrier for further developing his hypothesis is that some archaeologists pay little attention to recording the exact geographical locations of workshops. Many archaeological reports still use outdated or even hand-drawn maps, indicating merely a rough location of the excavated area. As a result, in Figures 4.2 and 4.3, some locations of the workshops are my guesswork inferred from the archaeological reports, which usually only gives vague indications such as "the workshop is located to the south of Xiaomintun village."<sup>125</sup> Therefore, more accurate data must be produced during the excavation to support future investigation in this topic.

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<sup>125</sup> Yinxu Xiaomintun kaogu dui 殷墟孝民屯考古隊, "Henan Anyang shi Xiaomintun shangdai zhutong yizhi 2003~2004 nian de fajue 河南安陽市孝民屯商代鑄銅遺址 2003-2004 年的發掘," *Kaogu*, no. 1 (2007): 14.

To study the production organization as an organic component of the late Shang society, it is necessary to incorporate other frameworks into the discussion, because there are many factors that affect the relative concentration and the location of the production activity. For example, the “integrated living-working-burying” production mode implies a close relationship between the workshops and the surrounding residential areas and burials. The “integrated living-working-burying” production mode, together with a clan-based production system implies at least two things: assume that people from the same clan must live closely together, if the clan members work in different workshops, their houses must be of close vicinity to most of the workshops in an industrial zone; if the clan members worked in the same workshop, there will be visible associations between some workshops and some residential areas. The fact that several clans may share the same “public” cemetery suggests that the cemetery is almost equally accessible to all clans (and thus workshops) in this area.

Following the logic of such a production mode, cemeteries or residential areas would be better center points from which to measure the relative distance to the workshops than the bronze foundries. It would also foster more accurate geographical definitions of the “industrial zone.” Another possibility is to associate the workshop locations with the transportation routes in Yinxu. As Jigen Tang et al. points out, archaeologists have found roads paved by pottery sherd and gravels, wooden bridges, and small canals within the ancient city of Yinxu.<sup>126</sup> If the locations of the workshops are affected primarily by the transportation system in Yinxu, then the workshops are likely to be spread along the routes.

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<sup>126</sup> Tang Jigen 唐際根, Yue Hongbin 岳洪彬, Niu Shishan 牛世山, Yue Zhanwei 岳占偉, and Jing Zhichun 荆志淳. “Huanbei shangcheng yu yinxu de luwang shuiwang 洹北商城與殷墟的路網水網,” *Kaogu xuebao*, no. 03 (2016): 324-30.

These two factors, far from being contradictory, are in fact complementary. It is highly possible that the workshops in Yinxu are organized spatially by the accessibility to the transportation routes and socially by clans. In their paper, Tang et al., briefly analyze the relationship between the transportation system and workshops in Yinxu. They notice that the workshops are generally located close to a water source.<sup>127</sup> As we can see from Figure 4.3, most of the bronze foundries are near the Huan river, usually < 400 m, but no further than 800 m away. There are other secondary water systems in Yinxu that are not shown on the map, which means that the workshops could be much closer to the water source than the map shows. Tang et al. propose that since the locations of the workshops are mostly to the south of Huan River and near the secondary water system, where the transportation system was relatively well-developed, the transportation system was closely connected to the craft production in Yinxu. Furthermore, they notice that the workshops tend to appear in clusters. They sort the workshops into groups A-C, which exactly correspond to the southern, eastern, and western industrial zone in He's hypothesis. Among the three groups, group C (southern industrial zone) is noticeably close to a major canal and an H-shaped crossing of several major roads in Yinxu. Given the geographical advantage of the southern industrial zone, Tang et al. argue that this zone was under the direct control of the royal family.<sup>128</sup> Although the current excavation can only reveal the specific relation between the transportation system and the craft production system, further research may connect the two systems.

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<sup>127</sup> Tang et al. 2006, 335.

<sup>128</sup> Tang et al. 2006, 335. The problem of which industrial zone is under the "direct control" of the royal family is complicated. The answer to this question varies based on different criteria of "direct control": if it is measure by the accessibility to the major transportation system, the existing excavation data suggests the southern zone; if it is measure by the scale of the workshops, the western zone has the largest bronze workshop in scale, and it also produces the highest percentage of ritual vessels in Yinxu. In either way, the craft production system in Yinxu is highly attached to the state.

As an alternative approach to study the craft production system, there is an increasing amount of research on the lineage structure, which could be related to the clan-based craft production organization. Other than the historical source and the discovery of the “integrated living-working-burying” mode of production, recent studies on the burial further reveal the late Shang lineage structure. A report of the excavation of the cemetery at the Western Section (located closely to Xiaomintun) of Yinxu concludes that the burials in this cemetery can be divided into eight “zones” based on their distinct styles, orientations, and the locations of the burials. This report further argues that the distinct “zones” correspond to eight different clans, indicating that the Western Section cemetery is likely to have been a “public cemetery” shared by eight different clans.<sup>129</sup> Archaeologist Jigen Tang’s recent study on the late Shang burial customs states that generally, a cemetery can be shared among several clans, thus forming different zones in the cemetery. In each clan, there existed some people of higher social and political, possibly the patriarch or other clan elite, represented by their larger tomb scales and more tomb goods. Their tombs are mostly within their own clan zone, either surrounded by many other smaller tombs or isolated by itself. Tang argues that the smaller tombs surrounding the elite tomb were family members of the elite tomb owner, who would receive both family sacrifices and clan sacrifices. The physical vicinity of an elite tomb with other small tombs indicates that the elite might have a high status both in his/her family and in the clan.<sup>130</sup> Given the scale of the craft production system and the level of organization it presents, it is not hard to infer that there existed some level of hierarchy within the workshops. But whether the workshops hierarchy

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<sup>129</sup> Zhongguo shehui kexueyuan kaogu yanjiusuo 1979, 115.

<sup>130</sup> Tang Jigen 唐際根, “Yinxu jiazhu mudu chutan 殷墟家族墓地初探,” in *Zhongguo Shang wenhua guoji xueshu taolunhui wenji* (Beijing: Zhongguo dabaikequanshu chubanshe, 1998), 205–6.



extended to everyday life, and whether the social hierarchy influenced the workshop hierarchy are questions remained to be answered.

In conclusion, although it is undeniable that the workshops in Yinxu were grouped into clusters geographically (which, from a socio-political perspective, is called industrial zones), it is problematic to claim that such a demarcation is based solely on the geographical vicinity, because such a claim fails to take into account the complex social networks and interactive factors behind the workshops. To take those factors into our consideration, it is crucial to realize that the distribution of industrial zones is under a dual influence: they are organized socially by lineage system, and socially by the transportation system.

### **Artisans in Yinxu**

As Chinese scholarship on the handicraft industry focusses primarily on the development of different types of vessels and the distribution of those goods in burials, little scholarly attention is given to the group of artisans, the producers of the crafted goods.<sup>131</sup> One major problem with the current study of the artisan group is that, as archaeologist Min Li identifies, the scholars believe “the elite and artisans to be separated by a clear social boundary and [that] the knowledge, labor, and products of the artisans were subject to the exclusive control of the ruling elite [during the Three Dynasties period].”<sup>132</sup> The perception of artisans being marginal, exploited, or even enslaved is not unique to the case of Chinese archaeology, but in other geographical area as well. Some studies, as Costin points out, show that the artisans “were not invariably controlled by high-ranking patrons, as artisans may be empowered by a variety of

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<sup>131</sup> Yan and Knechtges eds. 2012, 299–311.

<sup>132</sup> Li 2018, 52.

means to determine or influence their own conditions of employment, compensation, and even social standing.”<sup>133</sup> If artisans’ social status is indeed complicated and flexible as Costin suggests, a question thus arises: where does the artisan group fit into the late Shang social hierarchy, and how complex is the artisan group itself? Moreover, were artisans a “social group,” or were they analytically grouped together by scholars?

According to Costin, the study of artisans contains three main aspects: artisan identity and social roles (social status, gender, etc.), artisan specialization (whether the artisans were specialists), and artisan recruitment (social reproduction of artisan group). Together with Costin’s framework, I propose that the investigation of the late Shang artisans’ social identity should focus on the following aspects: textual documentation, anthropological implication, and the archaeological context. Textual documentation of the bronze artisans was already discussed in Chapter 2. In what follows, I will draw on anthropological and archaeological work to analyze late Shang artisans, mainly their social roles.

As Costin presents some evidence disputing the notion of artisans having low social status in general, historian David N. Keightley also argues that late Shang artisans may have higher social status than what scholars usually believe. He notes that in the late Shang, “skilled workers who made prestige goods such as bronze vessels and jade objects probably had higher status than others.”<sup>134</sup> This indicates a much more complex hierarchy within the late Shang society at Yinxu. On the one hand, it alludes to the stratification within the artisan group: some artisans, especially bronze vessels and jade artisans, may have had higher status than others;<sup>135</sup>

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<sup>133</sup> Costin 2001, 282–83.

<sup>134</sup> David N. Keightley 2012, 34. Keightley cited from Anne P. Underhill and Fang Hui, “Early State Economics System in China,” in *The Economies of Ancient Chiefdoms and States*, ed. Gary M. Feinman and Linda M. Nicholas (Salt Lake City: University of Utah Press, 2004), 135.

<sup>135</sup> An example comes from Liu 2003, 25. She compares the production process of making bronze vessels and bronze weapons, and proposed that the two types of artisans had different affiliations to the elite

on the other hand, the distinction between “elite” and some “skilled artisans” may not be as clear as we have thought, which means that the producers of ritual vessels also held some ritual power. Some anthropological and archaeological evidence alludes to the complexity of the artisan group, as I will now discuss.

First, the fact that the bronze production tasks were not evenly assigned to different workshops may tell us something about the inner stratification within the artisan group. The production of ritual vessels involves more creativity and resources than the production of weapons and agricultural tools; furthermore, compared to the latter, the ritual vessel artisans were participating in “materializing” the elite ideology, that is, incorporating the elite’s demands, interests, and appeals into a physical object. The ritual vessel artisans thus have more ideological, ritual, and political association with the elite class. Anthropologist P. Peregrine proposes that “artisans producing objects used as symbols of status and authority are themselves acting as political personnel (not just entrepreneurial artisans) and, therefore, join the ranks of sociopolitical elites.”<sup>136</sup> By participating in crafting and materializing the elite ideology, ritual vessel artisans may establish a closer relationship with the elite than other artisans. Thus, the artisans producing ritual vessels might have higher social status than artisans producing other bronze objects.

Second, the study of artisans before late Shang could also give us some reference. During the late Neolithic period, as stratified societies arose, we see a close association of artisans and the elite, whose high status was probably a result of their monopolization of craft production knowledge. When studying the tombs in the Lake Tai region in the Liangzhu culture (c. 3400-

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group. “The technology of casting ritual vessels, therefore, may have been specially controlled by a particular group of craftsmen attached to the Erlitou high elite in the primary center.”

<sup>136</sup> Costin 2001, 283.

2250 BCE), archaeological evidence shows that some elite tombs (identified based on extraordinarily large scale and rich burial goods), contain an exceptional number of unfinished jades, Liu Li suggests that “making particular forms of jade items may have become highly specialized among the elite artisans.”<sup>137</sup> The “elite artisans,” in this case, refers to a person in the elite group who’s at the same time an artisan. In Liu’s perspective, the ability of make elite goods was intertwined with the high social status; that is, during the initial stage of a stratified society, the social roles of artisans and elite are unified. This example illustrates a close relationship between the elite and the artisans, and more importantly, between the technology of producing elite goods and the centralization of power. Since the crafting skills and the kingly idea is closely intertwined, such a close relationship may have been maintained, though likely reduced, during the late Shang period.

Despite the inspiration that studies in cross-cultural anthropology and in earlier period gives us, it is necessary to examine what the archaeological evidence in Yinxu tells us about the late Shang artisans. The burials and the residential areas are the most direct indicators of the social roles and social status of the artisans. In the following paragraphs, instead of looking for clues in the newly excavated data, they aim to reexamine interpretations of previous data. This is because previous studies on the burials have focused primarily on either the artifacts or the gender division of labor reflected from the Shang burials. While they are both important topics to study, the discourse of gender division has impeded scholars’ ability to further analyze the burial data.

The “integrated living-working-burying” mode of production makes burial analysis an undividable part of studying the artisans in the late Shang. Although there have been many

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<sup>137</sup> Liu 2003, 12.

attempts to identify the geographical location of the clan settlements, the results are usually not very convincing.<sup>138</sup> Another potential direction is to rethink the burial goods and their social significance. It is obvious that the burials are less about the buried but the person who bury them, because the dead did not bury themselves but were treated by the living. Thus, it is unlikely that the burial goods were selected at their own will, but by their families or other members of the clan. In this way, the tomb goods are reflective of how others perceive the dead.

There has been an increasing number of studies on the social and archaeological implications of burial goods, yet many of them are associated with gender.<sup>139</sup> Some grave goods, like bronze weapons, are traditionally considered the “gender marker” of males, and such a result is supported by archaeological data that weapons are more likely to appear in tombs of males. However, this hypothesis cannot explain the fact that bronze weapons are also found in some females’ tombs. Archaeologist Qi Wang argues that the weapons reflect that the tomb owner was likely to be a warrior.<sup>140</sup> Such an arbitrary conclusion fails to recognize the complexity that burials goods can convey.<sup>141</sup> On the other hand, even if burial goods reflect the occupation of the owner, it is worth noticing that warrior is not the only occupation associated with the weapon—the owner could also be an artisan who produced bronze weapons. This may explain why the

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<sup>138</sup> A representative work is Zheng 1995, 83–93. Zheng admits in this paper that many results are his guesswork. A more recent criticism of Zheng's work is Tang and Jing 2009, 76–77.

<sup>139</sup> Jigen Tang, “The Social Organization of Late Shang China—A Mortuary Perspective” (London, University College of London, 2004); Katheryn M. Linduff and Yan Sun, *Xingbie yanjiu yu zhongguo kaoguxue* (Beijing: Kexue chubanshe, 2006); Wang Qi 王祁, “Yinxu muzang liangxing shehui jue se de kaoguxue yanjiu 殷墟墓葬兩性社會角色的考古學研究,” *Jiangnan kaogu*, no. 1 (2019): 81–90; Costin 2003, 1056, says that “the uncritical use of ethnographic data to infer artisan gender, however, has been criticized as problematic because there are no crafts which are universally practiced by one gender or the other and because the ethnographic literature itself might be biased.”

<sup>140</sup> Wang 2019, 83.

<sup>141</sup> Mike Parker Pearson, *The Archaeology of Death and Burial* (College Station: Texas A&M University Press, 1999), 11: “grave goods may prepare the dead for the other world but equally they may serve to prevent them from remaining in the world of living or simply ensure a good send-off.”

number of bronze weapons varies in different tombs: if the burial goods contain many weapons, as Wang argues, the owner could be a warrior; otherwise, if only several weapons are found, the owner could be an artisan, regardless of the gender.

Furthermore, Wang's, as well as other scholars', analysis of burial goods are strongly affected by the presupposed gender division of social roles and occupations. However, we should be mindful that "gender" is a socio-political term that is hard to be recorded archaeologically. Since the gender dynamics differs from societies to societies, it is hard to assume that later gender division like "men plowing, women weaving" (*nan-gen-nü-zhi* 男耕女织) can be applied to this period. It is important to rethink the existing data, not from the perspective of finding "gender marker," but maybe their occupations, and their social roles in the family or the lineage. That is to say, instead of associating the types of burial goods with the gender, we may instead examine them within a clan. For example, if a person is buried primarily with agricultural tools, the person may be a farmer while alive; if a person is buried mostly with fragments or molds of bronzes, the person may be an artisan, etc.

The social implication may be multiple: first, it may support the theory that craft production in Yinxu is clan-dominated if we find a particularly high amount of bronze-production-related (or similarly, jade-production-related, or bone-production-related) objects in one clan. Second, it may give a better understanding of the social organization at Yinxu. For example, if there are a comparable number of artisans and farmers in a clan reflected by the cemetery, this clan may be self-supported; if the clan consists of primarily artisans, it may rely on the redistribution of crops by the royal family. In any case, a reexamination of the existing burial goods based on clan will undoubtedly provide more evidence for the craft production system at Yinxu.

In conclusion, there is much more to explore from the archaeological data of the late Shang burials, most of which awaits new theoretical frameworks to reexamine them. When analyzing the burial data, it is crucial to understand that the grave goods are “carefully selected and yet may have different meaning.”<sup>142</sup> It is wrong to make arbitrary conclusion based on ethnographic literatures, instead, we should be openminded for the possibilities out there. To study the late Shang artisans in Yinxu, scholars could start from the cemeteries near the industrial zones with a brand-new perspective.

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<sup>142</sup> Parker Pearson, 7.

## Chapter 5 Conclusion

The study of the history of Shang started as early as the Zhou dynasty, and the study of Shang archaeology has lasted for almost a hundred years. Throughout this long period of study, scholars have produced a large amount of data. As more data emerges, scholars start to see the data contradicting traditional historical frameworks. Thus in the past one hundred years, the historiography of Early Chinese history underwent dramatic changes: more and more scholars have refuted the “Three Dynasties Model” that have dominated this field for thousands of years, while the “interactive sphere model” proposed by K.C Chang has been gaining more support. Furthermore, many topics that have been previously neglected by traditional scholars are proven to be crucial in studying the social, cultural, and political background of late Shang China. However, in order for us to explore those topics, we need new frameworks to help structure and interpret the data, one example of which is the study of the late Shang craft production system.

The study of the craft production system remained untouched until the late 20th century. One of the most famous framework in the late 20th century is the one proposed by Franklin. Her framework focuses on a greater social implication of the craft production system, which did foster discussions on the craft production system in Early China but failed to provide a comprehensive structure to study every aspect of the craft production system. In comparison, Costin develops her framework from various archaeological investigations on the craft production systems throughout the world. Costin’s theory starts from the very basic components of the craft production system, connecting concrete archaeological records with their social implications.

This thesis examines two out of six basic components in Costin’s framework, the organizing principle and the social role of artisans, in the background of Yinxu. It helps us to see



what the past research has achieved and what needs to be done. Previous scholars like Yuling He and Xianwu Meng hypothesized that workshops in Yinxu can be divided into four industrial zones based on physical vicinity. In this thesis, I have proven that their hypothesis is partially incorrect and that the distribution of the industrial zones is under the dual influence of the late Shang lineage system and the transportation system.

The study of artisans as a group has not received much scholarly attention. When studying the artisans, we should be mindful of the category of “artisan,” which could be an etic term created by scholars. Chapter 4 of this thesis demonstrates that the late Shang artisans may not at all be lower-class forced labor, and there might exist a complicated hierarchical structure within the late Shang artisan group. One way for us to study the artisans directly is through the burials. However, the existing discourse of gender division has affected our ability to analyze the data in an unbiased way. It is thus important to get rid of the ethnographic assumptions when studying the archaeological data, and future studies need to be done to analyze the burial data from a more variety of perspectives—not just limited to gender—but occupations, lineages, and social statuses.

The first sentence from *The Go-Between*, one of my favorite novels, by L.P. Hartley, goes, “the past is a foreign country: they do things differently there.” This sentence, in my opinion, states the most important lesson for us historians: we should always be critical about the methods and perspectives we take when analyzing the past, about making any arbitrary inference on the past based on our personal experience or on later historical data. It is crucial to study the past like how we study a foreign country: with curiosity, with respect, and with prudence.

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