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Introduction

1.1. The Erlitou State

Prior to the second millennium BC, the Longshan period (3000–2000 BC) in the Yellow River Valley was marked by intense competitive interactions. As Liu and Chen (2012) argue, a multitude of regional polities emerged as chiefdom-level early complex societies, engaging in violent competition, evidenced by the proliferation of walled settlements. By the first half of the second millennium BC, during the Erlitou period (1735–1530 BC) in the Central Plains, this landscape of warring factions vying for military and economic dominance began to decline. The lowland states of the late Longshan period (2400–1900 BC) ultimately collapsed (Jaang 2023), giving way to a much larger-scale polity centered at the Erlitou site in the Yiluo Basin, which reorganized the political map of northern China (Xu 2012). In stark contrast to the fortified political centers of the Longshan period, the Erlitou site functioned as an unfortified primary capital. Xu (2018) posits that this absence of fortifications stemmed from reduced competition, as the number of peer polities dwindled, while defensive systems in peripheral regions secured both the unfortified Erlitou core and its second-tier centers within the Yiluo Basin. The Erlitou polity is widely regarded as marking the onset of China's Bronze Age and is either identified as the first territorial state (Xu 2009, 2014, 2022; Lee 2004; Liu and Chen 2003, 2012) or as a society approaching statehood (Shelach-Lavi 2015; Shelach and Jaffe 2014).

Archaeological surveys indicate that two significant population surges occurred in the Luoyang Basin, leading to a notable concentration of inhabitants in the region (Liu, Chen, Lee, Wright, and Rosen 2004; Zhongguo 2005). The first population boom took place during the Yangshao period: according to Qiao's (2010) estimates, the population of the Yiluo Valley grew from 131 in the Peiligang period to 4,447 by the end of the Yangshao period. The second population surge occurred during the Erlitou period. Wang (2006) notes that the area corresponding to present-day western Henan, centered on the Luoyang Basin and along the western piedmont of the Songshan Mountains, saw a marked increase in both the number and size of settlements during this time. In contrast, the large-scale settlements that had thrived east of the Songshan Mountains during the Longshan period were nearly abandoned, with survey and excavation data confirming a significant decline in settlement activity in that region (Jaang 2023). Population estimates for the Yiluo Valley during the Erlitou period reach as high as 7,011 (Qiao 2010). Among the newly emerging sites, the Erlitou site expanded dramatically to 540 hectares (Zhongguo 2005). Urbanization began in phase II and peaked in phase III, with population estimates ranging from 18,000 to 30,000 (Liu and Chen 2003).

Several archaeologists have argued that the Erlitou polity developed a complex four-tier settlement hierarchy (Liu, Chen, Lee, Wright, and Rosen 2004; Lee 2004; Zhongguo 2019; Zhongguo and Zhongaomei 2019). Secondary centers began to emerge east of the Songshan Mountains after phase II (Jaang 2023). Correlating these settlement patterns with political organization, Lee (2004) suggests that the Erlitou state established territorial control, as evidenced by its secondary and tertiary centers, which likely functioned to regulate the tribute economy. In summary, despite the absence of walled towns in the survey area during the preceding Longshan period, population became strongly concentrated in the Luoyang Basin during the Erlitou period.

Chang (1983) argues that power was initially rooted in a monopoly over access to the spiritual realm and ancestral sacrifice. To maintain exclusive control over ritual practices, apical elites began to seek dominion over valuable and exotic resources, such as metals and jade, which were crafted into specialized ritual paraphernalia (Chang 1983; Liu 2003; Liu and Chen 2012). Recent findings at Erlitou reveal that scapulae from cattle, sheep, pigs, and deer were commonly used in divination rituals (Zhongguo 2019), though some scholars contend that neither this practice nor the techniques of bone preparation originated at Erlitou (Shelach-Lavi 2015: 192). Bronze vessels employed in ancestral sacrifice were produced in a workshop located near the palatial enclosure; this proximity has led many scholars to suggest that the industry was controlled by the state or elite (Campbell 2014; Liu 2003). Primary deposits of ritual sacrificial remains, including pairs of ground-level circular altars and subterranean rectangular ritual structures, are exceptionally abundant within and to the north of the palatial enclosure (Zhongguo 2003, 2019). Collectively, these findings indicate that sacrificial and ritual activities were restricted to the elite.

Once aggrandizers had secured power and authority, they displayed their social status through the exclusive consumption and distribution of prestige and ritual goods. Since the late Neolithic period, jade artifacts have been used to communicate with the supernatural realm (Liu 2003). The Erlitou polity not only continued the use of jade artifacts but also expanded the assemblage of prestige and ritual goods to include bronze and pottery vessels. These prestige and ritual artifacts circulated among Erlitou's elites, serving as markers of identity, social status, and power (Chen 2008; Hao 2008; Li, Z. 2008). Elite

individuals were also interred with certain prestige goods upon their death, and Zhipeng Li has proposed a four-tier burial hierarchy (2008; Zhongguo 2019). White pottery ritual vessels are regarded as secondary prestige goods, circulating among lesser regional elites. This circulation integrated these elites into the Erlitou polity and helped construct extensive power networks (Liu 2003; Nishie and Kuji 2006; Tokudome 2015), reflecting the political influence of the Erlitou state during the late Erlitou period. Liu and Chen (2012) suggest that elites pursued military expansion to guarantee access to copper, salt, and other resources necessary for maintaining authority and political connections. Li (2018) argues that the Erlitou political network was built upon the transportation, exchange, and consumption of valuable natural resources, as well as the ritual material culture dependent on such resources. While archaeologists concur that Erlitou was a large territorial state, there remains significant debate regarding the extent of its territory.

A walled enclosure containing an array of large-scale rammed-earth structures, dating to the Erlitou period, is unique to the Erlitou site. The wall encircled an area of 11 hectares within the city (Xu 2009, 2022). The energy cost of construction, as indicated by the scale and building techniques, has led to the claim that these structures were early palaces (Zhongguo 2003, 2019; Xu 2009, 2022; Liu and Chen 2012). Most of the palaces consisted of walls and corridors on four sides, a principal building, and a courtyard in front of the principal building. All the palaces were built on rammed-earth platforms. To date, 12 palatial structures have been identified inside the major enclosure, forming two complexes (Zhongguo 1999, 2014, 2019). Although these rammed-earth structures have been referred to as palaces, their functions and nature remain debated. Zou (1980) and Tu (1987) have argued that they served not only as residences for Erlitou rulers but also as ancestral temples, given the close relationship between luxury tombs, sacrificial remains, and the large-scale rammed-earth structures. Du proposes that Palace No. 1 was one of the ruler's administrative structures (Du 2005), Palace No. 2 was an ancestral temple (Du 2007a), and Palace No. 4 was a ritual/ceremonial structure (Du 2007b).

Workshops specializing in bone-tool making, bronze casting, and turquoise processing have been discovered at Erlitou (Zhongguo 2019). Two of these are interpreted as state/elite-controlled bone tool workshops producing personal ornaments (hairpins) and weapons (arrowheads); one is located within the palatial enclosure, and the other lies adjacent to the sacrificial area north of the palatial enclosure (Chen and Li 2016). South of the palatial enclosure, another walled area contains turquoise-processing and bronze-casting workshops. The bronze-casting workshop, covering an area of 1.5 to 2 hectares, is situated in the southern part of this enclosed workshop complex. Multiple traces of bronze casting have been identified, including pottery molds, copper slag, crucibles, and kilns for baking molds (Zhongguo 2003, 2019). In contrast to contemporaneous polities, the Erlitou polity was the first to employ the piece-mold technique for casting bronze vessels. Craftsmen began using multiple types of alloys in bronze production, though they were still experimenting with optimal formulas (Zhongguo 2014). The turquoise-processing workshop is located north of the bronze foundry, where large quantities of raw turquoises, semi-finished artifacts, waste materials, and processing tools were uncovered. The inlay technique was already in use for turquoise processing at this site (Chen, F. 2006). Erlitou obtained copper ore and raw turquoise from various sources (Zhongguo 2019). Liu and Chen (2012) argue that Erlitou expanded westward and southward to secure supplies of valuable metals. Consequently, the workshop complex and the long-distance transportation of raw materials are regarded as a state/elite-sponsored industry (Xu 2009, 2022; Liu and Chen 2012; Zhongguo 2019).

1.2. Social Hierarchy in the Bronze Age of China

Clans, lineages, and families were important nodes in ancient Chinese polities during the Bronze Age (Chang 1983; Lu and Yan 2005). Numerous studies have revealed that the family-lineage system made significant contributions to the administration and governance of both the Shang and Western Zhou states (Zhu 2004; Li, F. 2008, 2013, 2022). Feng Li (2008, 2013, 2022) referred to the Western Zhou state as a "delegated kin-ordered settlement state," where regional delegates were either heads of the Western Zhou royal lineage or leaders from the lineages of royal marriage partners. The Western Zhou state was organized through the kinship structure of lineages, which underpinned political power (Li, F. 2008). The Shang state, by contrast, has been described as an aggregation of self-governing communities sharing a common cultural background (Li, F. 2008, 2013, 2022). Both the Shang royal families and local groups were organized according to the family-lineage system, with elites and non-elites alike bound by blood lineage and united in their hope of receiving blessings from their ancestors (Allan 1991; Reinhart 2015). Settlement studies at Yinxu, Anyang, have demonstrated that multiple families or lineages occupied the site during the Shang period. Residential and mortuary data from the vicinity of the palace-temple complexes at Yinxu suggest these groups likely formed family-based occupational neighborhoods (Zheng 1995; Tang 1998, 2004; Campbell 2018; Wang and Jing 2020).

Mortuary data from Yinxu also reveal social hierarchies within families and lineages: elites, regardless of their prominence, were likely the heads of lineages at various levels, while non-elites within each family or lineage exhibited differentiation across multiple dimensions (Zhu 2004). Thus, the internal social differentiation within lineages during the Shang and Western Zhou periods probably generated elites in the form of lineage heads at different levels and heads of lineage sub-branches. Non-elite families, which constituted the majority of each lineage, also displayed differentiation in various aspects. The family-lineage system and political power were

deeply intertwined (Lu and Yan 2005; Zhu 2004; Li, F. 2008, 2013, 2022; Campbell 2018).

Research since 2006 has identified residential blocks that formed a "#" shaped urban plan at Erlitou, surrounding the palatial enclosure. These residential blocks, like the palatial and workshop enclosures, were bounded by walls. Zhao (2020) argues that these new findings on the settlement layout suggest each enclosed residential block at Erlitou was likely occupied by a single family or lineage.

Scholars have made numerous attempts to reconstruct the social structure of Erlitou, drawing on evidence ranging from mortuary practices to residential remains. These studies indicate that the Erlitou state featured multiple social strata. Based on burial goods and tomb sizes, Zhipeng Li (2008) identifies four tiers within the mortuary system, which he interprets as corresponding to middle and lower elites, non-elites, and human sacrifices. Meanwhile, other archaeologists (Xu 2009, 2022; Zhongguo 2019) have reconstructed the social structure using residential evidence, positing that groups of different social statuses inhabited distinct types of buildings. According to this framework, kings and their consorts occupied the large-scale rammed-earth structures within the palatial enclosure; middle and lower elites resided in medium-sized and small on-the-ground rammed-earth structures outside the palatial enclosure; and non-elites lived exclusively in semi-subterranean structures.

Non-elites, or commoners, constitute a large portion of society. Compared to the elaborate lifestyles of elites, archaeologists have often viewed non-elites as "impoverished," "unempowered," and "anonymous" (Lohse and Valdez 2004). Non-elites are also frequently perceived as a homogeneous group (Marcus 2004). Due to this "top-down" perspective, non-elites have received little attention. However, non-elites are of great significance. In complex societies, non-elites were the primary adapters to their social environment and the main producers of food and many other goods (Lohse and Valdez 2004). The operation and maintenance of complex societies depend on the fulfillment of social duties and the support of non-elites. After investigating pottery production at the central sites of Donguan 东关 and Nanguan 南关 in the Yuanqu Basin, north-central China, Dai (2006, 2010) argues that during the Longshan period and Erligang phase, specialized non-elite potters produced daily ceramic vessels for local elites, other residents, and possibly for long-distance exchange. Some of this production likely took place in household-based workshops. Non-elites also carried out most subsistence production, supporting the daily needs of prestigious and ritual elites. Ran (2022) found that rural non-elite households in the Hongshan core zone were more engaged in food production than other Hongshan communities, contributing to feeding the ritual-focused residents (possibly ritual elites) around the Niuheliang 牛河梁 ceremonial structures.

Meanwhile, social class is fluid, though it remains relatively stable and predefined for the most part. Class also operates at multiple levels, shaped by a variety of social relations. As such, individuals can negotiate their identities within a society (Blackmore 2016). For instance, a royal court might consist of a king surrounded by courtiers, nobles, and individuals of lower rank (Inomata and Houston 2001). These low-ranking court members may acquire influence and access to privileges within administrative systems and political organizations. Non-elites are also heterogeneous. Examining the differentiation among non-elites sheds light on how they fit into complex social networks.

However, despite the recognition of complex social differentiation within the Erlitou state in numerous studies, most research remains focused on the elites, particularly the ruling class. These studies investigate and discuss the social, political, and economic lives of elites, depicting their luxurious and elaborate lifestyles as well as how they maintained and exercised political power (e.g., Liu 2003; Nishie and Kuji 2006; Chen 2008; Shelach-Lavi 2015; Tokudome 2015; Xu 2012, 2014, 2016a, 2016b). In contrast, our understanding of Erlitou's non-elites remains limited. There is much to explore regarding how non-elites lived within the state, the nature of their interactions with one another, and their contributions to the Erlitou community. This study focuses on social differentiation to assess the extent of heterogeneity among non-elite residents in the Erlitou state.

1.3. Dimensions of Social Differentiation

This study examines a sample of probable bottom-level household units, or non-elite households, from three locations, focusing on differentiation within this group across several distinct dimensions: wealth differentiation, prestige differentiation, ritual differentiation, and productive differentiation (Drennan and Peterson 2012). Archaeological evidence for such inter-household differentiation is derived from artifact assemblages recovered in association with different household units (Peterson, Drennan, and Bartel 2016).

Wealth differentiation refers to the varying accumulation of material wealth across different households (Drennan and Peterson 2012). High-value utilitarian craft items, personal adornments made from diverse materials, and non-utilitarian wealth items typically serve as reliable indicators of wealth. Additionally, the volume of stored goods can sometimes function as an indicator of wealth.

Prestige differentiation pertains to the distribution of respect within society (Drennan and Peterson 2012). While wealth accumulation and distinguished ritual status may contribute to prestige differentiation in some polities, this is not universally the case. Feasting often serves as a means to gain such respect, thereby enhancing one's prestige. A larger quantity of serving vessels (or other evidence of ceremonial feasting) is typically indicative of higher prestige. In Bronze Age China, individuals of greater prestige tended to possess more drinking vessels

and high-quality serving vessels, which were made from pottery and occasionally from metals.

Ritual differentiation refers to disparities in access to the supernatural realm within human societies, as well as unequal access to ritual or ceremonial paraphernalia, objects used in religious activities that embody and signal such differentiation. Furthermore, proximity to sites of ritual activity may also play a role in shaping ritual differentiation.

Productive differentiation often emerges among households and differs significantly from elite-oriented workshops that produce luxury or specialized goods. It typically operates within the realm of the utilitarian economy, focusing on mundane goods for daily use. Such utilitarian economic activities encompass subsistence production, the crafting of tools from wood, bone, or stone, and the manufacturing of utilitarian items like ordinary pottery, basketry, and textiles. Productive differentiation involves variations in the balance of productive activities across households, which in turn leads to the exchange of distinct products and fosters interdependence among them (Drennan and Peterson 2012). Archaeological indicators of this type of productive differentiation include production debris, with lithic implements being a particularly notable example.

1.4. Delineating the Household Units that Compose the Household Sample

The household has emerged as a key topic in Chinese archaeology for understanding prehistoric societies in ancient China. Scholars have approached this theme from diverse angles: some investigate building materials and floor areas of houses to identify differences in social status (Underhill 1994); others estimate population size based on the number and dimensions of residential structures at a site to explore community adaptive strategies (Shelach 2006; Shelach et al. 2011); still others analyze household artifact assemblages to determine the economic activities practiced by households and, further, to unravel social differentiation within communities (Liu 2004; Peterson & Shelach 2010, 2012; Drennan et al. 2017; Underhill et al. 2021; Ran 2022). By categorizing wall construction materials into adobe, wattle-and-daub, mud-and-straw, and earth, Underhill (1994) argues that status differentiation, particularly in household wealth, became increasingly prevalent along the Yellow River during the Longshan period, as reflected in housing structures. Such differentiation in housing was more pronounced in major centers than in minor ones. After estimating the population size of Zhaobaogou 赵宝沟 by examining residential floor areas and analyzing household assemblages within structures, Shelach (2006) found that the average house size among the Zhaobaogou people was larger than that of the Yangshao people at Jiangzhai 姜寨. This difference likely stemmed from the fact that Zhaobaogou residents conducted household activities indoors, whereas Yangshao communities at Jiangzhai carried out such activities outdoors. These indoor practices suggest that the Zhaobaogou people were more self-sufficient and less interdependent compared to the more communal orientation observed at Jiangzhai (Shelach 2006). Liu (2004) analyzed artifact quantities and potential gender-related associations in 19 well-preserved houses from Jiangzhai, Dahecun 大河村, Huanglianshu 黄楝树, Yuchisi 尉迟寺, and Yinjiacheng 尹家城. She argues that the increasing quantity of household material possessions throughout the Neolithic period indicates growing social complexity, accompanied by a more pronounced gender-based division of labor. Additionally, Liu (2004) discusses the role of ritual feasting in fostering cooperation within a household group at Kangjia 康家, which consisted of an extended family occupying 33 superimposed houses. Underhill and colleagues (2021) explored cooperation in tool production and lithic raw material acquisition among households at the Liangchengzhen 两城镇 site.

However, most previous research has focused on Neolithic communities. While Shelach and colleagues (2011) discuss the function of fortifications, as well as the integration and defense strategies of local populations at Sanzuodian during China's Bronze Age, with population estimates based on the number and size of dwellings, further work is still needed to understand the lives of non-elites and the role of non-elite households within local communities during China's early Bronze Age. Existing studies have explored non-elites and the development of social complexity through the lens of households along the Yellow River during China's Neolithic period. Yet, comparable efforts are required to examine non-elites through household analysis in the Yellow River region during China's Bronze Age, shedding light on how non-elites lived and contributed to communities within ancient states.

Jaang (2023) seeks to explore social networks among basic units within the Erlitou state through a residence-based analysis. She acknowledges that "it would be ideal to carry out a comparative analysis of household-level rituals between residential spaces and the mortuary realm" (Jaang 2023: 236) to understand the mechanisms underlying Erlitou's sociopolitical order. However, due to the difficulty of identifying household units, her analysis ultimately focuses on funerary data.

House structures, associated features, and artifact assemblages in household garbage all reflect the status and daily lives of residents, making them valuable evidence for studying social differentiation. This research examines a sample of household units at Erlitou, some with both structural and artifact evidence, and others with only artifact evidence. The overall objective of this study is to reconstruct the social differentiation within and among bottom-level groups, or non-elites, at Erlitou using this sample of households.

The data derive from excavations conducted at the Erlitou site during the 1999–2006 seasons by the Erlitou

Archaeological Team of the Institute of Archaeology, Chinese Academy of Social Sciences (Zhongguo 2014). A total of 8,963.89 square meters were excavated during this period, in addition to a full-scale systematic coring survey. Most excavations were concentrated within the palatial enclosure and the northern part of the workshop enclosure, with supplementary work carried out at the eastern end of the site (Figure 1.1). This study samples household data from these three locations, with the following coding system: household samples in or near the palatial enclosure are labeled "G"; those in or near the workshop enclosure are labeled "W"; and those from the eastern end of the site are labeled "D".

According to the published report *Erlitou: 1999-2006* (Zhongguo 2014), 21 small housing structures have been discovered. These structures date from the Erlitou period through to the Erligang period, a time when the Erlitou state was defeated and supplanted by the Erligang state (Zhongguo 2014, 2019). While poor preservation makes it difficult to discern the floorplans of these small houses, some can still be identified as either on-the-ground or semi-subterranean structures (Xu 2009, 2022; Zhongguo 2014, 2019). Of the 21 small houses, 11 were found within the palatial enclosure, 6 in the workshop enclosure, and 4 at the eastern end of the site.

Small housing structures include on-the-ground houses and semi-subterranean houses. Such housing forms have existed in the Yellow River valley since the Neolithic period. Some small on-the-ground houses may have rammed-earth footings, while others may be built directly on the ground (Yang 2008; Li 2007). Evidence from the Erlitou site indicates that this type of housing structure could feature wooden wall frameworks plastered with mud (Figure 1.2). Semi-subterranean housing structures consist of a pit with a rammed and baked living floor, and a roof covered with mud and straw (Yang 2008). Both round and square semi-subterranean housing structures have been found at the Erlitou site (Figure 1.3).

However, not all small houses discovered during the 1999–2006 excavations will be included in this study. Among the eleven small houses in the palatial enclosure, F4, F5, F13, F14, F16, and F17 are excluded. F5 is likely part of the No. 3 large-scale rammed-earth structure, while F13, F16, and F17 are possibly components of the No. 6 rammed-earth structure. F4 and F14 are omitted due to the absence of artifact assemblage data within the structures and the lack of adjacent contemporary ash or storage pits. Of the six small houses in the workshop enclosure, F8, F12, and F15 are excluded. F12 and F15 were damaged by each other, with no assemblage data from their

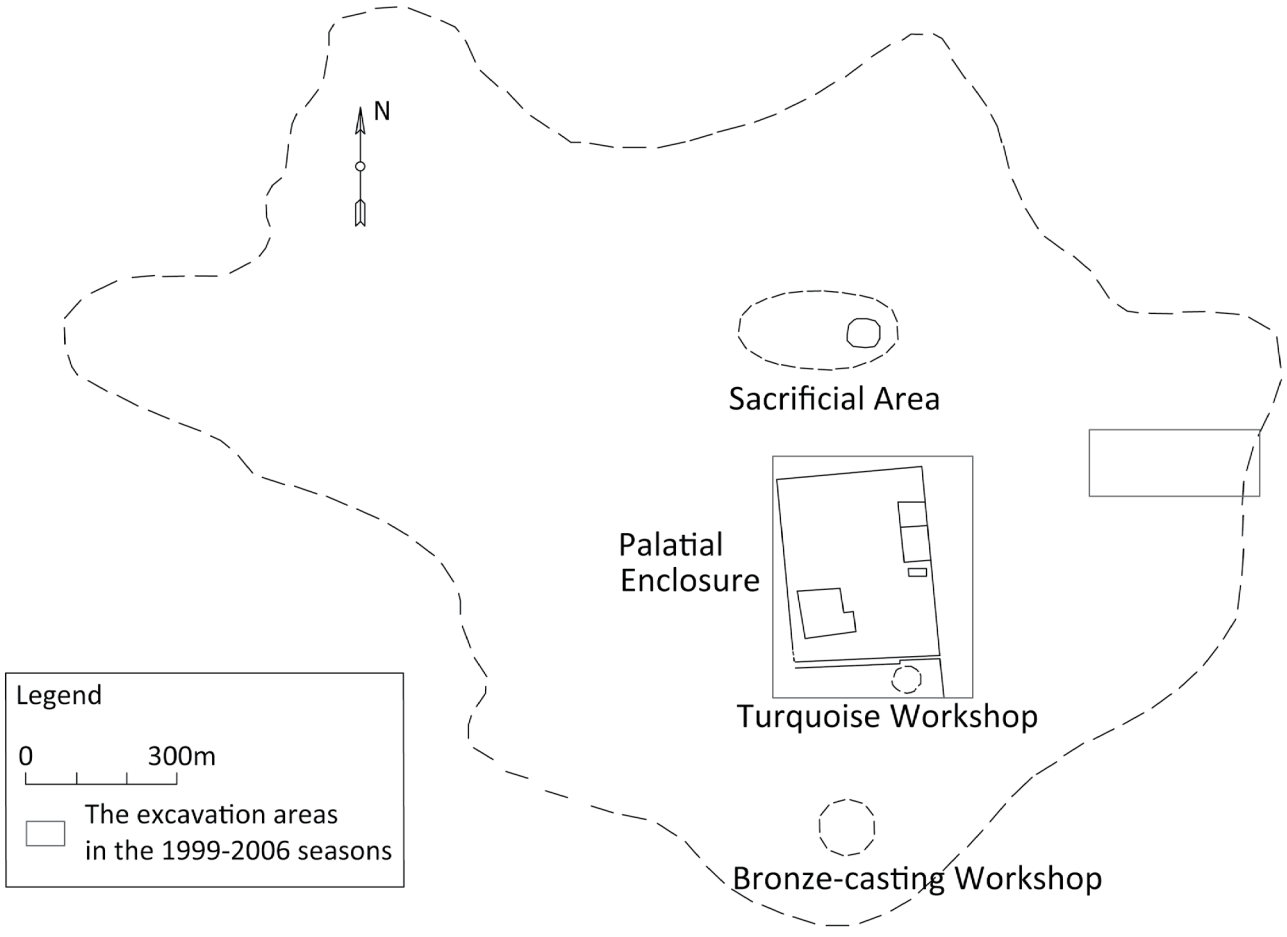

Figure 1.1. Plan of the Erlitou site and the excavation in the 1999-2006 seasons (redrawned from *Zhongguo* 2014, Figure 1-1-3-3, pp 7).

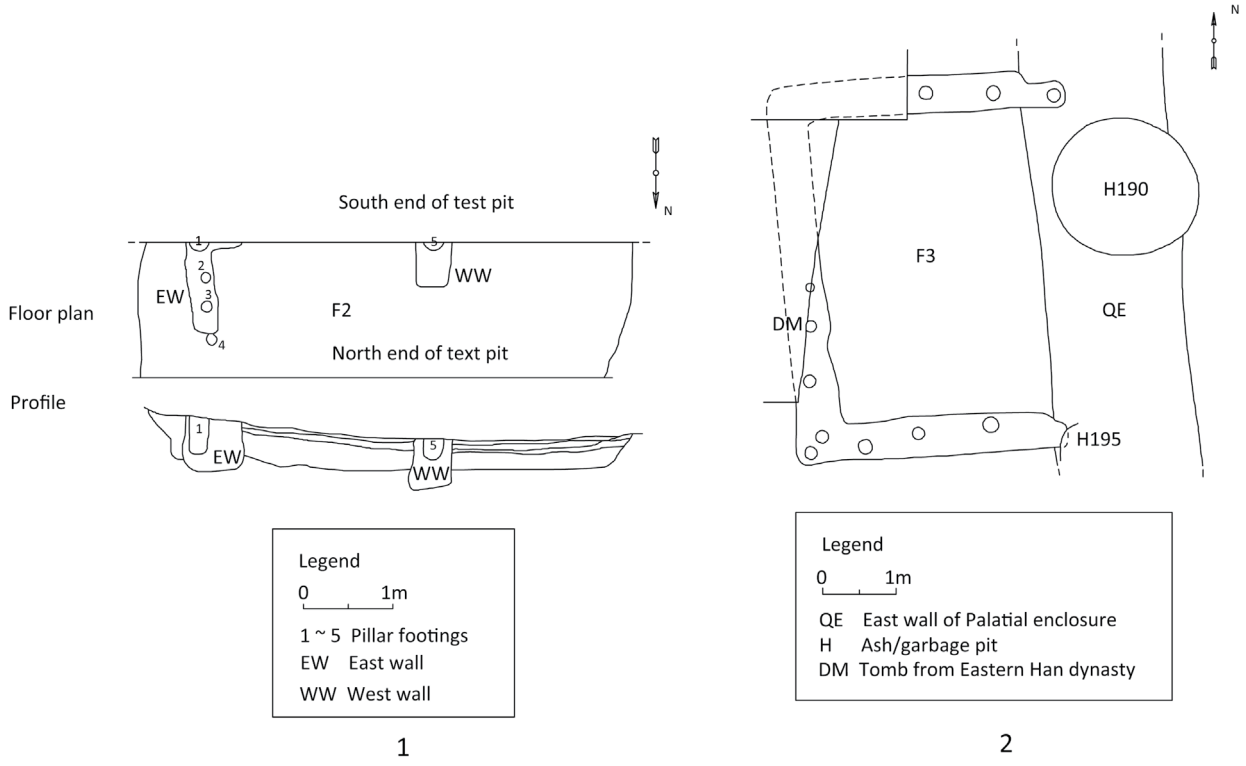

Figure 1.2. Examples of Erlitou small on-the-ground housing structures. (1. modified from *Zhongguo 2014*, Figure 6-4-1-2-1, pp 704; 2. modified from *Zhongguo 2014*, Figure 6-4-1-3-1, pp 706).

occupational period and no associated contemporary ash or storage pits. F8, despite yielding some practical tools, is also excluded from statistical analysis because no ceramic data from its occupational period were available, nor were there any surrounding contemporary ash pits. Regarding the four houses at the eastern end of the site, F1 and F3 are excluded due to the absence of adjacent contemporary ash pits and assemblage data. Thus, this study focuses on 10 household contexts with confirmed structural information from the published report (dating from Erlitou Phase II to the Late Erligang period). Among these, 5 are located within or in close proximity to the palatial enclosure, 3 in the workshop enclosure, and 2 at the eastern end of the site. Of these 10 household units: G1/F2 (Figure 1.2:1), G14/F10, G16/F3 (Figure 1.2:2), W3/F9, and D5/F4 are on-the-ground housing structures; G18/F1 (Figure 1.3:2) and W4/F11 (Figure 1.3:3) are semi-subterranean housing structures; and the remaining 3 (G9/F6, W1/F7, and D2/F2), though identified with housing structures, cannot be definitively classified by form due to the lack of distinguishing features.

A household encompasses not only a house structure but also associated surrounding ash or garbage pits. The household artifact assemblage consists of all artifacts recovered from a house structure and its associated pit features. For instance, Peterson and Shelach (2012) included artifacts from contemporaneous pit features located near residential structures. Winter (1976) argued that storage pits within 10 meters of one side of a house were associated with that house. More recently, a systematic survey in the Upper Daling region found that Hongshan households occupied an area with a maximum length of 20 meters (Peterson, Lu, Drennan, and Zhu 2017). In this study, artifacts from trash pits within a roughly 10-meter radius around house structures at the Erlitou site are included. The 10 household units with housing structures examined here each have several associated ash or garbage pits.

This study also includes 24 household clusters represented solely by ash pits, storage pits, and their associated artifacts. Here, a cluster of ash or garbage pits within a roughly 10-meter radius is treated as a chain representing a single household unit. This sample of households, defined only by ash or garbage pits, consists of 17 clusters in or near the palatial enclosure, 4 in or near the workshop enclosure, and 3 at the eastern end of the site. Core-drilling surveys and excavations indicate the presence of a series of borrow pits that functioned as the eastern boundary (Zhongguo 2014; Xu et al. 2004). These borrow pits are thought to have later been repurposed as garbage pits by surrounding households.

Table 1.1 presents the floor sizes of the relatively well-preserved houses discovered at Erlitou to date. According to Shelach (2006), the residential density at the Zhaobaogou site in northeastern China was 6 m² per person. However, a slightly higher residential density of 4 m² per person appears more reasonable for central China (Peterson & Shelach 2012). Whether using 4 m² per person or 6 m² per person as a benchmark, the small housing structures at Erlitou likely housed nuclear families, similar to household units in Neolithic China.

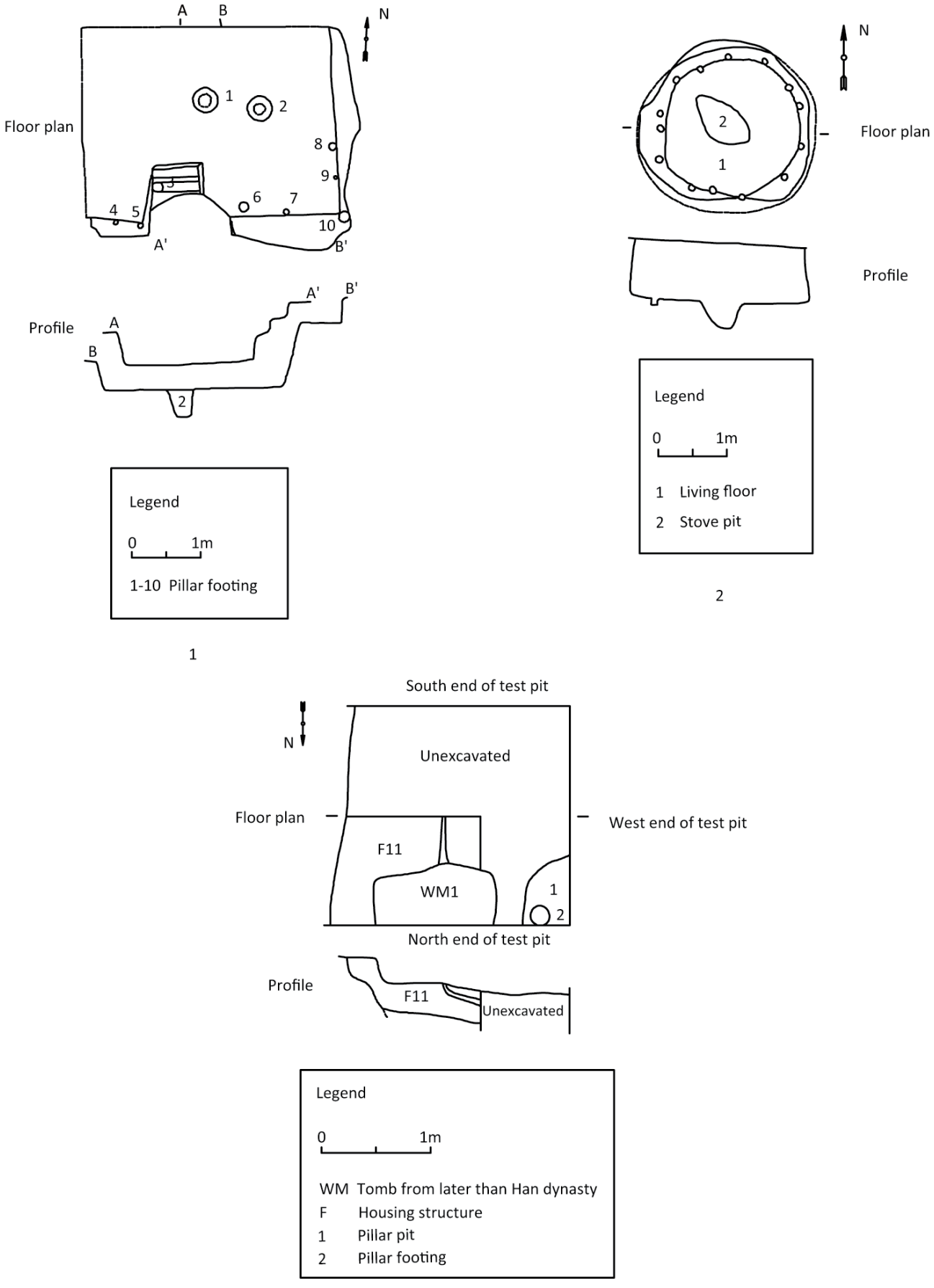

Figure 1.3. Examples of Erlitou semi-subterranean housing structures. (1. modified from *Zhongguo 1999*, Figure 41, pp 77; 2. modified from *Zhongguo 2014*, Figure 6-4-1-1-1, pp 702; 3. modified from *Zhongguo 2014*, Figure 5-4-2-4-1, pp 344).

Table 1.1. Relatively well-preserved small houses in the Erlitou site.

Code	Area (m^2)	4 m^2 / person	6 m^2 / person	References
VIIIF1	9.9640	2.4910	1.6607	*Zhongguo 1999*, pp. 75
IVF1	8.9900	2.2475	1.4983	*Zhongguo 1999*, pp. 59
IIIF2[1]	39.7700	9.9425	6.6283	*Zhongguo 1999*, pp. 160–161
IIIF1	34.0000	8.5000	5.6667	*Zhongguo 1999*, pp. 162
80YLVIF1	6.2350	1.5588	1.0392	*Zhongguo 1983*
82秋YLIXF1[2]	Lower: 13.2000	3.3000	2.2000	*Zhongguo 1985*
	Upper: 11.9000	2.9750	1.9833	
2003IIIF4[3]	38.6750	9.6688	6.4458	*Zhongguo 2014,* vol. 1, pp. 213–215; vol. 5, pp. 56
2002VF1	4.9063	1.2266	0.8177	*Zhongguo 2014*, vol. 2, pp. 701–703; vol. 5, pp. 56
2003VF3	13.0000	3.2500	2.1667	*Zhongguo 2014*, vol. 2, pp. 705–707; vol. 5, pp. 56
2004VF4[4]	4.1527	1.0382	0.6921	*Zhongguo 2014*, vol. 2, pp. 707; vol. 5, pp. 56

*1. IIIF2 is coded for a two-roomed house although the western room is still separated by 1.4 m from the eastern room. The eastern room is damaged. The area listed in Table 1.1 is only for the western room.

2. 82秋YLIXF1 is coded for two housing structures, one of which is superimposed by the other. The lower one is a rectangular-shaped semi-subterranean structure, and the upper one is an on-the-ground structure built after filling and leveling up the lower one.

3. 2003IIIF4 was only exposed the eastern part during the 2003 excavation. The area is only the floor area exposed.

4. 2004VF4 is a round-shaped semi-subterranean structure only exposed the northern half during the excavation. The area is estimated by the bottom diameter.

Thus, this study will analyze artifacts from a sample of 34 nuclear-family households (5 in small on-the-ground structures, 2 in semi-subterranean structures, and 27 in structures of indeterminate type) to reveal social differentiation both within and among these households. This analysis aims to illuminate the daily lives of bottom-level groups or non-elites across the three locations represented by the sample during the Erlitou state period, as well as to investigate potential changes immediately following the defeat of the Erlitou state. The sampled household assemblages include ceramic sherds, productive tools and debris made of stone, bone, and other materials, and other artifacts such as decorative items and oracle bones (Table 1.2).

This sample of 34 household units is coded into three groups. Twenty-two household units (coded as "G1/F2 ~ G22") are located in or near the palatial enclosure (Figures 1.4–1.5): 21 are inside the enclosure, and 1 (G1/F2) is close to the outside of the enclosure's east wall. Seven household units (coded as "W1/F7 ~ W7") are in or near the workshop enclosure (Figure 1.6): 6 are inside the enclosure, and 1 (W7) is close to the outside of the enclosure's north wall. Five household units are situated at the eastern end of the site (coded as "D1 ~ D5/F4") (Figure 1.7).

1.5. Research Questions

This study broadly examines how a sample of 34 household units interacted within and contributed to the social network of Erlitou. Given that their household assemblages are less elaborate than those presumably belonging to elites, and that some occupied small houses (small on-the-ground structures and semi-subterranean structures), these households likely represented bottom-level social members from each of the three areas of the Erlitou site: the palatial enclosure, the workshop enclosure, and the eastern end. Is it accurate to consider them members of different classes? If they did belong to different classes, what specific classes were these? What forms of differentiation existed within and among household units from the three locations, and how pronounced was this differentiation? Alternatively, did they all belong to the same class—i.e., non-elites? If they were all non-elites, what types of differentiation existed among non-elites across the three locations, and how significant was it? To address these questions, this study investigates the following issues.

1) *How much wealth differentiation is detectable among the households in this sample?*

Wealth differentiation among the household units in this sample is evaluated based on resource storage, food preparation capacity, and possession of ceramics decorated with complex incised or stamped patterns, as well as personal ornaments. A wealthier household would possess more such correlated artifacts. Given that sample sizes vary significantly across different households for various reasons, proportions, rather than actual counts, of storage vessel sherds, decorated sherds, and personal decorative artifacts will be used. Assessing wealth

Table 1.2. Artifact assemblages from the 34 household units.

Household unit	Housing structures and garbage pits	sherds	Lithic artifacts	Bone artifacts	Antler artifacts	Tooth artifacts	Shell artifacts	Bronze artifacts	Turquoise artifacts	Non-vessel pottery artifacts	Oracle bone	Raw material - rock	Raw material - bone	Raw material - antler	Raw material - shell	copper ore and slags	Raw material - turquoise
G1/ F2	VF2, VH197, VH202, VH213, VH214	243	3	1	-	-	3	-	-	-	-	5	1	2	-	-	-
G2	VH105, VH125	845	4	1	-	-	2	-	-	2	3	-	1	-	-	-	-
G3	VH182, VH183, VH188, VH192	1324	1	-	-	-	-	-	-	-	2	-	-	1	-	-	-
G4	VH127, VH129, VH133, VH134	420	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
G5	VH12, VH28, VH32, VH34, VH45, VH255	1910	2	3	-	1	2	-	-	-	3	-	1	1	3	-	-
G6	VH293, VH295, VH296	218	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-
G7	VH62, VH67, VH99	1236	2	3	-	-	1	-	-	-	1	2	1	2	-	1	-
G8	VH13, VH14, VH18, VH19, VH22, VH26, VH27, VH36, VH40, VH41	2947	1	1	-	-	2	-	1	-	1	-	2	-	1	-	-
G9/ F6	VF6, VH292, VH294, VH298, VH299	617	-	1	-	-	-	-	-	-	-	2	-	-	1	-	-
G10	VH35, VH37, VH38, VH110	1748	2	-	-	-	1	-	-	-	1	-	-	-	-	-	-
G11	VH258, VH277, VH327	252	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-
G12	VH232, VH236, VH259, VH262, VH270	1082	1	2	-	-	-	-	-	1	-	1	4	-	-	-	-
G13	VH61, VH128, VH131, VH132, VH136, VH137, VH138, VH144, VH147, VH150, VH168, VH189	3581	9	12	2	1	3	3	-	2	3	1	16	3	1	6	10
G14/ F10	VF10, VH397	76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
G15	VH16, VH52, VH53, VH92	2686	5	10	-	-	3	-	-	-	3	5	5	-	1	-	-
G16/ F3	VF3, VH139, VH218, VH219	544	2	3	1	-	-	-	-	-	-	-	-	-	-	-	-
G17	VH77, VH78, VH79, VH98, VH123	1869	6	2	-	-	3	-	-	5	1	2	1	-	-	-	-

(*Continued*)

Table 1.2. (*Continued*)

Household unit	Housing structures and garbage pits	sherds	Lithic artifacts	Bone artifacts	Antler artifacts	Tooth artifacts	Shell artifacts	Bronze artifacts	Turquoise artifacts	Non-vessel pottery artifacts	Oracle bone	Raw material - rock	Raw material - bone	Raw material - antler	Raw material - shell	copper ore and slags	Raw material - turquoise
G18/ F1	VF1, VH141, VH142, VH190, VH193, VH195, VH205	1616	7	3	-	-	2	1	-	3	3	-	1	-	-	-	1
G19	VH11, VH47, VH48, VH50, VH65, VH66, VH100, VH122	3750	15	12	-	-	6	-	-	3	1	6	3	-	-	-	-
G20	VH126, VH154, VH155, VH160, VH162, VH165, VH167	1437	2	1	-	-	-	-	-	-	-	-	-	1	-	-	-
G21	VH3, VH4, VH5, VH17, VH21	1536	9	3	-	-	3	-	-	2	-	1	-	2	1	-	-
G22	VH20, VH23, VH25	1654	2	-	-	-	1	5	-	-	1	-	-	-	-	-	-
W1/ F7	VF7, VH306, VH307, VH312, VH315, VH316, VH317, VH320, VH364, VH367, VH370, VH372	1632	5	4	-	-	1	-	-	1	1	3	4	-	1	-	-
W2	VH274, VH275, VH276, VH281	1136	4	-	-	2	7	-	-	-	-	-	-	1	1	-	1
W3/ F9	VF9, VH332, VH337, VH344, VH358, VH360, VH362	1795	4	4	-	-	-	-	-	-	-	4	-	-	-	-	-
W4/ F11	VF11	103	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-
W5	VH252, VH278, VH282, VH283, VH284, VH290, VH300, VH301, VH302, VH303, VH304, VH323, VH330, VH333, VH341, VH342, VH343, VH345, VH346, VH347, VH348, VH354, VH355, VH356, VH357, VH369, VH373, VH374	8582	44	22	1	3	14	1	-	2	9	11	21	-	2	2	4084

Household unit	Housing structures and garbage pits	sherds	Lithic artifacts	Bone artifacts	Antler artifacts	Tooth artifacts	Shell artifacts	Bronze artifacts	Turquoise artifacts	Non-vessel pottery artifacts	Oracle bone	Raw material - rock	Raw material - bone	Raw material - antler	Raw material - shell	copper ore and slags	Raw material - turquoise
W6	VH265, VH266, VH258, VH271, VH297	1001	3	1	-	-	-	-	-	-	1	-	2	-	-	-	-
W7	VH269, VH402, VH403	394	1	2	-	1	-	-	-	-	-	-	2	-	-	-	-
D1	IIIH1, IIIH14, IIIH25, IIIH26, IIIH27	936	3	8	1	-	1	-	-	-	-	6	-	-	-	-	-
D2/ F2	IIIF2, IIIH9, IIIH28	437	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-
D3	IIIH4, IIIH7 IIIH13, IIIH23, IIIH35	2128	12	8	-	-	3	-	-	1	-	15	-	-	-	-	-
D4	IIIH5, IIIH8, IIIH10, IIIH15, IIIH17, IIIH18, IIIH22	2711	16	1	-	1	3	-	-	2	1	12	4	-	-	-	1
D5/ F4	IIIF4	199	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note:

1. Roman numerals are the codes for the site sections. The Erlitou site is divided into 15 sections by the archaeologists according to the modern roads and village plans. The excavations at the eastern end of the site during 1999 – 2006 were in Section III, and the excavations in the Palatial enclosure and the northern part of the Workshop enclosure during 1999 – 2006 were in Section V. The same applies to similar cases below.

2. F refers to housing structure. The same applies to similar cases below.

3. H refers to garbage pit. The same applies to similar cases below.

differentiation allows me to determine whether families residing near the rammed-earth palaces were wealthier than those living farther from the palatial enclosure, and whether residents of the workshop enclosure held greater wealth associated with their involvement in production activities.

2) How much prestige differentiation is detectable among the households in this sample?

Feasting constitutes valuable archaeological evidence for the accumulation of prestige (Drennan and Peterson 2012). It has been interpreted as a means of creating and maintaining a stratified social order, negotiating social status, and enhancing group solidarity (Pollock 2003). Elaborate vessels would have been used to serve and display food and drink (Dietler 2001). Feasting requires serving and drinking vessels to facilitate the sharing of food and beverages, and prestigious families tend to possess a greater number of decorated ceramic vessels used for serving, sharing, and storing food and drink. While feasting is often viewed as a practice that distinguishes elites from non-elites, on a smaller scale, it could also function as a means of establishing hierarchy within non-elite groups. During the Shang dynasty, Shang potters engaged in community-based and household feasts, which empowered their groups and enabled artisans to negotiate social power (Reinhart 2015). This study will assess the proportion of feasting utensils and vessels, as well as polished and/or fingernail-incised decorated ceramics, to evaluate prestige differentiation among the sampled households.

3) How much ritual differentiation is detectable among the households in this sample?

The diverse array of ritual paraphernalia from the Erlitou period indicates that a wide range of religious activities were conducted within the Erlitou state. The consumption of various types of ritual paraphernalia and the practice of divination using oracle bones serve as effective indicators of ritual differentiation. It has been hypothesized that power initially emerged from the monopoly of ritual activities (Chang 1983).

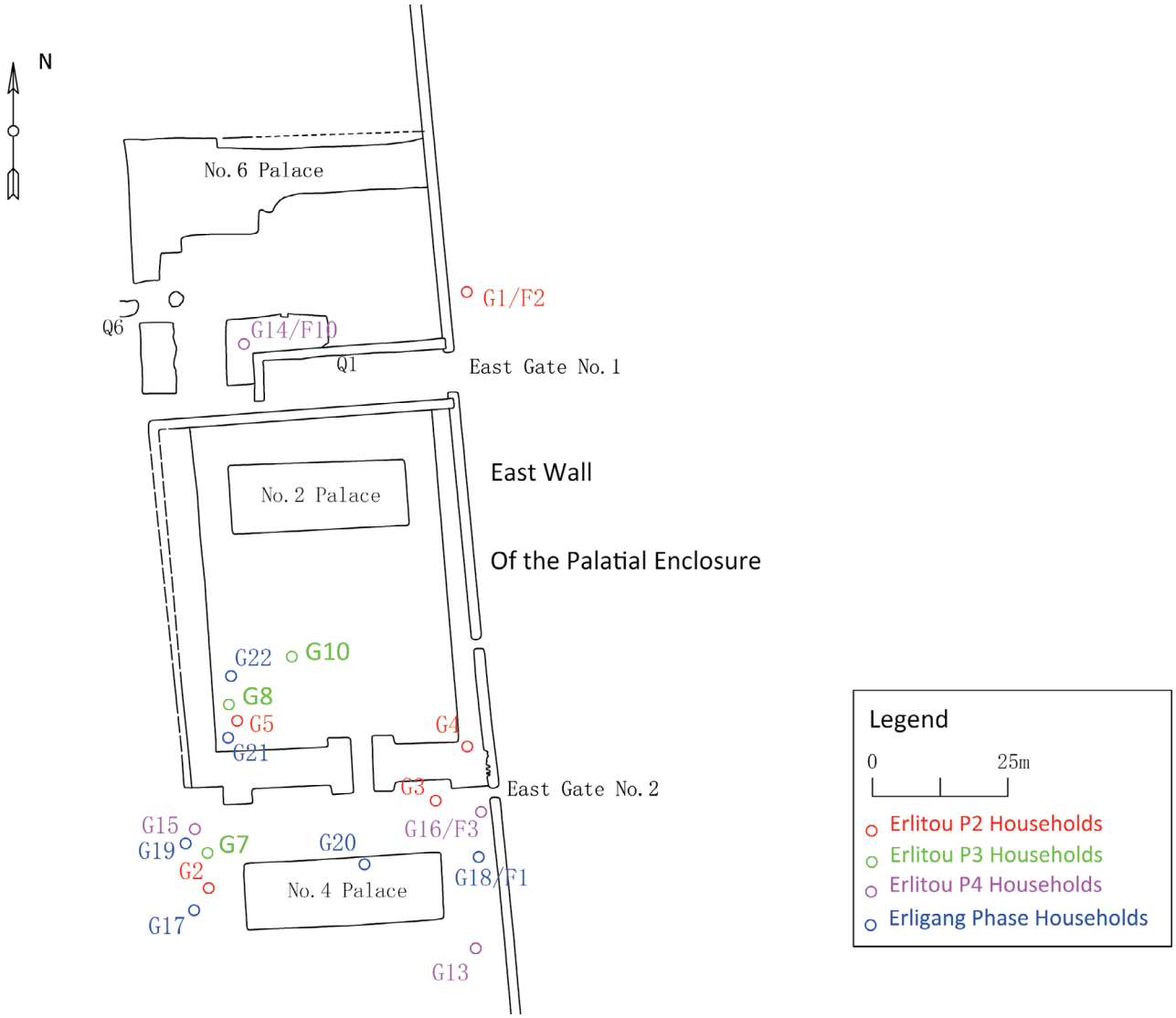

Figure 1.4. Household units in this sample in or near the east complex of the palatial enclosure (modified from *Zhongguo 2014*: Figure 5-0).

During China's Bronze Age, elites are thought to have monopolized communication with ancestors and deities, while non-elites and other members of political communities relied on elites as intermediary to contact supernatural beings (Chang 1989). Scapulimancy, divination using oracle bones, was a key ritual practice. Non-elites and craftsmen may have performed divination in their homes or workshops, possibly with the assistance of professional diviners (Chen and Li 2013). Thus, disparities in access to divination paraphernalia can reveal differences in ritual status.

4) *How much productive differentiation is detectable among the households in this sample?*

Specializations in turquoise and bronze crafts suggest that Erlitou may have been a society where people's daily needs were supplied by large-scale workshops of some kind. In such a scenario, only common, everyday activities would have taken place in most households. Liu (2006) examines diachronic changes in craft specialization at the settlement level in Erlitou, based on the distribution of six types of productive tools. She proposes that there existed not only attached craft production but also independent craft production, and that the urban population could obtain certain goods from local communities. This study aims to investigate the operation of Erlitou's utilitarian economy. It will examine whether and to what extent productive activities were differentiated among households by comparing the proportions of different productive tools in household artifact assemblages. Farming tools such as sickles and shovels, hunting tools/ weapons like arrowheads, and sewing tools including awls and needles are frequently found in household artifact assemblages. Significant productive differentiation would indicate that goods were not solely supplied by large workshops, but rather that a vibrant bottom-up utilitarian economy may have existed. Conversely, if all households possessed highly similar productive artifacts, it would suggest that they primarily engaged in food production and preparation, while obtaining other necessities from large workshops.

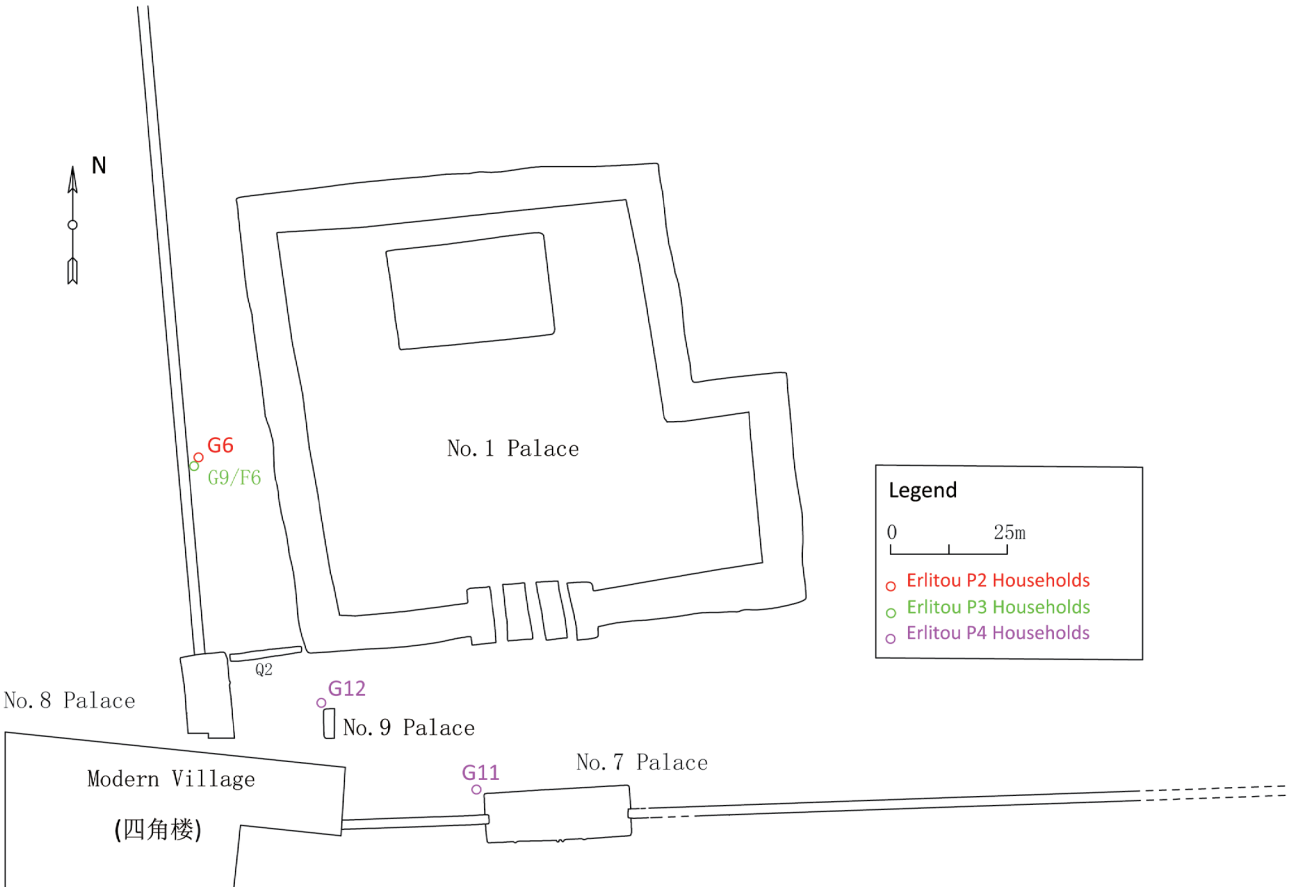

Figure 1.5. Household units in this sample around the west complex of the palatial enclosure (modified from *Zhongguo 2014*: Figure 5-0).

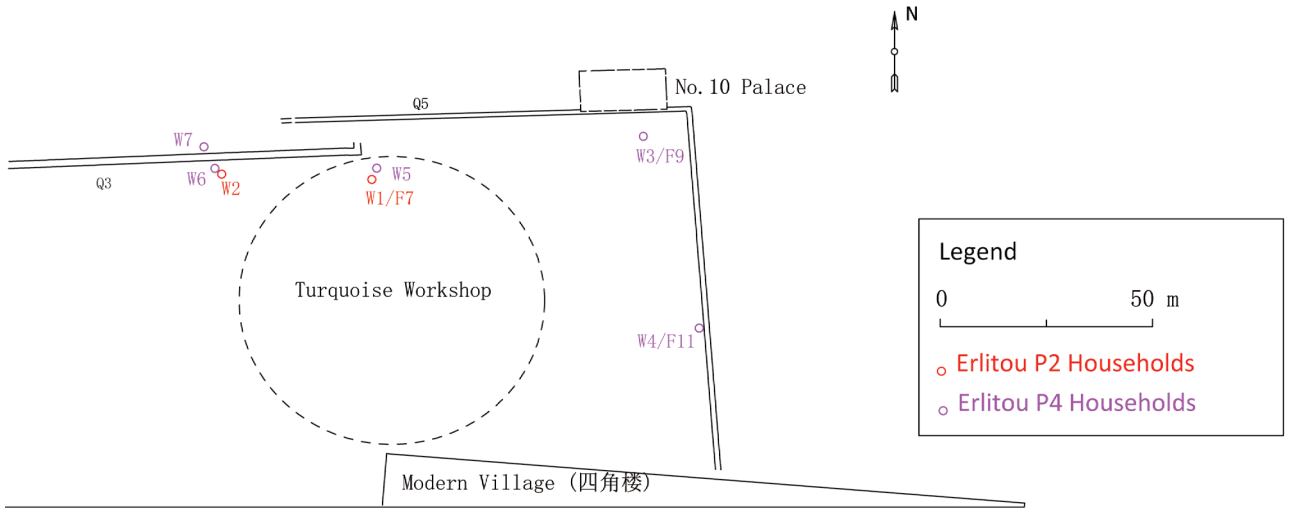

Figure 1.6. Household units in or near the workshop enclosure (modified from *Zhongguo 2014*: Figure 5-0).

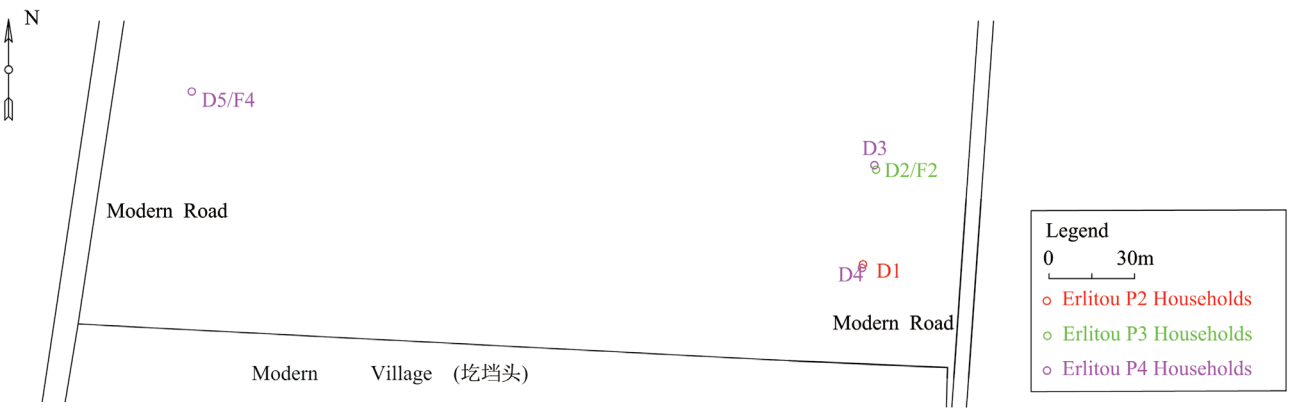

Figure 1.7. Household units in this sample at the eastern end of the site (modified from *Zhongguo 2014*, Figure 1-1-3-4, pp 8).

5) *Whatever differentiation is documented in answering the questions above, how much of it seems to differentiate households living in on-the-ground structures as a group from those living in semi-subterranean structures?*

Addressing this question helps us determine whether households residing in on-the-ground structures can be accurately characterized as members of a class distinctly separate from those living in semi-subterranean structures.

6) *Whatever differentiation is documented in answering the questions above, how much of it occurs among households living in on-the-ground structures and how much among those living in semi-subterranean structures?*

The answer to this question builds on the answer to the previous one by examining the differentiation that existed within each of the two groups.