

Diets, social roles, and geographical origins of sacrificial victims at the royal cemetery at Yinxu, Shang China: New evidence from stable carbon, nitrogen, and sulfur isotope analysis

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ABSTRACT

The practice of ritual killing, using both human and animal subjects, was prevalent in early Bronze Age China. This study addresses one key archaeological question that concerns the social roles and geographical origins of these human victims. Although oracle bone inscriptions from the site of *Yinxu* mentioned that many of these victims were war captives, little archaeological evidence could support or confirm this assertion. Using stable carbon, nitrogen, and sulfur isotope analysis, we reconstructed and compared the dietary practices of 68 sacrificial victims with those of 39 local residents from *Yinxu*. In addition, for 30 of the sacrificial victims, $\delta^{13}\text{C}$, $\delta^{15}\text{N}$, and $\delta^{34}\text{S}$ values from two different bone elements per individual were compared to look for evidence of migration. Our results suggest that these sacrificial victims were likely not local, but moved to *Yinxu* and adopted the local diet for at least a few years before being killed. This discovery has significant implications for understanding the various tactics used by the Shang kings to consolidate power over their subjects, including the display of violence through mass sacrificial rituals.

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1. Introduction

The killing of human and animal victims during ritualistic ceremonies was a prevalent practice in many ancient societies, including but not limited to ancient Greece, Early Dynastic Mesopotamia, the Inca of Peru, the Aztec Culture (Carrasco, 1999; Dickson, 2006; Hughes, 1991; Klaus et al., 2010; Pizzato, 2005; Swenson, 2003), and Bronze Age China (Gibbons, 2012; Shelach, 1996). Despite the fact that the explicit motivations for most of these rituals were to please or pacify various deities/ancestors, it has been argued that their substantive outcome allowed the ruling elites to instill fear into the spectators, which ultimately helped to dissuade both internal dissent and attacks from outsiders (Gibbons, 2012:834). In any case, there is little doubt that mass ritual killing was more than part of a religious ceremony, as it also stood as an important piece of political theatre, which helped to consolidate the ruler's power (Bagley, 1999; Campbell, 2007; Nelson, 2002; Pizzato, 2005; Swenson, 2003) as well as create a sense of group identity among members of society (Burkert et al., 1987; Fiskesjö, 2001; Keightley, 2004). This was particularly important in early state societies

where social stratification was present, but still in a nascent state, and authorities required powerful instruments of control to legitimate and sustain their power base (Shelach, 1996:19–20). As Keightley put it: “The number of human victims associated with the Late Shang royal burials is awe-inspiring, as it undoubtedly was intended to be” (2012:73). In the case of the Shang Dynasty, the instrument of control was the sheer volume of lives involved and the extreme violence associated with the ritual mass killings.

At *Yinxu*, a capital of China's earliest state society, the Shang Dynasty (16th to 11th century BC), sacrificial pits are prevalent across the entire site. Sacrificial pits in residential areas are usually smaller in scale and feature mostly animal offerings, with human sacrifices being relatively uncommon (Yang, 1983). One early survey of eight cemeteries located in the western district of *Yinxu* 殷墟西區 revealed that less than 2% (18/939) of the tombs contained human sacrificial victims, with numbers usually limited to one to three victims per tomb, and occasionally up to 12 (Anyang Archaeological Team, 1979). Sacrificial activities that involved higher numbers of human victims, up to several hundred at a time, were found only in the royal cemetery or the palace-temple complex (Bagley, 1999; IA CASS, 1994). This has not only substantiated the inference for a wide wealth and status gap between the rulers and the ruled, but also further supports the proposition that mass

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sacrificial rituals were indeed state-run performances and political acts (Maisels, 2010). It is estimated that during the approximately 200 years of occupation at *Yinxu* (c. 1250–1046 BCE), more than 13,000 humans and many more animals were sacrificed (Allan, 1991; Nelson, 2002; Thorp, 2005).

In order to better understand the practice and role of sacrificial rituals in early state societies, such as the Shang Dynasty, the diets of 68 sacrificial victims from *Yinxu* were analyzed using stable carbon, nitrogen, and sulfur isotopes. To further elucidate the migratory patterns of these sacrificial victims, previously published carbon and nitrogen measurements (Cheung et al., 2015), and sulfur measurements produced for this study from individuals from one residential funerary context (*Xin'an Zhuang* – XAZ) were also analyzed and compared to the sacrificial victims. Although *Yinxu* is currently known as the longest-studied archaeological site in China (discovered in 1928 and still undergoing excavation), relatively few studies have involved the use of biomolecular techniques. By integrating isotopic analysis with the rich contextual information provided by the almost century-long excavations, it is hoped that this study will present novel insights and a more in-depth understanding of the social and political dynamics of the period.

2. Human sacrifice during the Shang Dynasty

The last capital of the Shang Dynasty, *Yinxu* 殷墟, is located in modern day Anyang, Henan province, China (see Fig. 1). The occupation of *Yinxu* lasted approximately 200 years and is often referred to as the *Yinxu* phase or the Late Shang Period (ca.

1250–1046 BCE). *Yinxu* is also significant as it is the site where the earliest evidence for writing in China surfaced in the form of oracle inscriptions (Bagley, 1999). These texts were records of divinations, reflecting the king's various concerns and ranged from personal matters, such as an unsettling toothache, (Keightley, 2012:209[272C]), to state issues such as crop failures (Keightley, 2012:137[127B]; 145[153B]; 153[174B]). However, a considerable number of these inscriptions were dedicated to documenting the king's ritual activities (Bagley, 2004; Keightley, 2012). For example, in one instance 30 *Qiang* captives and 30 cattle were offered to *Tang* (an ancestor) for his assistance to the Shang king (Keightley, 2012:67[40]). On another occasion, 10 *Qiang* captives were offered to *qi* (an unspecified deity) for his assistance (Keightley, 2012:67[41A]). These inscriptions provide the first textual accounts of sacrificial ceremonies in early Bronze Age China, and have provided a unique glimpse into the different methods of killing sacrificial victims during this time.

Moreover, the archaeological record has corroborated the historical accuracy of many of these accounts. Extensive excavations of the site have revealed an intricate internal structure of the city consisting of numerous lineage-based residential neighbourhoods and workshops that encase a palace-temple complex (present day *Xiaotun* 小屯) in the center (IA CASS, 2003; Keightley, 1999; Tang, 2004). Across the river to the north is the royal cemetery (present day *Xibeigan* 西北岡) where royal burials and thousands of sacrificial pits containing both human and animal victims were found (IA CASS, 1994; Liu and Chen, 2012). This study focuses on the human sacrificial victims found in the royal cemetery.

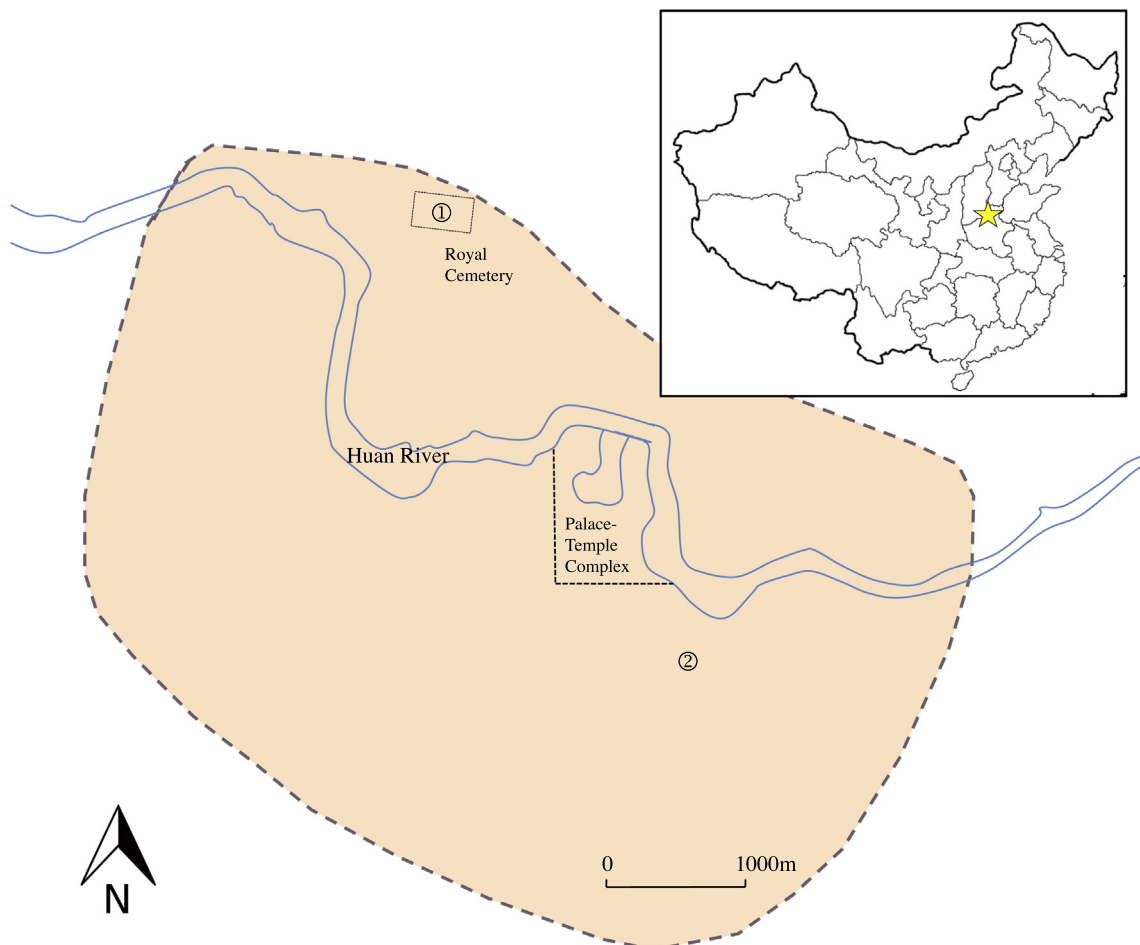


Fig. 1. Map of archaeological site of *Yinxu*: ① royal cemetery; ② residential neighbourhood *Xin'an Zhuang* (XAZ).

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