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Divination and Power: A Multi-regional View of the Development of Oracle Bone  
Divination in Early China<sup>1</sup>

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## **Abstract**

*Divination is a form of ritual practice frequently employed as an important source of social and political power. Elaborate forms of divination can be crucial to state control, and the power of elaborated divining techniques has widespread influence. In ancient China, as elsewhere, divination was the domain of ritual specialists who used their skills to mediate uncertainty, but the role that these specialists played in society differed considerably from one place to another. Using divination remains from the Neolithic, Shang and Zhou periods of China, the relationship between divination elaboration and power is examined. The paper proposes that more elaborate divination procedures are associated with bureaucratic institutions as a source of state power, whereas other contexts involve more heterogeneous divination practices. A survey of consecutive periods of the Chinese Neolithic and Bronze Age demonstrates such a relationship between elaboration and state control of divination.*

## **Keywords**

Archaeology, China, Divination, Ritual Specialization

## 1. Divination, Power and Knowledge

Divination, “the fortelling of future events or discovery of what is hidden or obscure by supernatural or magical means,” is extremely widespread as a general category of activity, possibly even universal. Divining practices are a part of the “quest for certainty in an uncertain world” (Fiskesjö 2001:155) and used in various forms to help order experience and mediate the unexplained or unexplainable. Divination is also a crucial component of the ideological system that comprises “ideas, strategies, tactics and practical symbols for promoting, perpetuating or changing a social and cultural order” (Friedrich 1989:301). As an important component of ideological practice, divination acts as one means by which authority is legitimized and maintained (Baines and Yoffee 2000; Demarest 1989) and contributes to a source of social power that can be operationalized at different levels within a social system (DeMarrias et al. 1996; Mann 1986).

A significant way that divination relates to the connection between ideological practice and social power concerns the degree to which social status may be based on the restriction of access to certain categories of knowledge (Blanton et al. 1996; DeMarrais et al. 1996; Fried 1967:26; Giddens 1979:188; Inomata 2001:332; Lindstrom 1984; Spielmann 1998). Individuals and groups restrict access to knowledge through the development of or dependence on practical mastery over specific procedures, which become crucial sources of authority (Tedlock 2001:195; Bourdieu 1977:4). The impact of this practical mastery is often strengthened further by these same individuals glorifying the potency and significance of the producers in public discourse. Divination practices employed as sources of authority demonstrate practical mastery through the elaboration of specialized procedures.

There is a great deal of potential variability in the relationship between specialized procedures and social power in the practice of divination. Where the practical mastery involved in divination is codified and institutionalized, ritual specialists control a body of knowledge and a social status that may be monopolized by elites and employed as a source of authority and legitimacy. Alternatively, specialist diviners may act outside formal hierarchical structures offering a distinct realm of information and power that is separate from established social institutions. Specialist diviners as ritual specialists thus take on a variety of roles similar to craft specialists in complex societies (Flad and Hruby 2007; Hruby 2007; Spielmann 1998).

Ritual specialists, like other craft specialists, can be subdivided according to the nature of their relationship with those who control the alienation of the product of their labor (Clark 1995; Costin 1991; Flad 2004; Inomata 2001). Independent specialists control their own products whereas other contexts may involve a wide variety of relations between producers and those who control the product. The “product” (or more appropriately “service”) of a specialist diviner concerns the ability to "bring to light and so dispel the quarrels and grudges in the social group" (Turner 1975: 475) and to mediate uncertainty in general. This service, therefore, is inherently a social act that plays a critical role in assuring that society can continue to function.

Specialist diviners fulfill this social role through both individual and group-oriented practices. In cases where divinations involve one-on-one “negotiations” with other individuals, diviners act independently, and the social impact of divination works at the level of individual or small group interactions. When divination takes place on behalf of a group a larger degree of social manipulation and political acumen is involved.

Divination of this sort is never independent of existing social norms and structures, and in strongly hierarchical societies it is often tied to or even commissioned by social leaders or elites. When diviners are formally “attached” to elites, the control over the results of divination is restricted and the political influence of divination can be substantial.

Divination thus involves highly charged social and political acts. As such, whether they practice their craft independently or in a more socially embedded form, diviners restrict access to their procedures.

One method by which diviners restrict access to their specialized field is through structured elaboration of the divination process. Consequently, divination procedures are made more elaborate and codified in cases where divination is closely tied to state-based structures of authority. This is because it is only in relatively centralized and bureaucratized contexts that standardized versions of elaborate procedures can be adopted by diviners with any degree of consistency. In contrast, divination that is not closely associated with state power should be adapted to local concerns through negotiation. In such cases, the coexistence of broadly similar divination practices would reflect processes of adoption and adaption in areas where diviners are relatively independent or where they fulfill socially integrating roles within a heterarchical social structure. Similarly, in cases where centralized bureaucratic processes are not tightly connected to divination practices elaborate procedures need not exist, and will likely not be codified. Furthermore, on the social peripheries of centralized societies where divination is critical to state institutions, practitioners might not adhere to (or even completely understand) the suite of elaborate procedures developed by “state diviners.” Due to these associations, we would expect that a systematic elaboration of divination procedures observed archaeologically would

occur only in contexts associated with bureaucratic institutions when divination was a critical source of state power whereas other contexts would comprise more heterogeneous divination practices.

We observe these proposed patterns both ethnographically and archaeologically in the case of pyromantic divination practices in East and Northeast Asia – one example of a divination procedure that persisted over a long period of time, spread across a large area, and for which there is evidence that both more and less elaborate forms existed. For this type of divination we have several ethnographic case studies that bear out the proposed associations. The ethnographic cases demonstrate that the proposed associations are, in fact, observed and observable in certain contexts. Furthermore, extensive archaeological evidence from after 3500 BC<sup>2</sup> during the Chinese Neolithic and continuing through the Bronze Age (starting ca. 2000 BC) exhibits a similar relationship between standardized and elaborate divination practices and specialist practitioners who were linked to state institutions. The observed patterns allow us to establish that divination was a crucial source of state power during a specific period (the late Shang Dynasty ca. 1250-1046 BC<sup>3</sup>) and, equally interestingly, they show that this same sort of divination was not a static practice, but in fact was widely varied both chronologically and geographically throughout prehistoric and early historic periods in China.

## 2. Ethnographic Accounts of Pyro-osteomancy

“Osteomancy” is a widespread divination practice that uses animal bones to predict the future or explain the unexplainable<sup>4</sup>. Animal bones are considered an efficacious medium for augury due to the significant roles that certain animals play in

human ideological and economic systems. The animals involved tend to be those that inhabit critical economic and / or ideological positions in the associated society (Fiskešjö 2001; Yuan and Flad 2005). Their bones are interpreted either in their natural state or after being burned or subjected to some other form of alteration. “Apyromantic” animal-bone divination<sup>5</sup> involves bones that have been stripped of their meat but not burned. “Pyro-osteomantic” divination, of principal interest here, involves the interpretation of cracking of a bone that is heated. Pyro-osteomancy primarily involves the use of animal shoulder blades (deer, sheep, cattle, and pigs) – otherwise known as pyro-scapulimancy, and plastrons of turtles – referred to as pyro-plastrumancy<sup>6</sup>, although other bones are sometimes used.

Ethnographic accounts of pyro-osteomancy provide a window into understanding the various ideological and social systems associated with this practice. The practice is known primarily from ethnographic contexts spread across the northern latitudes of Eurasia and North America. Several have been discussed in detail by modern or recent historic ethnographers, and these descriptions demonstrate an apparent relationship between the elaboration of pyro-osteomantic procedures and the role this practice played in the associated social power structure.

For example, one classic example of pyromantic divination from descriptions of the indigenous Siberian group known as the Reindeer Chukchee as recorded by Vladimir Germanovich Bogoraz-Tan (1975:487) describes a relatively simple procedure administered by an independent specialist diviner:

"The Reindeer Chukchee use for divination only the shoulder-blade of the domesticated reindeer. The animal, in most cases, is



killed for this particular purpose... The bone is taken raw, and the meat carefully cleaned from it. Then a small piece of burning coal is kept close to its centre. It is fanned, by means of blowing or light swinging, till the bone is carbonized, and gives the first crack.

After the performance, the burned place is immediately broken through and reduced to crumbs, but the bone itself is added to the common kitchen-stock used for trying tallow... Usually one vertical crack is formed, with various ramifications above and below...”

Accounts of Mongolian scapulimancy (divination using scapulae) generally parallel this description and describe a procedure that was both specialized and open to flexible interpretation and idiosyncratic variability. For example, early 20<sup>th</sup> century Mongolian divination manuals discuss the interpretation of unscorched shoulder blades of sheep and pyromantic divination, including the scorching ceremony and interpretation of cracks (Bawden 1959). The ceremony involves washing and purifying the bone, incantations ranging from general topics to specific questions, and the placing of the bone in a fire (Bawden 1959:120; Ling 1934:136). Interpretation was the topic of the divination manual. Cracks on different parts of the bone portend different fates, and when outcomes are negative, the manual suggests appropriate remedies, usually some form of recitation or ritual act. The color of the bone, and locations and directions of cracks, all of which are discussed in the manual, indicate the general content of the divination. Despite the impression that this manual provides an objective means for crack interpretation this is certainly not true. Diviners were specialists who were

recognized as such. Their interpretations were based on a shared belief system, but it was the ability of the individual to make sense of the signs, and to negotiate diviner-client relationships, that made her or him a respected medium for communication with the spirit world.

An account of turtle-shell pyromancy (i.e., “plastromancy”) in court Japan compiled by a Shinto scholar called Ban Nobutomo in approximately 1843 describes a generally similar process, but the additional care taken in the preparation of the bones and the more formalized procedure for reading the cracks reflect an intimate relationship between royal diviners and a bureaucratic system. These specialist diviners served their royal client as a significant component of his political and social power:

“The procedure... was to cut your turtle shell into a pentagonal form, and with your chisel to incise the figure known as *machi* on the back. You then lit a twig of *hahaka* wood, blew on it to make it red hot, and inserted the burning brand into the grooves, first down the vertical line and then along the horizontal ones. You went on doing this until there was a loud report, after which cracks of a particular pattern would be seen radiating from the crucial points of the figure. You then with your *samashidake* bamboos sprinkled water on the cracks, which you then, on the outer side of the shell, blacked with Indian ink so that they might be more easily visible... [The *machi*] comprises five crucial points from which cracks can radiate... The possible directions in which cracks can radiate...all...have names.” (Blacker 1981:67-68)

The reading of these cracks typically involved a dualism of positive and negative responses.

From these and other more recent ethnographic accounts<sup>7</sup> we not only know that this form of pyromancy persisted in East Asia until recently, but we also get a sense of the rigidly systematized protocols associated with court-based divination. These procedures fostered a coherent school of divination represented by the handbooks. The Mongolian and Chuckchee diviners both relied on procedures that allowed for a great deal more variability in the result. Even in the Mongolian case where handbooks were prepared, the room for interpretation by diviners was much broader. In contrast, Japanese court divination involved diviners who not only were recognized for their specialist positions but who also collectively agreed upon correct procedures for divination and most likely conducted divinations as a group. In such cases, “negotiation among diviners” (Winkelman and Peek 2004:19) would replace the negotiation between diviners and clients (Wilce 2001:193; Tedlock 2001:194) as the most significant factor affecting divination outcome.

Interpretation is critical to all known examples of divination. Critiques of the “system maintenance model” used by Omar Moore (1969) to explain Naskapi pyromancy and its function in caribou-hunt decision making, explain that divination is a social act “best described as a tool which is manipulated by individuals for multifarious reasons, adaptive or not” (Vollweiler and Sanchez 1983:206). Divination cannot be simply explained away as a randomizing behavior that serves an adaptive function. As components of popular religion and aids to everyday decision-making, divination procedures are more likely to vary substantially from one diviner to another. The

personality and charisma of the independent diviner is significant part of the effectiveness of their prognostications (Winkelman and Peek 2004:7). Consequently, the materials associated with independent divinations are highly variable from one context to another.

Contrastingly, divination that is institutionalized as part of state decision-making processes becomes systematic, standardized, and may incorporate elaborate procedures that serve to restrict the ability to divine “correctly” to those who share in a school of esoteric knowledge. Material correlates of state-sponsored divination should therefore be relatively more elaborate and standardized than those of popular divination. In ancient China we see that this fits the situation of oracle bone divination in the Late Shang period (ca. 1250-1046 BC) at Late Shang sites. But in those contexts we also see evidence that contemporaries of the Shang attempted to co-opt this source of power by adopting and adapting similar procedures (Flad n.d.). This resulted in a patchwork of varying divination practices across China during the Shang (ca. 1650-1046 BC) and Zhou (ca. 1046-256 BC) periods and the persistence of oracle bone use in peripheral regions long after it had mostly given way to other forms of divination in the “Central Plains” – a region of North China comprising the lower reaches of the Yellow River valley that is traditionally considered the core of Chinese civilization. The assemblage of oracle bones from Bronze Age China, therefore, provides a rich corpus of material which can be used to examine the emergence, consolidation, and dissemination of related divination procedures.

### 3. Oracle Bones in Ancient China: Archaeological Evidence

More than a century has passed since, as the story goes, Wang Yirong (1845-1900) identified the scratchings on so-called “dragon bones” to be remnants of China’s earliest known writing. The association of this writing with divination caused these artifacts to be called “oracle bones,” large caches of which were discovered at Yinxu, the late Shang Dynasty capital near Anyang, Henan, during Academia Sinica excavations in the late 1920s and early 1930s (Li 1977, FIG. 1<sup>8</sup>). In the subsequent 70+ years, huge strides have been made in the decipherment of oracle bone inscriptions. Although the origins of Chinese writing are still a topic of intense debate (Bagley 2004; Boltz 2001; Bottéro 2004; Keightley 1989, 2006; Li et al. 2003; Venture 2002a, 2002b), this research has demonstrated: 1) how the script developed over time, 2) the structure of the written language, and 3) the variety of topics about which the Shang divined (Keightley 1978, 1988, 1997, 2000; Qiu 2000). The inscriptions demonstrate beyond a doubt that pyromantic divination at Yinxu (ca. 1250-1046 BC) was focused on mitigating uncertainty, it was intimately tied to the Shang court, and the King acted as the chief diviner in the latest period. Late Shang divination was a crucial source of power for the Shang royal house – acting as a legitimizing activity and placing the Shang king and his diviners in a position of unassailable authority as those with control over the unknown (Keightley 1988).

According to traditional historiography the Shang state emerged in the Central Plains as the second in a succession of three dynastic houses: the Xia, Shang, and Zhou. The “oracle bone” inscriptions mentioned above are the earliest corpus of contemporaneous historical documents, however, and the historicity of the pre-Yinxu phases of the Shang (i.e., pre-ca. 1250 BC) and of the Xia are still a topic of debate.

Nevertheless, archaeological studies of sites throughout the Central Plains have demonstrated the existence of highly politically complex societies in this region from the third millennium BC. Some of these societies, including those associated with the site of Erlitou and the pre-Yinxu sites associated with Shang culture, may have been incorporated into a state (Bagley 1999; Liu 2005; Liu and Chen 2003). By the time of the Shang finds around Anyang, the Shang state entered the historical era.

Oracle bone scholarship has concentrated on divination in the Shang core due to the copious oracle bone finds around Anyang (Liu 1997). Inscriptions have received the most attention with less paid to uninscribed oracle bones within or outside this core region even though they comprise over 90% of known specimens (Song 1999:392). A few studies have examined the shapes and production techniques of divination marks on Anyang oracle bones (Hsü 1973, 1979; ZSKKY 1983; Yu 1981), and there have been some discussions of oracle bone evidence from regions outside the Shang core (eg. Jiang 2005; Lee 1981a, b, c; Luo 1988; LSWG 1989; Zhang 1996; Zhu and Shi 2001), but the most comprehensive attempts to examine the geographic and chronological breadth of this tradition in East Asia are quite out of date (Liu 1984; Yan 1978; but see Venture 2002a:192-217 for a recent treatment). More importantly, little effort has focused on how archaeological remains of divination might relate to the social structure of associated communities and the processes whereby this tradition obtained widespread and long-lasting efficacy (Araki 1999).

When considered broadly, the archaeological remains of oracle bone divination in East Asia show diachronic and spatial patterns that are consistent with the expectation that elaborate and standardized divination practices be associated with official, state-

sponsored augury. Lee (1981a, b, c), Liu (1984), Yan (1978) and others (see Keightley 1978:3, nn. 3, 16, 23-26) have summarized finds through the early 1980s. Here I supplement these discussions with recent discoveries and outline the pattern of development in this practice over several millennia.

### 3.1. Neolithic – Chalcolithic

The earliest remains of pyromantic divination is a scapula of either a sheep or small deer from Fuhegoumen in Balin Left Banner, Inner Mongolia<sup>9</sup> (ZSKYNG 1964; FIG. 2A). This scapula has numerous intentional burn marks on its distal blade and, based on a single sample of carbonized birch bark from a contemporaneous feature (F30), dates to  $3321 \pm 179$  calBC (see Table 2)<sup>10</sup>. This is one of several examples of late Neolithic scapulimancy from China's Northern Zone. Others come from Zhaizita in Jungar Banner, Inner Mongolia and Fujiamen in Wushan, Gansu, further to the west (NWKY 1997; Venture 2002a:196; 2002b). Further south, a sheep scapula oracle bone was discovered at Xiawanggang, in Xichuan, Henan from late Yangshao contexts<sup>11</sup> (HSWY and CLGBKHF 1989: 200). Despite these few early examples, pyromancy really takes hold in the later half of the third millennium BC. During this period changes in burial practices, building techniques, site size, settlement patterns, production practices, personal ornamentation and the beginning of bronze use all suggest widespread transitions to organizationally-complex social groups during the increasingly interactive Longshanoid horizon (Chang 1986; Liu Li 1996, 2005; Shao 2000; Underhill 1992, 1996, 1997).

### 3.1.2. Longshan

Scapulimancy remains identified at Longshan sites fit expected pattern for *ad hoc* divination by independent, itinerant diviners such as those documented among the Chuckchee. Among the Longshanoid contexts in which oracle bones have been found, those from Kangjia in Lintong, Shaanxi are representative. Excavations over two seasons recovered at least 20 deer, pig, and sheep scapulae used in pyromancy from Longshan deposits predating 2700 BC (Table 2; SSKYKK 1988:226, 1992:22). These oracle bones are therefore relatively early in the Longshan horizon, but they share the general characteristics of the bulk of Longshan oracle bones from the latter half of the third millennium. Divination marks were burned directly onto the natural surface of the scapulae (FIG. 2B). Bone surfaces were not pretreated and no drill holes or chisel marks were made prior to burning, as was the custom in later forms of divination described below. Divination marks are scattered haphazardly on the bones without any apparent spatial order.

Other Longshanoid contexts have similar oracle bone remains including sites as widely dispersed as Yangtouwua, in Dalian, Liaoning (ca. 2500 BC), late Longshan sites in Hebei including Dachengshan in Tangshan, Xiapanwang in Ci Xian, Jiangoucun in Handan, Taikoucun in Yongnian, and Caoyanzhuang in Xingtai, and the Shandong sites of Chengziya in Licheng and Xinzhongji in Cao Xian (Lee 1981a:47-51). Recent excavations provide similar examples from the late phase at Yangbai in Wutai County, Shanxi, (ca. 2000 BC, see Table 2; SDLKZ et al. 1997:342), Taosi in Xiangfen, Shanxi (ZSKYS and SLXW 2003), Shangpo in Xiping, Henan (HSWKY et al. 2004:303), the Siba Culture (ca. 1900-1500 BC) site of Donghuishan in Minle County, and the Qijia



Culture (ca. 2200-1800 BC,) site of Dahezhuang in Yongjing, Gansu in ca. 1900 BC strata (Table 2) (GSWKY and JDK 1995: 1062; ZKKYGG 1974), and Longshan strata at Xiawanggang, previously mentioned as the source of a possible Yangshao era oracle bone (HSWY and CLGBKHF 1989: 263). The most complete is the blade of a pig scapulae from Xiawanggang (T15(3): 42) marked by at least seven scattered divination marks (FIG. 2C). The oracle bones from these sites are scapulae of cattle, pig, sheep, and deer that all were burned directly without pretreatment.

The Longshan period scapulimantic remains listed here fit the expected pattern for *ad hoc*, independent divination. Subsequently, as bronze using societies coalesced into larger and more integrated groups during the second millennium, the role of divination started to take on greater social, and particularly political, importance. During this “Bronze Age” we see a gradual shift toward elaborate, systematic, standardized divination practices.

### 3.2. Early Bronze Age

EBA scapulimancy developed patterns begun in the Longshan period. While other lines of evidence suggest that political complexity increases significantly at this time, the emergence of elaborate divination procedures is gradual and haphazard. Trends towards elaboration become most pronounced in the Central Plains, but the earliest sites to contain oracle bones with noteworthy pretreatment are associated with the Lower Xiajiadian Culture (ca. 2000 –1500 BC) in the Northeast – the same region where the earliest oracle bones were found (Lee 1981b; Venture 2002a:197). Several Lower Xiajiadian sites in Inner Mongolia, including Nanshangeng in Ningcheng, and

Zhizhushan, Lewangmiao and Xiajiadian itself in Chifeng, include pig scapulae and other pyromancy bones (Lee 1981b:41-46). Diviners drilled hollows into the bones prior to burning to facilitate cracking and make it more predictable. Likewise, excavations in 1996 at Dashanqian, Harqin Banner, Inner Mongolia, recovered “a few” oracle bones from Lower Xiajiadian contexts all of which were drilled before burning (ZSKY et al. 1998:816). One example is a scapula shaft that included 37 densely crowded drill-holes of different sizes (FIG. 3A).

Whereas such manipulation of the divination medium occurred first in Lower Xiajiadian Culture communities, diviners at relatively contemporaneous Erlitou Culture (ca. 1900-1500 BC) sites of the Central Plains only gradually and erratically adopted similar procedures. Erlitou diviners mainly continued the Longshan tradition of scapulimancy without pre-treatment. Eventually, however, the drilling of divination hollows took hold at sites within the Central Plains. Oracle bones from Erlitou contexts at various sites represent the general pattern of diachronic change in this practice.

For example, at Erlitou itself, located in Yanshi, Henan, divination persisted in the Longshan tradition throughout the EBA, although it was not a static practice. During the first of four Erlitou Culture phases (ca. 1900-1700 BC<sup>12</sup>) oracle bones include cattle, sheep, and pig scapulae (ZSKY 1999:387, 2003:70). These are burned on the flat, medial surface with circular and oval marks of various sizes. No examples from this phase were drilled or chiseled before burning. In Phase II (1700-1610 BC), during which house sizes became more differentiated, rammed earth construction began, and bronze casting took hold, the deposits contain relatively more oracle bones including cattle, sheep, and pig scapulae (ZSKY 1999:121). These were still burned directly and not drilled or chiseled.

On excavated examples, the marks are all on the medial side of the blade and variable in size and shape. Phase III (1610-1550 BC) at the site sees the emergence of palaces, three sizes of houses, and three sizes of tombs, all of which indicate a substantial increase in the social stratification at the site during this era (Ibid.: 238-239). Many archaeologists argue that a state society had developed by this point, if not earlier (Liu Li 2005; Liu and Chen 2003). The number of oracle bones increases again although most specimens are fragmentary. They once again comprise cattle, pig and sheep and are burned directly on the scapulae medial surfaces. No drilling or chiseling is seen on these bones.

Finally, in Erlitou Phase IV (1550-1450 BC), levels contain large palaces, medium and small tombs, and kilns, and oracle bones remain similar to the previous periods. Diviners used cattle, sheep, and pig scapulae, burned the bones directly without pretreatment, and were inconsistent and unsystematic in the placement, size and shape of divination marks. Even the latest oracle bones from the site, which come from Lower Erligang levels of the subsequent early Shang era, continue the same general patterns. Scapulimancy at Erlitou does not seem to have been a significant state-sponsored activity despite the fact that many lines of evidence support the existence of a highly politically-complex society at the site.

Several sites show variability in Erlitou Culture divination. Xiawanggang, for example, yielded a single oracle bone in Erlitou levels, a pig scapula (H245:2) that is burned directly without pretreatment (HSWY and CLGBKHF 1989: 306). Similar heterogeneity is found at Xiaozhao in Yuanqu, Shanxi (ZSKYSG 2001:222) and Shaocai in Gong Xian, Henan (HSWY 1993b:21) where several cattle scapulae fragments in the Erlitou III contexts were drilled prior to burning – evidence of an increased level of

elaboration and labor investment in the divining procedures practiced at this time (FIG. 3B). Diviners elsewhere in the vicinity of Yanshi (i.e., near Erlitou) also began to pretreat oracle bones prior to burning during the Erlitou period. For example, at another site in Yuanqu named Gucheng, Erlitou levels contain a variety of oracle bones including some pretreated specimens (ZLBK et al. 1996:153; ZLBK and SSKY 1997a:15).

Further afield, heterogeneity continues to reign, with initial steps toward more complex pretreatment. To the west, the transition during the Erlitou period toward increasing use of pretreatment is observed in a four phase sequence at Dongxiafeng Xia Xian (ZSKY et al. 1988:28, 49, 147), for example, while to the east, the contemporaneous Yueshi Culture (ca. 2000-1600 BC) site of Shijia in Huantai County contains only unmodified sheep scapulae (ZSW et al. 1997). Further north, Erlitou period levels at the site of Zhukaigou in Ejin Horo Banner of central Inner Mongolia include a significant number and unusual variety of oracle bones (Table 2; Huang Yunping 1996; Linduff 1995; NWKY 1988; ZSKY 1991: 60). The 51 total divination bones not only include scapulae of the ubiquitous cattle (32), deer (11), pig (4), and sheep (2), but also a camel and bear scapula. Some were pretreated with both their spines removed and drills bored before burning. The next chronological phase of the Bronze Age, the Shang, saw a more frequent, but not universal, adoption of more complex divination procedures.

### 3.3. Shang

By the end of the Shang, most oracle bones were pretreated through systematic, highly standardized processes. Cattle bones also increasingly became the main medium for divination, and eventually were joined by turtle shell bones as the most common types

of oracle bones. The changes are seen to different degrees at sites throughout the Central Plains, whereas sites in other regions show other patterns of chronological change.

### 3.3.1. Early - Middle Shang

Early to Middle Shang sites include pretreated oracle bones but little standardization of divination processes. At the Shang walled site at Yanshi (Yanshi Shangcheng), located just to the northeast of Erlitou, for example, we find only traces of more elaborate divination procedures in early Shang remains. The site dates to ca. 1600-1400 BC (ZSKY 2003:218), its earlier remains overlapping with phases III and IV of Erlitou, and it contains numerous oracle bones – mostly sheep scapulae that were burned directly and not pretreated (ZSKYLHWGG 1984; ZSKYHDEG 1995). A few pretreated cattle scapulae have also been found at the site, however (ZSKYHDEG 1999).

In contrast, excavations in the city of Zhengzhou show clearer evidence of increasing use of cattle bones and increasing elaboration in the remains from Erligang, the type-site for the early Shang Culture. At Erligang, cattle scapulae are the most common type of divination bones, although pig and sheep scapulae are also used, as are a few deer and dog scapulae, cattle limb bones, and turtle shell bones (HSWWG 1959:37). In the Lower Erligang phase (ca. 1510-1425 BC), sheep, pig, deer, and dog oracle bones are found and they usually not pretreated – similar to several of the Erlitou Culture sites mentioned above (HSWKY 2001:175; 2003:11). This pattern is consistent at many localities in the Zhengzhou area. Examples from around Zhengzhou include, the oracle bones from the pre-Erligang Late Luodamiao Culture (ca. 1680-1510 BC), and the slightly later Lower Erligang Phase at Huanweihui Qingniangongyu (HSWY 1993c:207,

214), the Lower Erligang levels at the Huimin Zhongxue site (HSWY 1993a:115), the Erligang site itself (HSWWG 1959:37), the “Family Residences of the Henan Academy of Chinese Medicine” site (HSWY 1993a:131), and recent excavations of Lower and Upper Erligang contexts at the Minggong Ludong site (ZSWKY 2002:819, 823).

The voluminous report on these sites (HSWKY 2001) demonstrates that some oracle bones were already being pretreated during early phases of activity in the Zhengzhou region. For example, a cattle scapula fragment at Nanguanwai in levels dating to the Luodamiao Culture (1680-1510 BC) was split and drilled before use (ZSWKY 2002:136; FIG. 4A). A contemporary turtle plastron oracle bone (C5T85(4):123) – one of the earliest examples of turtle bones being used in pyromantic divination – was not altered or drilled before burning. The Nanguanwai locus in Zhengzhou contains the largest collection of oracle bones from any site in the region. Lower Erligang contexts included 106 specimens and Upper Erligang had 111. Most oracle bones from the Lower Erligang Phase are unmodified bones, although a few modified bones were used as well (ZSWKY 2002:681-682). Upper Erligang oracle bones from the same site include many more specimens that were both flattened and drilled prior to burning (Ibid.:834-836). Scapulae from cattle, pig, sheep, and deer were used. Most cattle scapulae were drilled prior to burning whereas the vast majority of the bones from other taxa were burned directly. In contrast, the 37 turtle plastron fragments used for divination were all drilled prior to burning. The discovery of a bronze drill at Erligang provides the earliest evidence of tools used in the pretreatment process (HSWWG 1959:37; Lee 1982b:51; Liu 1984:263). The drill marks on the cattle scapulae and turtle plastrons from this phase all had single, circular drill holes that could have been made by such a drill.

During the next period, the “People’s Park Phase” (ca. 1300-1200 BC), a new technique of hollow construction was introduced. In addition to the continued presence of split cattle scapulae with circular drilled hollows (HSWKY 2001:926, 948), we see examples at the Mingong Ludong site of turtle shell fragments (one plastron and one carapace) that have been marked with parallel rows of “double divination marks” (FIG 4B; ZSWKE 2002:827). Similarly modified turtle plastrons were discovered at the People’s Park site itself (HSWKY 2001:926). The double marks comprise a shallow, circular, drilled (or chiseled) hollow and a long, deep chiseled groove attached to the side of the hollow. During divination, the shallow hollow would be burned and this would cause a crack along the length of the chiseled groove and a second crack extending underneath the circular hollow in a 卜 shape. The “double divination mark” pretreatment method in various forms became the standard pretreatment procedure for oracle bones in the late Shang. Its occurrence in the People’s Park Phase in Zhengzhou might mark a transition in the significance of divination. I suggest that the procedural changes reflect divination becoming more significantly entwined in Shang politics as a substantial source of power for the ruling elite at this time.

It did not change everywhere or instantaneously, however. Oracle bones discovered at the “Baijiazhuang Culture Phase” (ca. 1400-1250 BC) Shang site of Xiaoshuangqiao just northwest of Zhengzhou comprise fragments of sheep scapulae, most of which were not pretreated (HSWKY et al. 1996:50), although one specimen (90ZSX:150) may have had holes drilled before burning (HSWY 1993d:248). Similar patterns at Fucheng in Jiaozuo, Henan demonstrate a high degree of variability in divination at this time (Yuan and Qin 2000:532).

There appears to be some correlation at this time between animal taxa and pretreatment procedures. At sites like Shaocai the cattle scapulae were extensively modified while sheep scapulae were not (HSWY 1993b:40). This pattern suggests that although cattle scapulae were more difficult to burn due to their robusticity, their importance in rituals and sacrifice demanded the extra effort in order to use their bones in divination rituals. The elaboration invested in divination using cattle bones marked the beginnings of an important distinction within the practice of pyromantic divination. During the early Shang period, cattle bones, which were pretreated in a particular way, may have been accorded a higher status and been the purview of a particular group of diviners, or at least used for different divination purposes. At Shaocai in level II (the earliest phase at the site that includes oracle bones) cattle scapulae fragments were not pretreated, but subsequently distinctions in the pretreatment process of different divination media emerged during Erlitou III phase and into the Lower Erligang period.

Other sites outside of Zhengzhou verify these patterns although a great deal of variability existed during the Lower Erligang Phase. The Quliang site in Xinmi, Henan, for example, has evidence of heterogeneous divination practices with incipient elaboration (BDKWX 2003). Likewise, further to the west and north, the Lower and Upper Erligang levels at Gucheng in Yuanqu demonstrate similar trends (ZLBK et al. 1996:204-205, 241-242; ZLBK and SSKY 1997a:24-26, 1997b). Nearby Dongyin in Xia Xian, Shanxi, also contains modified cattle scapulae oracle bones in Upper Erligang contexts with circular drilled hollows of varying size and depth (SSKY and XXB 2001), more evidence of the general trend.



### 3.3.2. Other regions during the Early – Middle Shang era

Sites outside the Central Plains further show that divination was heterogeneous throughout this period in other regions as well despite the trend towards elaboration. To the north in Hebei, several sites from the Early Shang period contain oracle bones including: 1) Beiyingtai in Handan, with seven early Shang cattle and pig scapulae fragments (HSWY et al. 2001: 141); 2) Gejiazhuang in Xingtai, with Erligang period drilled cattle scapulae (HSWY 2000: 981); and 3) Taixi in Gaocheng, with a high degree of variability among 494 oracle bones (mostly cattle, pig, and turtle) from Erligang era pits and burials (HSWY 1985; Li and Tang 1982).

To the west, in Yao Xian, Shaanxi oracle bones at Beicun in early Shang levels are cattle scapulae fragments that have been cut in half through the shaft, polished and drilled before burning. The hollows are circular with rounded bases and without attendant chisel marks (SSKYSZS and BDKSZS 1988:14). Far to the south, the important Erligang phase walled site at Panlongcheng in Huangpi, Hubei, contains several drilled cattle scapulae in Period V and VII<sup>13</sup> contexts at the site (HSWKY 2001:135, 296). Some are found in pits and others in more peculiar contexts, such as the specimen PWZT82H7:13 found inside a bronze jue vessel. These specimens fit the Upper Erligang pattern but, as Venture (2002a:199) has pointed out, the small number of oracle bones found at the site suggests strongly that pyromantic divination did not play a significant role in the power exerted by the expansive Shang state during the Erligang period.

The heterogeneity in media and practice exhibited by the oracle bones from the early Shang era suggest that pyro-osteomantic divination was not yet a particularly

important source of power of the Shang rulers at this time. It was only in the subsequent late Shang era where this practice became a critical component of Shang political activity.

### 3.4.3. Late Shang

In the late Shang era, oracle bones discovered in the Central Plains are the medium for a systematized, state-controlled divination procedure involving primarily scapulae of domesticated cattle and plastrons of turtles. Other taxa used previously were no longer employed. Neglected taxa include animals such as deer that continued to be captured in large numbers by Shang hunters, sometimes in highly politicized and ritualized contexts (Fiskesjö 2001:153). Turtle bones in particular became an increasingly significant medium, and inscriptions document the transportation of turtle bones to the Shang core from affiliated polities as an important form of tribute (Chang 1975:217, 1980:236; Hu 1977:35).

Divination using oracle bones at this point became a crucial source of social power for the Shang royalty. The vast majority of oracle bones from this period come from the sites in and around the city of Anyang. During this period the “double divination mark” style of hollows was firmly institutionalized (FIG. 4C). Double hollows are found on the vast majority of oracle bones at Anyang, including those with inscriptions. The hollows involved a deep elongated groove that has pointed ends during the earliest period, which became more oval in later periods (Hsü 1973, 1979). In many cases the groove was accompanied by a circular or fingernail shaped hollow on its shoulder. This “attendant hollow” is drilled in some cases, chiseled in others, and often

the result of chipping or flaking away of the bone in an area that was burned directly, without any preparation of a hollow. The double hollow principle pervades the late Shang era and marks a systematic and standardized procedure that should be the result of an institutionalized and politically charged activity (Liu 1997). This procedure was used by diviners employed by the royal court, many of whom were named on oracle bone inscriptions (Jao 1959).

Not all divination at Anyang and other Shang sites was the strict purview of the king and his entourage, however. Venture (2002a:203-208) identifies three categories of individuals involved in divination using oracle bones: the group of named diviners associated with the king; diviners who worked with or for the nobles; and those who served the popular needs for prognostications. Archaeologically, this difference is manifest not only in the presence or absence of inscriptions, but also in the degree of elaboration involved in the preparation of the bones. Whereas divination bones used in the Shang court or by royal diviners were carefully thinned and polished and included symmetrical lines of paired divination hollows and attendant chisel marks, divination bones used by nobles, and presumably those used by diviners attending to the needs of the public, were less carefully prepared. Examples of oracle bones associated with “popular” divination include those with rudimentary preparation found outside of the palace areas at Xiaotun perhaps including those discovered in association with the bronze production foundry at Miaopu locus North (Liu 1997:60), although since bronze production was likely attached to the royal house, the foundry divination may not have been “popular” in orientation (Venture 2002a:207).

The co-existence of multiple ritual systems, or multiple versions of a ritual system, in a single society and their association with different social strata is not unique to this context. Historical examples abound and archaeological examples are known as well. For instance, in the late Classic Naco valley of southern Mesoamerica at least two systems coexisted and were linked to different status groups (Urban and Schortman 1999: 135). One developed locally over a long period of time while a second, more elaborate cult was different in kind and scale from the first and seems to have been monopolized by those in power. The “control over these religious practices may have helped legitimize claims to political preeminence by one faction in the ... polity” (Urban and Schortman 1999: 136). A similar argument can be made for the use of oracle bone divination at Yinxu. A codified version of the practice was one component of an elaborate ritual system that expressed the exclusiveness of the Shang elite world and their monopoly of an important form of ritual knowledge.

#### 3.4.4. Other Late Shang sites

Yinxu was by no means the only late Shang era site with oracle bones among its contents. Several sites in modern Shandong contain contemporary oracle bones. The site of Daxinzhuang in Ji'nan, for example, has one of the most significant Shang period collections outside of Anyang (SDLKZ et al. 1995; SDL 1995). Specimens were discovered in all phases of activity, and the chronological changes in the bones show strong similarities to the Shang core. These changes are worth repeating in detail because they are fairly representative of the general pattern during the Middle to Late part of the Shang era. The analysts separate the assemblage into five stages: I-V. In stage I only

mammal scapulae were used. These included deer, pig, and pig. The spine on the scapula was removed and small circular divination hollows were drilled. Oracle bone stage II has deer, sheep, and cattle scapulae used for divination. The scapulae were thinned and small and large circular hollows were drilled in the blade for divination purposes. Oracle bone stages I and II correspond with Phase I-III of the Shang remains at the site which, in turn, correspond to the Upper Erligang – pre-Yinxu phases of the Shang (i.e., ca 1425-1250 BC<sup>14</sup>).

Oracle bone stage III at Daxinzhuang is the first to include turtle bones – mostly plastrons but also some carapaces. Scapulae still dominate, however, and they are mostly from cattle. The drilled turtle bones also include chiseled attendant hollows on the edges of the drill marks. This documents a shift to a more elaborate preparation procedure that characterizes the peak of oracle bone divination during the Yinxu phase of the Shang. At Daxinzhuang, the Yinxu period remains are divided into four Phases (IV-VII). Oracle bone stage III is equivalent to Phase IV, and oracle bone stage IV corresponds to Phases V and VI. During stage IV, oracle bones made of turtle plastrons become most common. The other specimens are mostly cattle scapulae. The scapulae were painstakingly prepared – their spines were removed and the bones polished prior to divination. Large drill holes combined with chiseled hollows are found on all the divination bones. The chisel marks come in several different shapes. Only a very few examples have only a drill mark or only a chisel mark. The combination of the two is most common. The final stage of the sequence (V) corresponds to Daxinzhuang Shang Phase VII – the terminal Yinxu phase at the site. At this point almost all the oracle bones are turtle plastrons.

More of these contain only chisel marks than previously. Diviners no longer rigorously followed a systematic divination program as they seem to have done in earlier stages.

Elsewhere in the east, late Shang remains at Beiyinyangying in Nanjing (NB 1993), and Yijiacheng in Sishui (SDLKJ 1990) lack evidence of elaborate divination procedures. At Yinjiacheng, however, several specimens have combinations of three circular drill marks (FIG. 4D). Although one (T192(6): 17) is said to date to the Shang era and another to the Zhou (H171: 5) they are probably both Shang in date and the curious “triple drill mark” might be an example of an attempt to co-opt the Shang divination process by local diviners who were aware of but not trained in Shang court procedures.

On the other side of the Central Plains, several late Shang era sites in Shaanxi contain oracle bones that exhibit traits similar to those in Upper Erligang contexts. These include Beicun (SSKYSZS and BDKSZS 1988), Zhumazui in Liquan (BDKSZ and SSKY 2000), Lijiaya in Qingjian County (Zhang and Lu 1988:53), and Andi in Wugong (SSKY 1993:21). Only by the early Western Zhou did oracle bones in this region adopt some aspects of late Shang practice. The persistence of earlier traditions in Shaanxi suggests that divination was not as closely tied to emerging state apparatus as it was in the Central Plains.

In the south, the emergence of oracle bone divination involved creative adaptation of pyromantic practice. For example, at the site of Xianglushi, along the Qingjiang River near Yichang, Hubei, three levels contained collections of oracle bones (HSQGK 1995). The earliest, contemporary with the early Shang, is Level 6 containing three turtle plastron fragments with oval chisel marks containing chiseled lines (FIG. 4E; Table 2).

Second is Level 5, from the middle-late Shang period, containing thirteen oracle bones: twelve turtle shells and one fish operculum fragment. All have drill marks - some oval, some rectangular, and two specimens have chisel lines within the hollows parallel to their length. Finally, level 4 at the site is terminal Shang or Western Zhou in date (i.e., mid 11<sup>th</sup> century BC) and contained 17 excavated examples and 7 more similar specimens from the surface. Five are turtle bones while the other 19 are fish opercula. All are marked with rectangular hollows except one that has oval marks.

The ubiquity of fish oracle bones at this site is particularly interesting, although not unique to this site (Jiang 2005). Nevertheless, other sites in the Middle Yangzi, including Meihuaiqiao in Jiangling, Zhouliangyuqiao in Shashi, contain mostly turtle bones among the divination remains (He 1991). Similarly, turtle bones, primarily plastrons, are the main medium for pyromancy in the Chengdu region in Sichuan during the Shang and Zhou eras (Luo 1988). The earliest examples are Shang period remains from level 5 at Fangchijie in Chengdu associated with the Sanxingdui Culture (CSBK and CSWKY 2003).

In between the Middle Yangzi region around Xianglushi and the Upper Yangzi drainage sites near Chengdu lies the Three Gorges section of the Yangzi River, where additional Shang and Zhou period oracle bones have been discovered during the past decade. The site of Zhongba, a prehistoric salt production site in Zhong Xian County, Chongqing, contains the earliest evidence of pyromancy from this region (Chen 2004; Flad 2004, 2007; Flad et al. 2005; SSWKY and ZXWBG 2001; Sun 2003a, 2003b). The site's stratigraphy is divided into three phases: Phase I dates to approximately 2500-1750 BC, Phase II to ca. 1630-1210 BC, and Phase III to ca. 1100-200 BC (Flad 2005: 234;

Wu et al. Forthcoming). A small burned plastron fragment from Phase II is the earliest of these oracle bones, and they become more ubiquitous throughout Phase III, i.e., they are primarily Zhou period in date and therefore discussed further in the next section.

### 3.5. Zhou, Qin, and Han

The southern divination remains just mentioned support a point made by Li Ling (2000b:223), who comments that although the oracle bone finds dating to the Western Zhou (ca. 1046-771 BC) are not as numerous as those from the Shang, they are more widely spread and are found in the regions of all the historically important Zhou capitals and the various enfeoffed states (such as Jin, Yan and Chu), in addition to more peripheral regions (see also Li 1981). Many of the Western Zhou sites with oracle bones continue traditions that began during the Shang era, and in North China the hollows used for pyromantic divination retained the essential character of Shang specimens. For example, plastrons excavated at the site of Qijiacun in Fufeng County, Shaanxi in the Plain of Zhou, have hollows that were prepared in a similar fashion to those on Shang oracle bones from Yinxu<sup>15</sup>. They include both an elongated groove and a burn mark on the side of this groove. Likewise, dozens of divination plastrons at Liulihe near Beijing contain “double divination marks” (LK 1997:11; FIG. 5A). In these cases the chiseled grooves are narrow rectangles whereas the attendant hollows are also rectangular. The rectangular double-hollow form is directly developed from Yinxu-style divination marks. Three of the oracle bones at this site are inscribed, a trait that further demonstrates the similarity to late Shang oracle bone practices.



Other Liulihe examples have hollows that are representative of the most common form of standard Western Zhou marks – circular hollows of a standard size, around 1.2 cm in diameter, each containing a single chiseled line to facilitate bone cracking like specimen G11H33:1 (FIG. 5A; BDK and BSWY 1996:11). Other nearly identical specimens are found at sites near Luoyang in Henan (LSWG 1989) and Dongxianxian in Xingtai, Hebei (HSWY 2002:216).

Other Western Zhou sites, including Liutaizi in Jiyang, Shandong, include oracle bones with more diverse hollows (SSWKY 1996:21). Lee Hyeong Koo (1981a:42) has argued, following Shi Zhangru (Shih 1954), that oracle bone use is especially persistent along the east coast in the area associated with the historical ethnonym “Dongyi,” but it is clear, in fact, that oracle bone use persisted in both the Central Plains and various peripheral regions including southern Henan, at Xiawanggang (HSWY and CLGBKHF 1989:331), and to the northeast, in Upper Xiajiadian (ca. 1000-300 BC) contexts at Anzhangzi in Lingyuan, Liaoning (LSWKY 1996:209). The practice was widespread and still involved relatively elaborate procedures.

Some diviners remained attached to leaders of various states, but the manipulations initiated by the Shang were no longer uniform or ubiquitous even in these contexts. Zhou diviners seem to have been relying as much on the power associated with a past tradition as they were on the practical mastery involved in maintaining a monopoly on divining practices.

In general, the role of pyromancy during the Zhou became less prominent than other emerging forms of divination, such as the counting of yarrow sticks (Loewe 1981). There are no huge caches of oracle bones at Zhou sites that compare to the Shang

collections at Yinxi, but pyromantic divination in central Zhou states remained closely tied to political power as evidenced by elaborate bone preparation and limited variability in techniques. Zhou period pyromancy, at places like Luoyang for example, almost exclusively focused on turtles, with some regional exceptions (Venture 2002a: 213; Zhao 1985). The emphasis on turtles in the Yellow River valley continues a trend that started during the late Shang. This trend might relate to an increasingly robust body of symbolism surrounding the turtle relating to “longevity,” “strength,” and the prestige associated with older divination practices (Allan 1995; Li 2000b; Loewe 1981:46; 1988:87; Venture 2002a:216). Turtles were symbolically important and their plastrons were conducive to the structured and elaborate pyromantic traditions that had their roots in the Shang.

The prestige associated with plastronomy specifically, and pyro-osteomancy in general is further reflected in the increasing evidence for this practice in regions further removed from the Central Plains. Some of the larger collections of oracle bones from this period have been discovered at sites in Hubei, Chongqing, and Sichuan. In the Middle Yangzi River Valley (modern Hubei), oracle bones have been found at several sites including Jingnansi in Jiangling (JDB and BDK 1989: 690), Zhouliangyuqiao in Shashi (Peng Jinhua 1986), and other locales in the Xiangfan area including Maogoudong in Zaoyang (XSB 1988: 16), Xiaojialing in Yicheng, and Zhiwushan in Xiangfan (Zhang Changping 1996). The Zhou era oracle bones of the Xiangfan region included turtle plastrons with long, rectangular hollows with curved corners and incised lines on the hollow-bases as well as divination marks that consisted of primary and attendant hollows that were rectangular or square on pre-flattened areas of scapulae. These patterns show

obvious connections to the traditions of oracle bone divination that developed in the Yellow River valley.

Moving upriver along the Yangzi into the Three Gorges, several sites have oracle bones in Zhou period strata. The relatively small corpus of Zhou era oracle bones from the region come from sites such as Shimenzui and Lianyushan in Zigui (JDBKYZ and HSWKY 2004:432; ZKKYCSG 1961:233), Ganjinggou, in Zhong Xian (SCLWBWWK 1962: 417), and Maliutuo in Wuliang (FDK 2001: 144-145). At Maliutuo, one of the few late Bronze Age non-cemetery sites excavated in the region, excavations recovered “many” turtle plastrons and large fish opercula with divination marks<sup>16</sup>.

The largest collection comes from Zhongba, where over 180 oracle bones from this period have been unearthed (FIG. 6; SSWKY and ZXWBG 2001:601). The two published bones are both fragments of turtle plastrons, as are the majority of unpublished fragments (Flad 2004). These plastrons have a hollows of various shapes including rectangular marks with short incised grooves perpendicular to the length (FIG. 6A). At least one was a fish operculum fragment with a single chiseled hollow which complements other sites in the region with evidence of operculimancy, such as Xianglushi and Shimenzui (FIG. 5B; HSQ GK 1995:15; JDBKYZ and HSWKY 2004:445). Plausibly the use of fish may relate to the important role that fishing played in subsistence practices in the Three Gorges region (Flad 2005), however claims for a dominance of fish-bone divination is not supported by the data from either Zhongba or Maliutuo (*contra* Jiang 2005:59).

At Zhongba, most of the earlier specimens have divination marks that are circular in shape and seem to have been the result of burning directly onto the dorsal surface of

the plastron without the initial preparation of hollows. When hollows were pre-prepared they were circular and may have been formed either by drilling or chiseling.

Subsequently, starting in Phase III-3 (ca. 500-380 BC), thin, incised grooves are commonly found at the base of prepared hollows. At first the hollows with grooves are typically oval or circular. Then, in Phase III-4 and III-5 (380-310 BC and 310-200 BC respectively), the hollows tend to be rectangular in shape with incisions that are perpendicular to the long sides of the rectangles. By the end of the period of oracle bone use, it seems that the rectangular hollows were created in organized, parallel rows. There was not, however, a standard procedure followed in all, or even most cases.

Further west, in the upper Yangzi River drainage in the area around Chengdu, Zhou period oracle bones further demonstrate the idiosyncratic nature of Yangzi oracle bones relative to their counterparts in the regions of the Zhou states of the Yellow River Valley (Jiang 2005; Luo 1988; Zhang 1996). They also demonstrate diachronic developments in the associated divination procedures. Specimens from the sites of Fuqin xiaoqu, Jiangjun Yamen, Zhihuijie, Minshan Fandian, and Qingyanggong in Chengdu City show that the earliest oracle bones, contemporaneous with the late Shang, included circular hollows, some of which were drilled and others of which were chiseled into the bone (FIG. 7A). Later specimens have rectangular hollows within circular depressions (FIG. 7B) and rectangular hollows, within which single lines were incised to facilitate cracking (FIG. 7C). In other words, some oracle bones exhibit evidence of increasing elaboration. As is the case at Zhongba, however, the various types of preparation procedures were not systematically employed. Instead, there is a great deal of chronological overlap among them and overall heterogeneity in the oracle bone corpus

from all periods in this region. The evidence does not suggest that these oracle bones were closely tied to political power in the societies of the Chengdu region.

Based on the finds from Zhongba and other sites in the Yangzi River drainage, it seems that the divination marks on plastrons in this region differ in structure from those found in the Yellow River Valley. In the Yangzi drainage oracle bones all lack the pairing of the pronounced groove and attendant hollow that characterize the northern specimens of the Shang and Western Zhou eras and are relatively heterogeneous during each stage of development. This variability indicates that several diviners may have existed at a single site at any one time and they employed different degrees of innovation and conservatism in their divination practices.

Finally, it should be mentioned that pyromancy using mammal bones also did not cease during the later Bronze Age. In fact, scapulimancy probably continued in the Northern Zone throughout the Bronze Age and into later eras. One example of a Han Dynasty pig scapula used in pyromancy has been discovered at the site of Dongxing in Hailin City, Heilongjiang (HSWKY and JDK 1996). Similar practices continued in the south as well as evidenced by an oracle bone dated to the Tang era (AD 618-907) discovered in the Three Gorges at the site of Mingyueba in Yunyang County, Chongqing (SLDLKZ 1998b:107). This bone is, to my knowledge, the most recent oracle bone known from archaeological contexts in China. In addition, limb bones, scapula, and turtle shell bones used as far away as Japan from the last several centuries BC through the first several centuries AD also document this persistence (Lee 1981c:61). These finds are scattered and rare, however, and there is little archaeological evidence of systematic,

elaborate, and standardized pyro-osteomantic divination being used as an important mechanism of authority in post Bronze Age Chinese contexts.

### 3.6. Summary

The rise and fall of pyromantic divination begins with scapulimancy using bones of deer and sheep in Northeast Asia. Subsequently, during the first half of the second millennium BC, pig, camel, bear, and, most commonly, cattle scapulae were used. Cattle bones eventually became the dominant in a shift seen at many sites. During the later part of the Shang era, turtle plastrons become most common. These taxa were symbolically important animals in the communities whose ritual specialists used their bones in divination. Most were domesticated animals, which were fundamental to subsistence across North China. As mentioned above, turtles became powerfully symbolic role in Chinese ideology, and their increased use in pyromancy during the Shang contributed to the evolution of this symbolism.

Subsequently, plastronomy and scapulimancy persisted into the Zhou era. Although textual sources suggest the practice continued in later Chinese dynastic courts (Keightley 1978:4, n. 4; Loewe 1988) and in peripheral states such as Koguryo, Silla and Paekche in the Korean Peninsula (Lee 1981a:42, 1981c), late period archaeological evidence is more common in southern China than in the North. Ethnographic and historical sources document pyro-osteomancy into the 19<sup>th</sup> and 20<sup>th</sup> centuries in regions such as Japan (Blacker 1981; also see references in Keightley 1978:4, nn. 5, 6), Mongolia (Bawden 1959), and other far flung places around the globe (Keightley 1978:5, n. 13).

The spread and persistence of pyromancy in East Asia involved the sharing and protecting of specialized knowledge by diviners who engaged in this practice for a variety of reasons. The inscribed “Zhouyuan” oracle bones discovered at Fengchu and Qijiacun, among other places, reflect this ritual memesis (Cao 2002:8-9; Qiu 2000:68-69; Wang and Yang 1999:281-336; Wang 1984, 1989:417-436)<sup>17</sup>. Some of these inscriptions include the names of Shang ancestors. It is clear that the pyromantic procedures and inscriptions of the Zhouyuan diviners were directly derivative of Shang divination even though scholars disagree about whether the diviners or the scribes were ethnically Shang, possibly even those who worked for the Shang king. Alternatively, Zhou diviners may have invoked Shang ancestors as part of the process of co-opting the leadership of the Central Plains. However, the inscriptions use essentially the same character set and, while structured differently, seem to be representative of the same linguistic and divinatory tradition as Anyang inscriptions. The intimate association between ritual activity and writing is maintained and furthermore, the techniques used to prepare the divination hollows are generally similar to the procedures used in Yinxu divination. We can be fairly certain that the Zhouyuan diviners were either former participants in the terminal Shang divination system or trained by Shang diviners. They employed similarly elaborate divination procedures and, at least initially, they seem to have remained tied to court activities.

The broad tradition of pyromantic divination was not, however, restricted to groups in direct contact with or under direct influence from the Shang court. The practice penetrated into more distant regions during the late Shang and post-Shang periods and in these places the procedures used were less systematic and elaborate. The complex

processes by which pyromantic divination was transmitted to these places likely involved intentional mimesis by diviners who were not fully conversant in the divination processes used by the state diviners and may have built upon local, existing divination practices for which we have no archaeological evidence. As they adopted and adapted pyro-osteomancy, local practitioners developed their own procedures based loosely on Shang traditions but which were less closely tied to structures of political power. The role of these diviners was probably more similar to that of diviners in the early Shang or those in the late Shang dynastic core who were disconnected from the royal court, i.e., those who were consulted by other nobles and commoners (Loewe 1988).

Diviners in peripheral regions like the Yangzi River Valley who picked up and developed pyro-osteomantic procedures in the Zhou period probably only had a vague notion of the significance that pyromancy had once had to the Shang state. Nevertheless, they adopted and adapted this practice with an implicit understanding of the social power that it entailed (compare Allan 2007). They received the tradition through a form of “down-the-line” ritual mimesis, similar to the process by which the spread of divination practices throughout politically unconnected groups in southern Africa has been described as an “international” religious system (Zuesse 1975). Those who mastered this system gained high prestige within their own group. In these cases, “the greatest authority is given to diviners who have traveled into far-off cultures to learn wisdom; unlike local oracles, these practitioners make use of complex methods requiring long training”... “the more strange the wisdom, the more power it has” (Ibid. 166). The power of symbols that reflect distant times and places is widespread in human societies (Helms 1993). Diviners who employed pyromantic divination in peripheral regions of ancient



China invoked the prestige of a foreign ideology and established themselves as ritual specialists within their communities.

#### 4. Conclusion

The power associated with pyro-osteomancy in ancient China emerged through a long-term process through which the practical mastery involved was controlled and elaborated by specialist diviners. This was true both in cases where elaborate divination procedures became codified and systematized, as in the late Shang case, and also in cases where divination was not as directly tied to the state. Even in peripheral regions, practical mastery increased over time. Divination practices became more elaborate, but not more standardized, as independent specialists protected their craft. Divination procedures were one of many sources of social power and only served as a significant source of *political* power in the context where they were systematically elaborated by the state diviners of the late Shang.

For the Shang, this specialized divination practice involved restriction of access to knowledge about the divination process. The king and his diviners used this restricted knowledge to support the existing social hierarchy which was established and maintained on the bases of other coincident sources of power, such as military force. Rituals, including divination, were crucial to the maintenance of the Shang state through their magico-religious functions (Chang 1983, 1994; Keightley 1988). Outside the Shang sphere, divination did not become central to a hierarchical social system, possibly because communities outside of the Shang core were more heterogeneous and heterarchical in nature.

The pattern of oracle bone divination seen in the Central Plains supports the notion that elaboration of ritual practices was a process that restricted this activity to a select portion of the population who used it as a significant source of social power. This did not occur at the beginning of state formation in China, however. During the Erlitou and early Shang periods, although oracle bone use was becoming increasingly prevalent, it was not yet highly codified. It is only during the late Shang we see the strongest evidence of integration and systematization and it seems that divination was used by the ruling elite to establish and maintain their positions of authority. This suggests that divination became a significant source of social power only during the late Shang period. Other types of ritual behavior likewise seem to have been increasingly codified during this period (Yuan and Flad 2005).

The patterns observed in the development of pyro-osteomantic divination in ancient East Asia show some parallels with similar practices known from ethnographic contexts. The degree to which these procedures are elaborated and standardized relates to the extent to which the associated ritual system is an integral and significant source of social power for the political elite. The relationship between divination and power was therefore flexible and dynamic both over time and contemporaneously in different areas. The control of ritual knowledge is a subtle component of systems of social power that can be best understood through a nuanced exploration of how the knowledge is operationalized and protected in specific social contexts.

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**Figures:**

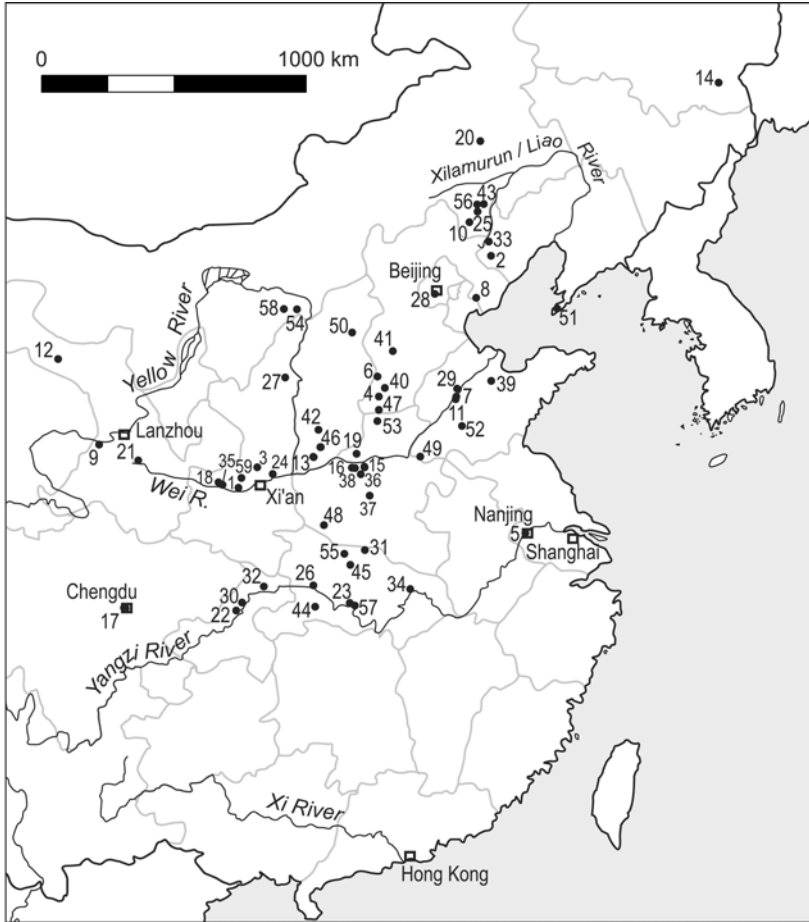


Figure 1: Map showing the location of all sites mentioned in the text. [Listed here in alphabetical order. ♣ Designates sites in Xingtai City (#6); ♠ Designates sites in Zhengzhou City (#15); ♦ Designates sites in Chengdu City (#17)]

1. Andi, 2. Anzhangzi, 3. Beicun, 4. Beiyingtai, 5. Beiyinyangying, 6. Caoyanzhuang♣, 7. Chengziya, 8. Dachengshan, 9. Dahezhuang, 10. Dashanqian, 11. Daxinzhuan, 12. Donghuishan, 13. Dongxiafeng, 6. Dongxianxian♣, 14. Dongxing, 13. Dongyin, 15. Erligang♣, 16. Erlitou, 15. Family Residences of the Henan Academy of Chinese Medicine♣, 17. Fangchijie♦, 18. Fengchu, 19. Fucheng, 20. Fuhegoumen, 21. Fujiamen, 16. Fuqin xiaoqu♦, 22. Ganjinggou, 6. Gejiazhuang♣, 15. Huanweihui Qingnianggongyu♣,

15. Huimin Zhongxue<sup>♠</sup>, 17. Jiangjun yamen<sup>♠</sup>, 23. Jingnansi, 4. Jiangoucun, 24. Kangjia,  
25. Lewangmiao, 26. Lianyushan, 27. Lijiaya, 28. Liulihe, 29. Liutaizi, 30. Maliutuo, 31.  
Maogoudong, 23. Meihuaiqiao, 15. Minggong Ludong<sup>♠</sup>, 32. Mingyueba, 17. Minshan  
fandian<sup>♠</sup>, 15. Nanguanwai<sup>♠</sup>, 33. Nanshangeng, 34. Panlongcheng, 17. Qingyanggong<sup>♠</sup>, 35.  
Qijiacun, 36. Quliang, 37. Shangpo, 38. Shaocai, 39. Shijia, 26. Shimenzui, 40.  
Taikoucun, 41. Taixi, 42. Taosi, 43. Xiajiadian, 44. Xianglushi, 45. Xiaojialing, 15.  
Xiaoshuangqiao<sup>♠</sup>, 46. Xiaozhao, 47. Xiapanwang, 48. Xiawanggang, 49. Xinzhongji, 16.  
Yanshi Shangcheng, 50. Yangbai, 51. Yangtouwa, 52. Yinjiacheng, 53. Yinxu, 46.  
Yuanqu Gucheng, 54. Zhaizita, 17. Zhihuijie<sup>♠</sup>, 55. Zhiwushan, 56. Zhizhushan, 22.  
Zhongba, 57. Zhouliangyuqiao, 58. Zhukaigou, 59. Zhumazui



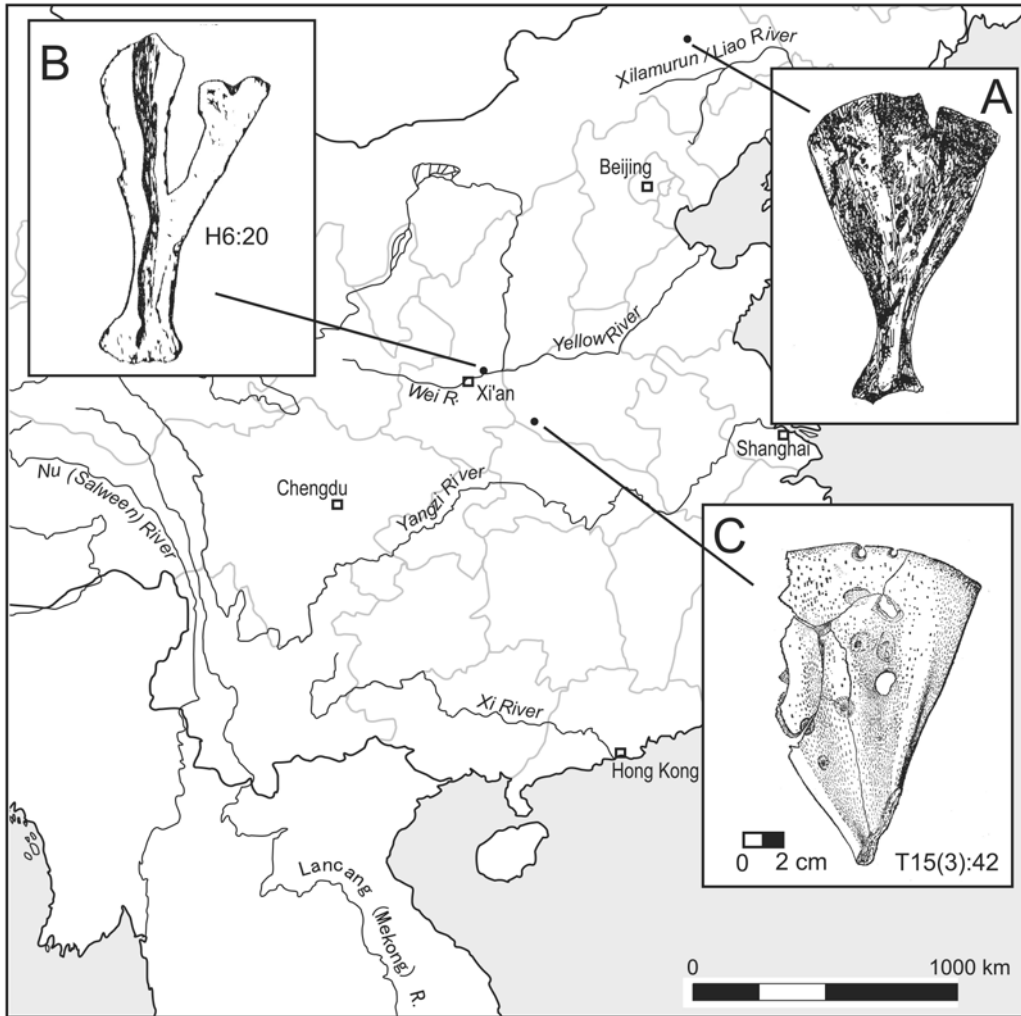


Figure 2: Map showing representative divination remains and their sources from select Neolithic and Chalcolithic contexts. Scales provided when available.

A. Divination scapula from Fuhegoumen in Balin Left Banner, Inner Mongolia (After ZSKYNG 1964: Plate 1).

B. Longshan period oracle bone from Kangjia (After SSKYKK 1988:225).

C. Pig scapulae used as oracle bone from Longshan Levels at Xichuan Xiawanggang (After HSWY and CLGBKH 1989:263).

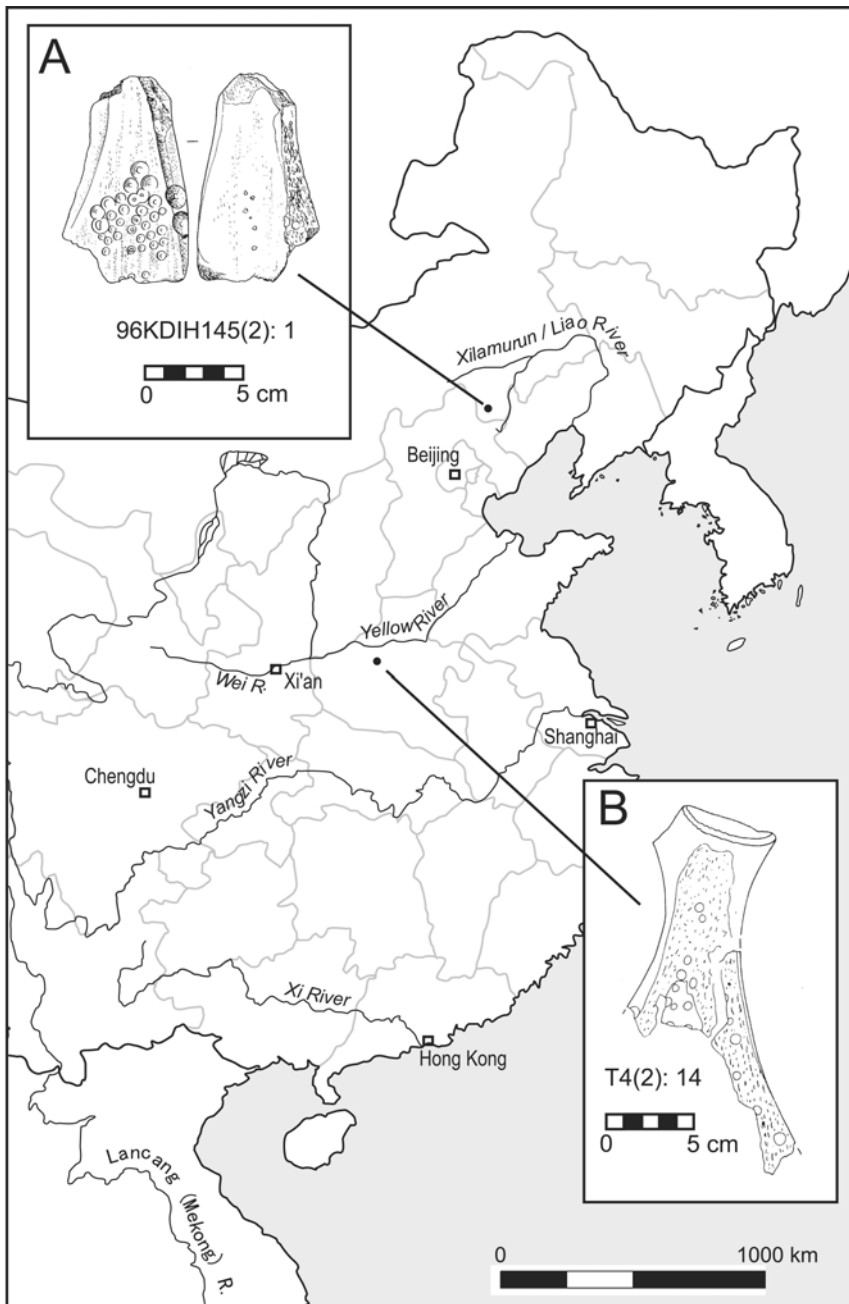


Figure 3: Map showing representative divination remains and their sources from select Early Bronze Age contexts. Scales provided when available.

A. Oracle bone with dense set of drilled hollows for divination from Dashanqian (After ZSKY et al. 1998: 816).

B. Cattle scapula with divination hollows from Shaocai in Gong Xian County, Henan

(After HSWY 1993b:28).

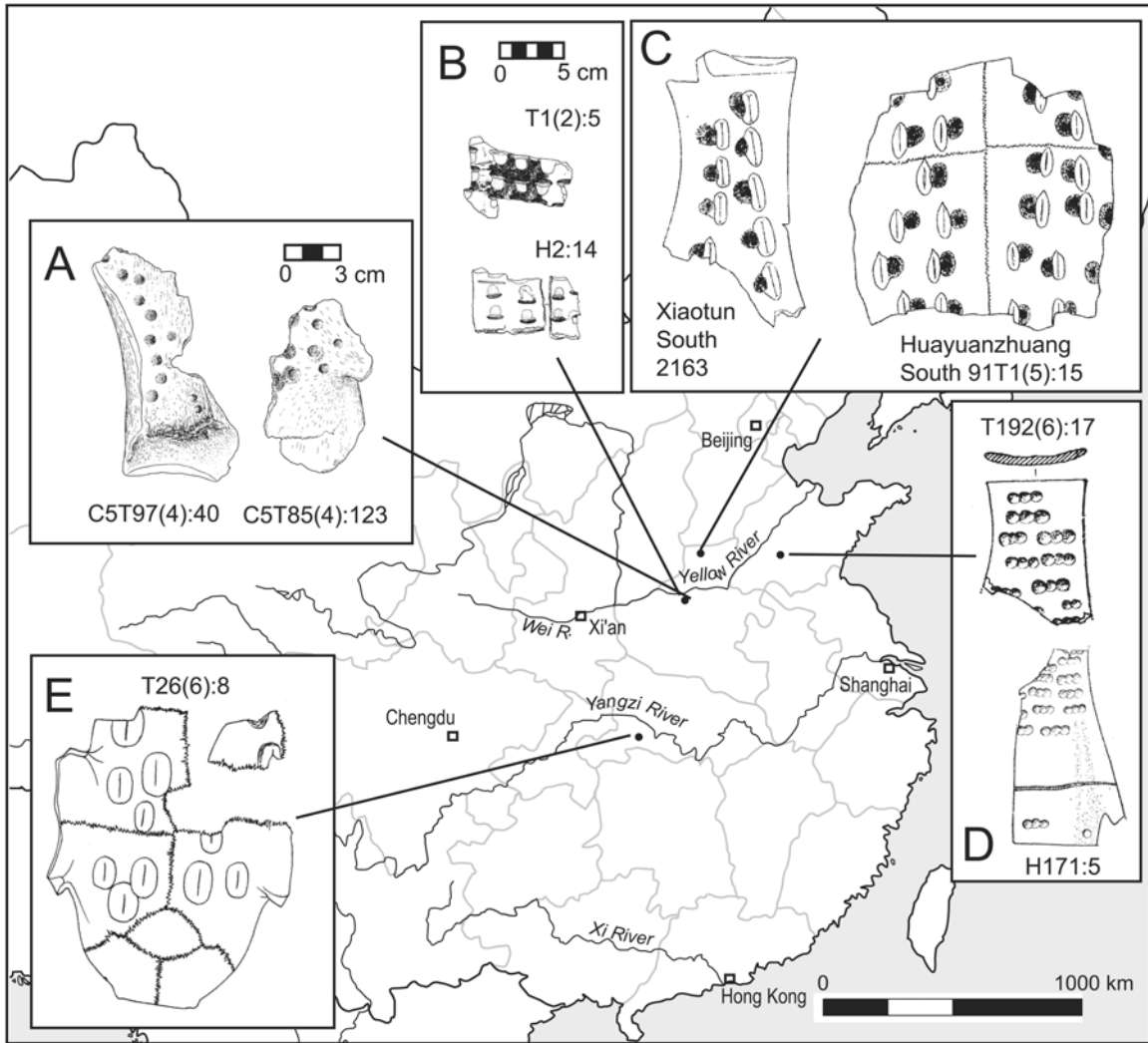


Figure 4: Map showing representative divination remains and their sources from select Middle Bronze Age (Shang Era) contexts. Scales provided when available.

A. Cattle scapula and turtle plastron used as oracle bones at Nanguanwai (After HSWKY 2001:136).

B. Turtle bones from “People’s Park Phase” (Period III) of Erligang site in Zhengzhou. T1(2):5 is a plastron fragment and H2:14 is a carapace fragment. Both have “double divination marks.” (After ZSWKY 2002:827)

C. Cattle scapulae (Xiaotun South 2163) and turtle plastron (91T1(5):15). Oracle bones from Yinxu at Anyang with the double divination marks (After Liu 1997).

D. Oracle bones with “triple drill” divination marks from Yinjiacheng in Sishui,  
Shandong (After SDLKJ 1990:252, 277).

E. Divination plastron fragments from Xianglushi (HSQ GK 1995:25).

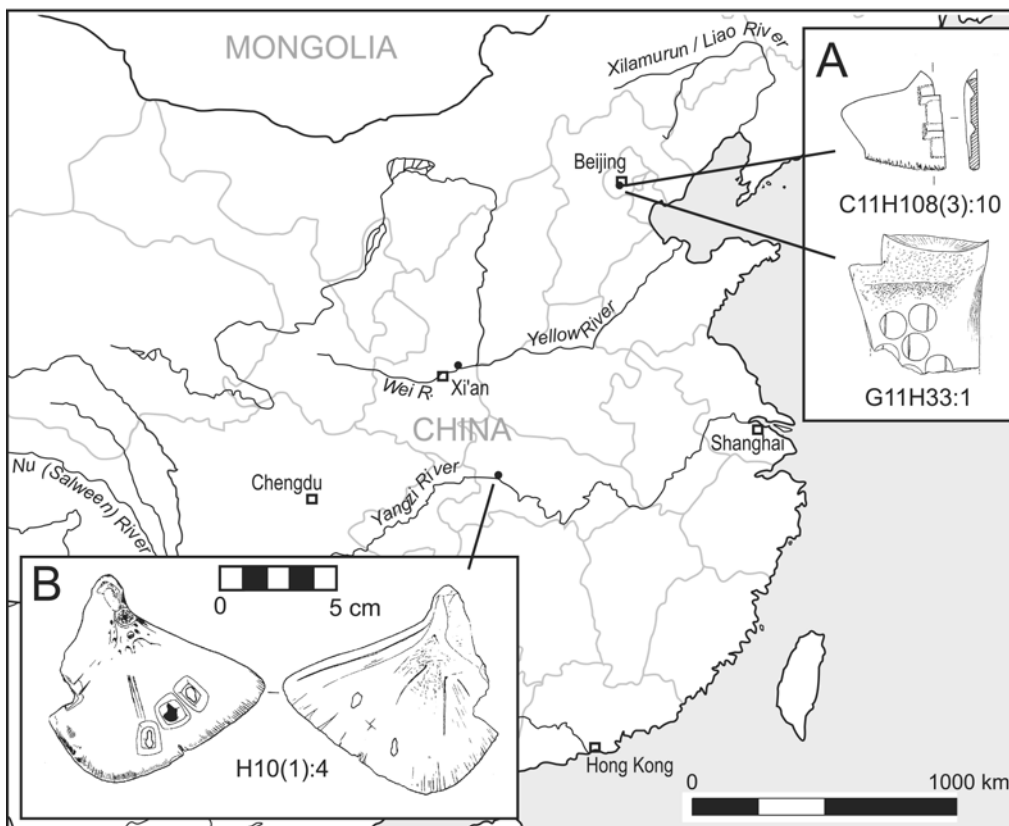


Figure 5: Map showing representative divination remains and their sources from select Late Bronze Age contexts. Scales provided when available.

A. Western Zhou oracle bone from Liulihe including C11H108(3):10, with rectangular double hollows, and G11H33:1, with circular hollows and incised lines (After LK 1997:11; BDK and BSWY 1996:11).

B. Fish operculum used as oracle bone from Shimenzui in Zigui, Hubei (After JDBKYZ and HSWKY 2004:433).

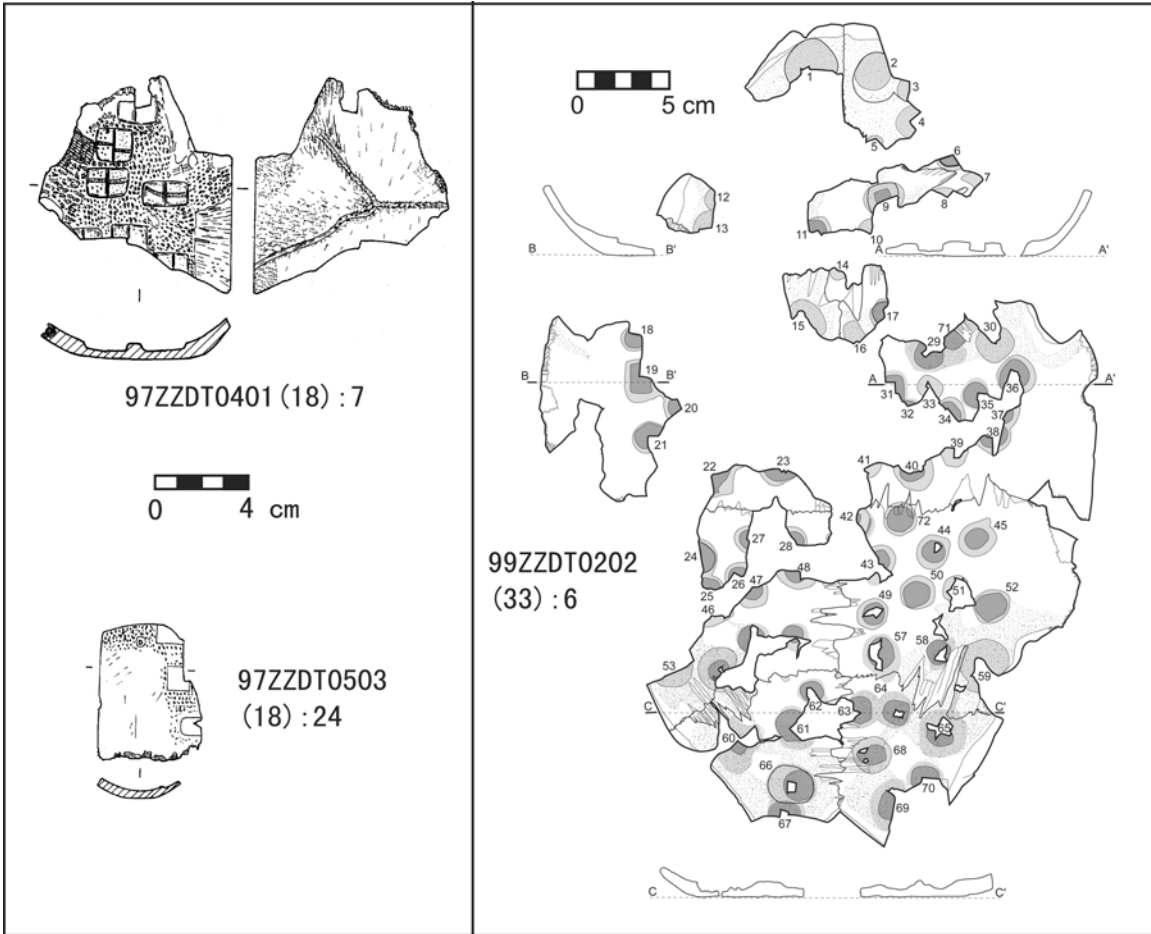


Figure 6: Oracle bones from Zhongba (after SSWKY and ZXWBG 2001:601 and Flad 2004:753).

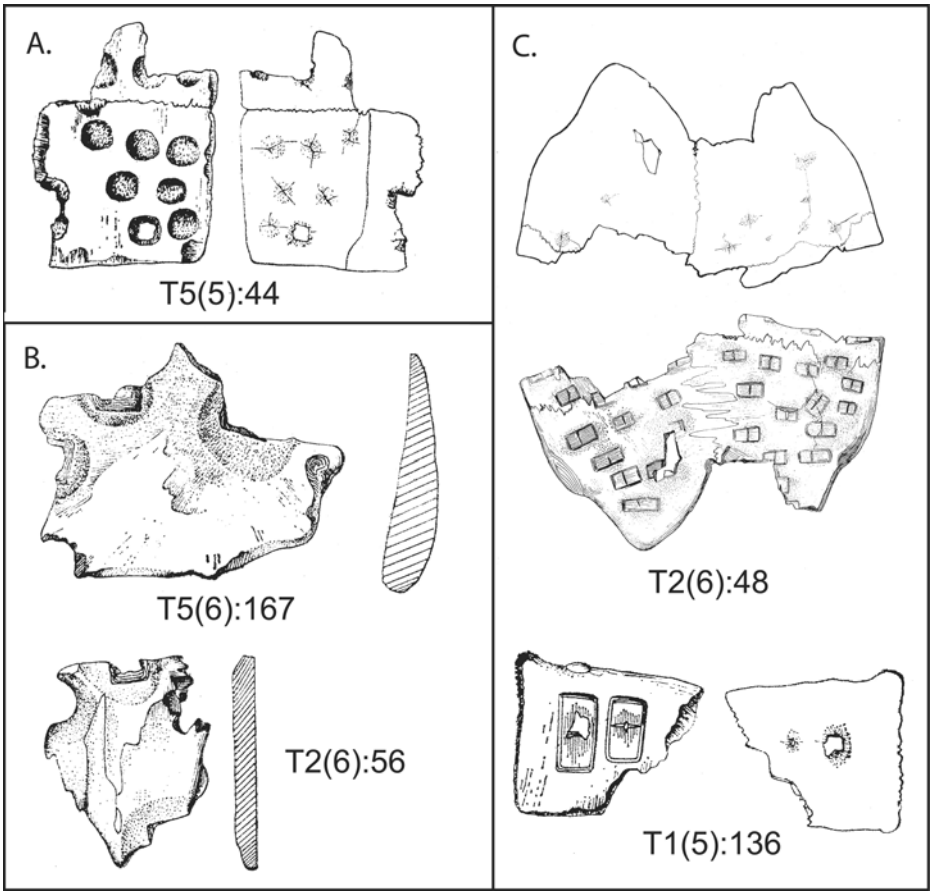


Figure 7: Oracle bones from Zhihuijie. All drawings at  $\frac{1}{4}$  scale (After SDB and CSB 1987).



Table 1: Basic chronological scheme for Late Neolithic through Bronze Age in China.

<b>Era</b>	<b>Central Plains Culture Phase</b>	<b>Approximate Dates BC</b>	<b>Contemporaneous Cultures mentioned in text</b>	
Middle Neolithic	Yangshao	5000-3000	Fuhe	
Late Neolithic / Chalcolithic	Longshan	3000-2000	Ashan, Qijia	
Early Bronze Age	Erlitou I	1900-1700	Lower Xiajiadian, Siba, Luodamiao	
	Erlitou II	1700-1610		
	Erlitou III	1610-1550		
Early Middle Bronze Age	Erlitou IV	1550-1450		
	Lower Erligang	1510-1425		
	Upper Erligang	1425-1300		
	Yinxu I	1425-1250	Baijiazhuang	
Late Middle Bronze Age	[Late Shang]	People's Park	1300-1200	
		Yinxu II	1250-1200	Sanxingdui
		Yinxu III	1200-1125	
		Yinxu IV	1125-1046	
Late Bronze Age	Western Zhou	1046-771	Wazhadi	
	Springs and Autumns Period	771-476		
	Warring States Period	475-221	Qingyanggong	
Qin / Han		221 BC – AD 220		

Table 2: Radiocarbon dates used to establish the chronology and date ranges cited in this paper. Calibrated dates have been recalibrated using the calibration curves of quickcal2005, version 1.4.

Site / Culture Phase (radiocarbon date range)	Uncalibrated Date (5568 half-life)	Calibrated Date	Laboratory
Fuhegoumen	4600 ±110 <sup>14</sup> C yr BP	3321 ±179 calBC	
Kangjia	4115 ±75 <sup>14</sup> C yr BP	2709 ±120 calBC	BK 91040
Kangjia	4130 ±80 <sup>14</sup> C yr BP	2716 ±119 calBC	BK 91039
Yangbai	3750 ±70 <sup>14</sup> C yr BP	2172 ±109 calBC	ZK2255
Yangbai	3530 ±70 <sup>14</sup> C yr BP	1867 ±91 calBC	ZK 2256
Yangbai	3460 ±70 <sup>14</sup> C yr BP	1786 ±89 calBC	ZK-S 2254
Dahezhuang	3570 ±95 <sup>14</sup> C yr BP	1924 ±131 calBC	ZK-15
Dahezhuang	3540 ±95 <sup>14</sup> C yr BP	1887 ±123 calBC	ZK-23
Erlitou I (early)	3457 ±30 <sup>14</sup> C yr BP	1799 ±59 calBC	ZK-5261
Erlitou I (late)	3391 ±33 <sup>14</sup> C yr BP	1691 ±41 calBC	ZK-5262
Erlitou II (arly)	3470 ±37 <sup>14</sup> C yr BP	1808 ±56 calBC	ZK-5264
Erlitou II (late)	3294 ±35 <sup>14</sup> C yr BP	1575 ±42 calBC	ZK-5236
Erlitou III (early)	3396 ±39 <sup>14</sup> C yr BP	1694 ±46 calBC	ZK-5268
Erlitou III (late)	3272 ±39 <sup>14</sup> C yr BP	1557 ±47 calBC	ZK-5247
Erlitou IV (early)	3355 ±40 <sup>14</sup> C yr BP	1639 ±59 calBC	ZK-5255
Erlitou IV (late)	3270 ±32 <sup>14</sup> C yr BP	1556 ±43 calBC	ZK-5242a
Zhukaigou II	3320 ±70 <sup>14</sup> C yr BP	1606 ±76 calBC	BK-80028
Zhukaigou	3220 ±70 <sup>14</sup> C yr BP	1509 ±77 calBC	WB84-76
Zhukaigou	3190 ±85 <sup>14</sup> C yr BP	1469 ±97 calBC	WB84-77
Zhukaigou	3420 ±70 <sup>14</sup> C yr BP	1734 ±98 calBC	WB84-78
Lower Erligang (early)	3261 ±35 <sup>14</sup> C yr BP	1548 ±48 calBC	ZK-5371
Lower Erligang (late)	3111 ±55 <sup>14</sup> C yr BP	1377 ±60 calBC	ZK-5377
Late Luodamiao (early)	3333 ±36 <sup>14</sup> C yr BP	1615 ±56 calBC	ZK-5379
Late Luodamiao (late)	3164 ±38 <sup>14</sup> C yr BP	1452 ±33 calBC	ZK-5378
Upper Erligang (early)	3140 ±35 <sup>14</sup> C yr BP	1425 ±30 calBC	XSZ145
Upper Erligang (late)	3030 ±38 <sup>14</sup> C yr BP	1301 ±65 calBC	ZK-5372
Panlongcheng		1510 ±70 calBC	BA97078
Xianglushi 6	3290 ±80 <sup>14</sup> C yr BP	1584 ±89 calBC	

Table 3: Sites with oracle bones mentioned in the text with taxon of bone (when known) and published frequency. Actual frequency at the site may be considerably more than listed. X indicates presence when frequency is not listed and individual bones are not discussed.

Era codes: N= Neolithic; C=Chalcolithic; EBA=Early Bronze Age; ELBA=Early Late Bronze Age; EMBA=Early Middle Bronze Age; MBA=Middle Bronze Age; LBA=Late Bronze Age; LLBA=Late Late Bronze Age; LMBA=Late Middle Bronze Age

Site	Era	Culture Phase	Approx. Date BC	OB Tot.	Bone OB Tot.	Shell OB Tot.	Turtle	Cattle	Pig	Deer	Sheep	Unid. / Other Mam.	Fish	Pretreated Bones	Multi-stage pretreat.	Reference	Notes
Andi	LM BA	Yinxu II-III	1250-1125	X	0	0		X						X	0	SSKY 1993	
Beicun	EM BA	Early Shang	1600-1300	Many	0	0		X						X	0	SSKYSZS & BDKSZS 1988	
Beicun	LM BA	Late Shang	1300-1000	Many	0	0		X						X	0	SSKYSZS & BDKSZS 1988	
Beiyingtai	EM BA	Early Shang	1600-1400	7	7	0		1	1			5		0	0	HSWY et al. 2001	
Beiyinyang-ying	LM BA	Late Shang	1250-1050	12	5	7	7	5						X	0	NB 1993	
Caoyuan-zhuang	C	Longshan	3000-2000	2	2	0		1	1					2	?	Lee 1981a	No #. >2 Cattle skull frag.
Caoyuan-zhuang	LM BA	Late Shang	1300-1000	1	1	Many	Many	1						2		Lee 1981a	Many turtle frag.
Chengziya	C	Longshan	3000-2000	6	6	0		4		1		1		3		Lee 1981a	
Chengziya	LM BA	Late Shang	1300-1000	10	10	0		10						X		Lee 1981a	Some cattle scap. pretreat.
Dachangshan	C	Longshan	3000-2000	4	4	0		3		1				0	0	Lee 1981a	
Dahezhuang	C	Qijia	2050-1750	1	1	0					1			0	0	ZKKYGG 1974	
Dashanqian	EBA	Lower Xiajiadian	2000-1500	1	1	0						1		1	0	ZSKY et al. 1998	"Several" lg. mammal scap. OB
Daxinzhuang	EM BA		1425-1300	Many	0	0			X	X	X			0	0	SDL 1995	
Daxinzhuang	LM BA		1300-1250	Many	0	0		X		X	X			X	0	SDL 1995	

Daxinzhuang	LM BA		1250- 1200	Many	0	0	X	Most						X	X	SDL 1995	
Daxinzhuang	LM BA		1200- 1125	Many	0	0	X	Most						X	X	SDL 1995	
Daxinzhuang	LM BA		1125- 1050	Many	0	0	Most	X						X	X	SDL 1995	
Daxinzhuang	LM BA	Yinxu I-IV	1425- 1050	80	0	0	X	X	X	X	X			X	X	SDL 1995	Tot. for phases I-V. (Not separate in SDL 1995)
Donghuishan	EBA	Siba	1900- 1500	1	1	0					1			0	0	GSKY & JDK 1995	"A few" OB
Dongxiaifeng	EBA	Erlitou I	1900- 1700	2	2	0			2					0	0	ZSKY et al. 1988	
Dongxiaifeng	EBA	Erlitou II	1700- 1610	2	2	0			2					0	0	ZSKY et al. 1989	
Dongxiaifeng	EBA	Erlitou III	1610- 1550	39	39	0		9	20		10			9	0	ZSKY et al. 1990	Cattle scap. Pretreat. Other scap. not.
Dongxiaifeng	EM BA	Erlitou IV	1550- 1450	57	57	0		X	40	X	X		17	X	0	ZSKY et al. 1991	Cattle scap. Pretreat. Other scap. not.
Dongxiaifeng	EM BA	Erligang	1500- 1300	39	39	0		9	22		8			9	0	ZSKY et al. 1992	Cattle scap. Pretreat. Other scap. not.
Dongxianxian	ELB A	Western Zhou	1050-771	1	1	0							1	1	1	HSWY 2002	
Dongyin	EM BA	Upper Erligang	1425- 1300	4	4	0		4						4	0	SSKY & XXB 2001	
Erlitou	EBA	Erlitou I	1900- 1700	X	0	0		X	X		X			0	0	ZSKY 1999: 68	
Erlitou	EBA	Erlitou II	1700- 1610	X	0	0		X	X		X			0	0	ZSKY 1999: 121	
Erlitou	EBA	Erlitou III	1610- 1550	Many	0	0		X	X		X			0	0	ZSKY 1999: 238	
Erlitou	EM BA	Erlitou IV	1550- 1450	Many	0	0		X	X		X			0	0	ZSKY 1999: 332	
Erlitou	EM BA	Lower Erligang	1510- 1425	Few	X	0								0	0	ZSKY 1999: 365	
Fangchijie	LM BA	Sanxing- dui	1250- 1150	5	0	5		5						5	0	CSBK & CSWKY 2003	

Fucheng	EM BA	Baijia- zhuang	1400- 1250	4	4	0		3			1			4	0	Yuan & Qin 2000	
Fuhegoumen	N	Fuhe	3500- 3150	2	2	0				1	1			0	0	ZSKYNG 1964	
Fujiamen	N			1	1	0					1			0		Venture 2002	
Gejiazhuang	EM BA	Upper Erligang	1400- 1300	2	2	0		2						2	0	HSWY 2000	
Gejiazhuang	LM BA	Yinxu I-II	1425- 1200	3	3	0		3						3	2	HSWY 2000	
Huanweihui Qingniang- gongyu	EM BA	Lower Erligang	1510- 1425	Many	0	0								0	0	HSWY 1993c	"Many" OB. Pig, cattle, deer, sheep scap.
Huimin Middle School	EM BA	Lower Erligang	1510- 1425	1	1	0		1						0	0	HSWY 1993a	
Jiangoucun	C	Longshan	3000- 2000	2	2	0					2			0	0	Lee 1981a	
Jiangoucun	EM BA	Late Shang	1300- 1200	4	3	1	1	1				2		4	?	Lee 1981a	Dog scap.
Kangjia	C	Longshan	2830- 2590	20	20	0			X	X	X	20		0	0	SSKYKK 1988, 1992	1992 ref. = "mostly deer, pig, and sheep" (p. 22).
Lewangmiao	EBA	Lower Xiajiadian	2000- 1500	1	1	0			1					1	0	Lee 1981b	
Lijiaya	LM BA	Yinxu II	1250- 1200	2	2	0						2		2	0	Zhang & Lu 1988	
Liulihe	ELB A	Western Zhou	1050-771	Many	0	Many	Many							All	X	LK 1997	"Dozens" of OB. 3 with characters.
Luoyang	ELB A	Western Zhou	1050-771	13	13	0		13						13	13	LSWG 1989	
Mingong Rd. East	EM BA	Lower Erligang	1510- 1425	1	1	0		1						1	0	ZSWKY 2002	
Mingong Rd. East	EM BA	Upper Erligang	1425- 1300	2	2	0		2						2	0	ZSWKY 2002	
Mingong Rd. East	LM BA	People's Park Phase	1300- 1200	2	0	2	2							2	2	ZSWKY 2002	
Nanguanwai	EBA	Luoda- miao	1680- 1510	2	1	1	1	1						1	0	HSWKY 2001	
Nanguanwai	EM BA	Lower Erligang	1510- 1425	106	96	10	10	56	7		33			56	0	HSWKY 2001	

Nanguanwai	EM BA	Upper Erligang	1425- 1300	111	74	37	37	X	X	X	X	74	Many	0	HSWKY 2001	All turtle plast. frags pretreated. Many mammal scap. also.
Nanshangeng	EBA	Lower Xiajiadian	2000- 1500	7	7	0						7	7	0	Lee 1981b	
Panlongcheng	EM BA	Upper Erligang	1400- 1300	2	2	0		2					2	0	HSWKY 2001	
People's Park	LM BA	People's Park Phase	1300- 1200	6	2	4	4	2					6	6	HSWKY 2001	Double divination hollows
Qijiacun	ELB A	Western Zhou	1050-771	Many	0	Many	Many						All	X	Li Ling 2000b	
Quliang	EBA	Erlitou	1900- 1500	2	2	0						2	0	0	BDKWX 2003	
Quliang	EM BA	Shang	1600- 1050	1	1	0						1	1	0	BDKWX 2003	
Shangpo	C	Longshan	3000- 2000	1	1	0					1		0	0	HSWKY et al. 2004	
Shaocai	EBA	Erlitou II	1700- 1610	2	2	0		2					0	0	HSWY 1993b	
Shaocai	EBA	Erlitou III	1610- 1550	6	6	0		4		2			4	0	HSWY 1993b	
Shaocai	EM BA	Erlitou IV	1550- 1450	11	11	0		8		3			8	0	HSWY 1993b	
Shaocai	EM BA	Erligang	1500- 1300	8	8	0		8		X			8	0	HSWY 1993b	
Shijia	EBA	Yueshi	2000- 1600	2	2	0				2			0	0	ZSW et al. 1997	
Taikoucun	C	Longshan	3000- 2000	1	1	0		1					0	0	Lee 1981a	
Taixi	EM BA	Middle Shang	1400- 1200	494	403	91	91	X	X			403	494	0	HSWY 1985; Li & Tang 1982	
Taosi	C	Longshan	3000- 2000	4	4	0			4				0	0	ZSKYS & SLXW 2003	
Xiajiadian	EBA	Lower Xiajiadian	2000- 1500	1	1	0						1	1	0	Lee 1981b	
Xianglushi	EM BA	Early Shang	1675- 1500	3	0	3	3						3	3	HSQGK 1995	
Xianglushi	LM BA	Late Shang	1300- 1100	13	0	12	12					1	13	0	HSQGK 1995	

Xianglushi	LBA	Western Zhou	1100-1000	24	0	5	5					19	19	0	HSQGK 1995	
Xiaoshuang-qiao	EM BA	Baijia-zhuang	1400-1250	1	1	0					1		0	0	HSWKY et al. 1996	One OB in report.
Xiaozhao	EBA	Erlitou	1900-1500	1	1	0					1		0	0	ZSKYSG 2001	Sheep OR deer bone.
Xiapanwang	C	Longshan	2660-2370	1	1	0			1				0	0	Lee 1981a	
Xiawanggang	N	Yangshao ?	5000-3000 or 3000-2000	1	1	0					1		0	0	HSWY and CLGBKHF 1989	
Xiawanggang	C	Longshan	3000-2000	3	3	0		1			2		0	0	HSWY & CLGBKHF 1989: 263	
Xiawanggang	EBA	Erlitou	1900-1500	1	1	0		1					0	0	HSWY & CLGBKHF 1989: 306	
Xiawanggang	LBA	Western Zhou	1050-771	6	1	5	5	1					6	2	HSWY & CLGBKHF 1989: 331	
Xiapanwang	EM BA	Early Shang	1600-1400	1	1	0		1					1	0	Lee 1981a	
Xinzhongji	C	Longshan	3000-2000	1	1	0		1					1		Lee 1981a	
Yangbai	C	Longshan	2300-1700	1	1	0		1					0	0	SDLKZ et al. 1997	
Yangtouwa	C		3000-2000	1	1	0				1			1	0	Lee 1981a	
Yanshi Shangcheng	EM BA	Early Shang	1600-1400	Some	0	0		X					X	0	ZSKYHDE GD 1995, 1999	"Many" OB. Mostly non-pretreated sheep scap. Some pretreated cattle scap.
Yinjiacheng	LM BA	Late Shang	1250-1050	10	9	1	1	8				1	10	X	SDLKJ 1990	
Yinxu	LM BA	Late Shang	1250-1050	Many	Many	Many	Many	Many					Many	Many		
Yuanqu Gucheng	EBA	Erlitou	1900-1500	6	6	0		1	1			4	0	0	ZLBK et al. 1996; ZLBK & SSKY 1997a	

Yuanqu Gucheng	EM BA	Lower Erligang	1510-1425	8	8	0		3	2		1	2		3	0	ZLBK et al. 1996; ZLBK & SSKY 1997a, 1997b	
Yuanqu Gucheng	EM BA	Upper Erligang	1425-1300	15	14	1	1	2	1		1	10		3	0	ZLBK et al. 1996; ZLBK & SSKY 1997a, 1997b	
Zhaizita	N	Ashan	3000-2500	3	3	0						3		0	0	NWKY 1997	
Zhengzhou	EBA	Luodamiao	1680-1510	Many	0	0		X	X		X			0	0	HSWKY 2001	Many OB. Pig, cattle, sheep scap.
Zhengzhou	EM BA	Lower Erligang	1510-1425	3	3	0		3	X	X	X	X		3	0	HSWKY 2001, 2003	Many OB. Pig, cattle, deer, & sheep scap. Some cattle bones pretreated.
Zhengzhou	EM BA	Upper Erligang	1425-1300	2	2	0		2						1	0	HSWYG 1959	Many OB. Pig, cattle, deer, sheep scap. Some cattle bones pretreated.
Zhongba	LM BA	Sanxingdui	1300-1100	12	0	12	12							0	0	Flad 2004	
Zhongba	ELB A	Wazhadi	1100-500	48	0	48	48							Many	X	Flad 2004	
Zhongba	LLB A	Qingyanggong	500-200	123	0	123	123							Most	X	Flad 2004	
Zhukaigou	EBA	Erlitou	1825-1375	51	51	0		32	4	11	2	2		X	0	Huang Yunping 1996	Simple pretreat.
Zhumazui	EM BA	Yinxu I-II	1425-1200	X	0	0						X		X	0	BDKSZ & SSKY 2000	



## Footnotes:

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<sup>1</sup> Acknowledgements: This paper developed out of a presentation given at the *Workshop of Early Chinese Civilization: Social, Cultural, and Historical Dynamics of Early Chinese Civilization in Archaeological, Paleographical, Philological, and Historical Perspectives*, on March 10, 2005 at the University of British Columbia. I thank the organizers of the conference, Jing Zhichun, Ken-ichi Takashima, and Tang Jigen, for the wonderful forum for discussing these ideas and the other participants for constructive feedback. I owe a great debt to David Keightley who directed me to many of the references, and I also received helpful comments on early drafts from Roderick Campbell, David Carrasco, Cameron Monroe, Michael Puett, Adam Smith, and Jason Ur. The inclusion of unpublished data from Zhongba owes a debt to the Zhongba archaeological team, especially the director, Sun Zhibin.

<sup>2</sup> All dates provided are based on calibrated radiocarbon dates unless referring to historical eras such as the “Zhou Dynasty” (ca. 1046-256 BC). The general chronological framework used throughout the paper is provided in outline form in Table 1 and specific radiocarbon dates used in the chronological designations are listed in Table 2.

<sup>3</sup> Here I employ 1046 BC as the approximate year of the transition between the Shang and the Zhou. The year of the Zhou conquest was either 1046 or 1045, as promulgated by the “Three Dynasties Project” and the recent *Cambridge History of Ancient China*, respectively (see Falkenhausen 2006:7 and Shaughnessy 1999:23 for brief discussions and additional relevant references). For the purposes of the discussion here an approximate date is sufficient.

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<sup>4</sup> It is possible, and perhaps likely, that in addition to the “osteomancy” discussed here, other forms of archaeologically invisible divination were practiced in prehistoric China. We certainly can say that by the first millennium, divination using yarrow sticks seems to have begun (Loewe 1981), and divining that relied on animal organs, such as hepatoscopy practiced in western Eurasia and other regions may have been important as well (Jastrow 1908; Pardee 2000). Nevertheless, we know that bone-based divination was significant in early China and it is the focus of this study.

<sup>5</sup> This terminology and discussion follows a more detailed treatment of these issues in Keightley 1978:3-6. One form of ethnographically documented apyromantic divination in South China uses chicken leg bones. Sticks are inserted in the foramina of the bone shaft and the patterns are interpreted. Discussions of this practice include Li 1982 and Tayanin 2000.

<sup>6</sup> It is worth noting that turtle carapaces also were used occasionally in pyromancy in China. Nevertheless, due to the vastly more frequent use of plastrons, I continue to use the more common “plastronomy.”

<sup>7</sup> See, for example, discussions of pyromantic divination among the Yi and Naxi nationalities of southwest China in Ge 1997, Lin 1964 and Wang 1986.

<sup>8</sup> The location of each site mentioned in the text is found on the Figure 1 map.

<sup>9</sup> Strangely, but incorrectly, sometimes said to be located in Liaoning Province. See, for example, Lee 1982a:46 and Keightley 1978:4, n.3.

<sup>10</sup> The uncalibrated date for this sample is  $4600 \pm 110$   $^{14}\text{C}$  yr BP although an uncalibrated date of  $4735 \pm 110$  is often given. This is based on the “True” or “Cambridge” half-life of

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5730 years. Convention calls for using the Libby half-life of 5568 years. Using the “True” uncalibrated date would produce a calibrated date of 3505 ±118 calBC.

<sup>11</sup> The Yangshao Culture dates to ca. 5000-3000 BC. The dating of this phase at Xiawanggang, however, is imprecise and it is possible that the context from which the bones come should actually be considered Longshan (i.e., ca. 3000-2000 BC) in date (Venture 2002:196, n. 20; Araki 1999:258).

<sup>12</sup> The radiocarbon dates used to establish this timespan comprise a portion of a long series of dates from stratigraphically (and stylistically) sequential contexts (Zhang and Chou 2005:384). Table 2 contains the earliest and latest of the dates from the phase. The sequence of dates has been used by members of the Three Dynasties Project to reduce the probability ranges through a “wiggle match” procedure. “Wiggle matching” involves relying on relative chronology to eliminate portions of the probability curve generated by the calibration of radiocarbon dates. The date ranges given here for each Phase of the Erlitou Culture and for the subsequent phases of the Early Shang period are based on this wiggle matching and are therefore narrower than the potential ranges suggested by the radiocarbon dates alone. For the purposes of this discussion, these general date ranges suffice.

<sup>13</sup> Through ceramic seriation and correlation these two phases have been dated to the late part of the first sub-phase of Upper Erligang and the late part of the second sub-phase of Upper Erligang respectively. In terms of absolute dates, that would put these two contexts in the 1400-1300 BC range, although a slightly earlier absolute date for Phase V is suggested by the one AMS radiocarbon date from this phase which is provided as a

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calibrated date in the publication and therefore not recalibrated in Table 2 (HSWKY 2001:444).

<sup>14</sup> All the Daxinzhuang dates are estimated based on correspondence in the material culture with other sites. No published radiocarbon dates are available to compare with this proposed sequence.

<sup>15</sup> See Cao Wei 2002 and Li Ling 2000b:220-224 for comprehensive references to Western Zhou oracle bone finds

<sup>16</sup> The authors of the report suggest that the operculum bones are from Sturgeon (Family *Acipenseridae*), but since sturgeon do not have bony opercula, either the bone identification or the family identification is wrong. No images are available with which to assess their identification. There is no reason to doubt the possibility that fish bones were used in pyromantic divination at the site, particularly considering the one oracle bone operculum fragment found at Zhongba and the other examples of “operculimancy” in Hubei mentioned above.

<sup>17</sup> See in particular, the discussion in Cao Wei 2002 of the positions of various scholars and the extensive bibliography of studies of Zhouyuan oracle bones and their inscriptions in that same work, pp. 191-198. The brief discussion here follows this summary.