

# SOME THOUGHTS ON THE DATING OF LATE SHANG BRONZE WEAPONRY

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## *Abstract*

Past studies of bronze weapons focused on the chronology and spatial distributions of bronze weapons types themselves, but bronze weapons should also be incorporated into the high resolution relative chronologies of the Late Shang period that have been based in pottery and bronze vessel typology, oracle bone inscriptions, and stratigraphy. Studies of bronze weaponry from Late Shang period sites from throughout China suggest the possibility of multiple-interactions with the Anyang Shang capital, and these interactions indicate a complex network of multi-directional cultural relationships between Anyang and other areas.

## *Prologue*

Archaeological data show that the development of bronze weaponry underwent remarkable changes in quality, quantity, and spatial distribution during the Late Shang period (ca. 1300-1050 BC). These changes are represented in five aspects:

First, during the Late Shang period, bronze weaponry began to appear commonly in burials. This phenomenon is a stage of an evolutionary process in mortuary practices that begins in the Neolithic period, with weapons in burials first being made of stone, then jade, and finally bronze. Moreover, bronze weapons found in Late Shang burials are part of a burial system that reflected the social status of the grave occupants.

Second, in the Late Shang period, the production of bronze weaponry was widespread across many regions, from Liaoning in the northeast (Jin Zhou Shi Bowuguan 1978: 387; Kezuo Xian Wenhua guan 1977: 28), to Shandong in the east (Shandong Huimin Xian Wenhua guan 1974: 208), Sichuan in the southwest (Wang and Jiang 1958: 27-31),

the Ordos Plateau in the north (Tian and Guo 1986), and Guangdong in the south (Wenwu Bianji Weiyuanhui 1979: 339-346), though the actual locations of production of bronze ritual vessels was not necessarily so widespread. Bronze weapons were common to a greater variety of cultures and regions than were bronze ritual vessels, and they are thus more appropriate for cross-cultural comparisons, as they better reflect cultural interaction among separate regions. Moreover, the rich corpus of archaeologically recovered bronze weapons shows distinctive regional characteristics that reflect the intricate networks of cultural interaction between various regions that resulted through migration, marriage alliances, warfare, and trade. Distributions of bronze weapons give evidence to support the idea of the transformation of cultures during the Late Shang period through “cultural pluralism” instead of through dissemination from a “Central Plains nucleus.”

Third, the distribution of bronze weaponry was very uneven during the Late Shang period. Anyang 安陽 was the major center for the use of bronze weapons in burials. According to a tally made in 1986, weapons represent the most plentiful category of bronzes, with a total of some 2,800 pieces (Chen Zhida 1989: 326). At Anyang were found casting workshops as well as related specialized work areas.<sup>1</sup>

Fourth, it was not until the Late Shang period that bronze weaponry can be divided into distinctive regional styles. For instance, in the north, bronze weaponry was distinguished by a number of indigenous characteristics, such as the presence of animal pommel or bell pommel swords and knives and battle-axes with tubular sockets of various shapes (Yang Shaoshun 1981: 211-212; Wu Chenlu 1972: 62-66; Yan Jinzhu 1985: 348-349; Zheng Shaozong 1962: 644; and Tian Guangjin 1986:2). Other regions have their own distinctive features. For example, finds in southern China, such as the tomb at Xin'gan 新干, in Dayangzhou 大洋洲, Jiangxi Province, shows such distinctive weapon types as the *ji* 戟 combined spear and dagger-axe, the socketed *yue* 鉞 axe, a leaf shaped *ge* 戈 halberd or dagger-axe, and various shapes of flat-bladed knives or swords (Jiangxi Kaogu Yanjiusuo et al. 1991; Jiangxi Sheng Bowuguan et al. 1994, 1997). In addition, the triangular halberd of southwest China, as well as the halberd with a ridged blade from the Sanxingdui 三星堆 Culture in Guanghan County 廣漢縣, Sichuan Province, represent other distinctive regional styles of bronze weaponry (Sichuan Sheng Wenwu Guanli Weiyuanhui 1989: 36-38; Tang et al. 1980: 212).

<sup>1</sup> Three major areas for melting and casting bronze have been uncovered at Anyang. For the Miaopu 苗圃 and Xiaomintun 孝民屯 sites, see Zhongguo Shehuikexueyuan Kaogu Yanjiusuo 1987:11-60 and 66-69, respectively. For the Xuejiashuang 薛家庄 site, see Zhou and Liu 1963. Although pieces of molds for casting ritual vessels were also found at Xiaomintun, these sites primarily produced tools and weapons.

Fifth, it was not until the Late Shang period when special artistic techniques, such as inlay and openwork, were employed to decorate weapons with fantastic motifs. In addition, there was innovation in the technology of bronze weapons as different materials were jointly used in a single weapon, including bronze and iron and bronze and jade.

Based on the above five phenomena, we can see that bronze weaponry, too, can be used, just as bronze vessels are, to study various aspects of the Late Shang civilization. As K. C. Chang (1980: Prolegomena) asserts in one of his masterpieces, *Shang Civilization*, bronzes, along with traditional historical texts, oracle bones, archaeology, and theoretical models, are one of the “five doors to Shang,” and thus, bronzes, including both vessels and weaponry, have extraordinary significance for researching Shang civilization. However, previous research has tended to neglect the study of bronze weaponry.

### *The two stages of bronze weapons research*

Research on bronze weapons can be divided into two stages. The first stage covers about eight centuries, from the Song Dynasty (ca. the 12th century AD) until the start of the Anyang excavations in 1928. During this first stage, studies of Late Shang weapons focused on developing terminology for weapons and their parts according to terms given in the Chinese classics and on establishing a basic chronology. However, due to a lack of solid evidence, weapons could only be dated to general time periods, such as in the *Kaogu tu* 考古圖 (AD 1092) by Lü Dalin 呂大臨, the earliest extant bronze catalogue, where Shang bronze weaponry is dated only to the dynasty and not to subperiods within it. One can also see this problem in other early antiquarian publications about bronzes, such as *Bogu tulu* 博古圖錄 (ca. AD 1123) edited by Wang Fu 王黼 as well as some publications of the Qing Dynasty.

During the Qing dynasty, antiquarians began to pay more attention to collecting bronze weapons. In catalogues such as *Liang lei xuan yiqi tushi* 兩齋軒彝器圖釋 (1873) by Wu Yun 吳雲 and *Hengxuan suojian suocang jijinlu* 恒軒所見所藏吉金錄 (1885) by Wu Dacheng 吳大澂, a greater percentage of bronze weaponry is found catalogued than is seen earlier, and in *Shanzhai jijinlu* 善齋吉金錄 (1935) by Liu Tizhi 劉體智, a full two chapters are devoted to collections of bronze weaponry.

The Anyang excavations, beginning in 1928, can be viewed as the start of the second phase in the study of Late Shang bronze weapons. With the scientific excavations at Anyang, data were finally available concerning the depositional context of bronze weapons, including location and assemblage. With these data, new issues could be researched,

and bronze weapons could stand as an independent topic because they could now be dated more precisely. Examples of these new lines of research can be seen in research by Li Ji (1949), Hayashi Minao (1972), and Chen Zhida (1989), where associations of bronze weaponry are placed within the traditional 273 year long span of the Late Shang period. With finer dating, the variations of each type of bronze weapon could now be explored and the intricacies of interaction across regions be examined.

Archaeological data also forced the reconsideration of the periodization of some weapon types. For example, the *ge* halberd with a long and curved extension on the lower blade 有胡戈, which previously was dated to the Western Zhou period (Li Ji 1949), now could be seen to date to Yinxu 殷墟 Period IV (Hayashi 1972; Chen Zhida 1989). The lengthening of the lower blade of the *ge* halberd had a great impact on the development of this weapon because it extended the cutting edge and gave more space for binding with the wooden shaft, and the resulting strengthening of the weapon was essential for its use in chariot warfare. The socketed *ge* halberd 有銎戈, which differs in design from the more common slot-inserted *ge* halberd at Anyang, previously dated to Yinxu IV (Li Ji 1949), was also redated to Yinxu Period I (Hayashi 1972; Chen Zhida 1989).

Although bronze weapons could be dated more precisely, they still could not be used as confirming evidence for determining specific Shang kings's reigns, as some "standard vessels" of the Western Zhou period with inscriptions recording the names of Kings can be used. Some Late Shang *ge* dagger-axes do have inscriptions of several characters, usually interpreted as clan inscriptions, such as several from Shang royal tomb M1004 at Xibeigang 西北崗 (see Gao Quxun 1970). Stylistic sequences of Late Shang bronze weapons can be established and dated within the framework of Yinxu periodization by using archaeological context and association, since weapons are found in tombs and residence areas with other objects. The remainder of this paper will focus on how to establish a more refined chronology for Late Shang bronze weapons as well as related problems.

### *I. The relative dating of Yinxu and associated problems*

The development of Yinxu chronology has been a major focus of research since the first excavations at Anyang in 1928. A detailed chronology has been established using four lines of evidence: pottery, stratigraphy, bronze ritual vessels and other bronzes, and oracle bone inscriptions. The stylistic development of bronze weaponry, too, may

be able to provide another means of establishing Shang relative chronology, and in doing so, the relative dating of Late Shang weapons can also be utilized to demonstrate problems in the established chronology.

### *1. Stratigraphy and burial superposition*

Stratigraphy and superposition are the most important methods to date the chronological relationships of burials. For example, from 1969 to 1977, 939 burials were excavated in the western locus at Yinxu. Almost 800 bronze weapons were found in these graves, and 104 graves of the 939 had superpositional relationships with others, though usually with no more than three graves (Zhongguo Shehui Kexueyuan Kaogu Yanjiusuo Anyang Gongzuodui 1979: 34), and these can be used in the relative dating of the bronze weapons recovered from the burials. These determinations are limited, though, due to only groups of two or three burials sharing direct superpositional relationships and because the superimposed burials often still fall within the same time period.

The Shang royal cemetery at Xibeigang includes ten large scale royal tombs with tomb ramps, a large unfinished tomb, and over one thousand associated small burials. The royal tombs were all looted, yet many bronze weapons were still recovered. The most significant case is royal tomb M1004, which contained large numbers of spears and halberds (Gao Quxun 1970). The Xibeigang burials can be divided into an eastern and a western section. Eight large scale tombs are found in the western section, and six of these had superpositional relations, such as the north ramp of tomb M1217 cutting into the south ramp of M1550 (Gao Quxun 1968: 1), M1002's north ramp cutting into the south ramp of M1004 (Gao Quxun 1965: 1), and the south and east ramps of M1004 cutting into the east and north ramps of M1001 (Gao Quxun 1970: 1). Thus, superposition can only show us that M1550 is earlier than M1217, and M1001 is earlier than M1004 and M1002: it provides us with no other information about chronological relationships, and so we cannot order all of the tombs this way.

Dating of the royal tombs at Xibeigang has thus had to rely on other techniques, and several different conclusions have been reached. Li Ji (1959) divided the Xibeigang royal tombs into three subperiods of the Late Shang period (his "Yin Shang 殷商 Period") according to distinctive types of hairpins and their decorations, as follows:

#### EARLY YIN SHANG

M1001

#### MIDDLE YIN SHANG

M1550, M1004

M1002

#### LATE YIN SHANG

M1003, M1550

M1217, M1174

Zou Heng (1980: 76-82) divided the Late Shang royal tombs into four periods (Yinxu I-IV) and assigned reigns of kings to each:

PERIOD	YINXU I	YINXU II	YINXU III	YINXU IV
SHANG KINGS	Pangeng 盤庚, Xiaoxin 小辛, Xiaoyi 小乙	Wuding 武丁, Zugeng 祖庚, Zujia 祖甲	Linxin 廩辛, Kangding 康丁, Wuyi 武乙, Wending 文丁	Diyi 帝乙, Dixin 帝辛
XIBEIGANG TOMBS	M1217 M1500	M1001	M1004 M1217 M1550	M1400 M1003

Virginia C. Kane (1975) ordered the royal tombs according to bronze vessel styles and superposition as follows: M1443 (King Pangeng)—M1129 — M1550 (King Xiaoyi) — M1217 — Wuguan-cun 武官村 large-scale tomb — M1001 (King Wuding) — M1500 — M1400 — M1002 — M1003 (King Diyi).

K. C. Chang (1983: 207-208) proposes that tomb M1001 could be that of Pangeng, and the Xibeigang cemetery is structured into two sections due to the Zhao Mu system 昭穆制.

Yang Xizhang (1981: 3) placed the Xibeigang tombs into a four period Anyang periodization as follows:

	PHASE 1	PHASE 2	PHASE 3	PHASE 4
SHANG KINGS	Early Wuding period	Late Wuding period, Zugeng, Zujia	Linxin, Kangding, Wuyi, Wending	Diyi, Dixin
ROYAL TOMBS		M1001, M1550, M1400, M1443 M1129, Wuguan-cun Large-scale Tomb, 78M1	M1004, M1002 M1500, M1217	M1003

In addition to burial data, the stratigraphy of storage pits and other features have been used in the relative dating schemes at Anyang. For example, oracle bone pit E16, excavated in 1931, contained at least five *ge* dagger-axes along with inscribed oracle bones (Li Ji 1949: 16-24), although the oracle bones have been the greater focus of scholarly attention. Dong Zuobin (1948) dated the inscriptions in E16 to his Periods I and II and a supposed collapse-in of the pit to the reign of King Zujia. Li Ji (1948: 15), based on a seven layer stratigraphy within pit E16, questioned the appropriateness of dating the entire pit to one period based only on oracle bones and its sealing-up to a specific king's (Zujia's) reign, and he also did not believe the pit had collapsed in. This

debate between Li and Dong gives some indication about the problems of dating artifacts through their stratigraphical relationships when they are from a single archaeological feature.<sup>2</sup> It also concerns another important dating standard at Anyang, the oracle bone inscriptions.

## 2. Oracle bone inscriptions

Oracle bone inscriptions are a major source for dating Anyang remains, yet they occur much less commonly in association with bronze weapons than they do with other artifact categories, such as bronze vessels or pottery. Two important occurrences where oracle bone inscriptions are associated with bronze weapons are Yinxu Tomb No. 5 (the Fu Hao 婦好 tomb) and pit E16.

Pit E16, along with *ge* dagger-axes, contained oracle bone with inscriptions giving the names of the diviners Dui 隹, Shao 勺, and Bin 賓, upon whose names various oracle bone periodizations have been based.

Several dating hypotheses have been made concerning pit E16, including Dong's (above) and Li Ji's argument against Dong's. Dong (1945: 2) himself offers an alternative periodization in *Yin li pu*, where he admits his previous error of dating pit E16 to Period I. He instead claims that the oracle bone inscriptions unearthed from E16, H119, and M127, which record seventeen diviners' names, including Dui, Shao, and Bin, should be dated to Period IV, the reign of King Wenwuding. This redating could serve as an explanation for the differences in writing style of these oracle bone inscriptions (despite having many similarities) from others in Period I, and would also mean that oracle bones had actually been found that date to King Wenwuding's reign (Dong 1948:15-20); this in turn sparked debate.

Kaizuka Shigeki (1953) preferred to include these so-called "Wenwuding" inscriptions in Period I, and argued for the co-existence of a second style of inscription along with King Wuding inscriptions in this period (as opposed to a stylistic renaissance occurring in Period IV). Cheng Mengjia (1956: 154-158), too, dated the Dui group inscriptions from E16 (including diviners Dui, Fu 扶, and Shao) to Period I, or the late period of King Wuding. Chen Mengjia's argument was supported by inscriptions unearthed from the southern sector of Xiaotun 小屯, which could be better dated through stratigraphy and associated pottery. Oracle bone no. 146 from trench T53 (Level 4A) contained the name of diviner Fu from Chen Mengjia's Dui group. The levels and features in T53 are ordered (latest to earliest): Level 3B - Level 4 - Level 4A - pit H111 - pit H112.

<sup>2</sup> On this issue and related problems concerning the relationship between stratigraphy and typology, also see Yin Da 1963 and Su and Yin 1982.

The pottery from Level 4A could be seriated to the King Wuding period. Pit H102, which is later than Level 4A, had pottery sherds belonging to the middle period of Xiaotun's southern sector chronology, which would be the reigns of kings Kangding, Wuyi, and Wending. Therefore, trench T53 Level 4A should also date to the middle period but close to the reign of Wuding (Xiao Nan 1976). Thus, pottery typology and stratigraphy also support the Period I hypothesis for pit E16.

The Period I hypothesis seems more compatible with the pottery and stratigraphy of the Xiaotun southern sector, though problems still exist. Other scholars have supported Dong's Period IV hypothesis, such as Shima Kunio (1958: 23-32). Yan Yiping (1978: 1206-1208; also see Jin Xiangheng 1978) questioned both the appropriateness of dating inscriptions from pits by associated pottery sherds and the date for T53 Level 4A, because oracle bone fragments from different contexts (this level and H91) of supposedly different time periods could be refitted together. Thus, debate on these two different periodizations continues.

Since there are problems dating pit E16, there are also problems dating the bronze weapons from it. The same holds for the 134 bronze weapons found in Tomb No. 5 at Yinxu, the Fu Hao tomb. Among these weapons was one *yue* 鉞 axe with the inscription "Fu Hao." This inscription, or its shortened form, "Hao 好," was also found on 109 of the 210 bronze vessels recovered from the tomb, and thus refers to the name of the tomb owner, Lady Fu Hao, and this could be used for dating the tomb (Zhongguo Shehui Kexueyuan Kaogu Yanjiusuo 1984), as Fu Hao's name occurs at least 250 times in oracle bone inscriptions (Wang Yuxin 1981: 87). These inscriptions, however, have been dated to both Period I and Period IV (Yan Yiping 1981), and thus there are problems dating this tomb (Kaogu 1977) and the many bronze weapons it contained.

The problems encountered dating pit E16 and the Fu Hao tomb reflect the difficulties of establishing an elaborate chronological system for the Late Shang period. The Fu Hao tomb assemblage, despite its dating problems, is used as a reference for dating other features, levels, and artifacts from Yinxu, and the majority of scholars today are inclined to date the Fu Hao tomb to Period I. Pit E16 possessed few artifacts, and it therefore needs further consideration before the bronze weapons unearthed from it can be employed as evidence for dating. This problem will be discussed later, but first we should introduce the third and fourth dating standards, bronze vessels and pottery.

Bronze vessels and pottery provide dating evidence through typological and stylistic research on vessel form, decoration, inscriptions, and technology of production (Guo Moruo 1935: 1; Umehara 1940; Su and Yin 1982: 1; Chang 1985: 62-69). Typological research on bronzes

and pottery of the Shang period is incredibly rich, and since bronze weapons frequently are recovered from archaeological contexts containing bronze vessels or pottery, the weapons can be dated by association with these better known and more common artifact categories.

### 3. *Bronze vessels*

The category of objects found in burials that has the most direct relationship with bronze weapons is bronze ritual vessels. Bronze vessels have been a major focus of research attention, and the highly refined chronology of Late Shang period bronze ritual vessels that has been established over the years can provide an invaluable reference for dating associated features and artifacts, including bronze weapons, although there are still many debates concerning bronze vessel periodization.<sup>3</sup> Bronze vessel typology (and pottery typology) has been instrumental in dating four burials in the western sector of Yinxu to Yinxu Period I: Xiaotun M331, M338, and M232 (Zou Heng 1980: 76; Zheng Zhenxiang 1985; Yang and Yang 1985) and Sanjiazhuang 三家莊 M1 (Zhongguo Shehui Kexueyuan Kaogu Yanjiusuo Anyang Gongzuodui 1983).

### 4. *Pottery*

The most extensive archaeological data available for dating Late Shang bronze weapons are associated pottery remains from burials. Pottery typology is the foundation of the present four phase periodization of Yinxu cultural remains established by the Anyang Archaeological Team (Zhongguo Kexueyuan Kaogu Yanjiusuo Anyang Fajuedui 1964; for the earlier two period chronology, see Zhongguo Kexueyuan Kaogu Yanjiusuo Anyang Fajuedui 1961: 75-76). Through association with pottery, Late Shang bronze weapons from individual burials can be placed into the systematized periodization framework for Yinxu. The burials from the western sector of Yinxu have been dated through the four period pottery typology and stratigraphical relationships (Zhongguo Shehui Kexueyuan Kaogu Yanjiusuo Anyang Gongzuodui 1979), and among these there was a total of 166 burials that contained bronze weapons: these have been assigned to Period II to Period IV through pottery association. These weapons can then be combined with data from other sites to extend Late Shang bronze weapon seriation from the Erligang 二里崗 Culture period to the Early Western Zhou period (Chen Fangmei 1997a).

<sup>3</sup> Zhang Changshou (1979) argues for a three period chronology of Late Shang bronze vessels, as does Chen Fangmei (1989). Zheng Zhenxiang (1985) and Yang and Yang (1985) favor a four period chronology.

The development sequence of Late Shang bronze weapon stylistic elements can then be used in a reconsideration of the debates concerning the dating of Yinxu Tomb No. 5 and pit E16. The bronze weapons contained in Yinxu Tomb No. 5 would indicate that it is more appropriately dated to Yinxu Period I than to Period IV. The majority of the 91 *ge* dagger-axes found in the tomb either have a straight tang and a *lan* 欄 rail between the tang and blade or have a curved tang, both of which are among the main styles of dagger-axes from the Erlitou 二里頭 Culture period through the Erligang Culture period and Yinxu Period I. After Period III, the straight-tang dagger-axe becomes uncommon, and the decorations on the curved-tang dagger-axe become greatly simplified. Tomb No. 5 contained only two socketed dagger-axes which are rarely seen in Period I but were popular during Period III. Another style of dagger-axe with an extended lower blade (胡) developed in Period IV, but none of these appeared in Tomb No. 5. The curved-tang dagger-axe unearthed from pit E16 has stylistic elements of the *kui* dragon pattern 夔紋 system and does not have bird designs along the tang, as in later dagger-axes, nor are there any signs of change toward their regularization and use as *mingqi* 明器 seen in later ones. Therefore, it is also more appropriate to assign pit E16 to Period I rather than to Period IV (Chen Fangmei 1997a).

Due to a lack of absolute dates for archaeological contexts containing bronze weapons at Yinxu, as has been shown above, other data have been employed, including stratigraphy, oracle bone inscriptions, bronze ritual vessels, and pottery, to develop relative chronologies and periodizations. It has also been shown that these typological techniques can be subjective and problematic. Defined styles actually fluctuate through their life cycles, and thus these dating methods based on stylistic seriation are relatively loose. This would also include the Anyang four phase pottery periodization in use since the 1960s. Researchers need to make consideration of this before accepting the four period hypothesis without question. The more lines of evidence we can use for periodization, the more solid it will be. It must also be emphasized, though, that the application of multiple lines of dating evidence may also lead to more contradictions.

In summary, Anyang is the birthplace of scientific archaeological excavation in China, and there has been significant progress in archaeological research in China over the seventy years since the start of the Yinxu excavations. A chronology of Late Shang bronze weapons can now be established based on archaeological data from the Anyang area, and we now know the time of origin and popular usage for many types of bronze weapons. However, compared to studies of bronze vessels, bronze weapons research still lags behind in establishing a detailed

chronology. In addition to establishing a sophisticated periodization, the causes of stylistic variation should be a future consideration.

## *II. The dating of bronze weapons from outside the Central Plains*

It is necessary to develop a chronology of bronze weapons for other areas of ancient China beside Anyang. By the Late Shang period, bronze weapons become prevalent at sites outside of the Central Plains, such as the important assemblages from Chenggu 城固 in Shaanxi Province, Xin'gan 新干 in Jiangxi Province, and Sanxingdui 三星堆 in Sichuan Province. The problems of dating these assemblages are more complicated than those of Anyang, as can be seen in the debate over the dating of the Xin'gan tomb.

There are different ideas concerning the chronology of the Xin'gan tomb.<sup>4</sup> One group of scholars asserts that the tomb dates to the Late Shang period. The proponents of this theory include the excavators of the Xin'gan tomb; Peng Shifan (Peng et al. 1991), who suggests that the tomb belongs to the early and middle period of YinXu; Li Xueqin (1991), who argues for the early period of the Late Shang; and Zou Heng (1990), who advocates a date of no later than the Late Shang. A second group of scholars doubt that the Xin'gan tomb dates to the Late Shang. Ma Chengyuan (1992) argues that the tomb should actually date later than the Shang period, and Hayashi Minao (1994) dates it to the Western Zhou period.

The major cause for this dating controversy and others is that outside the Central Plains there is usually no well-established local chronology, and so the dating of non-Central Plains bronzes has to rely on chronological criteria from the Central Plains (Li Xueqin 1988).

Bronzes from outside the Central Plains often share stylistic elements with bronzes from the Central Plains. Bronze weapons from Xin'gan, such as the straight-tang dagger-axe with *lan* and the curved-tang dagger-axe, have similarities with those from Anyang, yet it is inappropriate to say these similarities are from contemporaneous cultural interaction because the areas are separated by long distances (after Chang 1981). For the Anyang and Xin'gan area, however, not only bronze weapons but also bronze ritual vessels, jades, and pottery share many similarities, and these many stylistic similarities are significant (see Chang 1985: 40). There still exist problems, though, concerning the dating of the artifacts through an assumption of their similarities being due to

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<sup>4</sup> Editors' note: for a discussion on Xin'gan bronze *ding* vessel typology and dating, see Zhang Changshou's article in this issue.

cultural diffusion. There may be other causes of similarity, and even if diffusion were the cause, then this would still require a consideration of the time needed for the diffusion as well as its direction.

Indeed, scholars have been strongly influenced by diffusionism to explain the phenomenon of similar cultural elements in disparate areas. Noel Barnard (1992: 43-45) believes that the effects of time and space influence the process of diffusion, so one needs to consider the process of "cultural lag." Dual cultural attributes at some archaeological sites may have resulted from this cultural lag. The expansion of a principal culture causes neighboring small culture zones to become "receiving zones," and because of the distance from the principal culture, although the receiving zone may share cultural elements with it, they are actually slightly later in date.

Ma Chengyuan (1992: 214) also argues for an idea similar to cultural lag for constructing the chronology of archaeological cultures which have dual-cultural attributes outside of the Central Plains, and this is reflected in his suggestions on the chronology of mound-tombs in southern China and that of the Xin'gan tomb. The majority of scholars date the southern mound-tombs to the Western Zhou period based on the resemblance of weapon styles to those of the Central Plains. Ma emphasizes that other stylistic attributes in these tombs show later elements. Therefore, he suggests that the dates of the southern mound-tombs should actually lag a whole period behind the Western Zhou period stylistic elements found in them. By the same logic, he suggests that the Xin'gan tomb should not date back to the Shang period, even though it contained objects with Shang attributes.

Li Xueqin (1988: 78-82) has another opinion on cultural diffusion between the Central Plains and outside areas during the Shang and Zhou periods. He asserts that "the typology and decoration of the non-Central Plains bronzes resembling those of the Central Plains bronzes were cast close in time," and therefore the Xin'gan tomb would date earlier, to the Late Shang period.

In order to resolve the debates on chronology which were shaped by different diffusionist viewpoints, we should refer to other associated artifacts, such as pottery (Li Xueqin 1989). The Xin'gan tomb's ceramic style resembles that of the Wucheng 吳城 Period 2 Culture (Peng et al. 1988), which corresponds with the early and middle periods of the Late Shang, and thus, if we refer to other bronzes as well, a Late Shang date for the Xin'gan tomb seems reasonable.

A "Central Plains Core" model of cultural diffusion outwards from the Central Plains has been employed for some time by scholars to explain the similarity of cultural elements between the Central Plains

and non-Central Plains areas, and this outward diffusion is usually seen as quick-moving. The bronze weapons from the Xin'gan tomb raise a parallel problem in employing this approach, however: how does one date local style bronzes that have no analogous type in the Central Plains, such as the Xin'gan style sword, leaf-shaped dagger-axe, and combined dagger-axe and spear *ji* 戟 halberd? Stating that an object was "influenced" by the Central Plains or is "close in date to the Central Plains period" is insufficient to explain indigenous cultural development. Moreover, the *ji* halberd appears during the Early Western Zhou period in the Central Plains, such as those from tomb 42 at Xincun 辛村 in Junxian 濬縣, Henan (Guo Baojun 1964). Some scholars try to account for this by instead dating the Xin'gan tomb to later than the Shang period, and thus maintain the idea of a Central Plains core.

Xin'gan bronze weapons show that Central Plains dating standards cannot be used to establish the chronology of indigenous styles. The Xin'gan crimped-tang axe 夾內鉞 indicates the possibility of multi-regional development and dual interaction. The axe features a central open mouth with teeth that is decorated with embossed work, and a border of cloud-and-thunder patterns is found along three edges of the body. These types of design elements are absent from Erligang period remains around the city of Zhengzhou 鄭州 in Henan (Liao Yongmin 1957: 74), yet they are similar to those on an axe unearthed from Panlongcheng 盤龍城 tomb number 2 in Hubei (Hubei Sheng Bowuguan 1976: 27-33). These axes are also indicative of the tomb owner's high social status, and this is a practice that can be traced back in South China to the Neolithic tradition of furnishing elite burials with jade axes (Chen Fangmei 1997b).

Dual-interactions in the Late Shang period probably also occurred between the Central Plains and northern areas. For instance, there are animal pommel knives and tubular socket axes of typical Northern Steppe styles which have been unearthed at Anyang (Shi Zhangru 1970: 126; Zhongguo Shehuikexueyuan Kaogu Yanjiusuo 1984: 103; Zhongguo Shehuikexueyuan Kaogu Yanjiusuo Anyang Gongzuodui 1986: 709; Gao Quxun 1967: 368-375; Henan Sheng Wenhuaaju Wenwu Gongzuodui 1958: 56). Northern style bronze weapons are usually excavated from individual burials rather than tomb clusters while others are known from museum collections and are without archaeological context. Studies of northern bronzes also encounter the same difficulty of dating as we noted for South China: local dating sequences are not developed and so objects are dated by reference to the Central Plains, and this cannot explain indigenous developments. Northern style bronzes, including weapons from burials, have been found in Hebei,

Shanxi, northern and central Shaanxi, and the Ordos Plateau. Northern style weapons from these burials have been dated by comparison of their associated bronze vessels with those from the Central Plains. More discoveries have forced the re-evaluation of established chronologies, such as the redating of the Chaodaogou 抄道溝 bronzes found at Qinglong 青龍, Hebei (Zheng Shaozong 1962), from the Warring States period to the Late Shang (Zhongguo Qingtongqi Quanji Bianji Weiyuanhui 1995).

Other northern style bronzes have also been placed into the Central Plains chronology (Zou Heng 1980: 274-275; Zhang Changshou 1979: 20-29; Zheng Zhenxiang 1985: 66-67; Chen Fangmei 1992a: 270), yet they, too, in all likelihood, are composed of indigenous, local styles and should be re-evaluated. The dating criteria come from the Central Plains, and so, since the styles of the northern bronzes have similarities to Central Plains bronzes, scholars generally assume the northern bronzes are contemporaneous or slightly later in time and have difficulty saying the northern bronzes could be earlier. Thus, in current chronological schema, when objects occur both at Anyang and in the north, such as animal pommel knives and tubular socket axes, it is difficult for researchers to claim that they started earlier in the north and that Anyang was influenced from the north through dual interaction.

Therefore, since equal standards of dating have yet to be established between these two areas, it is necessary for us to further explore this issue by analyzing the structural role of artifact typology in each cultural assemblage. Each artifact needs to be considered within its original cultural context (Chang 1985: 40), and thus we can uncover different meanings for an identical type of artifact in different regions's cultural assemblages. For instance, in the northern area, as noted above, the tubular socket axe commonly occurs with animal pommel knives and swords. In a burial in Jixian 吉縣, Shanxi Province, a tubular socket axe was at the left side of the tomb's occupant and a bell pommel sword was on the right side (Jixian Wenwu Gongzuozhan 1985: 848). This type of burial is absent at Anyang, and only one tubular socket axe has been unearthed at Anyang, from Tomb 539 in Dasikongcun 大司空村, which also contained 13 *ge* dagger-axes and other typical Anyang style weaponry (Zhongguo Shehuikexueyuan Kaogu Yanjiusuo Anyang Gongzuodui 1992). These two tombs indicate that the same artifact can play different structural roles in different regions and that the tubular socket axe at Anyang was likely from an outside area. Such studies of bronze weapons can support the dual interactions hypothesis between Anyang and other regions as well as offer exciting possibilities for re-considerations of current dating standards and practices

*Conclusions*

Bronze weapons have been used as one of the major research materials to reconstruct cultural configurations in the past. The primary purpose in studies of bronze weapons has been to build chronology and sequences of spatial distributions. Using primarily data from the Yinxu excavations conducted over the past seventy years, scientific studies of bronze weapons have successfully determined patterns of spatial distributions, but what needs to be further developed is a detailed chronology. The more data we obtain from archaeological contexts, the more standards we can refer to in constructing periodizations of artifacts. Yet a chronology of bronze weapons based on stratigraphy, oracle bone inscriptions, bronze vessels, and pottery has limitations and may not be able to show the chronology of a type that is in use across several periods or the specific period of its use. For this reason, all feasible dating systems must be employed to develop a detailed periodization of higher resolution for bronze weapons.

Great efforts have been expended in building a detailed periodization of bronze weapons, and new data continuously results in the updating and re-ordering of the sequences of various types. Thus, as more lines of evidence are employed, we have to be very cautious that multiple dating references do not entrap us in contradictions. Moreover, typology and periodization should never be an ultimate goal in themselves: the goal for building chronology is to investigate the cultural meanings of artifacts (Yin Da 1963: 585; Chen Fangmei 1992b: 985-986).

Dating artifacts from outside the Central Plains is more complicated than dating Central Plains artifacts. Systematic excavations in each region are essential for building regional chronologies. Research on Late Shang bronze weapons suggests interactions between the Central Plains and other areas, and this interaction can be traced back to the Neolithic: the shift in Neolithic studies from the "Central Plains nuclear area hypothesis" to the "regional multiple-interactions theory" (Su Bingqi 1991; Yan Wenming 1987; Tong Zhuchen 1986; Chang Kwang-chih 1989 and 1985) should have significant implications for Late Shang archaeology.

The Late Shang capital at Anyang was a metropolitan center, and studies of Late Shang bronze weapons seem to suggest the possibility of multiple-interactions with this center. These interactions indicate a complex network of cultural relationships between Anyang and other areas. The styles of bronze weaponry give evidence to dual, or bi-directional, interactions, and these bi-directional interactions would need to have occurred both in the Central Plains and in areas outside

the Central Plains. Especially at Anyang, artifacts reveal the significance of multi-cultural phenomena. Late Shang bronze weaponry data show that the city of Anyang developed its own weaponry system of the *ge* dagger-axe: at Anyang, bronze *ge* dagger-axes are an important component of the burial sacrifice ritual system, and their number, quality of manufacture, decorative elements, and position in the burial all reflect the status of the person they accompany (Chen Fangmei 1997a). The Anyang weaponry system also incorporated outside characteristics into its weapon types, such as animal pommel knives and tubular socket axes from the north, triangular blade dagger-axes from the southwest, and the crimped-tang axe from the south (Chen Fangmei 1992a). These stylistically-based conclusions are supported by oracle bone inscriptions concerning warfare between Anyang and the bordering regions, of which there are over two-thousand inscriptions (Zhongguo Shehuikexueyuan Lishi Yanjiusuo 1978-1983), and thus the inscriptions supply an historical background in which to interpret cultural interactions revealed in material culture.

Studies of Late Shang period bronze weapons show that there is an imbalance in the development and use of bronze weaponry between different centers, while weapon types can also reveal characteristics of multi-regionalism. The nature of this multi-regionalism can be more fully revealed through finer chronology, and this in turn will also affect scholars's views concerning chronology as well as explanations of certain cultural phenomena. The resulting interpretational interplay between chronology and cultural phenomena will bring about new research perspectives and viewpoints.

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