The Northern Zone and Mongolian Plateau Metallurgical Province: The Cultural Foundations of the Xiongnu Confederation

Shao Huiqiu (邵会秋), Yang Jianhua (杨建华)

Abstract: *This article attempts to deduce a historical process by proposing that from the emergence of the Northern Zone and Mongolian Plateau Metallurgical Province to the formation of the Xiongnu Confederation there were close contacts between the Trans-Baikal region, the Mongolian Plateau, and the Northern Zone. This formed a cultural sphere or arena across which many types of exchange took shape during the first half of the second millennium BC. The Northern Zone and Mongolian Plateau Metallurgical Province was established and reached its apogee between the second half of the second millennium BC, during the Shang and Zhou dynastic periods. This metallurgical province extended as far as the Minusinsk Basin in the northwest, and as far south as the southern border of the Northern Zone in China. Throughout the emergence of this metallurgy province, the cultural relationships between the Northern Zone, Mongolian Plateau, and Trans-Baikal were continuously elaborated, and this south-north channel of contact continued for thousands of years. This critical route of contact laid the foundation for the establishment of the Xiongnu presence in Trans-Baikal and the Mongolian Plateau, when interaction between the Northern Zone and the Xiongnu was at its peak. The cultures in this province were comparatively closed and with stable traditions, as is evidenced by material culture such as weapons, tools, ornaments, and pottery that penetrated all social classes in the region; this stability is taken here as contributory to the emergence of the first nomadic empire in the Steppe.*

Key Words: *metallurgical province; Xiongnu confederation; the Northern Zone and Mongolian Plateau*

The Northern Zone in China (the territory mainly along the Great Wall) can be considered as a very important part of the Eurasian Steppe, where communication between eastern and western Eurasia could be witnessed as early as the third millennium BC (Linduff 2005, 2014; Linduff and Mei Jianjun 2014). Prior to the emergence of the Silk Road, we can call it the "Steppe Metal Road" because of the paths and contents of exchange during the prehistoric period of the Eurasian Steppe. Current research demonstrates that metal's appearance in the western Eurasian Steppe can be dated back to as early as the fifth millennium BC, and it spread to the Asian Steppe through the Ural Mountains from the third millennium BC (Koryakova 2006). Contact between the Northern Zone and the Eurasian Steppe can be identified in two directions: there is contact to the west and northwest with the Inner Asian Mountain Corridor (Frachetti 2012) and to the north with the eastern Mongolian Plateau and the Trans-Baikal area.

A "metallurgical province" is a term that is used primarily in Russian archaeology to describe systems or federations of related metallurgical focuses, which can be distinguished from other, different groups of related focuses, and the geographical boundaries between them can be defined (Chernykh 1992). Since cultural remains of peoples across a combined region of the Northern Zone, the Mongolian Plateau, and the Trans-Baikal area during the Bronze and Iron Ages are distinctive from other areas, with people across this broad region sharing artifact

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types, decorative features and styles, and iconography of their own making, we borrow the concept of the metallurgical province and define one here as the Northern Zone and Mongolian Plateau Metallurgical Province (Yang Jianhua 2007). The vast region of the Northern Zone and Mongolian Plateau Metallurgical Province is the same area in which the Xiongnu Confederation was subsequently established in later times. We thus must ask how did this cultural contact occur and develop, and how might have it contributed to the formation of the Xiongnu Confederation? By analyzing the relationships between the objects excavated in different areas from different ages, this paper attempts to deduce the historical processes by which the occurrence of the Northern Zone and Mongolian Plateau Metallurgical Province was involved in the formation of Xiongnu Confederation.

1. The beginnings of the Northern Zone and Mongolian Plateau Metallurgical Province

The beginning of the development of bronze culture in the Northern Zone bronze occurs during the first half of the second millennium BC[1], when many different bronze cultures emerged. Although the Northern Zone bronze culture was just in its nascence, contact between the Northern Zone and Mongolian Plateau and other areas can already be observed.

During this nascent period, a particular type of knife with an upturned point and a ring at the end of the hilt was popular in the Northern Zone and Mongolian Plateau. The features of this type of knife include, in addition to most of them having a ring at the end of the hilt and an upward turning point, a recess in the hilt which makes its cross-section appear concave and a bend at the connecting area between the hilt and the blade, which together make the knife form an "S" shape outline. The distribution of this kind of knife was very wide, but most of them are seen at the border between the Eurasian Steppe and the northernmost areas of the Northern Zone (Figure 1). This knife can be found in the Tianshanbeilu 天山北路 Culture in Hami 哈密 (Qianwei et al. 2001) (Figure 2: 4), the Siba 四坝 Culture in the Hexi 河西 Corridor (Li Shuicheng and Shui Tao 2000) (Figure 2: 7), and the northern Shaanxi 陕西 and the Lower Xiajiadian 夏家店下层 Culture to the north of Yanshan 燕山. Examples have been excavated from the Lower Xiajiadian Culture Dongli 东犁 site, in Naiman 奈曼, in the eastern part of Inner Mongolia (Li Dianfu 1983) (Figure 2: 5). A layer at the Dongli site contains ceramics that could be dated to 4000–3600 BP by cross-dating. A similar knife was found in remains of a house at the Huoshiliang 火石梁 site in Yulin 榆林, Shaanxi (Cao Wei 2009), with a broken ring at the top of its short hilt and a triangular blade (Figure 2: 6). According to the stratigraphic evidence, this house was dated to about 2000 BC (Cao Wei 2009: 1093).

The typological evolution of this kind of knife can be seen from the hilts and the connecting area between hilt and blade. Its hilt is curved, and is clearly a separate section from the curved blade, which makes the knife take on an "S" shape. This kind of knife was used into the second half of the second millennium BC, but the connecting area in the later stages of its use becomes less obvious. During this time period, this kind of knife is mainly seen in Mongolia and the northern part of the Northern Zone. Outside China, its distribution becomes limited to Mongolia (Figure 2: 1, 2), Trans-Baikal (Figure 2: 3), and several other areas (Volkov 1967; Novgorodova 1989; Grishyn 1981) where it evolved in a similar fashion. Thus, this kind of knife was one of the northern types of bronzes that were distributed widely in the areas between the Northern Zone and the Mongolian Plateau.

Besides this type of knife, bronze linked bead ornaments 联珠饰 are another kind of bronze that is noteworthy. As the most common kind of ornament in the eastern Upper Xiajiadian Culture and the Slab-stone Tomb Culture, it is a typical ornament of the Northern Zone and Mongolian Plateau Metallurgy Province. They are distributed fairly widely. From current dis-

1. All of the absolute chronology for the Central Plains here is cited from two books (Zhongguo she hui ke xue yuan kao gu yan jiu suo 2003 and 2004).

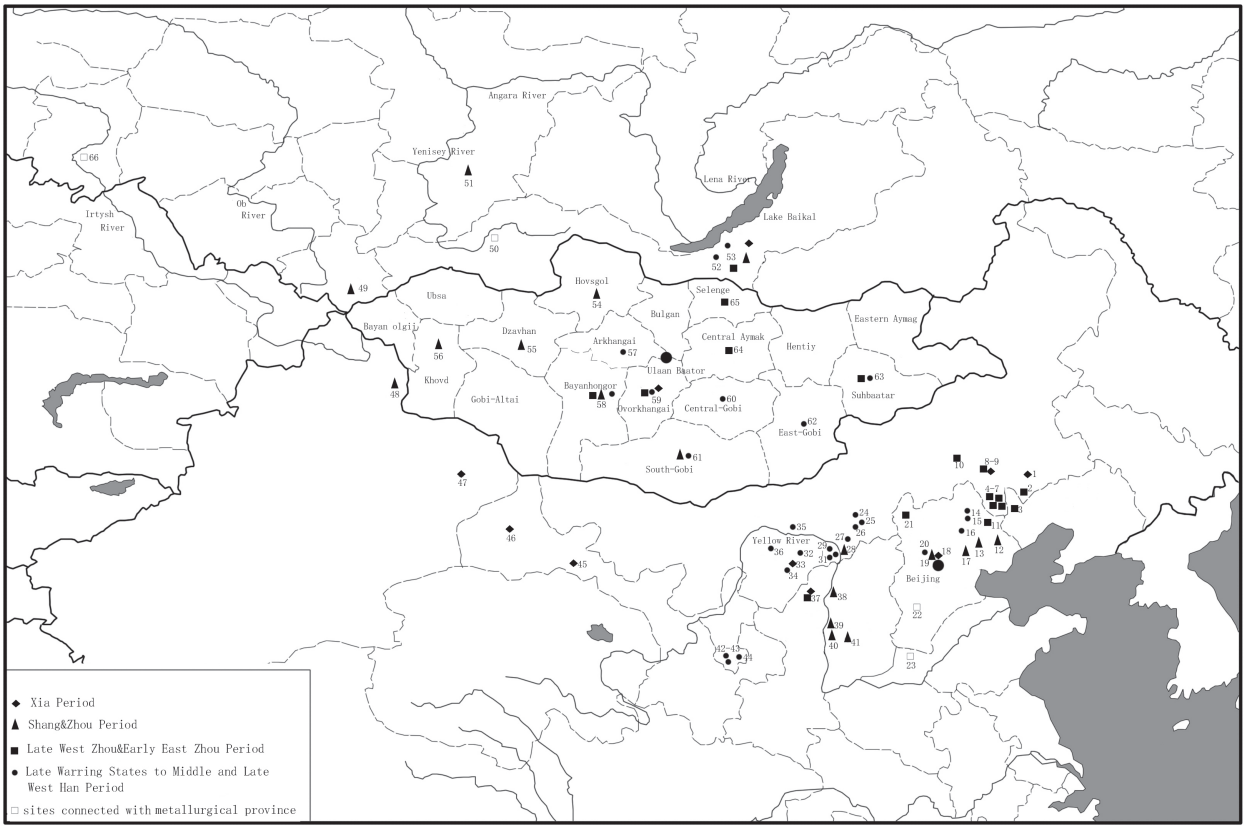

Figure 1. Sites related to the Northern Zone and Mongolian Plateau Metallurgical Province.

1. Dongli 东犁 ; 2. Zhoujiadi 周家地 ; 3. Shuiquanchengzi 水泉城子 ; 4. Xiaoheishigou 小黑石沟 ; 5. Nanshangen 南山根 ; 6. Tianjuquan 天巨泉 ; 7. Wafangzhong 瓦房中 ; 8. Dapaozi 大泡子 ; 9. Wufendi 五分地 ; 10. Longtoushan 龙头山 ; 11. Dongnangou 东南沟 ; 12. Chaodaogou 抄道沟 ; 13. Xiaohenan 小河南 ; 14. Luotuoliang 骆驼梁 ; 15. Xinangou 西南沟 ; 16. Qinzigou 芩子沟 ; 17. Zhangjiayuan 张家园 ; 18. Zhangying 张营 ; 19. Baifu 白浮 ; 20. Yuhuangmiao 玉皇庙 ; 21. Kangbao 康保 ; 22. Taixi 台西 ; 23. YInxu 殷墟 ; 24. Guoxianyaozi 崞县窑子 ; 25. Yinniugou 饮牛沟 ; 26. Maoqinggou 毛庆沟 ; 27. Xindianzi 新店子 ; 28. Xicha 西岔 ; 29. Xigoupan 西沟畔 ; 30. Sujigou 速机沟 ; 31. Yulongtai 玉隆太 ; 32. Nianfangqu 碾房渠 ; 33. Zhukaigou 朱开沟 ; 34. Shihuigou 石灰沟 ; 35. Xiyuan 西园 ; 36. Aluchaideng 阿鲁柴登 ; 37. Yulin 榆林 ; 38. Baode 保德 ; 39. Liulin 柳林 ; 40. Shilou 石楼 ; 41. Lingshi 灵石 ; 42. Yujiazhuang 于家庄 ; 43. Samencun 撒门村 ; 44. Zhangjiecun 张街村 ; 45. Ganguya 干骨崖 ; 46. Yinshuwo 鹰树窝 ; 47. Tianshanbeilu 天山北路 ; 48. Qinghe 青河 ; 49. Altai; 50. Arzhan; 51. Minusinsk; 52. Ivolga; 53. Derestui; 54. Hovsgol; 55. Dzavhan; 56. Khovd; 57. Arkhangai; 58. Bayanhongor; 59. Ovorkhangai; 60. Cenrtral-Gobi; 61. South-Gobi; 62. East-Gobi; 63. Suhbaatar; 64. Hentiy; 65. Selenge; 66. Rostovka.

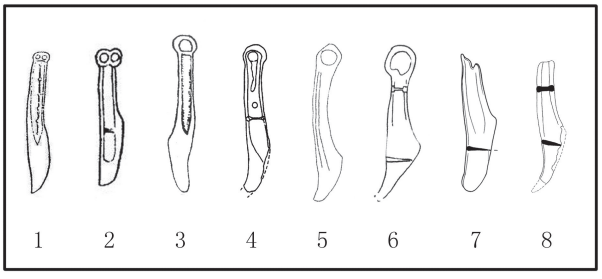

Figure 2. Bronze knives from the first half of the second millennium BC.

1–2. Mongolia; 3. Trans-Baikal; 4. Tianshanbeilu; 5. Dongli; 6. Huoshiliang; 7. Ganguya (after Shao Huiqiu and Yang Jianhua 2015; fig. 13).

coveries, the earliest ones are found in the Siba and Tianshanbeilu cultures (Figure 3). Although most bronzes of these two cultures are from the Inner Asian Mountain Corridor, these linked bead ornaments were not a traditional ornament there. It is speculated that they were resultant from influence by cultures to the east. Therefore, it is highly likely that these ornaments come from the first half of the second millennium BC in the Northern Zone and Mongolian Plateau. Although the Northern Zone and Mongolian Plateau Metallurgy Province has been thought to have formed after this time period—during

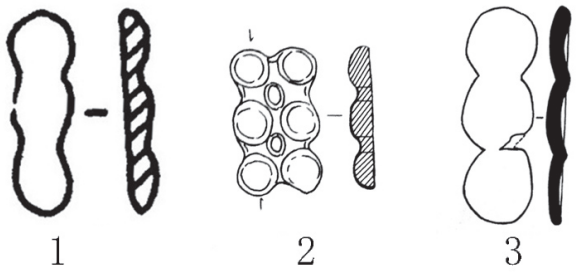

Figure 3. Bronze linked bead ornaments from the Tianshanbeilu Culture and the Siba Culture.
1. Tianshanbeilu (after Qian Wei 2001: fig. 1.27); 2. Ganguya (after Li Shuicheng and Shui Tao 2000: fig. 38.10); 3. Yingshuwo (after Li Shuicheng and Shui Tao 2000: fig. 38.11).

the later second millennium BC—the discovery of these earlier bronze knives and linked bead ornaments suggests that the metallurgy province might have taken shape earlier, as early as the first half of the second millennium BC.

2. The Golden Age of the Northern Zone and Mongolian Plateau Metallurgy Province

During the middle of the second millennium BC, bronze production technology in the Northern Zone was becoming more sophisticated. Numerous bronze objects from this stage have been excavated across all areas of the Northern Zone. The two main sites of discovery are the Taixi 台西 site in Hebei and the Zhukaigou 朱开沟 site in south-central Inner Mongolia. These played a very important role in the rise of the Northern Zone and Mongolian Plateau Metallurgy Province.

The Taixi site belongs to the "northern type" of the Early Shang Culture (Hebei sheng wen wu yan jiu suo 1985). Over 3,000 objects were excavated from this site, including some bronzes with northern features, including *zhuo ge* 啄戈 halberds; sheep-head shaped pommel *bi* 羊首匕 with lines of small squares on the hilt side (Figure 6: 1); arrowheads with a hafting hole for the shaft; and small scimitars. Its early age and unique location at the junction between the Shang Culture of the Central Plains and the Northern Zone prove its importance in the rise of northern bronzes. No similar remains have been found in the Northern Zone or other areas outside of China. Therefore, the Taixi site might have been an important origin point for the Northern Zone bronze culture.

Zhukaigou is another important northern bronze culture site dating to the middle of the second millennium BC. Not only bronze objects such as tripod vessels and *ge* halberds of the Shang Culture were found here, but also the earliest northern bronze short sword and knife. This short sword has a ring pommel and a straight hilt, on which traces of ropes can be seen. The crossguard (剑格 *jian ge*, or quillon) of this short sword has an overall splayed shape. There is a small notch between the crossguard and the blade. The bronze knife excavated has a ring pommel, long blade, and upturned point; it also has the same notch as that on the short sword (Neimenggu wen wu kao gu yan jiu suo 2000).

The Northern Zone, Mongolia, and Trans-Baikal each reached a level of prosperity in bronze production during the late second and early first millennium BC. Across this region, a large quantity of similar individual bronze objects and assemblages have been discovered. Eight of these assemblages in the Northern Zone include those from Jingjie 旌介 , Shilou 石楼 , Baode 保德 , Xicha 西岔 , Chaodaogou 抄道沟 , Zhangjiayuan 张家园 , Baifu 白浮 , and Chifeng 赤峰 . These are the most important centers of Northern Zone bronze production, with sites found distributed from Shanxi and the Shaanxi Plateau to the north and south of the Yanshan and Taihang Mountains (Yang Jianhua 2007). Bronze objects found in Mongolia and Trans-Baikal from this period are all of similar variety to those of the two northern regions. Thus, during this time period, the metallurgical province should be seen as including the Northern Zone, the Mongolian Plateau, and Trans-Baikal, and it reaches to the Minusinsk Basin in the west. This is the widest extent of the province in its history, and thus it was obviously at the peak of its development. Across this wide area, the various groups of bronze objects are of a high degree of similarity, which raises the question of who had influenced whom. The popular opinion is that this kind of bronze originated in the Minusinsk Basin (Legrand 2004). The most important precondition for solving this problem is the chronology of the objects. However, there has not been any dating for the bronze objects

from other countries, while the Northern Zone contained a good number of objects that have been dated to the same time period. As a result, bronzes from the Northern Zone are critical to answering this question.

Here we take the evolution of the bronze short sword as an example to illustrate cultural contact within this province. Two kinds of bronze short swords (Type A and Type B) were popular in the Northern Zone from the last quarter of the second millennium BC.

The Type A short sword has a notched crossguard, long blade, and simple decorations on the hilt. The earliest notched crossguard short sword found is from Zhukaigou and dates to around the fifteenth century BC. Although following the Zhukaigou time period, during the time period equivalent to the Central Plains' Late Shang period, no typical notched crossguard short swords have been found, obviously this kind of short sword did not disappear, as it becomes popular and spreads widely in the Western Zhou period, when it evolves into short swords with a mushroom-cap pommel. The distribution of this kind of short sword is very wide. It is found not only in the Northern Zone, Xinjiang, Mongolia, the Altai, and the Minusinsk Basin (Figure 4: 10, 11, 20, 21), but also in Kiev in the Ukraine (Lin Yun 2011) (Figure 4: 9). This kind of short sword became popular again in the Northern Zone (Figures 4, 17–19) during the tenth-ninth centuries BC, as seen in the Baifu cemetery. Therefore, those that existed earlier than the Baifu short swords, which we can now surmise typologically, should belong to the second half of the second millennium BC. During the ninth-seventh centuries BC, this notched crossguard short sword began to decline and change in shape. Short swords found from the Upper Xiajiadian Culture feature bigger notches, plain hilt pommels, and richer decorations on the hilts (Neimenggu zi zhi qu wen wu kao gu yan jiu suo, Ningcheng Xian Liaozhongjing bo wu guan 2009; Ningcheng Xian wen wu guan, Zhongguo she hui ke xue yuan kao gu xi 1985) (Figure 4: 22, 23). However short swords found in the Arzhan Ⅰ kurgan in Tuva (Gryaznov 1969) of the same age have narrow herringbone crossguards (Figures 4, 24, 25) that gradually evolved into the heavy herringbone crossguards of the eighth-fifth centuries BC.

The TypeB short sword features a wide, "—"-shaped, straight crossguard and a curved, richly decorated hilt. The earliest "—"-shaped crossguard short sword was found at Chaodaogou 抄道沟 , in Qinglong 青龙 , Hebei (Hebei shengwen hua juwen wu gong zuo dui 1962) (Figure 4: 2). The knives with animal head-shaped decoration excavated from this site were shaped similarly to the bronze knives from the Fuhao 妇好 tomb at Anyang (Zhongguo she hui ke xue yuan kao gu yan jiu suo 1980), which dates no later than the archaeological Period 2 at Anyang, and so can be dated to the fourteenth-thirteenth centuries BC. By this time, the "—"-shaped crossguard short sword is found distributed widely in the Northern Zone (Yang Jianhua 2007) and some areas of the Eurasian Steppe (Figure 4: 6–8). However, this kind of short sword remained popular only for a short period of time, mainly in late stage of Late Shang culture period (twelfth-eleventh centuries BC) and Early Western Zhou Period (eleventh-tenth centuries BC). Mushroom-cap pommel short swords can be dated to during the Western Zhou Period, while most animal pommel and jingle pommel short swords date to the earlier part of this period or before, during the eleventh-tenth centuries BC. Due to the influence of the notched crossguard short swords, the blade becomes long and slim during eleventh-tenth centuries BC (Figure 4: 16).

We could find some clues from earlier remains about the origins of these two types of short swords. Type A short swords, as mentioned above, are first found at the Zhukaigou site. Their shape indicates that there might have been an inheritance relationship between these Zhukaigou short swords and composite bone handled short swords with inserted stone microblades for their cutting edge (Figure 5) from the earlier period in the Northern Zone (Miyamoto 2000). Type B short swords can be traced back to the middle of the second millennium BC in the Northern Zone and are also found among earlier Eurasian Steppe remains thought to date to the second half of the second millennium BC. The *bi* with the sheep head pommel excavated at the Taixi site (Figure 6: 1) is also significant. Such sheep heads, as an herbivore animal decoration, might have been the origin of the animal head designs found on bronze objects in

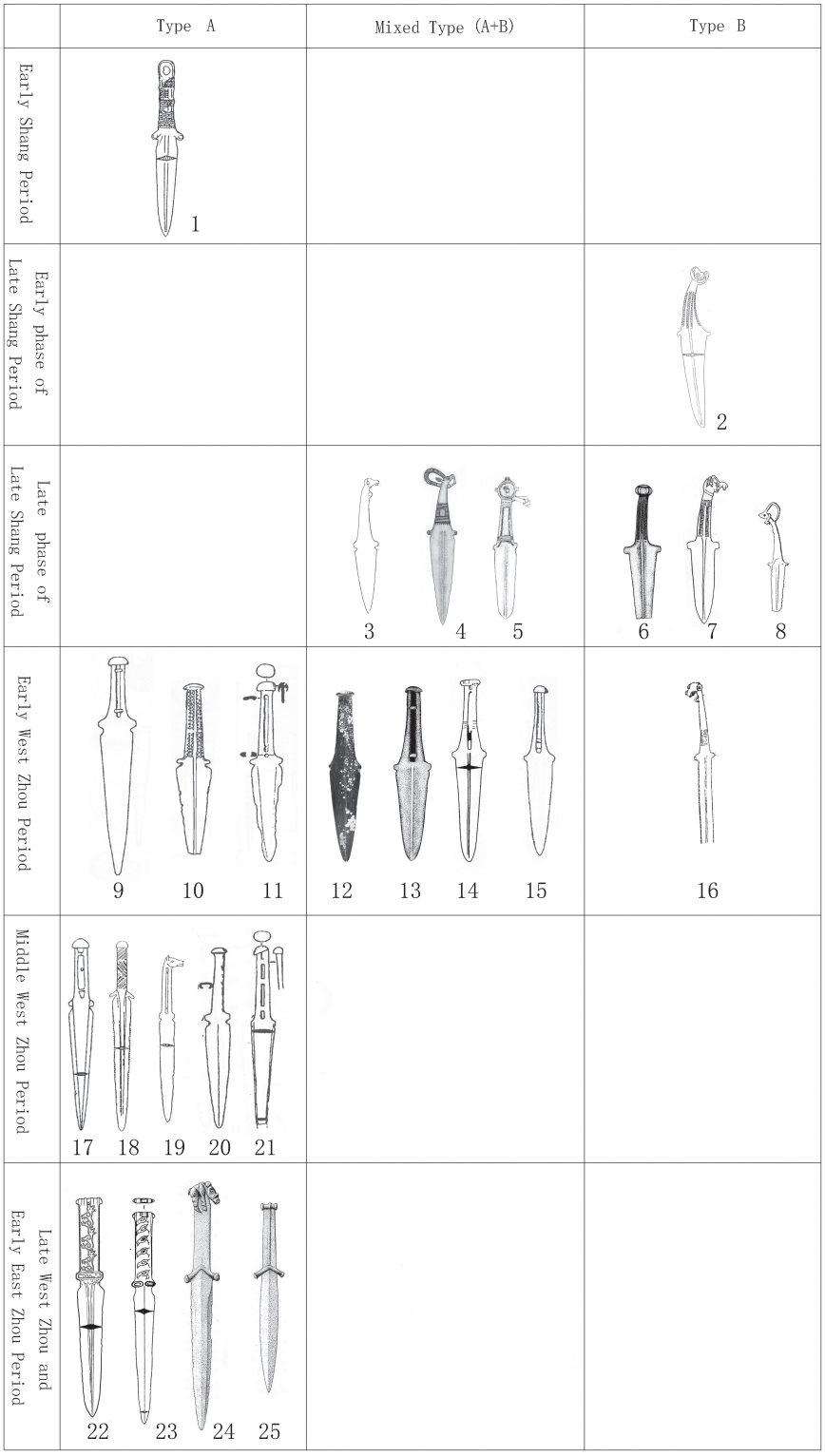

Figure 4. Two northern types of bronze short swords.

1. Zhukaigou; 2. Chaodaogou; 3, 8, 16, 20, 21. Minusinsk; 4. Bayanhongor; 5, 13. Hovsgol; 6. Dzavhan; 7, 14. South Gobi; 9. Kiev; 10. Qinghe; 11. Altai; 12. Khovd; 15. eastern Kazakhstan; 17. Xiaohenan; 18,19. Baifyu; 22. Xiaoheishigou; 23. Tianjuquan; 24, 25. Arzhan I.

(1.after Neimenggu wen wu kao gu yan jiu suo 2000: fig. 189.5; 2. after Hebei Sheng wen hua ju wen wu gong zuo dui 1962: pl. 5.5; 3, 8, 16. after Shao Huiqiu 2007: fig. 4: 13–15; 4–6, 12, 13. After Erdenechuluun 2007: figs. 292, 305, 308, 344, 311; 7,14. after Wu En 2007: figs. 76.1–2; 9–11, 15, 20, 21 after Lin Yun 2011: figs. 6.1, 5, 6, 15, 7, 8; 17. after Yang Jianhua 2007: fig. 8.5; 18, 19. after Beijing Shi wen wu guan li chu 1976: pl. 3.11,10; 22, 23. after Shao Huiqiu and Yang Jianhua 2015: figs. 3.10, 11; 24, 25. after Gryaznov 1984: fig. 11.3,2).

the Northern Zone during the Shang and Zhou Periods. In the Late Shang Period, the most popular bronze knives and short swords had curved hilts and animal pommels. The bronze short sword (Figure 4: 2) excavated from Chaodaogou is an example of the most typical type (Hebei Shengwen hua juwen wu gong zuo dui 1962). The relationship between the sheep head decoration from Taixi and the animal head decoration from Chaodaogouis was very apparent. First, both are on objects that have a sheephead pommel, although there are still differences in their forms. Secondly, both of them have very natural junctions between the animal head and the hilt, with the neck of the animal head as the hilt. The angles are also the same, which make the animal heads appear to be leaning forward and the whole short sword to be bending (Figure 6: 1, 3, 4). At the same time, the crossguard of the bronze short swords with a "—"-shaped crossguard from Chaodaogou (Figure 4: 2) is shaped very similarly to the *lan* 闌 of the bronze *ge* halberds from Taixi (Figure 6:5). The form of the Chaodaogou short sword, with its railing crossguard that was also popular on short swords of the Late Shang Period, was thus probably due to borrowing from the double-edged sheep's head *bi* and *ge* halberds with a mid-line ridge from Taixi.

The knives with animal head design from Chaodaogou have curved hilts and arched backs, a distinct boundary between the back and the blade, a wide and flat blade, and a ridged back. Similar types of knives can be found in Seima-Turbino remainsdating to an earlier time period on the Asian Steppe. The so-called Seima-Turbino Phenomenon refers to an assemblage of developed bronze remains that are found widely spread across the forest steppe of the northern Eurasia (Chernykh, 2010). This kind of knife was popular mainly between 1800 to 1400 BC (Shao Huiqiu 2015). Although there are also animal decorations on the hilts of Seima-Turbino bronze knives, the animal is in a standing position. These knoves have a distinct boundary between the hilt and pommel (Figure 6: 2). The knife and short sword pommels from Chaodaogou appear closer to the *bi* with sheep heads from Taixi. The hilts of the short swords from Chaodaogou also are curved, which suggests that they were influenced by the bronze knives from Seima-Turbino. It should be noticed that the cross-sections of the knives and short swords from Chaodaogou are convex (Figure 6: 3, 4), which distinguishes them from the concave cross-sections of the bronze knives from the first half of the second millennium BC.

Seima-Turbino remains clearly date to an earlier time period than the second half of the second millennium BC (Shao Huiqiu 2015), as can be seen at the Rostovka cemeteryin the eastern part of the Asian Steppe (Chernykh 2010). The barbed spears from this area are also found in the Central Plain and the Northern Zone, such as at the Shenna 沈那 site in Qinghai 青海 Province (Wang Guodao 1997) and the Xiawanggang 下王岗 site in Henan 河南 Province (Gao Jiangtao 2009), and this could indicative of the existence of contact between them.

The Type A and Type B short swords influenced each other in their development, and as a result, short swords with blended features from both types emerged (Figure 4: 3–5, 12–15). It should be noted that there is only a small number of Type A short swords from the Northern Zone, but they belong to the earlier time period (around the fifteenth century BC). Type B short swords are more abundant, and they had their own development paths. While the short swords of blended styles and the notched crossguard short swords that had the influence of "—"-shaped crossguard short swords are mostly distributed in the northern part of the Steppe, in Mongolia in this case (Erdenechuluun 2011) (Figure 4: 4, 5, 12–14), they also can be found in Xinjiang, the Minusinsk Basin, and eastern Kazakhstan, and as distant as Kiev. According to the known dating of Chaodaogou and Baifu, these short swords with blended features were popular mainly from the second half of the second millennium BC, and they disappeared with the decline of the "—"-shaped crossguard short swords.

Thus, we can surmise that the Type A short swords originated in the Northern Zone during the middle of the second millennium BC with the influence of the composite bone handled short swords with inserted stone microblades, while the Type B short swords emerged somewhat later, during the second half of the second millennium BC with the influence of the Taixi type from the Central Plain and the Sei-

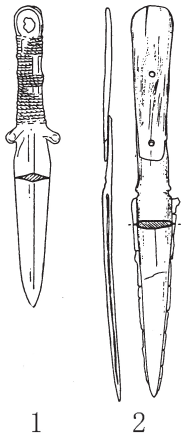

Figure 5. 1. A bronze short sword from Zhukaigou M1040 (after Neimenggu wen wu kao gu yan jiu suo 2000: fig. 189.5); 2. A composite short sword with inserted microblade cutting edge and bone hilt from Yuanyangchi M92 (after Kazuo Miyamoto 2000: fig. 38.1).

ma-Turbino remains from the Steppe, and it continued to develop in the Northern Zone. At the same time, these two types of short swords spread northwest into Xinjiang and the Eurasian Steppe, during which time they constantly influenced each other's development. The Type B short swords then disappeared during the tenth-ninth centuries BC, while Type A short swords spread back to the Northern Zone again.

There are another two pieces of evidence that prove that during the second half of the second millennium BC, the Northern Zone cultures spread to the north first. First, there is the appearance of a unique form of pottery *li* 鬲 hollow-leg tripod vessels with a snake design from the Northern Zone that is found in Mongolia and Siberia (Figure 7). Second, Northern Zone bronze helmets spread to the Mongolian Plateau.

Pottery *li* vessels with a snake design (Figure 7: 1, 2) are commonly seen at the Zhukaigou site, and they rapidly spread to regions around the Great Wall immediately following their appearance there. To the east, these vessels reach the Zhangying 张营 site of the Datuotou 大坨头 Culture in Changping 昌平 (Beijing Shi wen wu yan jiu suo, Beijing Shi Changping qu wen wu wei yuan hui 2007) (Figure 7: 3) and the Wufendi 五分地 site of the Lower Xiajiadian Culture in Wengniute 翁牛特 County (Liu Guanmin 1996) (Figure 7: 4). To the north, they enter Trans-Baikal

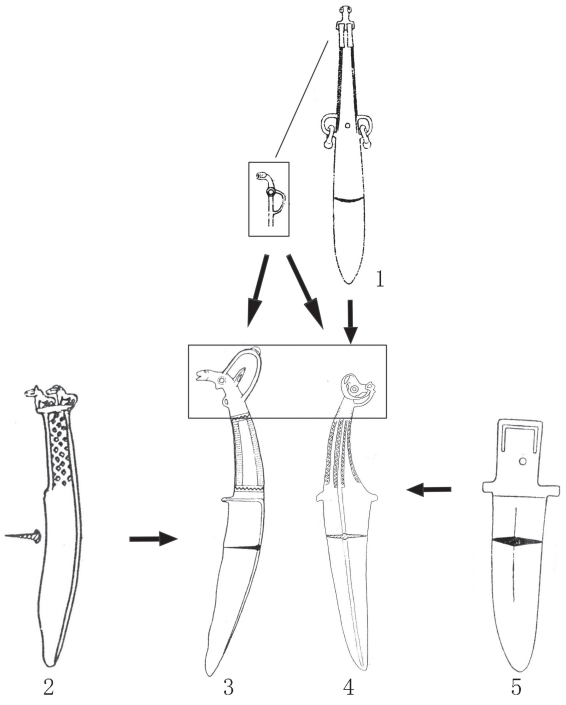

Figure 6. The origin of the bronze short sword during the second half of the second millennium BC.
1, 5. Taixi (after Hebei Sheng wen wu yan jiu suo1985: figs. 73.2, 80.8); 2. Seima (after Chernykh 2010: fig. 66.1); 3, 4. Chaodaogou (after Hebei Sheng wen hua ju wen wu gong zuo dui 1962: pls. 5.3, 5).

through the Great Khingan range and the Mongolian Gobi (Wu En 2007). From the comparison of their forms, the *li* with snake design found in Trans-Baikal can be dated to ca. 1000 BC (Li Shuicheng 2009) (Figure 7: 5–7). This widely spread *li* with snake design can be regarded as evidence for relationships within the Northern Zone and Mongolian Plateau Metallurgy Province, as the spread of pottery signifies closer relationships among the peoples. A tripod *weng* 瓮 urn (Figure 7: 8) (Gryaznov 1969) once was found in the Minusinsk Basin. Based on current research, we can see that this pottery form originated in central Shanxi Province at the end of the third millennium BC, and was distributed widely across the central and southern part of Inner Mongolia and on both sides of the Yellow River as it goes southward from its Great Bend, in central Shanxi and the central Shaanxi plain (Jing Zhongwei 2006). The tripod urn from the Minusinsk Basin was undoubtedly influenced by the Northern Zone culture. The occurrence of the tripod urn proves that the western boundary

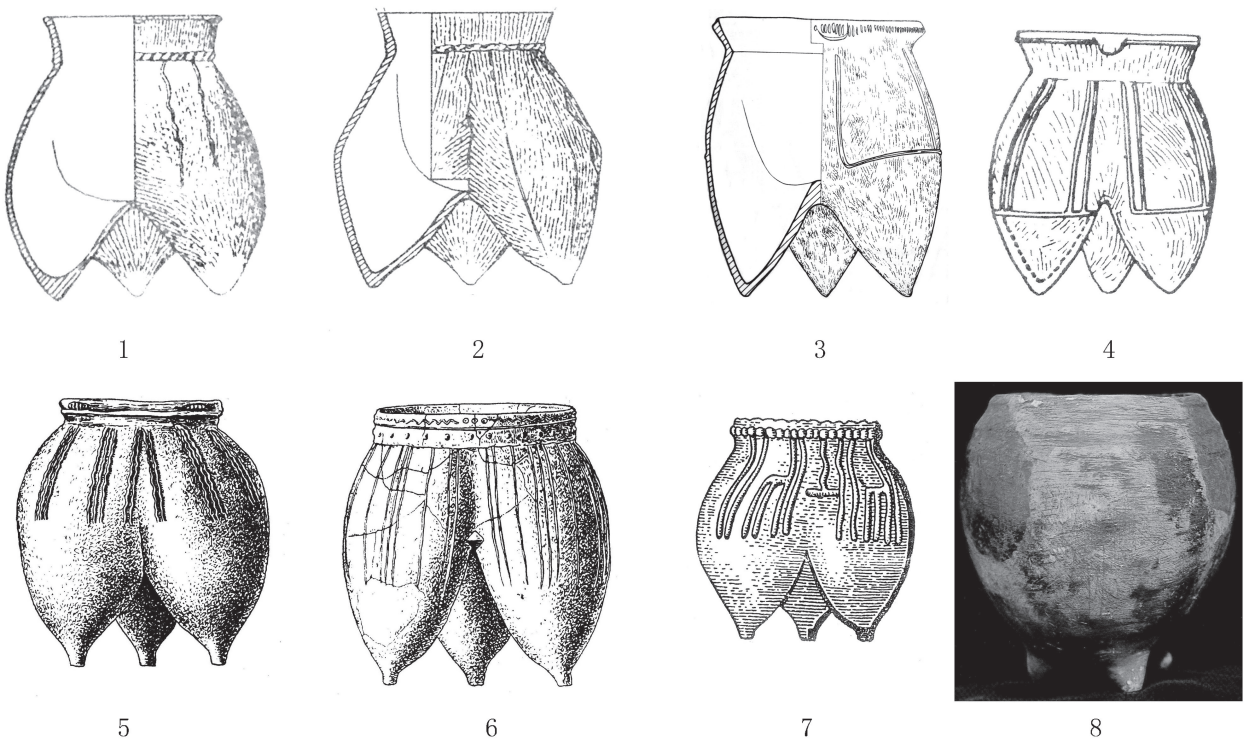

Figure 7. *Li* tripod vessels with snake design and tripod *weng* urn.

1, 2. Zhukaigou (after Neimenggu wen wu kao gu yan jiu suo 2000: fig. 67.5,11); 3. Zhangying (after Beijing Shi wen wu yan jiu suo 2007: fig. 32.1); 4. Wufendi (after Li Shuicheng 2009: fig. 4.3); 5–7. Trans-Baikal (after Wu En 2007: fig. 42.2, 3, 1); 8. Minusinsk (after Gryaznov1969: pl. 43).

of the Northern Zone and Mongolian Plateau Metallurgy Province had reached the Minusinsk Basin during its peak era. As pottery is too fragile for long-distance travel, it is more difficult for pottery to spread than it is for bronze, and so the shared pottery forms suggest deeper cultural interactions.

The other form of evidence comes from bronze helmets. The earliest bronze helmet in the Northern Zone is found at Gaohong 高红, in Liulin 柳林 County, Shanxi Province, and dates to the end of the second millennium BC (Yang Shaowu 1981). This kind of helmet was probably influenced by the bronze helmets of the Central Plain, such as were found at Late Shang Period Anyang (Figure 8: 1). These bronze helmets are found from Anyang to throughout the middle and lower Yellow River valley (Figure 8: 2). They then spread, seen first at the Baifu tomb to the south of Yanshan Mountain (Beijing Shi wen wu guan li chu 1976) (Figure 8: 3), then in the Upper Xiajiadian Culture to the north of

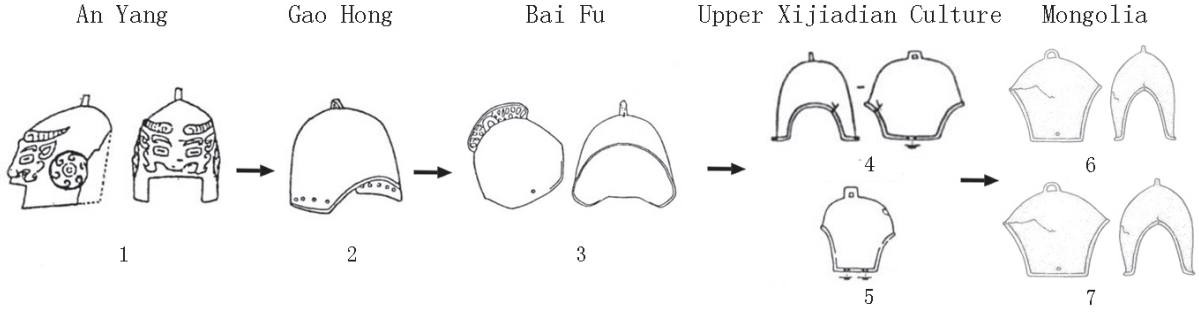

Figure 8. Schematic diagram of the spread of bronze helmets.

1. Anyang (after Yang Jianhua 2014a: fig. 6.1); 2. Gaohong (after Yang Jianhua 2014a: fig. 6.2); 3. Baifu (after Yang Jianhua 2014a: fig. 6.3); 4, 5. the Upper Xiajiadian Culture (after Shao Huiqiu and Yang Jianhua 2015: fig. 6.7, 8); 6, 7. the Slab-stone Tomb Culture (after Shao Huiqiu and Yang Jianhua 2015: fig. 6.1, 2).

Yanshan Mountain (Liu Guoxiang 2000; Wang Tong 2011) (Figure 8: 3, 4). They then reach the Mongolian Plateau in their furthest northern distribution (Hudiakov and Erdene-Ochir 2010) (Figure 8: 5, 6). This is the path of distribution of northern bronzes during the Bronze Age along the Northern Zone and Mongolian Plateau. This path was also the channel of contact within the Northern Zone and Mongolian Plateau Metallurgy Province. Its occurrence also signifies the northward distribution of Northern Zone bronzes during the second half of the second millennium BC.

3. The stable stage of the Northern Zone and Mongolian Plateau Metallurgical Province

The Upper Xiajiadian Culture in the Northern Zone reached its golden age during the ninth-seventh centuries BC, while Mongolia and Trans-Baikal were within the distribution range of the Slab-stone Tomb Culture at that time. Although the distribution of the metallurgical province was narrower than that in the previous stage, the Upper Xiajiadian Culture and the Slab-stone Tomb Culture were becoming more and more similar. This was the stable stage of the Northern Zone and Mongolian Plateau Metallurgical Province. The deeper integration of the cultures would accelerate the establishment of the next stage — the Xiongnu Confederation.

The Slab-stone Tomb Culture was an archaeological culture existing during the Bronze Age and the early Iron Age in eastern Mongolia and the Baikal area (Wu En 2007). Its early stage was generally contemporaneous with the Upper Xiajiadian Culture, while its late stage was in the same period as the Yuhuangmiao 玉皇庙 Culture (seventh-fourth centuries BC) in the Northern Zone. Even though the current findings of its early stage are very scattered, they can still suggest a close relationship with the Upper Xiajiadian Culture.

A large proportion of the weapons excavated from the Slab-stone Tomb Culture and the Upper Xiajiadian Culture is comprised of bronze helmets. The form of these bronze helmets are very similar, with a semi-circular opening at both the front and back, and an arched top, most of which have a square loop (Figure 9: 1, 2, 6–8). Among the tools, socketed axes are common in both cultures, and large numbers have been found. There are holes for stabilization in most of the socketed axes, and some have a triangular pattern decoration on the body (Figure 9: 3,

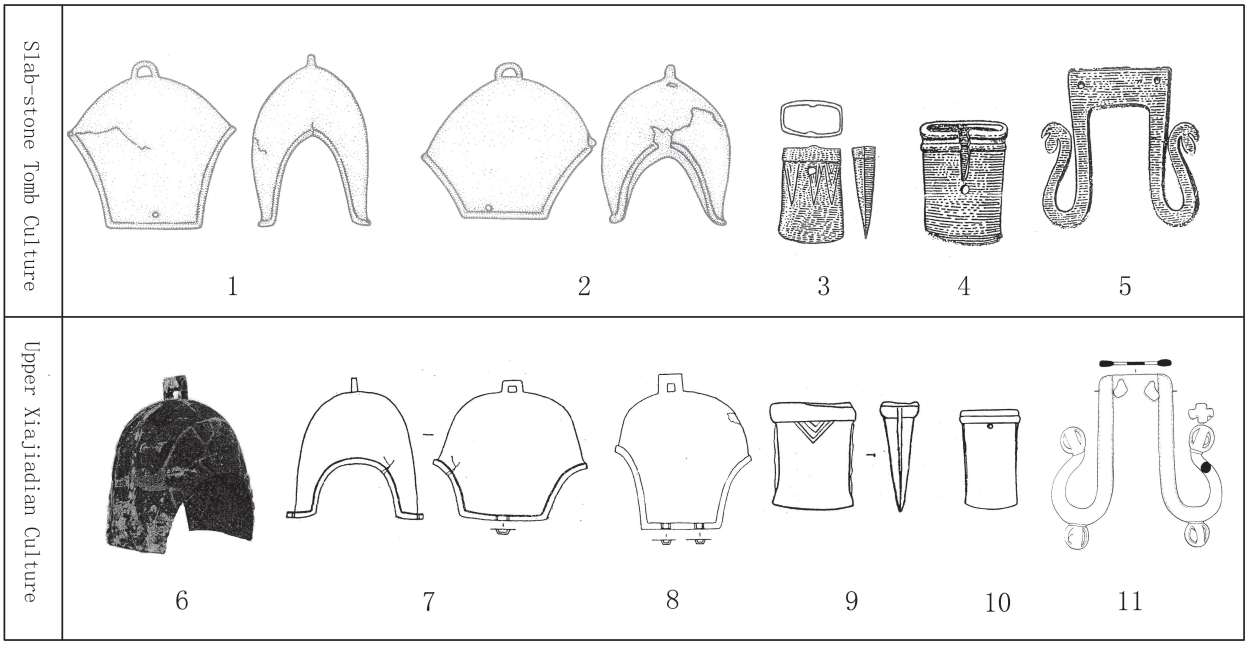

Figure 9. Comparison of artifacts from the Slab-stone Tomb Culture and the Upper Xiajiadian Culture (1).
1, 2. Mongolia; 3–5. Trans-Baikal; 6. Nanshangen; 7, 10, 11. Xiaoheishigou; 8. Wafangzhong; 9. Longtoushan (after Shao Huiqiu and Yang Jianhua 2015: fig. 6).

4, 9, 10). Besides these two objects, bow-shaped objects 弓形器 are also found in both cultures. In the Upper Xiajiadian Culture, this type of object was found in Xiaoheishigou 小黑石沟 Tomb M8601 (Figure 9: 11), which could be dated to the ninth-seventh centuries BC. One of these from the Slab-stone Tomb Culturein Trans-Baikal is also from the same period (Figure 9: 5).

The greater amount of interaction between the two cultures can be seen by comparing tools, weapons, and chariot and harness fittings, and especially in the animal decorations of the two cultures. Firstly, the commonly seen decoration on weapon hilts is carvings of animal figures (Figure 10: 1, 2, 15–17), including deer, horses, and birds. There are also standing animal figures at the ends of the hilt (Figure 10: 3, 18). It should be noted that no short swords have been found in the Slab-stone Tomb Culture. Secondly, similarities are also found in some ornaments, such as spoon ornaments (Figure 10: 4, 5, 19, 29), loop-shaped earrings (Figure 10: 8, 24), double-tailed ornaments (Figure 10: 9, 25), linked bead ornaments (Figure 10: 11–13, 26–29), and some plaques (Figure 10, 6, 7, 14, 21–23, 30). The spoon-shaped ornaments from the Slab-stone Tomb Culture are similar in form to those from the Upper Xiajiadian Culture, but they are much smaller in size. Spoon-shaped ornaments are widely spread in the Northern Zone, but those around 10 cm or more in length are mostly seen in the ninth-seventh centuries BC. The spoon-shaped ornaments become smaller after the seventh century BC, with most being about 5 cm in length, and some are even smaller. Spoon-shaped ornaments from the Slab-stone Tomb Culture obviously belong to this smaller size range, so they should date later than those from the Upper Xiajiadian Culture. Plaques with lines of "S"-shaped incised decorations can be found in both cultures, and they share the same form and decoration in both (Figure 10: 6, 21). A large number of linked bead ornaments are also found in the two cultures, and many have the exact same appearance, whether they are the two-bead or multiple-bead design (Figure 10: 11–13, 26–29).

The design with engraved front-view tigers should also be noted. It is frequently seen on ornaments of the coiled animal style 卷曲动物纹 , which is a design found widely spread across the Eurasian Steppe. Mr. Lin Yun (2008) has made a systematic analysis of this design based on domestic and international writings, and classifies them into three locations of origin in the Eurasian Steppe: in the east, Mongolia is one center; the second is in Sayan-Altai, and the third, in the west, is at the Black Sea and its neighboring areas. The eastern area covers the Great Wall areas in the Northern Zone and the Mongolian

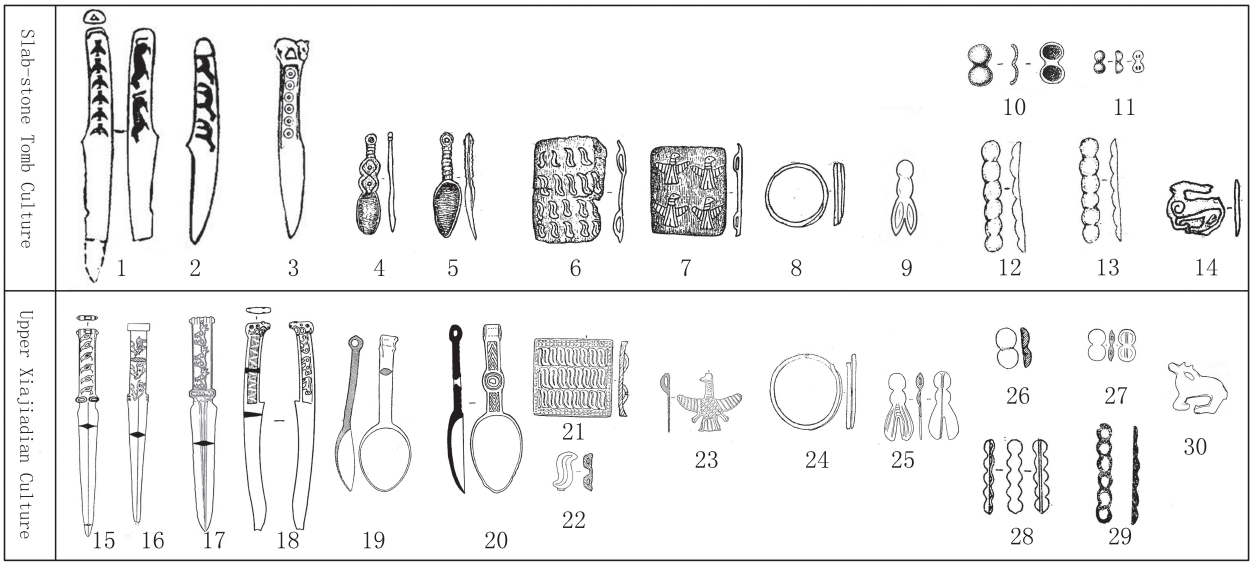

Figure 10. Comparison of artifacts from the Slab-stone Tomb Culture and the Upper Xiajiadian Culture (2).
1–3, 9–11, 13. Mongolia; 4–8, 14. Trans-Baikal; 15. Tianjuquan; 16–18, 20, 28. Xiaoheishigou; 19, 23. Nanshangen; 21, 24, 25, 27. Zhoujiadi; 22, 30. Longtoushan; 26. Shuiquanchengzi; 29. Dapaozi (after Shao Huiqiu and Yang Jianhua 2015: fig.8).

Plateau Metallurgy Province. The popular design in the east was a front-view or side-view of a tiger, with ring-shaped paws and tail, and a concentric circular pattern on the four legs (Lin Yun 2008). The earliest front view tiger design in the east is found in the Upper Xiajiadian Culture (Figure 11: 1–3). Its distribution was limited to the Northern Zone and Mongolian Plateau (Figure 11: 4–9). This type of front view tiger-coiled animal style is not seen in other areas, and therefore it could be considered a unique style for the Northern Zone and the Mongolian Plateau Metallurgy Province.

A comparison of bronze objects from the Upper Xiajiadian Culture with those of eastern Mongolia and Trans-Baikal shows that not all bronzes are related to the Slab-stone Tomb Culture. Bronzes of the Upper Xiajiadian Culture consist of elements from various cultures. The most typical bronzes of this culture, such as the hollow-hilt short sword 銎柄剑 and jagged-hilt knife 齿柄刀 , are unique to this culture and are not found in the Slab-stone Tomb Culture. This culture also includes bronzes with influences from the Central Plain and Northeast China. Bronze helmets originated in the Northern Zone and are similar to those of the Slab-stone Tomb Culture. Socketed axes from sites of both cultures bear the most resemblance due to the shared steppe-forest environment. Most importantly, rowed carvings of animals, three-dimensional animal figures, and clothing adornments are all very similar. This suggests that the two groups of people shared a similar aesthetic sense and clothing styles. It also indicates close contacts between them. The Upper Xiajiadian Culture mainly existed in the southeastern part of Inner Mongolia north of the Yanshan Mountains, whereas the range of the Slab-stone Tomb Culture was in the eastern part of Mongolia and Trans-Baikal. Therefore, these areas were the core of the Northern Zone and the Mongolian Plateau Metallurgy Province during this period. It is also worth mentioning is that unique double-tailed ornaments of the Upper Xiajiadian Culture and the Slab-stone Tomb Culture also were found in Yulin 榆林 , Shaanxi (Cao Wei 2009) (Figure 12: 1–4). This shows that the influence of this metallurgical province was very wide. Presently, because finds still remain very limited, it is still difficult to determine its western boundary.

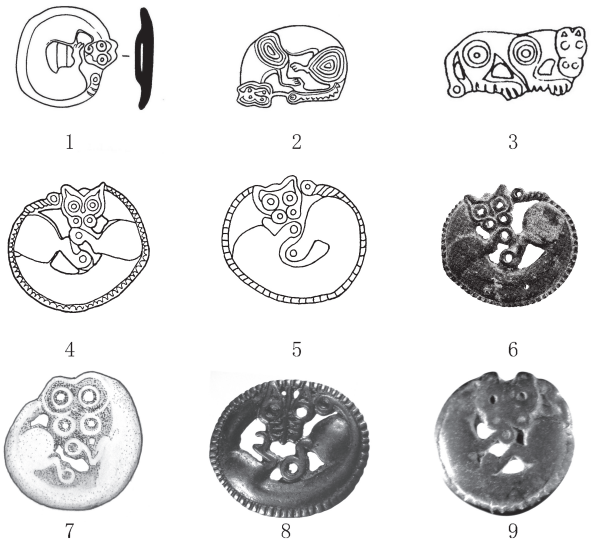

Figure 11. Front view tiger designs from the Northern Zoneand Mongolian Plateau Metallurgical Province. 1–3. Xiaoheishigou (after Neimenggu zi zhi qu wen wu kao gu yan jiu suo 2009: figs. 281.2, 223.9, 223.8); 4. Kangbao (after Lin Yun 2008: fig. 2.1); 5. Ordos Museum (after Lin Yun 2008: fig. 2.3); 6. Zhangjiakou or Chengde (after Lin Yun 2008: fig. 2.2); 7. Bayanhongor (after Erdenechuluun 2011: figs. 218, 219,228); 8, 9. Ovorkhangai (after Erdenechuluun 2011: figs. 219, 228).

4. The Rise of the Xiongnu Confederation

The Northern Zone and Mongolian Plateau took turns to enter the nomadic age during the eighth to third centuries. Contact amongst these areas grew more and the Northern Zone Belt took shape along the Great Wall (Yang Jianhua 2004). The similar forms of tools and weapons as well as clothing in both the Upper Xiajiadian Culture and the Slab-stone Tomb Culture suggest that these two groups of people identified with each other culturally. This would have removed barriers between the two groups of people during their movements. A large number of Northern Asian groups (Zhang Quanchao 2010) emerged in the Northern Zone between the seventh to fifth centuries BC (Yang Jianhua 2004), and this might have been a result of Slab-stone Tomb Culture residents moving southward. This group of people merged into the Northern Zone Belt gradually. During the Warring States Peri-

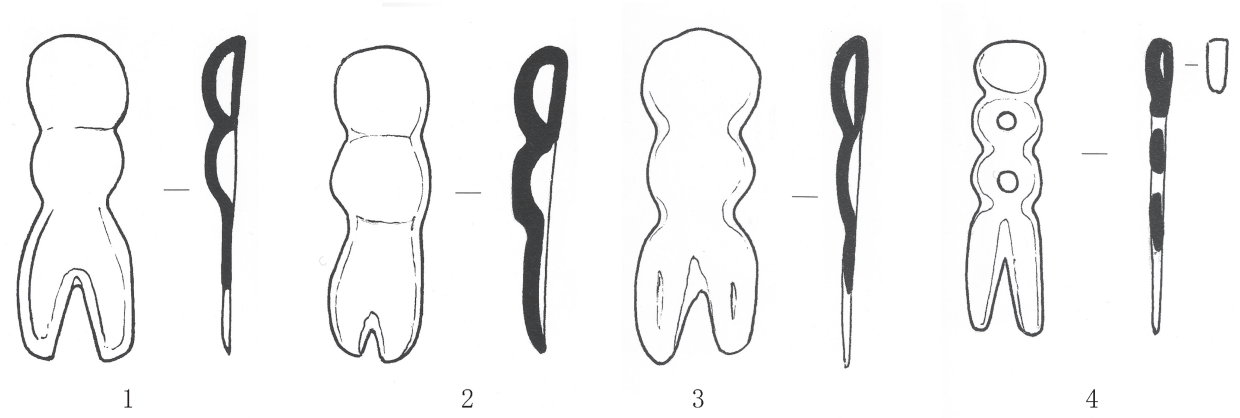

Figure 12. Double-tailed ornaments from northern Shaanxi.
1–4. Yunlin (after CaoWei 2009: 217-2, 227-1, 227-2, 227-3).

od (475–221 BC), the states of Yan 燕, Zhao 赵, and Qin 秦 expanded to the north. They built the Great Wall to stop the Hu 胡 to the north of Great Wall. With the unification of Central Plain under Qin, the Hu gradually merged into one Steppe empire—the Xiongnu Confederation. The first record of the Xiongnu in Chinese historical documents (in the *Shiji* 史记, chapter 70) is from the Seige of Baideng 白登之围 in the beginning of the Han Dynasty (200 BC). The confederation was an alliance of steppe nomadic people, and the principal members of this alliance should have been the residents of the Slab-stone Tomb Culture who moved south to the Great Wall areas. Below is the archaeological evidence for this.

Here what we refer to as the "early Xiongnu in literature" are the Xiongnu led by Modu 冒顿 during early Western Han Dynasty (end of the first millennium BC), as described in written, historical records such as the *Shiji* and *Han shu* 汉书. Archaeologically, there are a number of tombs in the eastern part of Mongolia and in Russian Trans-Baikal that can be dated to the middle to late Western Han Dynasty that are identified as classical Xiongnu tombs: we refer to these as the "early Xiongnu in archaeology." There are many discrepancies in the dates and locations of the early Xiongnu between the literary records and the archaeological findings.

To locate the origins of the Xiongnu, we should start from the known sites of the "early Xiongnu in archaeology." Based on current research, these early sites are seen in trans-Baikal, mainly in the Ivolga and Derestui cemeteries (Davydov 1996; Minyaev 1998). Comparison of objects from these sites to others during the Eastern Zhou Period allows us to see that there are many similar objects in the Northern Zone, the Mongolia Plateau, and Trans-Baikal, which we describe below.

First, weapons were similar. The bow and arrow was the main weapon for the Xiongnu, as their main way of fighting was by horse-mounted archery. Arrowheads made with bone dominate the Xiongnu practice, with most of them in a leaf-shape with split tail (Figure 13: 3, 4) and a smaller number with triangular body and shaft hole (Figure 13: 8). Split-tailed and shaft-holed bone arrowheads existed in both the Xiongnu and the Slab-stone Tomb Cultures (Figure 13: 2, 7), as well as in the Northern Zone during the Warring States Period (Figure 13: 1, 5, 6), although the numbers varied in different stages and regions. This suggests that the style of warfare and the production of weapons were similar in the three areas. Among tombs in the Northern Zone during the eighth to third centuries BC, those mostly having bone arrowheads usually are found in Northern Asia, such as at Guoxianyaozi 崞县窑子 (Neimenggu wen wu kao gu yan jiu suo 1989), Yujiazhuang 于家庄 (Ningxia wen wu kao gu yan jiu suo 1995), and Xiyuan 西园 (Neimenggu wen wu kao gu yan jiu suo and Baotou Shi wen guan chu 1991). This demonstrates that Northern Asians used more bone arrowheads. This feature is consistent with that of the Xiongnu, who were also a Northern Asian group. Under this premise, we could deduce from the bone arrowheads that the split-tailed arrowheads in the Northern Zone are evidence

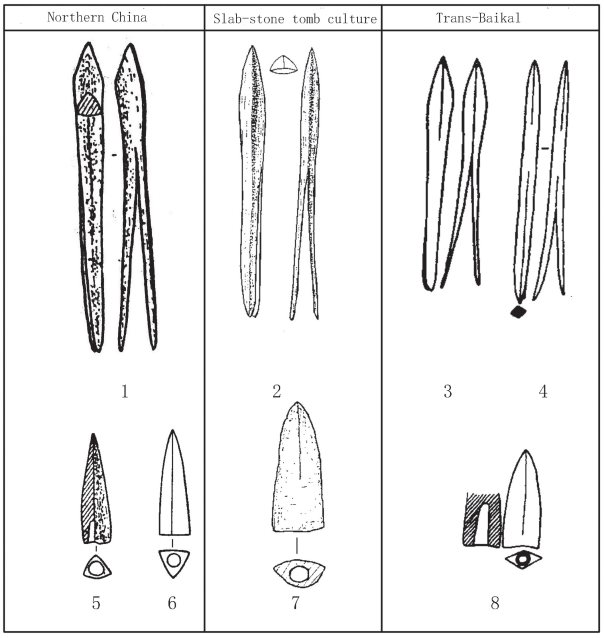

Figure 13. Comparison of bone arrowheads.
1, 5 . Guoxianyaozi; 2, 7. the Slab-stone Tomb Culture; 3, 4. Ivolga city; 6. Yujiazhuang; 8. Ivolga Cemetery (after Pan Ling 2007: figs. 5–17).

for the Slab-stone Tomb Culture people's movement to the south around the Great Wall. This aligns with the physical anthropological research on human skeletal remains from the Warring States Period in the Northern Zone (Zhang Quanchao 2010).

Secondly, plaques withcarnivores such as tigers have one animal in a squatting position (Figure 14: 1, 2) during the sixth-fifth centuries BC in the Northern Zone. This design spreads from northern Hebei to the west. During the fifth century BC, the design evolves into a single standing tiger (Figure 14: 3) and tiger preying on herbivores (Figure 14: 4) in the Daihai 岱海 area, to the east of Hohhot, Inner Mongolia. In the third century BC, most tiger designs have stripes (Figure 14: 5) in the western part of Inner Mongolia and in Guyuan, and herbivores become a bigger part of the design. In the last stage, the designevolves into a horizontal "P" shape (Figure 14: 7). There are also beasts with longer snouts that make them look more like wolves (Figure 14: 6). The same development can also be seen on the tiger plaques from the Mongolian Plateau, i.e., from a single squatting tiger (Figure 14: 8, 9) to multiple standing tigers with small prey (Figure 14: 10, 11), which then become a much bigger part of the design. Similar to plaques from the Northern Zone, the stripe design was also popular (Figure 14: 12). Those with clear frames and the standard horizontal "P" design (Figure 14: 14, 15) could be dated to the Xiongnu period (Lin Yun 2009). The snouts of the beasts on some plaques from the Mongolian Plateau become longer and longer (Figure 14: 13–15), which makes them look more like wolves than tigers. This was first seen on plaques from the Guyuan area in the Northern Zone (Figure 14: 6) (Qinshihuang ling bo wu guan 2012). Plaques with the single tiger design had already disappeared amongst early Xiongnu remains, whose form is closer to those from later periods on the Mongolian Plateau, i.e., with a clear frame and horizontal "P" shape (Figure 14: 16, 17). Plaques from Mongolia were excavated from Ovorkhangai, Central Gobi, and Southern Gobi Provinces. These three provinces are all the closest to Inner Mongolia, which indicates that they belonged to the Northern Zone Belt during the fifth century BC. There were no country borders in the ancient times. Mongolian plaques similar to those of the third century BC were excavated at Bayanhongor in the west and in Arkhangai Province in the north. They resemble those of western Inner Mongolia even more.

Plaques with horses feature horses appearing in three different postures: squatting, running, and standing/walking. Standing horse design plaques are found in northern Hebei and western Inner Mongolia (Figure 14: 18, 19). Plaques with horse designs from Mongolia feature standing and walking designs (Figure 14: 20, 21), and those of the early Xiongnu feature walking designs (Figure 14: 22). Contact between the three areas could be seen as the reason for this phenomenon.

Only a small number of animal head ornaments have been found thus far, with some excavated in northern Hebei in the Northern Zone dating to the Late Spring and Autumn Period (Figure 15: 1), from the Xindianzi 新店子 cemetery in Inner Mongolian dating to the turn of the Spring and Autumn Period to Warring States Period (Neimenggu wen wu kao gu yan jiu suo 2009), and from Aluchaideng 阿鲁柴登 (Tian Guangjin and Guo Suxin 1980) in western Inner Mongolia dating to the Late Warring States Period (Figure 15: 2). None of this type of ornament has been found on the Mongolian Plateau. A

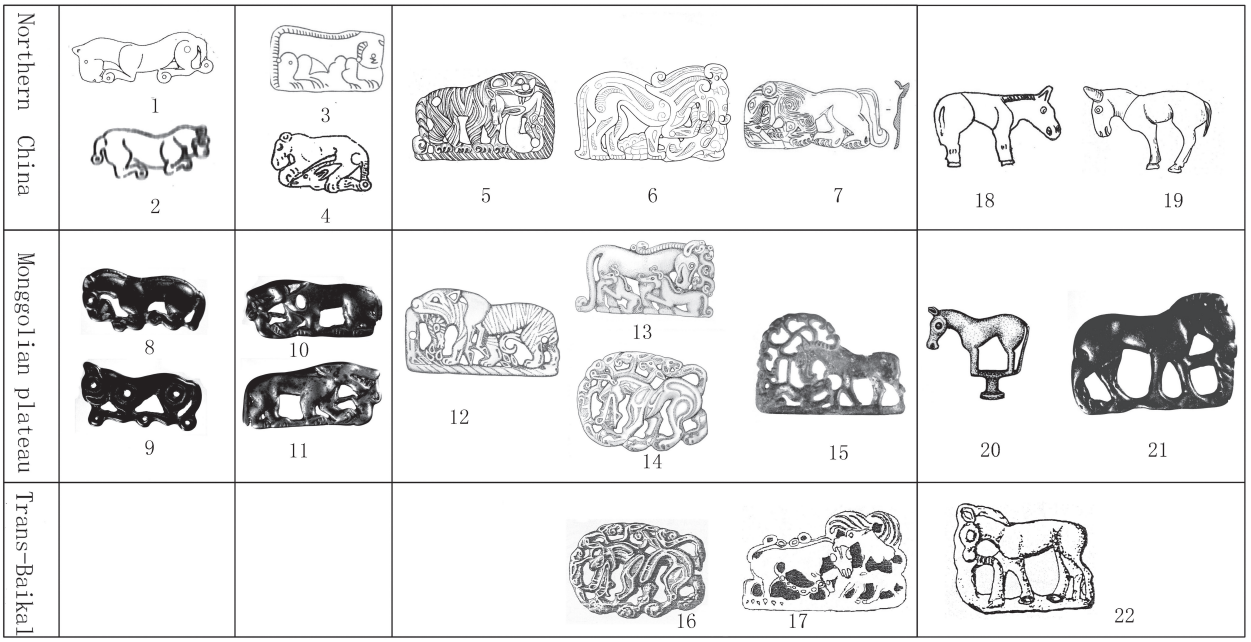

Figure 14. Comparison of plaques.

1. Qingzigou; 2. Luotuoliang; 3. Maoqinggou; 4, 5. Guoxianyaozi; 6. Zhangjiecun; 7. Shihuigou; 8. Central Gobi; 9, 10, 12, 21. Ovorkhangai; 11 . South Gobi; 13, 20. Bayanhongor; 14. Arkhangai; 15. East Gobi; 16, 17, 22. Derestui; 18. Xi'nangou; 19. Yulongtai (after Yang Jianhua 2014b: figs. 2.1–17, 3.4, 5, 8, 9, 12).

small number was found in Derestui dating to the early Xiongnu period (Figure 15: 10). The shape is very similar to those of the Aluchaideng site. This could be regarded as the result of the development of the Northern Zone animal head ornaments.

Belt buckles were a very common clothing ornament, and they were an important part of "Hu Dress" for the Hu in the north. But the animal design on the buckles emerges in the Northern Zone only in the Late Warring States Period. It is mainly seen in the Aluchaideng, Nianfangqu 碾房渠 (Yikezhaomeng wen wu gong zuo zhan 1991), and Xigoupan 西沟畔 (Yikezhaomeng wen wu gong zuo zhan and Neimenggu wen wu gong zuo dui 1980) sites in western Inner Mongolia (Figure 15: 3–5). Animal heads are on the side without prongs, many of which kind are found on the Mongolian Plateau. There is also one found in Central Gobi Province, Mongolia, with a shape that is in between that of the Northern Zone type and the Xiongnu type (Figure 15: 9). Its ox horn design on the top is similar to that of the Northern Zone, while its ox head design was common in the Xiongnu examples. The horns on other belt buckles found in Mongolia were small holes (Figure 15: 8) or disappeared completely (Figure 15: 6, 7). The ox head is the main design on early Xiongnu belt buckles (Figure 15: 11–13), and some still have small holes (Figure 15: 11). An "S"-shaped belt ornament was popular in eastern Inner Mongolia at the earliest during the turn of the Spring and Autumn Period to Warring States Period. Those from western Inner Mongolia and the Guyuan areas appear later and feature more complex craftsmanship—a kind of openwork design (Figure 15: 14, 15). This kind of belt ornament still existed during the early Xiongnu period (Figure 15: 16) but the number is much smaller than those in the Northern Zone. The most common belt buckles among Xiongnu remains from Trans-Baikal are spoon-shaped, which in many tombs is the only kind found (Figures 15: 18). This kind of object was found in the Northern Zone as early as the Eastern Zhou period, but it is made of bone and features a rolling cloud design on the upper side (Yangjianhua 2011) (Figures 15 and 16). These ornaments were all worn at the waist area (Eregzen 2011), which relates to what is recorded in the literature as "wearing Hu dress and shooting on horse," such as is written in the *Shi ji* (Chapter 43). This description is consistent with what we see for the early

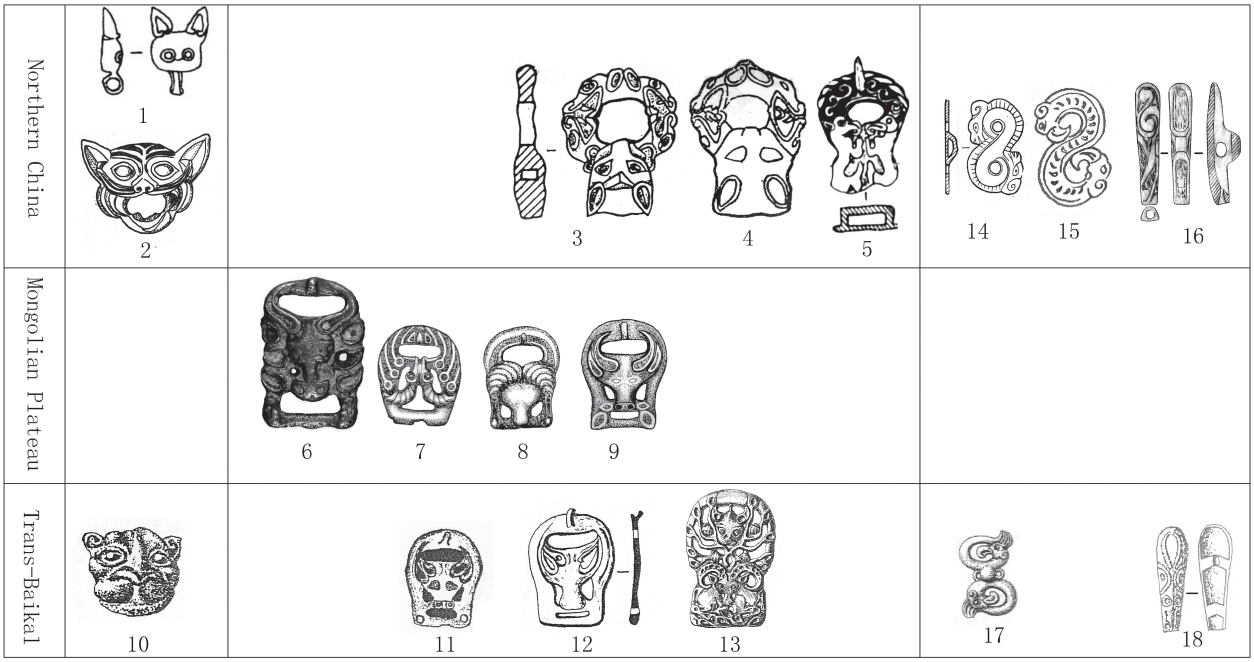

Figure 15. Comparison of animal head ornaments and belt ornaments.
1. Yuhuangmiao; 2, 3. Aluchaideng; 4. Nianfangqu; 5. Xigoupan; 6. Ovorkhangai; 7, 9. Central Gobi; 8. Suhbaatar; 10–13, 18. Derestui; 14. Maoqinggou; 15. Samencun; 16. Baimiao; 17. Trans-Baikal (1–13. after Yang Jianhua 2014b: fig. 4; 14,15, 17. after Yang Jianhua 2014b: figs. 5.3, 4, 7; 16. Photograph from the author; 18. after Pan Ling 2007: fig. 4–4.12).

Xiongnu, and this succession of clothing styles is the best evidence for the relationship between the two (Figure 16).

The above comparison demonstrates that the Northern Zone and the Mongolian Plateau were both parts of the Great Wall Belt, and both shared similar characteristics and development with the "early Xiongnu in archaeology" or Xiongnu remains in Trans-Baikal. Their transformation in time and space might have been the transformation between the "early Xiongnu in literature" and the "early Xiongnu in archaeology." The most important reason for this transformation was the counterattack against the Xiongnu from Yuanguang during the second year of Emperor Wudi of Han 汉武帝 (133 BC), which forced the Xiongnu to retreat to the northern Gobi.

In conclusion, we borrowed Chernykh's (1992) terminology, "Metallurgical Province," to define this large contiguous region featuring shared utilization of morphologically defined ornaments, tools, and weapons with comparable dating, and we hope that in the future there will be direct evidence of metallurgical production technology. The availability of or access to the same metallurgical resources often results in the emergence of large trade networks (Chernykh 1992: 7–16). The province covers distinct areas during the second and first millennium BC and includes discrete sub-areas: the Northern Zone, the Mongolian Plateau, and the Trans-Baikal area. We can reconstruct the Northern Zone and Mongolian Plateau Metallurgical Province from where archaeological evidence of the metal weapons and tools, as well as their decoration, are clearly identifiable. We can see that the province took shape during the first half of the second millennium BC, at which time is found distributed to the north of the Northern Zone, in the eastern Mongolian Plateau, and in the Trans-Baikal area: distinctive objects of this period are the knives with upward turning point and a ring on the hilt, and bronze linked bead ornaments. However, the archeological sites are rather scattered. The Northern Zone and Mongolian Plateau Metallurgical Province was established and reached its apogee during the second half of the second millennium BC. Knives and short swords with jingle-head pom-

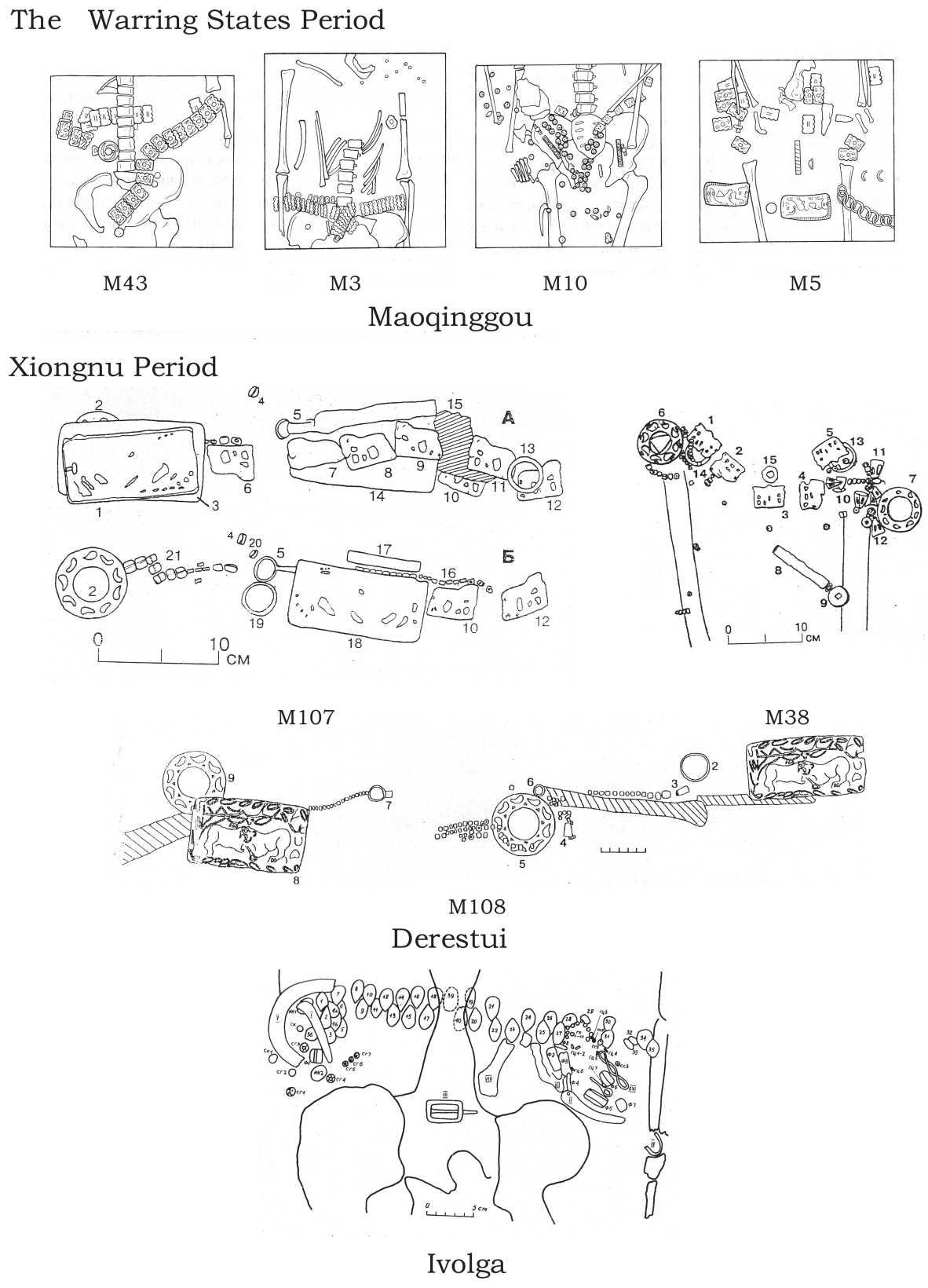

Figure 16. Comparison of the application of belt plaques (after Yang Jianhua 2011: fig. 13).

mels, animal-head pommels, or mushroom-cap pommels were very popular. The province reached as far as the Minusinsk Basin in the northwest and as far south as the southern border of the Northern Zone. It was thus close to the Shang Culture, and its influence extended to Kazakhstan and the north shore of the Black Sea. One of the reasons that led to the expansion of the Metallurgy Province was the decline of the Andronovo Culture community in the western Steppe region. During the ninth to seventh centuries BC, this Metallurgy Province shrinks back to its earlier range from the first half of the second millennium BC. At this time, however, archeological sites are densely distributed and there is a high degree of similarity between them, such as can be seen with the bronze helmets, socketed axes, bow-shaped objects, and animal decorations and objects. While the Metallurgy Province during the second half of the second millennium BC showed breadth in territory, the Province during the first millennium BC, while smaller in size, shows greater depth in similarity among the areas, and these are the areas from which the Xiongnu Confederation eventually emerges at the end of the first millennium BC. There are many similar objects in this Metallurgy Province, such as the leaf-shaped bone arrowheads with a split tail, the plaque ornaments, and the animal head ornaments, etc. The province in this period reaches Guyuan and other areas bordering the Northern Zone in the south. The sites are very dense along the Great Wall. To the north, it is distributed in the provinces of Mongolia that are closest to China. We can identify this province as the cradle of the early Xiongnu.

The process from the emergence of the Metallurgy Province to the foundation of Xiongnu Confederation shows continuity of cultural interaction between the Northern Zone, the Mongolian Plateau, and Trans-Baikal. This south-north channel of contact lasts thousands of years. Because this region featured a critical route between the Northern Zone and Mongolia and Trans-Baikal, the Xiongnu Confederation absorbed Chinese culture, and the interaction was at a peak. While connections between the Northern Zone and the Inner Asian Mountain Corridor were open and changeable, the cultures within the Metallurgical Province were comparatively closed and feature stable traditions, as is evidenced in material culture such as weapons, tools, ornaments, and pottery that penetrated all social classes in the region: this led to the emergence of the first nomadic empire on the Steppe. From this respect, it can be deduced that the Northern Zone and Mongolian Plateau Metallurgy Province laid the cultural foundation for the Xiongnu Confederation.

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