

## Session I: The Ancient History of China

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### ***Archaeological Discoveries in the People's Republic of China and Their Contribution to the Understanding of Chinese History***

More than eight decades ago, distinguished Chinese scholar Hu Shi (1891-1962) wrote in *My Views on Ancient History*: "My viewpoint of the ancient history is: we should shorten the study of ancient history by two or three thousand years, and start to research from the Book of Odes until archaeology gets on track. Then we can slowly lengthen the ancient history before the Eastern Zhou dynasty from excavated historical evidence."<sup>1</sup> Today, 80 years later, Chinese ancient history before the Eastern Zhou dynasty has been gradually recreated using archaeological discoveries, without which, even the history after the Eastern Zhou dynasty would lose its glory. One example is enough to illustrate the importance of archaeology in understanding Chinese history. Two thousand years ago, the *Basic Annals of Five Emperors*, part of the *Records of the Historian*, written by Han dynasty's famous historian Sima Qian (ca. 145-86 B.C.), concentrates on the beginning of Chinese history and contains 4,660 characters. The following *Basic Annals of Xia*, *Basic Annals of Yin* and *Basic Annals of Zhou* have 4,171, 3,661 and 10,400 characters, respectively.<sup>2</sup> Yet, *The Cambridge History of Ancient China*, composed mainly by western scholars in 1999, is mainly the history from the Shang to Qin dynasty before the unification (ca. 1570 - 221 B.C.) and covers 1,148 pages.<sup>3</sup> This comparison may not be appropriate because the ancient historical narrative is completely different from the present one, but it is not an overstatement that the current study of Chinese ancient history (before the Qin and the Han dynasty) is almost entirely supported by archaeological discoveries. Apart from a large number of archaeological discoveries, today's historians possess no more documents than Sima Qian did. Oracle-bone inscriptions, bronze inscriptions and the texts written either on bamboo or wooden strips or on silk, upon which the historians rely, have been excavated during recent one hundred years. These texts, like the ordinary archaeological materials, became a separate branch of knowledge, and the object of research, not to be overlooked by historians.

On the other hand, since the discovery of the oracle bone inscriptions and the Dunhuang manuscripts in late 19th and early 20th century, Chinese scholars consciously started to connect their archaeological discoveries to ancient documents. The greatest historian of the 20th century Wang Guowei referred to it as "double evidence." Unlike historical works of the early 20th century, the current ancient historical works are inseparable from archaeological support. Indeed, some historical works are done by professional archaeologists.<sup>4</sup> Of course, special topics and integrated archaeological research especially related to the Shang and the Zhou dynasties and after, are inseparable from the study of historical documents; otherwise, certain archaeological interpretation will completely go astray. No wonder some scholars say: "The historian who disregards archaeological evidence soon finds out that the field has passed him or her by; the archaeologist who is unfamiliar with traditional documents will miss much of the spirit that gives life to his or her artifacts."<sup>5</sup> However, it deserves our attention that there is a growing trend of eisegesis between the documents and archaeological discoveries.

The importance of archaeological discoveries to the study of Chinese history has been already acknowledged. Today, the ancient Chinese economic history, cultural history, social history, history of science and technology, and even political history and the history of thought, cannot exist without archaeology.<sup>6</sup> The longer the time passes, the more reliant we are on archaeology. In this essay, I cannot unfold all the important archaeological discoveries and their contribution to the understanding of the Chinese history during 58 years since the founding of the People's Republic. In fact, I have no

ability to do such a comprehensive work. I can only simply describe some important discoveries that I am familiar with, and how they changed the traditional understanding of the origin of Chinese culture, civilization, and the formation of the Chinese nation. I hope that everyone offers his or her criticism.

## I. Chinese People and the Origins of Chinese Culture

Although hundreds of Paleolithic sites have been discovered in China, and a large number of ancient human fossil materials have been excavated, the earliest can be traced back more than 1 million years ago, few archaeologists and historians will trace the origin of China and the Chinese culture to this era. But a substantial material from the Neolithic Age and later ages indicate that homogeneity of ancient Chinese residents, distinct from the Neolithic Age and the Bronze Age to modern races. This feature is particularly demonstrated in the Yellow River Basin. In Neolithic Age the humans in Northern China once had been known as "proto-Chinese", or "the first Chinese"; and the racial differences between the people in the north and south of China can be traced back to the anthropological data from the Neolithic Age or even from the late Paleolithic Age.<sup>7</sup> If the Chinese culture had shown signs of emerging during the Neolithic Age, then the original Chinese people existed historically from this era on.

Before 1949, only the Yangshao culture, the Longshan culture and the so-called Microlithic culture in northern areas were found in Chinese Neolithic archaeology. Swedish geologist J. G. Andersson (1874-1960), the discoverer of the Yangshao culture, introduced the theory of "the Yangshao culture originating from the west." After the Chinese archeologists discovered the Longshan culture in eastern China, they posed the "dualistic theory" of Longshan culture spreading from the east and the Yangshao culture from the west, in the "hypothesis of the Yi in the east and the Xia in the west". They thought the study of the Shang culture, recognized as a representative of Chinese culture, should be extended to the Bohai Bay, "as a possible cradle of Chinese culture."<sup>8</sup>

In the mid 1950s, the evidence was found that the Longshan culture was based on Yangshao culture, and developed in the so-called second phase of the Miaodigou culture. So, the Yangshao culture was considered to be the source of the Chinese culture, located in the border of Shanxi, Shaanxi and Henan provinces in traditional "Central Plains". Central Plain's culture expanded to outer areas, forming the so-called "Longshanoid" or "Longshanization", and ultimately established the historical foundation of the Chinese civilization.<sup>9</sup> This view, closely related to the traditional Central Plains dominating theory in historiography, considers all senior cultural inventions to spread from Central China. This viewpoint dominated Chinese archaeological and historical studies until the late 1970s, when the new archaeological discoveries and an open academic environment challenged this "nuclear area hypothesis", and put forward the theoretical model of "the regional systems and cultural types" or "multiple origins hypothesis".<sup>10</sup>

In 1981, a famous Chinese archeologist Su Bingqi (1909-1997) brought forward the "regional systems and cultural type theory" to definitely change the "Nuclear area theory" by dividing the Chinese prehistoric culture into six regions, namely Shaanxi, Shanxi and Henan border regions, Shandong province and the neighboring areas, Hubei and the neighboring regions, the lower reaches of the Yangtze River, the southern areas with Poyang Lake, the Pearl River Delta as an axis, and the northern area with the Great Wall as a core. He said: "In the past, there was a view that the Yellow River valley was a cradle of the Chinese nation. China's national culture started from here first and then expanded all around. It is not sufficient to say that the culture in other areas lagged behind and developed only by the influence from the Chinese culture. Historically, the Yellow River Basin played an important role, particularly in the period of civilization when it occupied a dominant position. However, in the same period, in other areas, other ancient cultures developed their own distinct characteristics, which had been proved by archaeological evidence in various places. At the same time, Central Plains and other regions always influenced each other."<sup>11</sup>

Multiple-origins hypothesis believes that all regional cultures have their own contribution to the formation of Chinese culture. Yet, the cultural development is imbalanced, and always has its own order. Based on emphasizing cultural diversity, a growing number of researchers also noted the central role played by the unity of the Chinese prehistoric culture and Central China culture, summarized by Professor Yan Wenming from the Peking University. He has divided the Chinese prehistoric culture into six similar regions: "If we consider the Central Plains culture type to be the first level, 5 cultural zones around it are the second level, and many other cultural zones in outmost layer can be seen as the third level. Chinese Neolithic Age culture is like an enormous flower with two layers of petals." "Early Chinese civilization did not happen in one area, but in many successive areas, which is the result of interaction and inspiration among various cultural centers in this vast area. The origin of early civilizations should include the entire North China and the middle and lower reaches of the Yangtze River. Central Plains played a leading and prominent role in the birth and development of civilization." He also said: "The Chinese prehistoric culture is a hierarchical structure spreading from the center. The civilization first started in Central Plains, followed by surrounding cultural zones, and then developed in the third layer. The outmost layer entered the civilization even later. Therefore, during the formation of the early Chinese civilization, it was impossible for the outside cultural layers to play important roles. Grand scale interactions between the Chinese and foreign cultures began in the Han dynasty, after complete establishment of the ancient civilization. Despite the scale of this interaction, foreign cultures had only a limited impact on the development of Chinese culture, not changing its fundamental national features."<sup>12</sup>

In short, the past 58 years of archaeological findings prove that the Chinese prehistoric culture did not come from outside, nor was it transmitted from the domestic center outward. Prehistoric culture developed by adapting to the local natural conditions, promoting and influencing each other directly or indirectly, and more or less had its own contribution to ancient Chinese civilization. This concept derived almost completely from archaeology and accepted by scholarly community, is a big challenge of the Chinese traditional view of history lasting for two thousand years. It has a reference value for us and contributes to our understanding of Chinese history by re-examining its early development.

## **II. The Formation of Ancient Chinese Civilization**

The Xia is China's first historical dynasty. Archaeological studies proved that the Yanshi Erlitou in Henan province, represented by the Erlitou culture, is China's first state-level society.<sup>13</sup> However, the ancient Chinese civilization is not accomplished in a single action. The formation of a complex society is a slow and difficult process. For example, in Central China, the complex society started in the middle and late fourth century, that is, during the middle and late period of the Yangshao culture, represented by the Miaodigou type. First, the Miaodigou culture had a powerful influence on surrounding areas. Second, the northern and neighboring areas, such as upper and lower reaches of the Yellow River, middle and lower reaches of the Yangtze River, northern and surrounding areas with the Great Wall as the core regions in the 3rd millennium BC, expanded and influenced Central China. In constant exchange and interaction with neighboring culture, that is, under the pressure of periphery, Longshan culture in Central China became strong and started to dominate other cultures. Finally, it established a sophisticated Erlitou culture.<sup>14</sup>

Moreover, the civilization of three historical periods, the Xia, the Shang and the Zhou, had been based on Neolithic cultural foundations. From the Longshan era in the 3rd millennium BC, many Chinese regions developed large or small kingdoms, competing and communicating with each other. Three opposing political groups, the Xia, Shang and Zhou kingdoms, grew based on many prehistoric cultures in the Yellow River valley. According to Prof. Kwang-chih Chang (1931-2001), the relationship among the three generations, the Xia, the Shang and the Zhou, were not only characterized by dynastic succession, which was widespread in North China. These dynasties may have overlapped

in their duration. The relation between these three states at any given time was more dominant than their dynastic emergence and decline.<sup>15</sup> Nevertheless, pre-Shang and pre-Zhou cultures, identified roughly at the same time with Erlitou culture by archaeological findings, have not yet developed any large-scale settlement on the same level as the Erlitou site, which had been located mainly in central and western regions of Henan, west of Zhengzhou, and south of Shanxi, but was limited in scope. The majority of Chinese archaeologists consider Erlitou to be the late capital city of the Xia dynasty. The Shang civilization, represented by Erligang, Zhengzhou in Henan and Yin ruins in Anyang, Henan, with an unprecedented expansion of political boundaries, influenced Liaohe River to the north, Guangdong and Guangxi to the south, Gansu and Qinghai regions and the Chengdu Plain to the southwest and Jiaodong Peninsula to the east. The political boundary of the Zhou Dynasty expanded to the surrounding areas, and gradually established the Qin and Han unified material base. During the Zhou Dynasty, administrative system, under which the king distributed lands occupied by him made this expansion possible.<sup>16</sup>

The Yangtze River Valley, neglected for a long time in history, embraced many powerful kingdoms. For example, the Sanxingdui civilization, in Guanghan, Sichuan province, discovered in mid-1980s, the Dayangzhou civilization found in Xingan, Jiangxi province, should be considered as prominent representatives of local indigenous civilization, and inextricably linked with the Xia, Shang and Zhou civilizations in Central China.<sup>17</sup> In the end of the 1st millennium BC, after two thousand years of fierce competition, these nations, large or small, joined into historical torrent of the Qin and Han empires.

Six cultural regions of Chinese prehistoric culture formed the main part of the Chinese civilization later on, and the Chinese prehistoric culture in various geographic zones increasingly demonstrated its identity, forming a distinctive cultural community through the development of the entire Neolithic Age. This is the reason why the archeologists can distinguish the contacts or conflict between the regional cultures from the point of material culture. This situation lasted until the rise of the ancient Chinese civilization, with the Xia, the Shang and the Zhou as the core dynasties. Three dynasties increasingly expanded, like a rolling snowball, and the cultural identity also had an unprecedented strengthening, eventually establishing a solid foundation of the unified multi-ethnic Qin and Han dynasties.<sup>18</sup>

Archaeological view of the historical picture of the Xia, Shang and Zhou eras challenged the traditional perception of the four thousand years of Chinese history. We have not only gained a new understanding of the formation of the ancient Chinese civilization and its early development, but also, to a large extent, changed our view of history through rich archaeological discoveries in China.<sup>19</sup>

### **III. The Environment of Ancient Chinese Civilization in its Development and Structure**

Integrity, unity and diversity are ancient Chinese cultural characteristics. These characteristics are wedded to the geographical environment. China's special geographic position, forming a relatively independent geographical unit, distinguished the ancient culture since the Paleolithic Age. Although Paleolithic cultures cannot be called Chinese culture, it seems that in the long term during the Paleolithic Age, the Chinese original culture went through an entirely different path with the western part of the old continent. Since the late Paleolithic period, contacts with the outside world have been gradually increasing, but from the whole Neolithic and the Bronze Age, the Chinese culture was still on the development path of independence. This is because as heart of the Yellow River, middle and lower reaches of the Yangtze River and neighboring areas, the road leading to the western area of the old continent was blocked by the Qinghai-Tibet Plateau and many deserts and mountains; the road southward was protected by a series of big rivers, mountains and tropical rain forests as barriers; in the prehistoric period, the ocean was the main barrier in the east; in the north there were not only endless stretches of cold

and desert areas, but also a series of rivers flowing from west to east, to the sea. Meanwhile, as a huge geographical unit, China is composed of a vast number of sub-level geographical units, such as the plateaus, plains, basins, mountains, hills, rivers, deserts, swamps, lakes, etc. The third level ladder of terrain stretching from the west to the east and the spatial distance of 30 degrees difference in latitude, constitute a distinctive climate zone from subtropics to warm temperate zone, cool temperate zone and the Qinghai-Tibet paramos. Three major economic zones, characterized by northern dry farming, southern rice farming and northwestern hunting and herding industry were established during the middle Neolithic Age, and formed their peculiar regional culture, through the unique geographical environment.<sup>20</sup>

This does not mean that the ancient Chinese culture was self-contained. In fact, despite being blocked by deserts, mountains and oceans, the cultural exchange between China and the outside world never stopped. Current archaeology cannot find answers to all the problems, but there are several phenomena worth noting. For example, horses and carriages were cropped up in late Shang dynasty; wheat suddenly appeared in Longshan era around 2500 BC, and became a common crop in north China during the Erligang, the early Shang culture (1600-1415 B.C.); copper and bronze almost simultaneously appeared in Gansu, Qinghai and Central China in the third century BC, and China had no long copper era as the western continent did. Goats and sheep in Central China appeared during the Longshan era (the 3rd BC), and became common domestic animals in Erhlitou (1900-1500 B. C.) and Erligang eras. Jade articles and tortoise shell in the capital city Anyang during the late Shang dynasty were considered having relationship with artifacts in southern and western border of China -- Xinjiang and South Sea, while seashells found in the Sanxingdui ruins in Guanghan, Sichuan, can be traced to the Indian Ocean. Recent studies demonstrate that the domestic buffalo may also be brought in from the Indian subcontinent in the 1st millennium BC.<sup>21</sup>

The relationship between China and the outside world during and after the Qin and Han dynasties has been documented by new archaeological findings. Yet, up until the 18th and the 19th century, when China was forced to open its door to foreigners, the interaction, exchange and conflict inside culture zones of this huge geographical unit were more open than its interactions with the outside world. For example, the middle and lower reaches of the Yangtze River were the origin of rice cultivation, as early as the Yangshao culture period (ca. 5000-3000 BC), the cultivation of rice has entered the Yellow River Basin. Central Plains boasts on north China traditional farming, mainly on crops, such as millet, wheat and beans, supplemented by a small amount of rice cultivation, dated back to at least 1600-1300 BC, in early Shang Dynasty.<sup>22</sup> In the mid-2nd millennium BC, during the Shang dynasty, the ritual vessel culture, whose religious practices centered on ancestral offerings, represented by bronze in the Erhlitou, expanded rapidly to the Yangtze River Valley and the northern area, beyond the local indigenous culture, and constituted a broad range of "cultural hegemony", forming cultural foundation of the Chinese civilization.<sup>23</sup>

In sum, based on the Neolithic age since thousands of years ago, indigenous, diverse and integrated Chinese culture had been inseparable from geographic environment. Meanwhile, the relations between its geographical units and the outside world never stopped, because China has never been a self-contained culture, though it had never played a decisive role with the outside world during the ancient times.

Finally, let us return to the question referred in the beginning of this article. It is obviously seen that many archaeological discoveries and tremendous achievements have been obtained since the founding of the People's Republic in 1949. If the discovery of the Yin ruins of Anyang confirmed the reliability of ancient documents (particularly "*Record of the Historian, Yin Era*"), then the subsequent series of important archaeological discoveries should reduce the cautious and critical attitude by scholars towards ancient documents. Doubt about the ancient history in the early 20th century, has been almost entirely replaced by optimism. Some extreme views consider certain legendary figures



can be found in archaeological sites and the archaeological sites and ancient legendary people are thought to be identical. Archaeology can certainly prove the authenticity of ancient documents, but this is only a small part of archaeology's use. Archaeology should use its own methods and evidence to reconstruct the ancient Chinese history. Here is an example to illustrate the problem. In the past 50 years, a large number of Chinese archaeologists and historians spare no effort to prove that Erlitou site had been the capital of the Xia dynasty and that the Erlitou culture had been part of the Xia culture. Up until now, this goal has not been achieved, because no excavated document or material can confirm this view. However, from the archaeological point of view, the discovered Erlitou ruins and Erlitou culture has no influence on our understanding of the historical process in the middle reaches of the Yellow River in the 2nd millennium BC. Regardless of whether this culture represents the Xia and regardless of whether the ruins represent one of the cities in the Xia dynasty, we are sure that in this age, there is a state-level society with a centre over three million square meters in size, had large rammed-earth foundations and walls, high-grade tombs, bronze and jade, mainly occupying the Yi-Luo Plains. The archaeological findings also prove that this culture had been distributed mainly in western Henan and southern Shanxi area, but it had been closely linked to the Yangtze River Basin, with the purpose, perhaps, to control important natural resources, such as copper and turquoise.<sup>24</sup>

I would like to say that archaeology has its own methods and goals. The archaeology can contribute to the Chinese history on its own terms.

1. Gu Jiegang, *Discriminations on Ancient History*, volume I (Shanghai: Shanghai Ancient Books Press, 1982), p22.
2. Different versions differ slightly. This statistics used drift electronic book version of the Twenty-Four Histories, *Historical Records* (2006), including punctuations.
3. Michael and Edward L. Shaughnessy ed. 1999, *The Cambridge History of Ancient China: From the Origins of Civilization to 221 B.C.*, Cambridge: Cambridge University Press.
4. For example, *Ancient Times of General History of China* (Shanghai: Shanghai People's Press, 1994) by chief editor Bai Shouli, is written by three professional archeologists Su Bingqi, Zhang Zhongpei and Yan Wenming.
5. Loewe, Michael and Edward L. Shaughnessy, 1999, Introduction, In Loewe, Michael and Edward L. Shaughnessy ed. *The Cambridge History of Ancient China: From the Origins of Civilization to 221 B.C.* (Cambridge: Cambridge University Press), p13.
6. Among which the magnum opus are: *General History of China* (Shanghai: Shanghai People's Press, 1989-1999) by chief editor Bai Shouyi; Lu Weiye and Xia Hanyi; *The Cambridge History of Ancient China* (Michael and Edward L. Shaughnessy ed. 1999, *The Cambridge History of Ancient China: From the Origins of Civilization to 221 B.C.* Cambridge: Cambridge University Press). All of these used a large amount of archeological material, not to mention *Chinese Science and Technology History* of the well-known Joseph Lee (Joseph Needham). In recent more than 10 volumes *Shang History* (under printing) by Institute of History, Chinese Academy of Social Sciences, archeology material played an important role.
7. Han Kangxin: "Research on Inhabitant Species of Chinese Neolithic Age Chinese Archeology" in *Neolithic Age volume* (Beijing: China Social Science Press, 2007).
8. Fu Sinian: *Doctrine of East and West Yixia, Corpus on Celebration of Cai Yuanpei's 65 anniversary* (last of two volumes), p1093-1134, Institute of History & Philology of Academia Sinic, Nanjing, 1935. Xu Zhongshu: *Remark of Xiaotun and Yangshao, Report on Anyang Excavation Volume III*, p556-557, 1931. Chen Xingcan: *Chinese Prehistorical Archeology Research (1895-1949)* (Beijing: SDX Joint Publishing Company, 1997), p210-227.
9. Zhang Guangzhi: "Broken off Culture of Chinese Neolithic Age", *Analects of Chinese Archeology* (Beijing: SDX Joint Publishing Company, 1999), p45-114.

10. Chen Xingcan: "From Unification to Diversity: the Mind's Journey of Research on Chinese Culture Origin", *Culture Relics of Central China*, no.1 (2002), p6-9. Chang, Kwang-chi, 1999, China on the Eve of the Historical Period, In Michael and Edward L. Shaughnessy ed., *The Cambridge History of Ancient China: From the Origins of Civilization to 221 B.C.* (Cambridge: Cambridge University Press), p37-73. Su Bingqi and Yin Weizhang: "Regional Type of Archeology", *Cultural Relic*, no.1 (1981), p10-17.
11. Su Bingqi, Yin Weizhang: "Regional Type of Archeology", *Cultural Relic*, no.5 (1981), p10.
12. Yan Wenming: "The Unity and Diversity of Chinese Prehistorical Culture", in *Analects of Prehistorical Culture* (Beijing: Science Press, 1998), p1-17.
13. Liu Li and Chen Xingcan, *State Formation in Early China* (London: Duckworth, 2003). Xia Nai: *The Origin of Chinese Culture* (Beijing: Culture Relics Publishing House, 1985). Zhang Guangzhi: *China's Bronze Era* (Beijing: SDX Joint Publishing Company, 1983), p7.
14. Zhao Hui: "The Forming of Historical Tendency to regard Central Plains as the Centre", *Cultural Relic*, no.1 (2000), p41-47.
15. Zhang Guangzhi: *China's Bronze Era* (Beijing: SDX Joint Publishing Company, 1983), p31.
16. Song Xinchao: *Research on Culture and Region of Shang Dynasty* (Xi'an: Shaanxi People's Press, 1991).
17. Institute of Archeology, Chinese Academy of Social Sciences: *Chinese Archeology •Xia and Shang volume* (Beijing: China Social Sciences Press, 2003).
18. Chen Xingcan: "Remarks on Several Key Problems of Ancient Chinese Culture Research", in *Prehistorical Research* (Xi'an: San Qin Press, 2000), p278-279.
19. Michael and Edward L. Shaughnessy ed. 1999, *The Cambridge History of Ancient China: From the Origins of Civilization to 221 B.C.* (Cambridge: Cambridge University Press).
20. Yan Wenming: "The Unity and Diversity of Chinese Prehistoric Culture", in *Analects of Prehistoric Culture* (Beijing: Science Press, 1998), p1-17. Zhang Guangzhi: *Analects of Chinese Archeology* (Beijing: SDX Joint Publishing Company, 1999). Chen Xingcan: "Remarks on Several Key Problems of Ancient Chinese Culture Research", in *Prehistorical Research* (Xi'an: San Qin Press, 2000), p258-287.
21. Lee, Gyoung-a Ah, Gary W. Crawford, Liu Li, and Chen Xingcan, Plants and people from Early Neolithic to Shang periods in North China. *Proceedings of the National Academy of Sciences of the United States of America* 2007;104;1087-1092. Grawford, G. W., 2006, East Asian plant domestication. In *Archaeology of Asia*, edited by M. T. Stark. pp. 77-95. Blackwell Publishing, Malden. Yuan ,Jing, The Origins of Animal Domestication in China, 2007, Paper for International Conference on Zooarchaeology, Zhengzhou, July 13-15, 2007. Zhang Guangzhi: *China's Bronze Era* (Beijing: SDX Joint Publishing Company, 1983). Institute of Archeology, Chinese Academy of Social Sciences: *Discovery and Research of Yin Ruins* (Beijing: China Social Sciences Press, 1994). Si Chuan Culture Relic and Archeology Institute: *Report on the Excavation of Sanxingdui Sacrificial Pit* (Beijing: Culture Relic Publishing House, 1997). Liu Li, Yang Dongya and Chen Xingcan: *The Origin of Chinese Domestic Buffalo*, *Acta Archaeologica Sinica*, no 2 (2006), p141-178.
22. Lee, Gyoung-a Ah, Gary W. Crawford, Liu Li, and Chen Xingcan, Plants and people from Early Neolithic to Shang periods in North China. *Proceedings of the National Academy of Sciences of the United States of America* 2007;104;1087-1092.
23. Allan, Sarah, 2007, "Erlitou and the Formation of Chinese Civilization: Toward a New Paradigm", *The Journal of Asian Studies*, vol. 66, no. 2, (2007), p461-496.
24. Liu Li and Chen Xingcan, *State Formation in Early China* (London: Duckworth, 2003). Institute of Archeology, Chinese Academy of Social Sciences: *Yanshi Erlitou*

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