The Formation of the Interlock Belt of Agriculture and Husbandry and the Climate Changing in North China

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The interlock belt of agriculture and husbandry is the transitional area between agriculture area and husbandry zone, therefore, it is necessary to explain the formation of agriculture and husbandry area in order to discuss the formation of the transitional belt. As many archaeologists said, the cooling of the climate is probably the main reason of the formation of husbandry and the cause of its separation from the traditional agriculture. It is also the cause of the formation of interlock belt of agriculture and husbandry in north China. The climate changed cold and dry during the periods between 1500–1000 BC. The north China has experienced a series of changing procedures, from primitive agriculture, to half agriculture and half husbandry, to formation of husbandry and distraction from primitive agriculture, and to interlock belt of agriculture and husbandry. Bases on the changing procedure we could divide north China into three categories—the middle area of Inner Mongolia, the eastern area of Inner Mongolia, and Gansu and Qinghai Provinces.

The middle area of Inner Mongolia in 5000 BC was the primitive agricultural area influenced by Yangshao Culture. Although each culture was different in regional source, its implements revealed similar features on the aspects of agricultural civilization. Until 2000 BC, Laohushan Culture has developed into a large-scale primitive agriculture. About 6000 BC, in the eastern area of Inner Mongolia and west of Liaoning Province emerged primitive agriculture, and this agriculture formed Neolithic Hongshan Culture, including Xinglongwa Culture, Zhaobaogou Culture, Zhaoheyan Culture, Fuhe Culture, Hongshan Culture, Xiaoheyuan Culture and the Lower Xiajiadian Culture which belongs to the Bronze Times. Relying on the development of primitive agriculture, residents has built the tribe architectures like stone city, and formed rigorous social organizations and phratry. In Gansu and Qinghai Provinces, there are Majiayao Culture and Dadiwan site in Qin’An and Majiayao Culture, which represent the Neolithic western agricultural civilization and primary cultural types. This discovery reveals the dominant position of primitive agriculture in Gansu and Qinghai Provinces.

About 1500 BC, the situation primal agriculture dominated North China terminated, when the climate was in a turn from warm to dry and cold. Climate change impelled semi-agriculture and semi-husbandry production to emerge and accelerated the fashion into completely self-governed husbandry economy and culture. When husbandry economy broke away from agriculture, both the difference and interlock belt between the two formed, whose position was from Gansu and Qinghai Provinces to Inner Mongolia and west of Liaoning Province. During the process, Inner Mongolia, west of Liaoning, Gansu and Qinghai Provinces experienced different cultures respectively.

In Inner Mongolia, Laohushan Culture was followed by Zhukaigou Culture, during which period, the climate in North China changed from warm to dry and clod, accompanied by the shift from primal agriculture to semi-agriculture. Category of vegetations is referent of environmental characteristics. In the five cultural layers in Zhukaigou site, proportion of pigweed and Artemisia which stood for dry become domination with the first layer 50% and fifth 93%, and thus reflected the climate was changing dry. With the climate change showed in Zhukaigou site, human lifestyle changed accordingly. As showed from the first to the fifth cultural layers, pro-
portion of sheep and cattle added gradually with the climate change. Pig, sheep and cattle are all domesticated animals. However, because of physiological differences between them, generally, only pig was accepted as the signal of agriculture, while sheep and cattle as the symbol of husbandry. Therefore, decline of pigs and soaring proportion of sheep and cattle manifested the increase of husbandry and slump of agriculture. Besides this, when the culture developed into the fifth layer, not only the number of house and graves decreased, but the copper tools, which are seen as the characteristic of nomadism, spur out in the tools of daily lives (see Table 1). In the effect of climate change, the economy of semi-agriculture and semi-husbandry spread southward which influenced Lijiaya 李家崖 Culture. Lijiaya site, where city wall, tools, bones of animals and bronze ware were found, is in Qingjian 青涧 County, Shaanxi 陕西 Province. The culture relics found here show the successive relation with Culture Zhukaigou and proved that the population of Lijiaya was the descendants of Zhukaigou. It was the evidence that Culture Zhukaigou moved southwards because of changing climate. Bronze ware excavated in relics in south of Hequ 河曲, which is along Yellow River in Shanxi 山西 Province also show the relation with Zhukaigou Culture, so are the sites of Shilou 石楼, Liulin 柳林 and Suide 绥德, which along the boundary of Shanxi and Shaanxi Provinces.

About 1000 BC, culture around west Liaohe 辽河 River area, or the area of east Inner Mongolia and west Liaoning Province, changed from Lower Xiajiadian to Upper Xiajiadian Culture. By the culture relics, house site and vaults in Xiajiadian site, archaeologists can tell though the people living in the time of Upper Xiajiadian Culture settled down in a certain area and agriculture existed there, husbandry already developed thoroughly. When Upper Xiajiadian Culture shaped, it spread southwards. Archaeologists rebuilt the process of the culture’s moving southwards by C\textsuperscript{14}. It turned out to be started from the north bank of Xilamulun 西拉木伦 River in 1000 BC year around and in about 700 BC years, the Upper Xiajiadian Culture spread among south bank of Xilamulun River and north of Yan Mountains. Dur-

<table>
<thead>
<tr>
<th>Phase</th>
<th>Period</th>
<th>Environment</th>
<th>Tools for production</th>
<th>Pig:sheep:cattle</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>early Longshan Culture</td>
<td>few pollens of Xylophyte, 50% of the pollens belong to pigweed and Artemisia</td>
<td>stone knife, axe, abrade stick, whetstone; bone arrowhead, bone chisel and needle</td>
<td>1:0.45:0.36</td>
</tr>
<tr>
<td>II</td>
<td>late Longshan Culture</td>
<td>a few pollens of broadleaf trees like walnuts, more pollen of pigweed and Artemisia (exceed 70%)</td>
<td>stone axe, knife, sickle, shovel, pestle, spindle whorl, chopper, spear-shaped artifact, arrowhead; angle hoe; bone knife, arrowhead, dagger, needle; pottery cushion</td>
<td>1:1.29:0.33</td>
</tr>
<tr>
<td>III</td>
<td>early Xia</td>
<td>pollen of pigweed and Artemisia continue to increase(exceed 90%)</td>
<td>tools of stoneware, bone and pottery were no difference from those of previous times, but bronze ware appeared and microlithic tools increased a little amount, category and manufacture of the tools were no difference from those of previous times, but number of bone arrowhead and spindle whorl soared; bronze wares were still small tools</td>
<td>1:1.0.27</td>
</tr>
<tr>
<td>IV</td>
<td>late Xia</td>
<td>pollens of Xylophyte appeared spruce, birch and elm, pine and birch were the main part of the pollens</td>
<td>all kinds of stoneware declined but microlithic tools, stone, axe and knife; the number of bone arrowhead increased dramatically; big bronze artifacts and weapons such as dagger, ge-halberd, knife and arrowhead emerged</td>
<td>1:1:1</td>
</tr>
<tr>
<td>V</td>
<td>Erligang period of Shang Dynasty</td>
<td>firry and pine were the main part of pollens of Xylophyte; pollens of pigweed and Artemisia exceed 93%</td>
<td>all kinds of stoneware declined but microlithic tools, stone, axe and knife; the number of bone arrowhead increased dramatically; big bronze artifacts and weapons such as dagger, ge-halberd, knife and arrowhead emerged</td>
<td>1:1:1</td>
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ning several hundreds of years, the culture moved southwards and eventually replaced the culture of lower layer in Xiajiadian. The process of replacing was not isolated. It was followed by the immigration of agricultural population and some northern folks with little skill of agriculture. In the replacing process, the climate was changing from warm and wet to cold and dry, which pushed the interlock belt of agriculture and husbandry moving not only southwards but eastwards. Li 高 tripod with chiffon was first found in Zhukaigou site and was found in both north and south of Yan Mountains such as Jixian 蓟县 County, Tangshan 唐山, Chengde 承德 in Hebei 河北 Province, Chaoyang 朝阳 in Liaoning 辽宁 Province and Chifeng 赤峰, Tongliao 通辽 in Inner Mongolia 内蒙古, which showed the path of culture spread. It also manifested that the process of climate changing cold was started from west to east.

In the area of Gansu and Qinghai Provinces, Qijia 齐家 Culture developed after Majiayao Culture about 2000 BC. Unearthed objects in this area showed Qijia Culture had gone from Neolithic into Bronze Age. People of that period settled down and got their production from both agriculture and husbandry. Relics of Qijia Culture had a vast of distribution, from Rivers Jing 泾河 and Wei 渭河 in the east to the Yellow River in the west, from area of Bailongjiang 白龙江 River in the south to area of Alashan 阿拉善 in Inner Mongolia in the north, which contained Gansu, Qinghai, Inner Mongolia and Ningxia 宁夏 provinces and autonomous regions. Following Qijia Culture, Kayao 卡约 Culture, Xindian 秦店 Culture and Siwa 寺洼 Culture emerged in Gansu and Qinghai provinces, among which husbandry economy was contained. These genres of culture replaced Qijia Culture, accelerating the changing process from primitive agriculture to semi-agriculture and semi-husbandry.

After discussing the changing process from primitive agriculture to semi-agriculture and semi-husbandry, I have to emphasize two points:

i. It was nature not human behavior that controlled the changing process. Thus the spread of north grassland culture was coincidence with the moving of natural belt.

ii. The changing process from primitive agriculture to semi-agriculture and semi-husbandry not only contained the change of economic culture, but showed the disaccord in geography. Qijia Culture in Gansu and Qinghai provinces was about 2000 BC; the forth period of Zhukaigou Culture in the middle of Inner Mongolia was about 1500 BC, which showed obvious characteristics of semi-agriculture and semi-husbandry; in the Upper Xiajiadian Culture emerged about 1000 BC in east of Inner Mongolia and west of Liaoning Province. We can find out the time order of the spreading process was from west to east, from 2000 BC to 1500 BC to 1000 BC. Besides, it took 400 or 500 years for Zhukaigou Culture to develop into its successive culture in Lijiaya in the late Shang Dynasty. The moving speed of genre of cultures reflected the changing speed of climate from warm to dry.

Before husbandry separated from agriculture, semi-agriculture and semi-husbandry was a necessary procedure for the separation. Therefore, in the earlier period of the formation of interlock belt of agriculture and husbandry, it was the district of semi-agriculture and semi-husbandry that distinguished from district of agriculture, not district of husbandry. What I should point out is that, at this time, in the district of semi-agriculture and semi-husbandry the agriculture and husbandry were not separated completely but parallel, as the cultural relics found in sites have showed, such as bones of cattle and sheep, crop, agricultural tool of axe and harnesses. We can tell from these cultural relics that the ancestors in the interlock belt of agriculture and husbandry, no matter family or individual, both cultivated and fed a herd at the same time. However, it was not the real husbandry because of its limited amount of herd and limited scale of transference. For husbandry, the key factor was not the occupation of land but the transference. Horse domestication, control of herd behaviors and invention of appliances for transference are the most important for the formation of husbandry. Archaeology showed that harness had been used in north China about 6th century BC. Harness and horsemanship led to equestrian folks, who had been called “Di 氏” and “Rong 戎” by agricultural residents in central China and whose living area “nomadism regions.” About 4th century BC, these regions connected together and separated from agricultural region in central China. At the moment, the real interlock belt of agriculture and husbandry formed, whose alignment was coincident with what was described in Shi ji 史记 by Sima Qian 司马迁 from Longmen 龙门 to Jieshi 碣石.

Reference Works


Note: The original paper, published in 《考古》 2005.10: 57–67, with one map and two tables, is written by Han Maoli 韩茂莉. This summary is prepared and English-translated by the author herself.