

On the Rice Farming in the Shu Area During the Can Cong Period

Xin Yan

Chongqing Medical University

Zhang Hongying

Chengdu Medical College

Follow this and additional works at: <https://css.researchcommons.org/journal>

Recommended Citation

Yan, Xin and Hongying, Zhang () "On the Rice Farming in the Shu Area During the Can Cong Period," *Contemporary Social Sciences*: No. 1, Article 9.

DOI: <http://dx.doi.org/10.19873/j.cnki.2096-0212.2023.01.009>

Available at: <https://css.researchcommons.org/journal/vol2023/iss1/9>

This Research Article is brought to you for free and open access by Contemporary Social Sciences. It has been accepted for inclusion in Contemporary Social Sciences by an authorized editor of Contemporary Social Sciences.

On the Rice Farming in the Shu Area During the Can Cong Period

Xin Yan

Chongqing Medical University

Zhang Hongying*

Chengdu Medical College

Abstract: The Bashu area was one of the most civilized agricultural areas in ancient China. Since the late Eastern Han Dynasty, it has been reputed as the “Land of Abundance” due to its abundant resources. Archaeological data show that the Shu area cultivated millet as early as the prehistoric period. The legend goes that Can Cong was the first ruler of the Shu area during the pre-Qin period, indicating that agricultural production at that time had made great progress compared with the prehistoric period. During this period, the agricultural pattern of the Shu area experienced profound changes, from dryland millet farming originating from the Western Sichuan Plateau to rice farming that is more suitable for Sichuan Basin, especially for the Chengdu Plain, where there are abundant rainfalls and high temperatures. Since then, rice farming has become a long-established farming tradition in the Shu area. The agricultural production tools and grain crop seeds unearthed from the Baodun site, where the archaeological remains of Can Cong Culture were discovered, show the prosperity of early agriculture in the Shu area. During the Baodun Culture period, the accelerated economic and social development in the Shu area promoted complicated and hierarchical changes in the social organization structure of settlements, which gradually evolved into early states.

Keywords: Can Cong, Shu area, Baodun Culture, rice farming

DOI: <http://dx.doi.org/10.19873/j.cnki.2096-0212.2023.01.009>

* Xin Yan, Chongqing Medical University;
Zhang Hongying, Chengdu Medical College.

This paper is a joint achievement of the Humanities and Social Science Research Project of the Chongqing Municipal Education Commission entitled “Exploration and Inheritance of the Core Values of Ba Culture from the Perspective of Cultural Confidence” (Project No.: 20SKGH034) and the 2019 University-level Philosophy and Social Sciences Special Research Project of Chongqing Medical University entitled “Research on the Chineseization of Indigenous Ethnic Groups in Bashu Area in the Qin and Han Dynasties” (Project No.: ZX190306).

Corresponding concerning this article should be addressed to Zhang Hongying, Chengdu Medical College, Chengdu, Sichuan, 611130, China. Email: zhysl2000@163.com

According to legend, Can Cong, Bo Guan, and Yu Fu were the rulers of the three earliest dynasties in the ancient Shu area. During this period, agricultural production experienced profound development compared to the prehistoric period. The Baodun culture, as the archaeological remains of the Can Cong period, shows the prosperity of early agriculture in the Shu area. It is said that Bo Guan became the second ruler of the Shu area, following Can Cong. The lack of documentation leads to difficulties in examining historical facts and agricultural development during that period. In the Yu Fu period, agriculture in the Shu area was further developed, and the area became an important place with flourishing agriculture across the country. Thanks to the rapid development of agriculture, splendid civilizations represented by the Sanxingdui emerged in the Shu area. This paper mainly discusses the development of agriculture in the Shu area during the Can Cong period, the first dynasty in the ancient Shu area, in the hope of learning from experts and scholars who excel in this field.

Agriculture in the Shu Area During the Can Cong Period as Recorded in Documentations

As for the historical records of Can Cong, Bo Guan, and Yu Fu, Yang Xiong, a famous literate in the Western Han Dynasty, wrote in his book the *Biographies of the Kings of Shu* that:

“Can Cong, Bo Huo (also known as “Bo Guan”), Yu Fu, Pu Ze (also known as “Du Yu”), and Kai Ming were the five earliest rulers of the Shu area during the pre-Qin period (before 221 B.C.). At that time, the Shu people wore hair buns and dressed in a left-crossed skirt. No words were created, and no systems of rites and music were made to follow. Shu existed for about 34,000 years, from the Can Cong to the Kai Ming period. The first king of Shu was Can Cong, followed by Bo Huo and Yu Fu successively. These three kings reigned the land for hundreds of years, respectively, and all became immortal. King Yu Fu ascended to heaven and became immortal when he was hunting in a field at the foot of Jianshan Mountain, so the Shu people built a temple to worship him on Jianshan Mountain. At that time, the Shu area is sparsely populated” (Yan, 1893/1958).

Chang Qu, in the Eastern Jin Dynasty, wrote in his *Chronicles of Huayang: Records of Shu* that:

“At the end of the Western Zhou Dynasty, the Shu area became the first place to establish political powers. King Can Cong was the first ruler of the Shu area. It is said that he was born with protruding eyes. He was buried with a stone coffin after his death, which was followed by his people. Therefore, the stone coffins are considered tombs of people with protruding eyes. The second ruler of Shu is said to be King Bo Guan, followed by King Yu Fu. King Yu Fu ascended to heaven and became immortal when he was hunting in a field at the foot of Jianshan Mountain. His people missed him so much that they built a temple to

worship him on Jianshan Mountain (Liu, 2015).

The prehistoric records of Shu in Chang Qu's *Chronicles of Huayang* were compiled based on the *Biographies of the Kings of Shu* edited by eight scholars, including Sima Xiangru, Yan Junping, and Yang Xiong. In terms of the three regimes of Shu, the *Chronicles of Huayang: Records of Shu* basically followed the names of the three kings and their historical order as recorded in the *Biographies of the Kings of Shu*. The difference lies in that Chang Qu traced back to the ancient historical legend of the "Emperor of Humans" during the period of the Three Sovereigns (3162 BC to 2070 BC)^① when compiling the early history of the Shu area. In addition, in his writing, the three earliest regimes, namely, Can Cong, Bo Guan, and Yu Fu, in the Shu area, were ranked behind the Western Zhou Dynasty, which was obviously influenced by the notion of "Great Unity" and Chinese orthodoxy. However, Yang Xiong depicted in his *Biographies of the Kings of Shu* that the history of Can Cong, Bo Guan, and Yu Fu, the earliest three rulers of Shu, can date back to a rather remote period, which says "There are 34,000 years from King Kai Ming's reign to that of King Can Cong." Yang Xiong's statement is full of mythology and of low credibility. Moreover, this is also inconsistent with other copies of the *Biographies of the Kings of Shu*, such as Volume 166 of the *Imperial Overview from the Taiping Reign*, which says that "There are four thousand years from King Kai Ming's reign to that of King Can Cong" (Li et al., 1960). This version is much closer to historical facts. Moreover, Chang Qu, who held a rational historical view, refuted in the *Preface of Chronicles of Huayang* that "Legends go that there are 3,000 years from King Can Cong's reign to that of Kai Ming." He also said: "Both Can Cong and Kai Ming established their authorities following the Western Zhou Dynasty. How can we say there are 3,000 years between their reigns" (Liu, 2015)? It can be seen that in the *Biographies of the Kings of Shu*, which Chang Qu once read, the time spanned "3,000 years." Since it is easy to confuse the character "San" and "Si" ("three" and "four" in English) in ancient Chinese before the Zhou Dynasty due to their similar structures, we suspect that the "4,000 years" should have been "3,000 years" in this copy. In addition, it is recorded in the *Biographies of the Kings of Shu* that Can Cong, Bo Guan, and Yu Fu "reigned the land for hundreds of years, respectively, and all become immortal." Modern Chinese historian Meng Wentong gave a reasonable explanation for this, arguing that Can Cong, Bo Guan, and Yu Fu "represent the names of historical periods rather than their private names" (Meng, 1981), which is actually a common historical phenomenon of confusing private names with those of historical periods in ancient times. According to this view, Can Cong, Bo Guan, and Yu Fu actually represent three dynasties or the three ethnic groups, and only on this basis can the saying that they all reigned the land for "hundreds of years" make sense. As recorded in *Biographies of the Kings of Shu* and *Chronicles of Huayang*, Can Cong, Bo Guan, Yu Fu,

① The Three Sovereigns are three legendary rulers in ancient China.

and the following Du Yu and Kai Ming are five successive dynasties or regimes. In fact, that is not the case. They were actually the five regional rulers in the Shu area, whose reigns may either be successive due to their different national strengths or coexist for a long time as regional rulers (Peng, 1998). So, what is the material basis for the existence of the three regional regimes established by Can Cong, Bo Guan, and Yu Fu? This paper first discusses the agricultural development in the Can Cong period.

Can Cong, the first ruler of Shu, came from the Diqiang ethnic group in the upper reaches of the Minjiang River in northwest Sichuan, dating from about the same time or earlier than the Xia Dynasty (Duan, 2010). Zhang Qiao, a scholar of the Southern Song Dynasty, noted in the *Records of the Ancient Shu* in Yang Xiong's *Ode to the Capital of Shu*, an article collected in *Anthology of Chinese Ancient Literature*, that "Can Cong originally lived in a stone cave in the Minshan Mountain." In the upper reaches of the Minjiang River in Wenchuan county and Guanxian county, there are still names such as Canya Pass, Canya Stone, and Canya town, which are said to be related to Can Cong. In recent years, a large number of stone coffins were discovered in the upper reaches of the Minjiang River, which is in line with the burial tradition recorded in the *Chronicles of Huayang: Records of Shu*, in which it says, "King Can Cong was the first ruler of the Shu area. It is said that he was born with protruding eyes. He was buried with a stone coffin after his death, which was followed by his people. Therefore, the stone coffins are considered tombs of people with protruding eyes" (Liu, 2015). So it can be inferred that the upper reaches of the Minjiang River are the early residence place of the Can Cong clan. So, what is the production mode of the Can Cong clan? The above quotation in the *Records of the Ancient Shu* that "Can Cong first lived in a stone cave in the Minshan Mountain" indicates that the Can Cong clan has developed into a settlement group since the early times. According to the general law of anthroposociology, settlement is usually closely related to agricultural development. As mentioned above, archaeological data have fully revealed that the valley areas in the upper reaches of the Minjiang River, where the Can Cong clan settled earlier, boast prosperous agricultural development in early times. It should also be noted that the character "Can" in Can Cong's name means "silkworm," indicating that people in the Can Cong period had made great breakthroughs in silkworm breeding and silk processing. Therefore, later generations said, "King Can Cong established regimes in Shu. He dressed in cyan and taught people to breed silkworms and process silk. Since then, there emerged the sericulture industry in Shu" (Shi, 1979). The development of the sericulture industry relies on the agricultural economy, suggesting that the Can Cong period saw great progress in agriculture.

The Can Cong clan lived in the upper reaches of the Minjiang River before they gradually moved southward to settle down in the Chengdu Plain. In the areas where the Minjiang River flows southward into the Chengdu plain, there are still places named "Canya Pass," "Canya Mountain," "Canya Stone," "Canya town," and "Canya county,"

which are all related to the southward migration of the Can Cong clan. Recent archaeological discoveries suggest that the early civilization of the Chengdu Plain could have its source in the upper reaches of the Minjiang River. The Shawudu site, located in Shuixi village, Fengyi town, Maoxian county, is less than 800 meters away across the river from the Yingpanshan site, dating back to about 4500 years ago. The site has something in common with the Baodun site located in the Chengdu Plain in terms of cultural origins (Jiang et al., 2006). More notably, the discovery of the Buwa site in Wenchuan has provided new evidence for the origin of Baodun Culture (Yang, June 18, 2009). The Bowa site dates back to about 4800 years ago. The characteristics of the pottery pieces collected on this site reflect that it shares the same cultural origin with the Baodun site and is likely to be the source of Baodun Culture, which provides a certain historical basis for the legend in the prehistorical period that the Can Cong clan did migrate from the upper reaches of the Minjiang River to Chengdu plain. The above archaeological data show that Baodun Culture may be the cultural relics of the Can Cong clan when they migrated southward to the Chengdu Plain.

Preliminary Development of Rice Farming in the Shu Area According to Archaeological Data

Baodun Culture is considered the earliest archaeological and cultural relic in the Chengdu Plain, with an absolute archaeological age of about 4,500–3,700 years. Cultural relics represented by the Baodun Ancient Town in Xinjin county and eight other ancient towns, including Mangcheng Ancient Town in Dujiangyan city, Pidu Ancient Town, Yufu Ancient Town in Wenjiang District, Shuanghe and Zizhucun ancient towns in Chongzhou city, and Yandian and Gaoshan ancient towns in Dayi county share the similar cultural characteristics, which were collectively named “Baodun Culture” even though they are of different ages (Jiang, Yan, & Li, 1997). The scale and density of the Baodun Cultural Ancient Town Cluster show that the development level of the area is not lower than that of the outside, which is absolutely inseparable from the booming agricultural economy there. Without a booming agricultural economy and abundant food, there would not have been enough surplus agricultural labor to build so many large towns. The agricultural production tools, grain crops, and water conservancy projects in the Baodun period also reflected the great progress of agricultural production.

The agricultural production tools unearthed from the Baodun Cultural Ancient Town Cluster are dominated by the traditional small polished stone tools commonly seen in the Shu area, such as stone axes, stone adzes, and stone chisels, which lead in both numbers and quality, with the more refined process, more regular shapes, and more developed grinding and drilling technologies when compared with those unearthed from the Yinpanshan site. Moreover, the stone shovels used to plow and loosen the soil excavated from the site have

double holes at their top, which are single-sided drilling holes with sharp edges and exquisite production. The number of perforated stone knives used for crop harvesting increased significantly during this period. Progress in agricultural production tools, especially the discovery of stone shovels, indicates that the Shu area may have entered the hoe-farming era during the Can Cong period.

What were the main grain crops in Shu during the Baodun Culture period? Based on an investigation of ancient literature records, migration of and cultural interaction among ethnic groups, and climate changes, many scholars believed that millets might be the dominant crop in the Chengdu Plain during the Baodun period (Guo, 1993; Sun, 2009; Jiang 2009). However, this argument has been denied by archaeobotanists engaging in research on the Chengdu Plain in recent years. Archaeobotanists have found a preponderant quantity of broomcorn millet and a small amount of millet in Pit H43 in the first phase (5,100–4,600 years ago) of the Guiyuanqiao site in Shifang city (Dai, 2015), but no rice has been found. Rice was found at the turn of the first and second phases, and in the late second phase (dating back to 4600–4300 years ago, which is defined as the Baodun culture period), rice seeds unearthed occupied an absolute number, with only a small amount of millet and millet unearthed. Some scholars argued that the transition of the agricultural structure of the Guiyuanqiao site from millet farming to rice farming possibly results from the adaption of the site owners to the ecological and cultural environment of the Chengdu Plain after their migration, who originally lived in the northwest Sichuan where millets were the dominant grain crops (Wan & Lei, 2013). There is some basis for this argument. The results of large-scale flotation of the plant remain carried out at the Baodun site in recent years reveal that during the Baodun Culture period, rice was the dominant grain crop in the Chengdu Plain, accompanied by a small number of millets and broomcorn millets, and in its late phase, the millet and broomcorn millet tended to disappear (Jiang & Dai, 2009). The flotation results of plant remains at the Baodun site in 2009 showed that rice accounted for 45 percent of all carbonized plant seed, and was found in all stages of the Baodun Culture period, while the millet only accounted for 1.6 percent, which only appeared in the first phase of the Baodun Culture period, and almost disappeared in the late phase. The flotation results of the Baodun site from 2010 to 2011 showed that in the first stage of the Baodun Culture, rice accounted for 66.8 percent, and millet accounted for 32.1 percent of all carbonized crop seeds (Shi et al., 2005). By the second phase of the Baodun Culture, the proportion of rice in the total crop increased sharply to 91.4 percent, while that of millet dropped to 8.5 percent, indicating the gradual decline in the status of millet and the emergence of rice as a commonly cultivated grain crop. From 2013 to 2014, plant flotation at the Pengdunzi north site of the Baodun site drew the same conclusion as above (Yan et al., 2015) that rice accounted for about 59 percent of the total crop in the first phase of the Baodun Culture, and by the second stage of the first phase, the proportion of rice in the total crop increased sharply to about

90 percent, reflecting that rice farming gradually secured an absolutely dominant position in the agricultural structure during that period. This is similar to the analysis results of the phytolith from the Baodun site (Chen et al., 2015). Therefore, it can be inferred that rice has become the dominant grain crop in the Chengdu Plain since the Baodun period, and rice farming has become a long-established agricultural tradition of the Shu area.

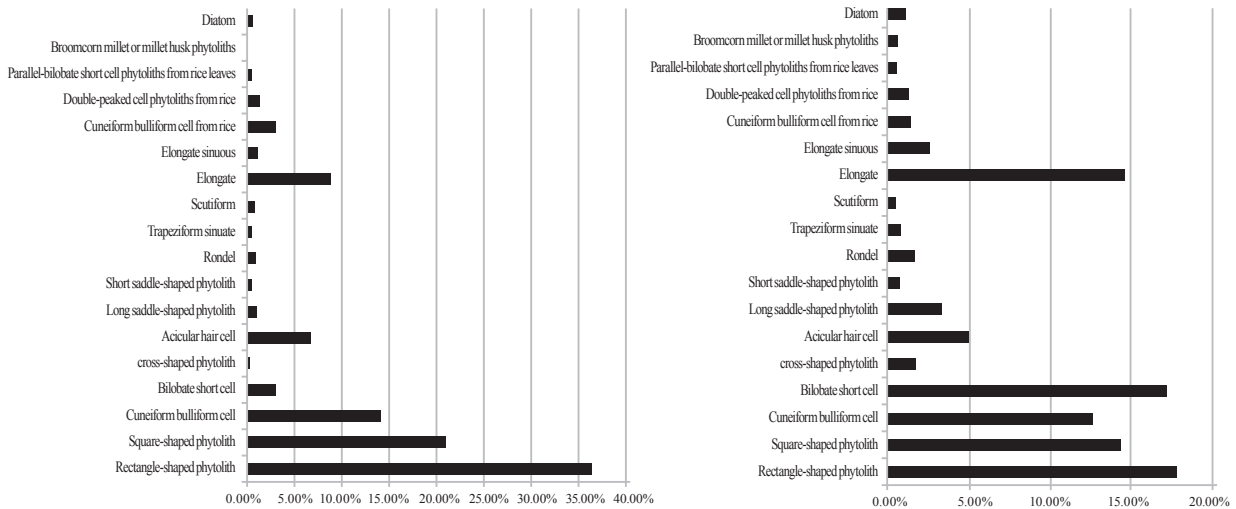


Figure 1 Percentages of Phytolites and Diatoms at Pit H92 and H94 of the Baodun site
 Source: Chen Tao, Jiang Zhanghua, et al. (2015). Phytolith analysis from the Baodun Archaeological Site, Xinjin, Sichuan. *Acta Anthropologica Sinica*, 34(2), 225–223.

As for the agricultural source of the Baodun culture, it is generally believed that millet farming comes from the Majiayao Culture in the upper reaches of the Minjiang River. Archaeological findings of the Neolithic Age in the upper reaches of the Minjiang River in recent years also show that the ethnic culture in this area is related to the Majiayao Culture and Yangshao Culture, which are closely related to the Yellow Emperor ethnic group. The Yingpanshan site, dating back to 5,500–5,000 years ago, is a large central settlement site in the upper reaches of the Minjiang River during the Neolithic Age (Fan, Chen, et al., 2006). The black-on-red painted potteries unearthed from the site are similar to those unearthed from the Majiayao site in northwest China’s Gansu and Qinghai provinces. The clay-textured polished reddish-brown pottery bowl, belly bowl, ears on the belly of the pottery bottles and other potteries, as well as the ground perforated stone knives unearthed at the site, all have the characteristics of Majiayao Culture. On the whole, the Yingpanshan Culture is dominated by local cultural elements while absorbing some from Majiayao Culture. The dryland millet farming tradition in Chengdu Plain originated from the upper reaches of the Minjiang River, which is consistent with the historical facts that the Can Cong clan migrated

southward from the upper reaches of the Minjiang River to the Chengdu Plain.

However, the rice farming tradition of Baodun Culture originated from the middle reaches of the Yangtze River. Rice farming in the middle reaches of the Yangtze River originated very early. The pottery shards unearthed from the Pengtoushan site and the Bashidang site dating back to about 8,000 years ago contain a large amount of carbonized rice husks and seeds (Hunan Archaeology Insititute, 2006). According to the identification of agronomists, the rice unearthed from the Bashidang site is a prehistorical cultivated rice species with the common characteristics of indica, japonica, and wild rice after differentiation (Zhang & Pei, 1997). A large number of carbonized rice, unhusked rice, and ancient paddy relics were found at the Chengtoushan site during the Daxi Culture period (He, 2007). Flotation data from the two sites of Sanfangwan and Tanjialing in the Shijiahe Ancient Town of Tianmen city and the Yejiamiaio site in Xiaogan city showed that the middle reaches of the Yangtze River had formed a farming mode of rice-millet mixed cultivation no later than the late phase of Qujialing Culture (Deng, Liu, & Meng, 2013; Wu, Liu, & Zhao, 2010). The Baodun Culture developed amid the rapid expansion of the Qujialing-Shijiahe Culture. The grey and white pottery, black pottery, and ring foot carving pottery prevalent in Baodun Culture share many similarities with those of Shijiahe Culture. More importantly, the construction techniques of Baodong Ancient Town and the prehistoric towns in the middle reaches of the Yangtze River are exactly the same. That is, towns were built on a flat basis without trench-fill foundations and with oblique walls. This is different from that of the Central Plains where the trench-fill foundations are first opened and the combined technology of ramming and stacking was adopted. This proves that cultural exchanges and interactions might exist between Baodun Culture and Qujialing-Shijiahe Culture in the middle reaches of the Yangtze River. These indirect cultural exchanges can, to some extent, interpret the source of farming on Chengdu Plain.

As the saying goes, “Well-established water conservancy breeds a nation.” Water conservancy projects are the veins of agricultural production. The Baodun Cultural Ancient Town Cluster, as the archaeological remains of the Can Cong clan, represents the major achievements of ancient Shu ancestors in water conservancy construction over 4,000 years ago. The rammed earth walls of the ancient town cluster are a composite system integrating military defense and flood prevention, whose flood control function cannot be underestimated (Huang et al., 2005; Peng, 2007). The Baodun Cultural Ancient Town Cluster boasts its own characteristics in site selection. Many of its towns were built on the platforms of the river banks, and the city walls were built along the edge of the platforms, following the river’s directions. Such walls built in accordance with the river’s directions and land shapes are conducive to flood control and discharge. In addition, moat-like artificial waterways were built outside the walls of the town. For example, moats are found outside the Baodun Ancient Town in Xinjin county and Pidun Ancient Town. Moreover,

the Mangcheng Ancient Town in Dujiangyan city as well as the Shuanghe and Zizhucun ancient towns in Chongzhou city were surrounded by both inner and outer walls and moats. This composite system composed of city walls and moats undoubtedly has a strong flood control function, and under normal circumstances, it can withstand floods. However, it is powerless in the face of extremely severe floods that occur once in many years. The flood control system of Yufu Ancient Town in Wenjiang District is slightly different from that of the above-mentioned ancient towns, whose walls were built obliquely, and there are many pebbles sandwiched between each layer of the wall. In addition, it is common to see the phenomenon of alternating layers of pebbles and earth. Such rammed earth walls are conducive to alleviating the impact of floods on walls, effectively improving flood control efficiency.

Therefore, it can be seen that the high-level water control technology of the Baodun Cultural Ancient Town Cluster provides not only valuable references for the water conservancy construction of later generations but also provides strong support and guarantee for agricultural production. The migration of the Can Cong clan from the upper reaches of the Minjiang River to the alluvial Chengdu Plain and the establishment of a large-scale walled settlement reflect the high water control ability and strong agricultural support of the Can Cong clan. In terms of settlement distribution, archaeologists have found fewer settlements from the Baodun Culture Phase I and II, only Baodun Ancient Town in Xinjin county, Sanxingdui site, and Mangcheng Ancient Town in Dujiangyan city. However, there were more settlements found in Phase III and IV, with discoveries in places such as Wenjiang, Xindu, and Pidu districts. The central settlement during this period expanded from over 100,000 square meters to over 600,000 square meters. This was possibly due to the large-scale cultivation of rice, which led to population growth and the expansion of settlement size. During the Baodun Culture period, the accelerated economic and social development in the Shu area promoted complicated and hierarchical changes in the social organization structure of settlements, which gradually evolved into early states.

Transition of Early Agriculture in the Shu Area from Highland to Lowland During the Pre-Qin Period

The migration of the Cang Cong clan from the upper reaches of the Minjiang River to the Chengdu Plain reflects the transition process of early agriculture in the ancient Shu area from highlands to lowlands. This is also confirmed by the archaeological discoveries in Sichuan that the archaeological culture of the highlands around the basin generally predates that of the lowland plain, and the lower the lowlands, the later the age (Zhao & Li, 2004). The study of Xu Zhongshu shows that the transition of China's agriculture from highlands to lowlands can date back to prehistorical times. The hashtag-shaped field system of the Zhou

Dynasty was also developed on fertile lowlands on the basis of highland agriculture (Xu, 1995). The emergence and development of ancient agriculture in other parts of the world also experienced the course from mountainous areas to river alluvial plains. The earliest agriculture emerged in the margins of mountains or highlands rather than in river alluvial plains or deltas (Editing Group of the *Prehistory of the World*, 1979). Anthropological data shows that some ethnic groups in southern China, such as the Dulong, Lisu, Miao, Naxi, and Li, all started agricultural production in mountainous areas, from primitive slash-and-burn agriculture to the early hoe-farming agriculture cultivation, and later gradually moved to lower and flatter areas (Li & Lu, 1981). Therefore, lowland agriculture would only occur after primitive agriculture had developed to a certain stage. This is mainly because, at the stage of extensive slash-and-burn agriculture, the production technology required for mountainous agriculture was relatively simple, and it was more convenient for tribes to farm in mountainous areas where they resided. For prehistorical people, it was more dangerous to reside in river alluvial plains due to the more complicated natural conditions there. On the plains, swamps and rivers are intricately intertwined, and puddles are dotted everywhere. In addition, such places are exposed to threats of floods and ferocious animals all year round and lack various natural resources such as forests and stones for people to make a living and protect themselves. Therefore, developing lowland agriculture requires higher production technology to overcome greater natural obstacles, making it difficult for early agriculture to occur in these areas.

More importantly, the expansion of agriculture in Sichuan from highlands to lowlands is closely related to climate and environment changes, settlement expansion, rapid population increase, and other factors in addition to the impact of the special geographical centripetal structure of the Sichuan Basin.^① The current research results on paleoclimate show that the upper reaches of the Minjiang River suddenly experienced a climate fluctuation from humid to dry and cold at 4.8 KaB.P (Yao, 2013), which is consistent with a temperature decline incident that occurred around 5.0 KaB.P during the China's Holocene Thermal Maximum period (Shi et al., 1992). During this period, the climate in this region was extremely unstable, featuring dropped temperatures, decreased precipitation, and frequent fluctuation between humid and dry weather. Under such circumstances, natural disasters such as drought and flood often occurred. This not only seriously affected the dryland agriculture in the upper reaches of the Minjiang River but also resulted in the decline of

① In terms of geographical structure, the terrain of the Sichuan Basin gradually declines from the peripheral mountains to the bottom of the basin, and the river also presents an asymmetric centripetal structure. It is this special geographical centripetal structure that attracts tribes engaging in highland agriculture around the basin to settle down in the lowlands, resulting in various ancient cultures in the mountains around the edge of the basin to move along the downward river valley and the mountain valley to the bottom of the basin, finally forming a new cultural center. For more details, please refer to the article "On the influence of Bashu geography on its origin of civilization" by Duan Yu, which was published in Issue 2 of the *Journal of Sichuan University (Philosophy and Social Sciences)* in 1988.

wild animals and plants, which lowered the complementary role of gathering and hunting to the agricultural economy, thus threatening the survival of the ancestors. In addition, the continuous expansion of settlements and the rapid growth of population made the limited land resources difficult to meet the needs of people's production and life. Therefore, the interruption of ancient culture in the upper reaches of the Minjiang River could be the result of the combined effects of climate changes, ecological fragility, rapid population growth, and land resource saturation. About 4,500 years ago, under the influence of the Holocene Subboreal Climate, Sichuan Basin entered the climate stage of the Jiangbei Period when the weather became dry and hot, and the water level dropped (Liu, 1998), during which the climate of the Chengdu Plain was hot and dry, water levels of original lakes and marshes shrank significantly, and the ground hardened. These changes made the plain more suitable for human production and life. Therefore, ancient Shu ancestors migrated from the upper reaches of the Minjiang River to this vast land for living and production, creating a highly prosperous ancient Shu civilization with the Chengdu Plain as the core.

To sum up, documentary records and archaeological data both reflect the long history of agriculture in Sichuan. The Shu area has seen preliminary development in dryland millet agriculture since the prehistoric period. It is said that during the Can Cong period, the agricultural pattern of the Shu area experienced profound changes, from dryland millet farming originating from the Western Sichuan Plateau to rice farming that is more suitable for the Sichuan Basin, especially the Chengdu Plain, where there are abundant rainfalls and high temperatures. Since then, rice farming has become a long-established farming tradition in the Shu area. Baodun Culture, as the archaeological remains of the Can Cong clan, shows the high level of water control technology and flourishing agricultural economy of the Shu area during the Can Cong period. The Can Cong clan also completed the transition of agriculture in Shu from highlands to lower plains, laying a material foundation for the high prosperity of ancient Shu civilization.



REFERENCES

- Chen, T., Jiang, Z., He, Y., et al. (2015). Phytolith analysis from the Baodun Archaeological Site, Xinjin, Sichuan. *Acta Anthropologica Sinica*, 34(2), 225–223.
- Dai, Y. (2015). Flotation results and analysis of Guiyuanqiao Site in Shifang City, Sichuan Province. *Sichuan Cultural Relics*, (5), 81–87+94.
- Deng, Z., Liu, H., & Meng, H. (2013). Analysis of plant remains unearthed from Sanfangwan and Tanjialing sites of Shijiahe Ancient Town, Tianmen City, Hubei Province. *Archaeology*, (1), 91–99+2.
- Duan, Y. (2010). *General history of Sichuan: Pre-Qin period*. Chengdu: Sichuan People's Publishing House. p. 79.
- Editing Group of the *Prehistory of the World*. (1979). *Prehistory of the World* (Volume I). Beijing: People's Publishing House. p. 10.
- Fan, Y., Chen, X., et al. (2006). A brief report of Shawudu Site investigation in Maoxian County, Sichuan Province. In Chengdu Institute of Cultural Relics and Archaeology (Ed.), *Archaeological Discoveries in Chengdu* (2004). China Science Publishing & Media.
- Guo, S. (1993). Exploration of the distribution of Ba-Shu ancestors and the source of agriculture. *Sichuan Cultural Relics*, (3), 23–27.
- He, J. (2007). *Chengtoushan Site in Lixian County*. Beijing: Cultural Relics Press. p. 264.
- Huang, H., & Li, S. (2005). Phased Study of Yufu Village Site in Wenjiang District and Investigation of the Functions of earth-made walls. *Sichuan Cultural Relics*, (4), 44–50.
- Hunan Archaeology Institute. (2006). *Pengtoushan and Bashidang sites*. China Science Publishing & Media. p. 405.
- Jiang, M., & Dai, Y. (2011). Flotation analysis report of the archaeological trial excavation in Baodun Site, Xinjin County in 2009. In Chengdu Institute of Cultural Relics and Archaeology (Ed.) *Archaeological Discoveries in Chengdu* (2009). China Science Publishing & Media.
- Jiang, Z., Yan, J., & Li, M. (1997). Early ancient town sites on the Chengdu Plain—Preliminary discussion on Baodun Culture. *Journal of Chinese Culture*, (4), 8–14.
- Jiang, Z. (2009). The transformation of agriculture and the changes in settlements in the pre-Qin period of the Chengdu Plain. *Journal Chinese Culture Forum*, (S2), 173–175.
- Li, F., et al. (Northern Song Dynasty). (1960). *Imperial overview from the Taiping Reign*. Beijing: Zhonghua Book Company. p. 806.
- Li, G., & Lu, X. (1981). The origin of primitive agriculture in China from the mountains. *Agricultural Archaeology*, (1), 21–31.
- Liu, L. (2015). *New annotation to Chronicles of Huayang*. Chengdu: Sichuan University Press. p. 99, 100, 142, 99, 100.
- Liu, X. (1998). The rise and waste of ancient towns in the Chengdu Plain and paleoclimate issue. *Sichuan Cultural Relics*, (4), 34–37.
- Meng, W. (1981). *On ancient Ba-Shu history*. Chengdu: Sichuan People's Publishing House. p. 142.
- Peng, B. (1998). The coexistence and succession of the dynasties in the early Shu history and their rulers. In the Department of History of Sichuan Union University (Ed.), *A collection of essays commemorating the centennial birthday of Xu Zhongshu*. Chengdu: Sichuan Bashu Publishing House.
- Peng, B. (2007). On the historical remains of water conservancy facilities in early Sichuan. *Journal of Sichuan University (Philosophy and Social Sciences)*, 87–96+142.
- Shi, T., He, K., Zuo, Z., et al. (2015). Analysis report on plant remains unearthed at Baodun Site, Xinjin County from 2010 to 2011. In Chengdu Institute of Cultural Relics and Archaeology (Ed.), *Archaeological Discoveries in Chengdu* (2013). China Science Publishing & Media.
- Shi, Y., Kong, Z., & Wang, S., et al. (1992). Climate fluctuations and important events during China's Holocene Thermal Maximum period. *Scientia Sinica (Chimica)*, (12), 1300–1308.
- Sun, H. (2009). Evolution of prehistoric cereal species in the Sichuan Basin—Information from an archaeological and cultural interactive perspective. *Journal of Chinese Culture*, (S2), 147–154.
- Wan, J., & Lei, Y. (2013). Relationship between Guiyuanqiao Site and Neolithic Culture on the Chengdu Plain. *Cultural Relics*, (9), 59–63.
- Wu, C., Liu, H., & Zhao, Z. (2010). Prehistoric agriculture in Jiangnan Plain from the flotation results of Yejiamiaio Site in Xiaogan City. *Cultural Relics in Southern China*, (4), 65–69+64+47.
- Shi, H. (1979). *Annotation Complete Treatise on Agriculture*. Shanghai: Shanghai Chinese Classics Publishing House. p. 836.

- Xu, Z. (1955). On the field system of the Zhou Dynasty and its social nature—Criticism on Hu Shi's defense of the hashtag-shaped field system and his unreasonable methods. *Journal of Sichuan University (Philosophy and Social Sciences)*, (2), 51–90.
- Yan, K. (1893/1958). *Collections of articles in the prehistorical three generations, Qin and Han dynasties, the Three Kingdoms and Six Dynasties*. Beijing: Zhonghua Book Company. p. 414.
- Yan, X, M., He, Y., et al. (2015). Analysis report on plant remains unearthed at Baodun Site, Xinjin County, from 2013 to 2014. In Chengdu Institute of Cultural Relics and Archaeology (Ed.), *Archaeological Discoveries in Chengdu* (2013). China Science Publishing & Media.
- Yang, F. (June 18, 2009). The ancestors of the Chengdu people may have their source in Wenchuan. *Chengdu Evening News*. p. 5.
- Yao, L. (2013). *The relationship between the natural environment and ancient civilization in the Chengdu Plain* (Master's dissertation). Guangxi Normal University, China.
- Zhang, W., & Pei, A. (1997). The study on ancient rice from Bashidang, Mengxi in Lixian County. *Cultural Relics*, (1), 36–41.
- Zhao, D., & Li, M. (2004). *Expansion of Bashu Culture in the Upper Reaches of the Yangtze River*. Hubei Education Press. p. 12–19.

(Editor: Xiong Xianwei)