



ART FRONTIER

An International Art Journal / Vol.3 No.1 Jan.-Mar. 2025

The Sound of Bone Flute: the Peiligang Culture in the Central Plains Played a Role in the 8,000-year History of Chinese Civilization

Gong Dezhong

To cite this article: Gong Dezhong, "The Sound of Bone Flute: the Peiligang Culture in the Central Plains Played a Role in the 8,000-year History of Chinese Civilization," *Art Frontier* 3, no.1 (March 2025): -, <https://doi.org/10.64212/EVZJ6137>.

DOI: 10.64212/EVZJ6137

ISSN: 2835-5490

EISSN: 2836-877X

© 2025 Frontier Press.

This article is published under the Creative Commons Attribution 4.0 International License (CC BY 4.0). For full license details, please visit: <http://creativecommons.org/licenses/by/4.0/>

This article has undergone double-blind peer review.

Website: www.artfrontier.org

Email: artfrontier2023@outlook.com

Publishing Frequency: Quarterly (March, June, September, December)



The Sound of Bone Flute: the Role of the Peiligang Culture of the Central Plains in the 8,000-year History of Chinese Civilization

Gong Dazhong

Abstract

Dating back as early as 8,000 to 9,000 years ago, the Central Plains region had already witnessed the emergence of an advanced cultural nucleus epitomized by the Peiligang Culture, renowned for its remarkable inclusivity and inventiveness. The early settlements were characterized by semi-subterranean dwellings, a flourishing population, and a well-defined gender-based division of labor. People engaged in agricultural activities, cultivating millet and rice alongside fishing, hunting, and animal husbandry (raising pigs and sheep). They also utilized stone, bone, and pottery tools. The Neolithic era in this region was marked by distinctive artifacts such as stone millstones, stone grinding rods, serrated stone sickles, and stone pestles and mortars. Additionally, the inhabitants were skilled in crafting fishing and hunting implements from bone, as well as inventing the bone flute, a musical instrument. They also created pottery tripods, painted pottery, and pottery sculptures. Notable decorative items included turquoise bead strings and ivory carvings. Furthermore, this period boasts the earliest carved symbols and oracle bone inscriptions in Chinese history, along with the discovery of human wine residue, often hailed as the "originator of human winemaking," and human silk protein residue, indicating the use of silk. Given these findings, the history of Chinese civilization could potentially be extended from the conventionally acknowledged 5,000 years to an impressive 8,000 years, corresponding to the Peiligang Culture era, or more broadly, the era associated with Fu Xi. Art and the origins of humanity are intrinsically linked. The history of art in the Central Plains and, indeed, the broader tapestry of Chinese art history, can be said to have commenced with the practical arts and crafts, pottery sculptures, carved symbols, and oracle bone inscriptions of the Peiligang Culture in the Central Plains.

Key Words

Peiligang Culture in the Central Plains, stone millstones, stone grinding rods, bone flute, pottery sculpture, turquoise bead strings

In 1987, a seven-hole bone flute made of crane bones was unearthed at the Jiahu site in Beiwudu Town, Wuyang County, Luohe City, Henan Province; it was named the Jiahu Bone Flute and could be elegantly called the Chinese Bone Flute. The legendary sound of the Chinese Bone Flute, a note of romance, resounded through the prehistoric era. The sound of the bone flute also resounded with the 8,000-year history of Chinese civilization. The Chinese Bone Flute is an invaluable historical cultural relic that can be touched and experienced (Figure 1).

1. The Peiligang Culture of the Middle Neolithic Period

The Neolithic Age lasted for about 9,000 years, transitioning from a matriarchal to a patriarchal clan society with agriculture and animal husbandry as the main characteristics, and people using polished stones, inventing pottery, and living a settled life in primitive settlements. The cultural sequence of the Neolithic Age starts with the early culture, which dates back to about 12,000 to 9,000 years ago, and the middle culture, which



Figure 1. Chinese Bone Flute and Bone Flute.

dates to about 9,000 to 7,000 years ago. In the Central Plains region the Peiligang Culture, represented by the Peiligang site in Xinzheng and the Jiahu site in Wuyang, has a clear heritage and an independent system; there was an indigenous culture here.

The first discovery, excavation, and naming of the Peiligang Culture in Xinzheng were made by Zhao Shigang, a senior researcher and renowned archaeologist at the Henan Provincial Institute of Cultural Relics and Archaeology. In April 1977, the Peiligang Culture discovered at the Peiligang site in Xinzheng was mainly distributed within Henan Province, with the most dense areas being the cities and counties of Mi County (present day Xinn City), Xinzheng City, Weishi County in the upper reaches of the Ru River, Wuyang and Ruzhou in the upper reaches of the Ru River, Gongxiang County (present day Gongyi City) and Yanshi in the Heluo region, with nearly seventy sites and accounting for about half of the Peiligang site. After Zhao conducted an in-depth discussion on several issues of the Peiligang Culture, he came to a rather incisive conclusion: "The crescent-shaped region in the Middle East and the foot of Mount Song in China, as two lighthouses side by side from east to west, appeared simultaneously on both sides of Asia 8,000 years ago, marking the dawn of the 'Agricultural Revolution' era in the Eastern Hemisphere." Regarding the origin of agriculture, Zhao believes that "the earliest agricultural villages in the Middle East are not distributed in the alluvial plains of the two river basins, but in the surrounding shallow hills and mountains, that is, the so-called 'crescent-shaped region'." In chronological order, the Peiligang Culture has three types: Jiahu, Peiligang, and Wayaozai.

1.1 Jiahu Type

This type is mainly distributed in the plain areas upstream of the Ying River. Major sites include the Wuyang Jiahu, Guozhuang, A'gangs, Luohe Zhaizhuang, Xuchang Dingzhuang, Cuzhuang, Yexian Wenji, Changge Saigu, Yanling Ancient City, Xiezigang, Liu Zhuang, and Xiping Xielaozhuang.

The Jiahu site is in the east of Jiahu village, 1.5 km southwest of Beiwudu town, Wuyang county, Luohe city. The entire site is irregularly circular in plan, with the longest diameter from southeast to northwest about 280 m and the shortest diameter from northeast to southwest about 250 m, covering an area of over 55,000 m². It is currently the largest excavated area, with over 5,000 cultural relics unearthed. The main cultural characteristics of the Jiahu Type are as follows.

First, in addition to many cellars, there are also many house sites. Second, there are many secondary burials and multiple interments in the tombs, with more bone implements and fewer stone implements as grave goods. Third, many fishing and hunting tools, such as bone arrowheads, fish spears, bone forks, and sinkers were unearthed from the site and tombs. Fourth, pottery is characterized by a variety of tripod shapes, including fish-shaped ding (cauldron-shaped tripod 鱼形鼎), bowl-shaped ding 碗形鼎, basin-shaped ding 盆形鼎, and tripod with angular handle 角形柄, which are not found in the Peiligang Type. Fifth, a series of Jiahu bone flutes were unearthed, which can play musical pieces from 8,000 to 9,000 years ago, with a sound that echoes throughout the universe.

The Jiahu Type can be divided into three periods in terms of age, the first period from 9,000 to 8,600 years

ago, about 500 years earlier than the early period of the Peiligang Type; the second period from 8,600 to 8,200 years ago, approximately simultaneous with the early period of the Peiligang Type; and the third period from 8,200 to 7,800 years ago. In summary, the age of the Jiahu Type is roughly between 9,000 and 7,800 years ago, lasting for about 1,200 years. Chen Xingcan, former director and researcher of the Institute of Archaeology of the Chinese Academy of Social Sciences, once gave a brilliant evaluation: "The Jiahu Culture is the first peak of prehistoric Chinese culture, and the spark of Chinese civilization was lit here."

In 2017, the Henan Provincial Institute of Cultural Relics and Archaeology conducted a trial excavation at the Xiping Xielaozhuang site and discovered six well relics, which are nearly 9,000 years old. Five complete water-pulling vessels were unearthed, double-eared pot-shaped jars, and round belly jars. The lower part of the well is inwardly contracted for half a circle, indicating that it is not a storage cellar, and research by geological experts on the soil strata of the walls shows that the lower layer is an aquifer, the upper layer is a weakly permeable layer which has the geological conditions for well-digging, and there is still spring water gushing out from the lower part of the well. It has been identified as the earliest well in China and even in East Asia so far, and has pushed back the history of well-digging in our country by more than 2,000 years.⁷

1.2 Peiligang Type

This type is mainly distributed in the hilly areas of the eastern part of Mount Song bordering the North China Plain. The focus is on the cities and counties of Mixian County, Xinzheng City, Zhengzhou City, etc. The main sites include Xinzheng Peiligang, Shawo Li, Xituciao, Mixian L'gou, Malianggou, Chengdonggou, Qingshi River, Gongxian Nieshenggou, Juxian Suiquan and other places. The Peiligang site is located on the terrace at the bend of the north bank of the Shuangji River, 8 km northwest of the Peiligang site in Xinzheng City, covering an area of 20,000 m². The area where the Peiligang Type is found is generally small, with a thin cultural layer and few relics. There are many ash pits but few house sites. Most tombs are straight-legged burials, and most tombs have funerary objects, with pottery pots, pottery bowls, stone axes, and stone shovels being the most common. A few female tombs have funerary objects such as stone millstones and stone grinding rods. The number of funerary objects is generally two to five pieces, and some have as many as twenty pieces. The most representative artifacts of the Peiligang Type are stone millstones, stone grinding rods, tongue-blade stone

shovels, three-legged bowls, small-mouthed ball-bellied double-eared pots, and pottery with a pattern of ridges. The carbon-14 dating indicates that the site dates to 8,420–7,510 years ago, which is consistent with the second phase of Jiahu and has a history of 800 to 900 years. The ancestors of Peiligang primarily focused on agricultural production and raised pigs and sheep as livestock.

1.3 Wayaozui Type

This type is 8,000 to 6,800 years ago, with a duration of about 1,200 years, belonging to the latest stage of the Peiligang Culture. This type is mainly distributed in the west of Mount Song and the Heluo River Basin. Important sites include Gongxian Wayaozui, Shuidihe, Wuluo Camp, Ruzhou Huafuyin, Yanshi Gaoya, Mianchi Banerun, Dengfeng Shuangmiao and other places. In addition, there are also Wayaozui types in Fangcheng Dazhangzhuang, Wuyang Dagang, and Ruzhou Zhongshanzhai. Its main cultural characteristics are as follows.

First, black pottery with a muddy texture accounts for about 15%—a significant proportion. The most notable features of this type of pottery are its high firing temperature, hard texture, thin body, and regular shape. Second, the pottery color of the muddy red pottery is mostly black inside and red outside. Third, the unearthed three-legged pottery and radially carved pottery bowls are rare in the Peiligang Culture. Fourth, the tooth-edge sickle and bone dagger were first seen in the Peiligang Culture. Fifth, stone millstones, stone grinding rods, and curved-blade stone sickles are rarely seen in stone tools, showing a declining trend.

In addition, the most prominent feature of the Shigu site in Changge City, Henan Province, is the long duration of the Peiligang Culture accumulation, which can be divided into four periods from early to late, with the early Yangshao Culture ash layer superimposed on top. In terms of cultural relics, the semi-underground cave foundations, circular ash pits, bag-shaped ash pits, and rectangular vertical earthen pits of the late Peiligang Culture layer at the Shigu site are like those of the early Yangshao Culture. The tombs are mostly single-person straight-leg burials, with a small number of single-person bent-leg or single-person side burials, and a few single-person prone burials. Most of them had funerary objects, such as stone tools, pottery and bone tools, of at least one piece, usually three to five pieces, and up to fourteen pieces. From the perspective of gender, most of the tombs with burial objects are occupied by women; the tombs without burial objects are mostly male, reflecting the significant position of women in society during the Peiligang Culture period, which is as

it should be in a matriarchal society.⁵

2. The Peiligang Culture Is the Opener of the 8,000 Year Civilization of China

The Peiligang Culture was located in the Central Plains, with a vast territory covering almost all of today's Henan Province. The distribution density of the Peiligang Culture sites is high, with more than 140 sites discovered to date, which is more than the total of the sites of the adjacent Cishan, Laoguantai, Houli, Pengtou Mountain, and Shuangdun Cultures.

2.1 The Peiligang Culture is the Core of Advanced Culture in the Central Plains

As early as 8,000 to 9,000 years ago, the Peiligang Culture saw the emergence of primitive agriculture. At the Xinzhang Shawoli site millet areas of 1-1.5 m² were discovered, with dense millet grains; the Xuchang Dingzhuang site unearthed spring millet in semi-subterranean houses; at the Jiahu site many carbonized rice grains and rice husks were discovered, which were cultivated indica rice in their primitive form. The cultivation of rice, with the earliest cultivated rice found on Hunan's Pengtou Mountain, may have been transplanted by the Peiligang people.

The Peiligang Culture was prosperous, and from the early to the late periods it formed the cultural entity with the largest population at that time. The Peiligang people had a concentrated cemetery, with dense and orderly tombs, all rectangular earthen pits with vertical burials, facing south, mostly single-person burials, with a few joint burials, lying on their backs with straight posture, and burial objects ranging from one to ten. Those buried with grave goods such as stone millstones 石磨盘, stone grinding rods 石磨棒, and pottery tripods, jars, or pots are female, whereas those buried with stone spades, axes, or sickles are male. This indicates the emergence of the gender division of labor in production. It can be said that it was the powerful cultural core of Peiligang that allowed Chinese civilization to continue uninterrupted for thousands of years. Han Jianye said, "It was the powerful influence of the Peiligang Culture that brought the middle and upper reaches of the Yellow River region closely together, thus forming the 'Central Plains Culture Area' of the Neolithic Age in the early 7th century BC, and it also brought more contact between the upper and lower reaches of the Yellow River, the lower reaches of the Huai River, and even the middle reaches of the Yangtze River with the Central Plains

Culture Area."⁶

The origin of Chinese civilization is a unity of diversity, and different cultural entities have made their contributions to the development of Chinese civilization. The interaction of cultures has gradually formed an advanced and strong cultural core in the central plains. The axis of its historical heritage, from the Peiligang Culture, the Yangshao Culture, the Longshan Culture, to the Xia, Shang, and Zhou dynasties, the Qin, Han, Wei, Jin and Nanbei dynasties, the Sui, Tang, and Five dynasties, and up to the Song and Jin dynasties, has never been interrupted. From the Yuan, Ming, and Qing dynasties to the present, the traditional advantages of the Central Plains Culture still have a tremendous impact on the upper and lower reaches of the Yellow River and the north and south of the Yangtze River.

2.2 The Powerful and Prosperous Peiligang Culture is Rich in Inclusiveness and Creativity

Why has Chinese civilization has been able to continue uninterrupted and thrive for so long? Xu Shunzhan mentioned three points: its pioneering spirit, its inclusiveness, and its tenacious cultural genes. Yu Qiuyu proposed four points: "The continuation of Chinese civilization to the present day is first due to the unified and enduring writing system; second, the main part of Chinese civilization is essentially an agricultural civilization; third, Chinese civilization has not been destroyed because it has always been in an orderly state; fourth, Chinese civilization has avoided long-term immersion in extremism with the core thought of the Doctrine of the Mean." Zhao Shigang believed that the four points proposed by Yu Qiuyu can be merged with the two points mentioned by Xu Shunzhan, and one more should be added. "That is, in the Yellow River Basin, a strong and advanced Peiligang Culture had formed 8,000 to 9,000 years ago, which had the embryonic form of all the above six points, was rich in creativity and inclusiveness, created primitive writing and primitive agriculture, had tenacious cultural genes, and always led the way among contemporary cultures, guiding diverse cultures towards unity without fragmentation."⁷

2.3 The Peiligang Culture had Discovered Primitive Architecture, Agricultural Tools, Pottery Making, and Cultural and Artistic Achievements

The Peiligang Culture represents the beginning of Chinese architectural history—the semi-underground dwelling site of settlement. The semi-underground house sites of the Peiligang Culture are mostly circular or oval, with single or multiple rooms. The house sites



Figure 2. Stone millstone and stone grinding tool found from the Peiligang Culture.

excavated at the Tangzi site in Xinzheng have diverse shapes, with sixty single rooms and three double rooms. The distribution of the house sites is relatively regular, divided into four groups. Some of the house sites have the characteristics of a centripetal and ring-shaped layout. Its practical function is to realize the historical transformation from hunting to settlement, thus promoting the prosperity of farming, animal husbandry and the pottery industry. From 1983 to 2001, seven archaeological excavations were conducted at the Jiabu site, resulting in the discovery of house sites, pottery kilns, tombs, and urn burials, along with a significant number of cultural relics. The houses are densely distributed, with the largest number of semi-underground cave-like houses having an elliptical plan, followed by circular and irregular shapes, and a small number of square or nearly square shapes. The house sites at the Peiligang site are mostly circular. Typically, they have a diameter ranging from 2.2-2.8 m, with sparse column holes surrounding it. They have a sloping or trapezoidal doorway dug in the south or southwest. There are stoves built in the center of the floor in the houses, and some of them are built with hay grass mixed with mud. A large

circular semi-underground house site was discovered at the Tieshenggou site in Gong County, with a diameter of 2.9 m and a door facing east. The steps were laid using stone blocks and stone millstone fragments, leading from the doorway to the interior. There were two round holes on either side of the door. There is also a kind of cellar, which is usually round and has straight walls, with a diameter of about 1 m. Bag-shaped pits were discovered at the Li'gou 戛鼓 and Zhai Zhuang sites, with some pits having steps for easy access. The Peiligang site is bounded by the Xike Li drains, with residential areas in the east and a clan public cemetery in the west. The tombs are densely distributed and arranged in an orderly manner, all of which are rectangular earthen pit tombs. Generally, they are 2 m long, with a width and depth of about 1 m. The large tomb is 2.84 m long and 1.8 m wide. The head is slightly westward to the south, and the burial style is mostly single-person upright burial, with individual burials for two people. There are no burial tools, but there are many funerary objects. The tombs of the Li'gou site are distributed in two areas, the western and northwestern parts of the site.

The semi-underground house is the beginning of

Chinese architectural history, or the embryonic form of China's primitive architectural art, which was directly inherited by the Yangshao Culture. The settled life and agriculture of the Peiligang Culture promoted the use of stone, bone, and pottery tools, with farming tools, bone tools, and pottery showing gender division characteristics. Specifically, the following manifestations can be observed.

First, the category pertains to the Neolithic period, distinguished by artifacts such as stone millstones, stone grinding rods, toothed stone sickles, pestles, and mortars. The Neolithic culture of Peiligang is notably marked by stone millstones and milling rods, which are meticulously polished across their entire surface, leaving no scars, and exhibit a standardized, uniform shape. The stone millstones are crafted to resemble the soles of shoes, featuring four symmetrical feet at the base, while the stone grinding rods are smooth and well-proportioned. According to research conducted by Zhao Shigang, these tools form a complementary set designed for leather tanning. In contrast, stone tools from neighboring cultures were predominantly crafted through striking techniques, and their stone grinding discs often displayed irregular shapes without feet, rendering them less stable and less practical for tanning purposes compared to their footed counterparts. This indicates that the Peiligang people had already acquired the skill of processing leather for warmth. Initially, stone millstones and stone grinding rods were mistakenly regarded as "stone millstone and stone grinding rod" used for grain processing, serving dual functions of grinding and polishing.¹ However, based on their design, these tools are more accurately described as versatile implements. They can be employed to dehusk rice and millet, process other plant fruits, grind pigments, or tan leather (Figure 2).

Stone shovels, toothed stone sickles, and stone pestles and mortars constitute characteristic Neolithic artifacts from the Peiligang Culture. During the initial excavation of the Peiligang site, thirty-five stone shovels were unearthed, while thirty-seven were discovered at the L'gou site and twenty-four at the Tieshenggou site, attesting to their substantial quantity. The stone shovel is relatively elongated and robust, with one specimen unearthed at L'gou measuring 35.7 cm in length. The stone shovel typically features a long, slender shape with a flattened, thin body and two edges that are ground to a tongue-like shape. It is suspected to be a stone shovel intended for use with wooden handles. Another variant has a tongue-shaped blade, a narrow, elongated handle, and pronounced shoulders. The utilization of handled stone shovels persisted into the late Yangshao

Culture and other Neolithic cultures. These two designs predominantly originate from the Peiligang-F'gou type sites. The third style is characterized by a broader and shorter body. The blade edge and tip are either aligned or concave, with clipped notches often present on both sides. This style is predominantly found at the Zhaihuang-Jiahu Type sites and was formerly referred to as a stone plough. It is rarely encountered in the Neolithic culture of the Central Plains region. However, it is more frequently discovered in the Hongshan Type cultural relics of the Huang River Basin in northeastern China. The shapes include laurel leaf, broad leaf, and pointed leaf with a triangular apex. The latter two designs closely resemble the late Peiligang stone shovels and should more accurately be classified as stone shovels rather than stone ploughs.

The serrated-edge stone sickle features a straight blade with teeth, a curved back, a concave section behind the back, and a notch at the rear of the serrated edge for attaching the handle. Based on the positioning of the concave section and the notch, the angle between the handle and the blade is approximately 110 degrees. This type of sickle with an upward-curving serrated edge was frequently discovered in Eastern Zhou Dynasty tombs. The copper sickle with a serrated edge unearthed from the Chu tomb in Xiasi site, Xichuan county, also exhibits an elevation angle of 110 degrees.² The upward-curving serrated edge facilitates easier cutting of plant roots which explains why, after more than 5,000 years, the stone sickle evolved into a copper sickle that is still in use today, demonstrating its enduring practicality.

In the early stages of agricultural development, the pestle and mortar 杵臼 served as another critical tool for grain processing. Xu Shen's *Shuowen Jiezi* (说文解字) defines: "Pestle (chi) is for pounding," while "mortar (jiu) is a hollowed-out vessel, initially dug from the earth, later carved from wood or stone." *The Book of Changes* (易·系辞下) states: "Cut wood to make pestles, dig earth to form mortars—such tools brought immense benefit to all people." According to *Shi Ben* (世本), Yongli invented the mortar and pestle, while *Huan Tan's New Treatise* (环典新记) credits Fu Xi with their creation, noting subsequent refinements like foot-operated mechanisms that enhanced efficiency ten-fold. Legend associates Fu Xi—a figure predating Shennong (the Divine Farmer)—with the hunting-gathering era, suggesting the mortar and pestle's antiquity if such accounts hold. The mortar, a concave vessel resembling a wide pot base, was typically stone-carved or earth-dug. Early communities used wooden or stone pestles to pound grains repeatedly, efficiently dehussing them into edible rice. Archaeological evidence indicates that

mortars and pestles emerged in southern China as early as the late Paleolithic period.

Mortar and pestle implements have been widely discovered in the Central Plains region. The Jiahu site yielded rice grains and multiple stone pestles and mortars. Among twenty-two stone pestle specimens, most were repurposed from worn-out grinding rods, with a few made from pebbles. These pestles share common features: smooth friction surfaces at both ends, rounded ridges with prominent edges, and quartz sandstone as the primary material. Two examples measure 12.5 cm in length with a 4.5 cm diameter, and 83 cm in length with a 4.55 cm diameter respectively.⁷ A stone mortar unearthed at the Jiahu site, crafted from ferruginous quartz sandstone and repurposed from a broken stone millstone, measures 35 cm in length and 28 cm in width, with an oval-shaped depression ground mortar 臼窝 into its thickest section⁸. At the second phase of the Peiligang Culture in Jia County, Shuiquan, two stone pestles were unearthed, which were cylindrical, with a finer upper part and a thicker lower part, and the top was slightly flat with an arc-shaped edge.

Among the artifacts from the Peiligang Culture, there were also stone axes with elliptical cross-sections, small and flat tops, and curved edges, mostly made from grayish-green limestone, smooth and finely crafted, generally measuring 7-10 cm in length. There was also a considerable number of small stone axes, measuring 3-4 cm in length. Additionally, there was a circular disk-shaped object, round, fully polished, with neat edges, and slightly convex upper and lower circular surfaces, generally measuring 20-24 cm in diameter. It resembles modern sports equipment such as a discus, but its purpose is unclear.

These Neolithic polished stone tools exhibit distinctive characteristics differing from other contemporaneous cultures. Combining practicality with refined craftsmanship, they demonstrate the artistic creativity and emerging aesthetic sensibilities of Peiligang's ancient inhabitants.

Second is the making of fishing and hunting bone tools and the invention of bone flutes. At the Jiahu site, 270 bone arrowheads and 127 bone darts were unearthed. Among them, one-tenth of the bone arrowheads had blood grooves between the spine and the side edge, increasing the hunting kill effect. About one-third of the bone darts had backwards spines on both sides, with some having as many as twenty or more, improving fishing efficiency (figures 3, 4).

Bone flutes were also unearthed at the Jiahu site, mostly as burial goods in male tombs, with a few found in ash pits. The bone flutes were divided into two-hole,



Figure 3. Bone arrowheads excavated from the Jiahu site.



Figure 4. Bone harpoons excavated from the Jiahu site.

five-hole, six-hole, seven-hole, and eight-hole types, all made from the wing bones of cranes, with a total of more than forty pieces, most of which had seven sound holes. They are the earliest series of bone flutes in the world, with the most varieties, and can still be played. A five-hole bone flute from Jiahu Phase I has very accurate scales. Each sound hole produces a high note that is the same as the 5th, 6th, 1st, 2nd, and 3rd tones of the Pythagorean tuning system. In 1987, two seven-hole bone flutes were unearthed from Jiahu M282, measuring 23.6 cm in length, capable of producing six- or seven-

tone scales. The most exquisite two-hole bone flute was adorned with intricate patterns all over, possibly a tuning instrument and a precursor to decorative art. The traditional Chinese music pentatonic scale, while the heptatonic scale is not a Western import, is a genius invention of the Peiligang ancestors about 8,000 to 9,000 years ago, a product of indigenous culture. A bone flute unearthed from the Shaicuan site in Jiaxian County has at least ten sound holes, arranged in two rows, with the pitch sequence gradually increasing by half steps. Researchers believe it was a tuning instrument used to determine the pitch of each sound hole when making bone flutes. In the 1,200-year span of the five tested bone flutes, the pitch of the 6¹ tone was very close to the current universally used 6¹ tone pitch, or it was said to be the same as the current international pitch standard. This cannot be considered a miracle. The Jiahu bone flutes can be considered a prelude to the history of Chinese music and the history of Chinese musical instruments. The Jiahu Chinese Bone Flutes also refute the fallacy that “the Chinese heptatonic scale is foreign,” and will rewrite the history of world music. It is said that at the Hohlefelds archaeological site in Germany, a four-hole flute made of goose bone (or vulture bone) was discovered, dating back to the Old Stone Age. Although it has a longer history, it cannot compare in completeness and quantity to the Jiahu bone flutes.

Third is the creation of pottery tripods and colored pottery, as well as pottery figurines. Pottery for daily use appeared in the Peiligang Culture due to the needs of settlement and agriculture. Most of it was earthen red pottery, with shapes such as tripods, jars, pots, bowls, plates, basins, ladles, etc., all handmade with uneven thickness in the body walls and a brittle clay quality. The pottery bodies were mostly red or orange-red, some in gray-brown, earthenware without decorations, and sand-tempered pottery with patterns such as comb-like spots, incised lines, and nipple-like patterns. Among them, the pot-shaped pottery tripods and the double-eared spherical belly small-mouth jars unearthed from the Peiligang site were very distinctive.

Before the Neolithic Middle Period in China, there were two major systems of pottery from the perspective of cooking utensils: one was a circular-bottom pottery system mainly composed of pots with lids and supports; the other was a flat-bottom pottery system mainly composed of flat-bottomed jars or basins. The circular-bottomed utensils had a large burning area, heated and cooked food quickly, and became mainstream. The middle and lower reaches of the Yangtze River and the eastern coastal areas were all in the circular-bottom pottery system. The Peiligang Culture and the

Cishan Culture in Hebei were flat-bottom systems. The people of Peiligang created pottery tripods or tripod-like utensils based on the principle of complete sets of cooking utensils, such as pots with lids and supports used by adjacent cultures, which reflected the people's ability to absorb and transplant, showing inclusiveness and creativity. Known as the first red pottery tripod in China, it dates to 9,000 years ago. Since the invention of pottery tripods, they have been very popular. The Fajri Phase II has become a main cooking utensil, with a variety of types, including pot-shaped tripods, jar-shaped tripods, basin-shaped tripods, cauldron-shaped tripods, and so on. The Peiligang Culture, followed by the Weishi Yiquanna site and the Xin'an Huangpo site, and later the Zhengzhou Dahecun Type, Hougang Type, Xiawanggang Type of the Yangshao Culture, and the Longshan Culture, all used pottery tripods extensively. While the people of Peiligang were using pottery tripods, they also rapidly spread to the surrounding areas.

To the north, in the southern area of Hebei Cishan Culture pottery tripods appeared about 8,200 years ago, followed by many pottery tripods in Beijing's Zhengjiazuying about 7,200 years ago, showing a trend of gradually replacing basins and supports. Later, the pottery tripods of the Hougang Type of the Yangshao Culture became the main cooking utensils; to the east, there were no tripods in the Houli Culture of Shandong. After the tripods appeared in the early stage of the Beixin Culture about 7,500 to 6,000 years ago, they became widely popular and had many types. At the same time, pots and supports were greatly reduced. By the time of the Dawenkou Culture, pots and supports were completely replaced by pottery tripods; to the west, in the Laoguanxi Culture about 7,800 to 7,000 years ago, there were many jar-shaped tripods (or three-legged jars) and pot-shaped tripods. The Lintong Lingkou Village site, about 7,200 to 6,500 years ago, also had a considerable number of tripods. After the Linglong Culture, the Banpo Type of the Yangshao Culture had no tripods, and it seemed that pottery tripods had exited the Gansu region.

However, after the Banpo Culture, the Maodigou Phase II Culture seemed to have recovered its former prosperity; to the south, the Chengbeixi Culture in Hubei, about 8,200 to 6,800 years ago, had deep-be-lid jar-shaped tripods and pot-shaped tripods. By the Daxi Culture, pottery tripods replaced pots and supports to become the most important cooking utensils. The Pengtou Mountain Culture in Hunan had no tripods, and by the Zaoqi Lower-class Culture about 7,800 to 7,000 years ago, many tripod-like utensils appeared. By

the Wuyang Caijiayuan site in Hunan about 6,000 years ago, pottery tripods had replaced pots and supports to become the main cooking utensils. Further south, pottery tripods appeared in the late Neolithic Age in Guangdong. The Xiqiao Mountain site, about 5,000 years ago, had no tripods, but by the Qujiang Shixia Culture, about 4,000 years ago, pot-shaped tripods, basin-shaped tripods, and plate-shaped tripods had appeared. Further southeast, at the Gutai Temple site from about 7,000 years ago, pot-shaped tripods were unearthed. By the Xuejiagang Culture around 5,000 years ago, many tripods, *gui* (pitchers), and other vessel forms emerged, while *fu* (cauldrons) and supporting stands disappeared entirely. In the Majiabang Culture, dating back roughly 6,000 years, the pottery tripod had already replaced *fu* and supporting stands as the primary cooking utensils. In Zhejiang, *ding* appeared in the third and fourth phases of the Hemudu site (5,800–4,700 years ago). In Fujian, the Tanshi Mountain Culture (5,000–4,000 years ago) produced numerous high-footed *ding*.

In summary, the pottery *ding* created by the Peiligang people spread across the vast expanse of China, reaching north to the Yanshan, south to Hainan, east to the coastal regions, and west to Gansu and Qinghai, becoming the most essential cooking utensil for agrarian communities in southeastern China. By the Xia, Shang, and Zhou dynasties, *ding* evolved from pottery to bronze, transitioning from cooking vessels to ritual objects. The Nine Bronze Ding even became symbols of royal authority and ceremonial importance, giving rise to legends such as the “Yellow Emperor Casting the Ding,” “Yu the Great Casting the Nine Ding,” “King Cheng Establishing the Ding,” and “Retrieving the Ding from the Si River,” as well as common idioms like “as weighty as nine ding” (a promise that must be kept), “abolish the old and establish the new,” “a hubbub of voices,” “in the prime of life,” “of great reputation,” “lend strong support,” and “possess herculean strength.”

Comb-patterned pottery is one of the most distinctive and visually striking features of the Peiligang Culture. It first appeared in the second phase of the Jiahu site, with primitive decorative motifs such as straight lines, curved lines, and comb-pointed *zhi*-shaped patterns. While comb patterns faded away in the Central Plains with the decline of Peiligang Culture, they spread widely to the north and south, becoming an important decorative motif in ancient regional cultures.²

Painted pottery developed from the application of red slip-on pottery. Many bowls, basins, and jars from Phase II of Jiahu were coated with red slip along the rim but left uncoated below the belly, creating a broad-band pattern. This shows that the Peiligang people



Figure 5. Double-handled jar from the Peiligang Culture Jiahu site.



Figure 6. Basin-shaped ding unearthed at the Peiligang Culture Jiahu site.

already understood how to apply slip to prominent areas of pottery to decorate and beautify utilitarian vessels, fulfilling an early aesthetic sensibility. This also foreshadowed the painted pottery techniques of the Yangshao Culture (figures 5, 6).

By the late Peiligang period, pottery was already being made using a wheel rather than purely by hand. At the Wuyang Dagang site of the Wayaocui Type, a hat-shaped pottery turntable was unearthed—a disk-like form with upturned edges, a raised center, and a flat top resembling a hat. The inner wall bears concave bowstring patterns, and the underside of the rim shows signs of wear, indicating that the hat-shaped turntable



Figure 7. Earthenware Tripod with Raised Soles from the Peiligang site.

Figure 8. Triple-legged Earthenware Pot with Raised Soles from the Peiligang Culture.

was placed inverted on the wheel for use. The slow wheel had an axle and could rotate. Many pottery pieces from this site exhibit traces of slow-wheel refinement, indicating the use of this tool. The invention of the pottery turntable accelerated and standardized the form and smoothness of pottery, a technique later inherited and adapted for porcelain kiln turntables, which were identical in design.⁵ At the Dagang site, a pottery jar was discovered with fifteen thin relief ochre stripes, likely painted using the slow wheel's rotation (figures 7-8).

Fourth is pottery and sculpture art. The Peiligang site yielded pottery sculptures of pig heads and sheep heads, which are obviously evidence of the emergence of domestic animal husbandry in the agricultural civilization. The pig head sculpture has a prominent pig nose, looking foolish and cute. Imagine the chaotic times of the Wei and Jin dynasties, the Seven Sages of the Bamboo Grove, living freely and transcending ritual education. Among them, Ruan Xian, a member of a noble family, and his relatives gathered in the courtyard to drink from a large wine pot. The aroma of the wine

spread, suddenly attracting a group of pigs to disturb the gathering. The other relatives disliked it and hurriedly got up to avoid it. Only Ruan Xian drank with the pigs, sharing the fun, astonishing his relatives. This event became a legendary story passed down by later generations. All things have spirits; perhaps Ruan Xian could have transcended time and space, and was infected by the artistic charm of this pottery pig head, allowing people to truly understand his style of drinking with the pigs, a style that is emotional, free-spirited, and scholarly?

The pottery sheep head seems to be the neck of a prostrate lying sheep, with high horns, a simple and concise shape. The people of the Peiligang site had a connection with sheep in their lives, using sheep as a symbol of auspiciousness, which seems to have been formed over a long period.

The E'gou Beigang site, which has a cultural appearance like the Peiligang site, also discovered pottery sculptures of human figures and human heads from 1977 to 1978, dating back over 7,000 years. The pottery human head sculpture unearthed at the E'gou Beigang site is the earliest case of human head sculptures found so far. The remaining height is 4 cm, the color of the pottery is deep gray, the head is flat-topped, with a wide nose and deep eyes, a steep forehead, a prominent chin, a flat mouth, and a slightly square face, resembling an old woman. Although it was sculpted carelessly, the shape is naïve, not seeking similarity, but the unambiguous and implicit expression is full of charm. This head sculpture was been selected for inclusion in Shao Luoyang's *Dictionary of Chinese Fine Arts: Prehistoric Sculpture* (Shanghai Dictionary Publishing House, December 2002; the author is also one of the main contributors). Currently, it is stored in the Henan Provincial Institute of Cultural Relics and Archaeology.

Fifth, the lapis lazuli bead necklace and the ivory carved board. The Jiahu site is currently the largest excavated area and the most abundant in unearthed cultural relics of the Peiligang Culture. During the eighth archaeological excavation from September to December 2013, in addition to the bone flutes, bone fork-shaped tools, turtle shells, and other artifacts unearthed in the previous seven excavations, for the first time in the northwestern part of the excavation area more than 1,200 pieces of funerary lapis lazuli ornaments were discovered. These sacred decorations, including head ornaments, necklaces, bracelets, and earrings, demonstrate the artistic pursuit of beauty in decoration by the primitive ancestors, exquisite craftsmanship skills, and the selection and mastery of hard materials



Figure 9 Lapis lazuli bead ornaments unearthed at the Jiahu site.

This suggests that there may have been a certain degree of differentiation in the hierarchy and zoning of tombs at that time. Lapis lazuli, with its naturally pure material, bright colors, and dazzling sky blue, dark green, and other colors, gives a sense of vitality. Wearing simple yet creative lapis lazuli ornaments seems to have noble connotations and is a symbol of nobility and power. The lapis lazuli craft also provided a source of vitality for the inheritance and innovation of the Xia and Shang dynasties (figure 9). Lapis lazuli is one of the oldest and rarest gemstones in the world. According to data, the lapis lazuli produced in China can account for 70% of the world's total, with Henan, Anhui provinces, and other provinces having original mines; the high-quality original mines are mainly located in Zhushan County, Shiyan City, Hubei Province. The ivory carved boards unearthed at the site are beautifully made, and their Zhong character design is extremely rare in the Neolithic Age sites.

Sixth are the earliest pottery, artifacts, carved symbols, and oracle bone inscriptions in Chinese history. Seventeen carved symbols were found on turtle shells, bone implements, stone tools, and pottery unearthed from the Jiahu site, including nine on turtle shells, three on bone implements, two on stone tools, and three on pottery (figures 10, 11).



Figure 10. Etched symbols on tortoise shell from the Jiahu site.

Professor Zhang Juzhong, in the Department of Science and Technology History and Archaeology at the University of Science and Technology of China and the leader of the excavation and research of the Jiahu

site, proposed that these carved symbols could be roughly divided into three categories: the first category of symbols, analyzed from their shapes, all consist of multi-stroke combinations, which should contain the



Figure 11. Carved symbols on stone tools from the Xianzi site.

carver's certain intention, recording a specific event: "Therefore, these symbols have the nature of primitive writing." There are nine such symbols, accounting for more than half of the discovered carved symbols: "the

second category of carvings are on stone pigments or pottery weights, and it is not excluded that they were used for stamping purposes; the third category is also numerous, but all are carved on turtle shells, similar

to the same type of pottery inscriptions in Bangao and Jiangzhai, and may have the nature of counting.” The carved symbols on turtle shells are often in prominent positions and suggest the direction of the turtle shell’s placement: “In the same tomb, there are sometimes one or more turtle shells with symbols, and the symbols are not the same, indicating that the symbols are not the personal mark of the tomb owner. Multiple carved symbols appear on the same stone tool.” These symbols have a strong pictographic nature, such as eye-shaped and gate-shaped, which resemble later writing. Professor Zhang Juzhong said, “In my opinion, first, it is not a mature writing system, but a carved symbol with the nature of primitive writing. Second, it may have some relationship with the origin of Chinese characters, but not a direct one. For example, from its structure, writing order, and carrier, it should have some connection with Chinese characters.”

The Jiahu carved symbols are earlier than the ancient Egyptian papyrus texts and the cuneiform texts of the two river basins, and are 5,000 years earlier than the oracle bone inscriptions of the Anyang Yin Ruins. The mysterious symbols of the Jiahu carvings have sparked research and speculation about the origin of Chinese characters in the academic community, and there has been no unified conclusion to this day.

The author has been engaged in the archaeology of Central Plains art for more than six decades. From the yet-to-be-published monograph *The Essence of Heluo Culture (Volume 1 and Volume 2)*, it is not difficult to see that since the beginning of the 8,000-year history of Chinese civilization with the Peiligang Culture of the Central Plains, it has experienced the ancient state era of the Peiligang Culture, the Yangshao Culture, and the Henan Longshan Culture; the kingdom era of the Xia, Shang, and Zhou dynasties; and the empire era of the Han, Wei, Western Jin, Northern Wei, up to the Six and Tang dynasties, and the Northern Song Dynasty. The origin, core, and inheritance axis of Chinese great art (architecture, painting, sculpture, arts and crafts, and Chinese calligraphy) are basically in the Central Plains region, represented by the four ancient capitals of Luoyang, Zhengzhou, Anyang, and Kaifeng, and the Heluo Culture circle, with a clear inheritance. The Chinese characters have experienced a long historical process from origin to maturity and perfection. The first category of Jiahu carvings has the nature of primitive writing. By the Luoyang capital site of the Xia Dynasty, although the variety and quantity of the carved symbols increased, they remained like primitive writing, with a time gap of more than 4,000 years; similarly, the Jiahu turtle shell carvings and pictographic patterns, and



Figure 12. Etched “ ” (eye) character inscription on turtle shell from the Jiahu site.

the mature oracle bone divination inscriptions of the Anyang Yin Ruins, also have a time gap of more than 4,000 years. On the right lower abdomen of the Jiahu turtle shell, there is a pictographic character – the eye, which is the character mu. According to carbon-14 dating data, the age is 7,762–128 years ago. It is similar to the writing style of the character mu in the oracle bone inscriptions and bronzes 4,000 years later (figure 12).

Archaeologists judged from the phenomenon that one side of the symbol’s strokes was relatively even, and the other side had a slightly frayed edge, that it seemed to be carved with a single-edged knife. Experts referred to the records in *“The Book of Changes-Explanation of the Hexagrams”* that “Li is the turtle” and “Li is the eye.”

Additionally, Chinese culture and art seem to be associated with wine, thus forming a wine culture. In 1983, at the Jiahu site, eleven cellars were discovered, and the inner walls of the broken pottery fragments unearthed, which dated back to 8,600 to 7,500 years ago, still had some residues that were suspected to be wine stains. After analysis, the chemical composition of the residues was found to be like modern rice, rice wine, grape wine, beeswax, grape tannins, and some herbs, and contained hawthorn’s chemical components. The analysis results showed that the pottery contained

drinks mixed and fermented from rice, honey, and fruits. This is the earliest evidence of wine found in China so far, and the earliest wine substance in the world, hailed as the “ancestor of human wine.” For the Jiahu Wine, experts have verified it to be a mixture of rice wine and honey;¹¹ there is also a theory that it may be hawthorn wine. The appearance of Jiahu Wine indicates that China’s winemaking technology is 4,000 to 5,000 years earlier than the “ancestral Di Kang” of the Shang and Zhou dynasties. It has advanced the winemaking record previously held by ancient Egypt by nearly two thousand years. Jiahu Wine has confirmed that the Central Plains region is the origin of Chinese wine culture.

The research team of Professor Gong Decai from the Department of Science and Technology History and Archaeology of the University of Science and Technology of China detected the residue of silk protein in the abdominal soil samples of human remains in two tombs at the Jiahu site. According to the analysis of the weaving tools and bone needles found at the site, residents may have consciously used silk fibers to make silk 8,500 years ago. This has pushed the archaeological evidence of the appearance of Chinese silk nearly 4,000 years earlier. The results were published in the international academic journal “*PLoS ONE*” (“*Public Library*”). The residue of silk protein found at the Jiahu site, known as Jiahu Silk, has confirmed that China was the first country to invent and utilize silk.

By revealing the connotation and extension of the Central Plains Peiligang Culture, it can be known that the Peiligang Culture is undoubtedly the opener of Chinese civilization. Regarding the early Neolithic period of the Peiligang Culture, which dates to 7,800 to 9,000 years ago, it is recognized by the academic community as the “first cultural heritage with a definite period of record in the long river of Chinese national history;” it is also known as the Jiahu Culture. Professor

Zhang Juzhong, a professor at the University of Science and Technology of China and the director of the archaeological excavation of the Jiahu site, was invited to give a lecture on “The Jiahu Site—A Forgotten Secret from 8,000 Years Ago” at the Henan Museum on November 29, 2014. Given this, the history of Chinese civilization seems to be able to be traced back 8,000 years, that is, the era of the Peiligang Culture, or the era of Fu Xi. Art and the origin of humans are synchronous. The history of Central Plains art, and even the history of Chinese art, can be said to have begun with the practical arts and crafts, pottery, carving symbols, and oracle bones of the Peiligang Culture of the Central Plains.

Henan Provincial Institute of Cultural

GONG DAZHONG (1939-) was born in Mengzhou, Henan Province. He is a senior member and researcher at the Henan Provincial Institute of Cultural and Historical Research, and an adjunct professor at Zhengzhou University. He graduated from the Department of Art History of the Central Academy of Fine Arts in 1966. He is a researcher, art historian, China Art Association member, and Provincial Text Society vice president. He has long been engaged in the study of the Longmen Grottoes art, archaeological research on art in the Central Plains, art education, and art criticism. Monographs: *The Art of Longmen Grottoes*, Longmen: *The Art of Longmen Grottoes* (Updated Edition), *Historical Signs of Luodu Fine Arts*, *Zhongyuan Zhenshi Graphite Shadows* (Upper and Lower Volumes), and *Han Wengong, Township Sage of Mengzhou*.

Translator: Dong Rui

Editor: Wang Jing

ENDNOTES

1. Zhao Shigang, *Zhao Shigang Archaeological Collection* (Beijing: Science Press, 2012), 322.

2. Li Yan, *Daily Daily*, February 10, 2018.

3. Yang Yubin, “50 Years of Archaeology Work in Henan,” in *50 Years of Cultural Relics Work in Henan*, ed. Henan Cultural Relics Administration Compilation (Zhengzhou: Wenxin Publishing House, 2000), 15-10.

4. Fan Jinye, “On the Historical Status of Central Plains Culture in the Neolithic Age,” *Hangzhou Archaeology* 1, no. 1 (2004): 59-57.

5. Xu Shunzhan, “Theoretical Controversies in the Formation and Development of Civilization,” in *Formation and Development of the Huaxia Civilization: Collected Papers of the Celebration of the 50th Anniversary of the Founding of the Henan Provincial Institute of Cultural Relics and Archaeology and the Symposium of the Formation and Development of the Huaxia Civilization*, ed. Henan Provincial Institute of Culture Relics and Archaeology (Zhengzhou: Elephant Press, 2003), 37-41; Yu Xiaoyu,

China's Cultural Relics News, October 21, 2005; Zhao Shigang, “On the Status of Peiligang Culture in the Formation of Chinese Civilization,” in *Peiligang Culture*, ed. Henan Provincial Society of Cultural Relics and Archaeology, etc. (Beijing: Science Press, 2010), 36-36.

6. Zhao Shigang, *Zhao Shigang Archaeological Collection* (Beijing: Science Press, 2012), 29-42; Zhu Shaohou, *A Comprehensive Guide to Chinese Regional Cultures: Henan Volume* (Beijing: Zhonghua Book Company,

2014).

7. Department of History and Archaeology of Science and Technology, University of Science and Technology of China, *Xishui Xia Temple Changxin Chu Tanch* (Beijing: Cultural Relics Press, 1991), 1-46.

8. Hebei Provincial Institute of Cultural Relics and Archaeology, "Briefing on the Sp-

ing 2001 Excavations at the Jishi Site, Wuyang, Henan, China," *Huaxia Archaeology*, no. 2 (1999): 14-30.

9. Zhao Shigang, "The Origin and Spread of Comb-patterned Pottery," *Cultural Relics of Central China*, no. 3 (2005): 46-58.

10. Li Wenjie, and Zhang Jizhang, "Manufacturing Techniques of Ceramic Pro-

ducts," in *Wuyang Jishi*, ed. Henan Provincial Society of Cultural Relics and Archaeology, etc. (Beijing: Science Press, 1999), 904-940.

11. Yu Weichao, Zhang Jizhang, and Wang Changsu, "The Emergence of Chinese Civilization Practices Based on Primitive Agriculture," *Agricultural Archaeology*, no. 3 (2007): 15-22.

骨笛骨簪：中原裴李崗文化奏響了中華八千年文明史

王仁土

摘 要：早在八九千年前，中原地區已形成以裴李崗文化為代表發達的文化核心，且富有包容性和創造力。原始裴李崗定居生活，半地穴式房址，人工製玉、骨安骨工，農耕（粟米、水稻）、漁獵、畜牧（豬、牛）、石、骨、角器並用，有石磨盤、石磨棒與磨乳石餅、石件自磨特色的新石器，有漁獵骨件的製作樂器骨簫的發現，有特殊的創造與形制、鈎型、有綠松石串飾、象牙雕版，有我國歷史上最早的契刻符號和甲骨文，還發現有“人類祖先祖”——黃河內河體殘器物、滾絲器口殘器物——貴族絲綢。有鑒於此，中華文明史似乎可由裴李崗的 5000 年，上溯到 8000 年，即裴李崗文化時代，或有說裴李崗時代，要修訂人類起源史步。中華文明史，乃至中國文明史，從某種意義上可以說，也是從中原裴李崗文化的寶川二墓樂器與骨簪、以及契刻符號與甲骨文到常義二姓

關鍵詞：中原裴李崗文化；石磨盤；石磨棒；骨簪；骨笛；綠松石串飾