Agricultural worship in Jiangjunya rock art of China

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Abstract: : The Jiangjunya Rock Art (将军崖岩画) is located in the southeastern coastal region of China and is one of the most typical petrographies in China. The images in the Jiangjunya Rock Art include masks, cupules, and "rice," which, together with the surrounding boulders and environment, form a sacred cultural site. By studying archaeological sites around the Jiangjunya Rock Art, pre-Qin literature, and the style and dating of its images, this paper interprets the meanings of the Jiangjunya Rock Art. Through analysis of the masks, rice images, cupules (stellar map), and the "Rock Shrine(石社)," it is argued that the Jiangjunya Rock Art were created in the context of rural culture and are closely associated with celestial worship and agricultural rituals. The site was a highly significant ceremonial and ritual center in the ancient southeastern coastal region of China.

Key Words clave: Rock Art; Agricultural worship; Rice images; Astronomical phenomena; Rituals.

Resumen: Las quilcas de Jiangjunya se encuentra en la región costera sudoriental de China y es una de las zonas con petroglifos más típicas del país. Las imágenes de Jiangjunya incluyen máscaras, cúpulas y "arroz", que, junto con las rocas y el entorno circundantes, conforman un sitio cultural de carácter sagrado. Mediante el estudio de los sitios arqueológicos alrededor de las quilcas, la literatura pre-Qin y el estilo y la datación de sus imágenes, este artículo interpreta los significados de estos testimonios. A través del análisis de las máscaras, las imágenes de arroz, las cúpulas (mapa estelar) y el "santuario de roca" se argumenta que las quilcas de Jiangjunya fueron creadas en el contexto de la cultura rural y están estrechamente asociadas con el culto celestial y los rituales agrícolas. El sitio fue un centro ceremonial y ritual de gran importancia en la antigua región costera sudoriental de China.

Key words: Quilca; Culto agrícola; Imágenes de arroz; Fenómenos astronímicos; Rituales.

The Jiangjunya Rock Art is located on the eastern coast of China, specifically on Mount Jinping (锦屏山) in Taohua Village (桃花村), Jinping Town (锦屏镇), Haizhou District (海州区), Lianyungang City (连云港市), Jiangsu Province (江苏省) (Fig. 1). As a significant rock art site in the eastern coastal region, the Jiangjunya Rock Art has long been a focus of study in the rock art community. Notably, the masks depicted in the Jiangjunya Rock Art are characteristic and represent an element within the Pacific Rim rock art system of masks. Lianyungang (连云港) is situated at the transition zone between China's semi-humid and semi-arid regions, as well as the boundary between the subtropical and warm temperate zones. It is also a convergence zone for various ecological communities (Ecotone). This region, with its combination of land, sea, mountainous, and rivers, represents a transitional area between the northern and southern climates and regions of China. Its rich biodiversity and high population densities make it an ideal area for early human activities, providing favorable natural conditions for diverse and complementary subsistence strategies and settlement development. Moreover, Lianyungang marks the northernmost point of southern farming civilization and the southernmost point of northern nomadic culture. It is also a key area of maritime civilization within the Pacific Rim. Mount Jinping, where the Jiangjunya Rock Art is located, is rich in resources and interspersed with rivers and streams. To the east of Mount Jinping is the sea, while the south features hills and plains. The area also includes Paleolithic sites such as Jiudian (酒店), Taohuajian(桃花涧), Erjian(二涧), and Jiangjunya (将军崖) (all within 1 kilometer of the Jiangjunya Rock Art). This natural and cultural environment has nurtured the development of the Jiangjunya Rock Art.

The Jiangjunya Rock Art is divided into five groups: Groups 1- 4 are located on a semi-circular rock formation on the southern side of Mount Jinping, measuring 23 meters in length from north to south and 15 meters in width from east to west. The geographic coordinates are 34°53′26.995″N, 119°13′11.999″E, with an elevation of 23 meters. Group 5 is situated on the western wall of a separate and protruding north-south trending rock in the east by south of the semi-circular rock formation where Groups 1 - 4 are located. The geographic coordinates for Group 5 are 34°53′16.048″N, 119°13′25.456″E, with an elevation of 47 meters. The linear distance between Group 5 and the first four groups is 180 meters, with a vertical height difference of 24 meters. This paper analyzes the Jiangjunya Rock Art by incorporating microerosion dating results, surrounding archaeological sites, and inferred historical and cultural contexts. The analysis focuses on depicting masks and rice images, cupules (stellar map), and the "Rock Shrine." Overall, it is concluded that the Jiangjunya Rock Art is a significant agricultural ritual site from ancient times, reflecting the agricultural worship of ancient societies through its artifacts and imagery.

I. "Masks and rice seedlings" rock art and rice cultivation culture

Among the Jiangjunya rock art, Group 1 features the most representative "masks and rice seedlings" image (Fig. 2), often considered synonymous with Jiangjunya Rock Art. Specifically, in this image, the rice seedlings are located at the lower part of the mask petroglyph, with some lines of the rice seedlings extending upwards and connecting with the human face. According to microerosion dating results[1], the dating of the rice seedlings was approximately 3856 years ago. Based

[1] Micro-erosion dating method, developed by Robert G. Bednarik, is an effective method for dating petrographies. Relevant research on Jiangjunya Rock Art micro-erosion dating has been

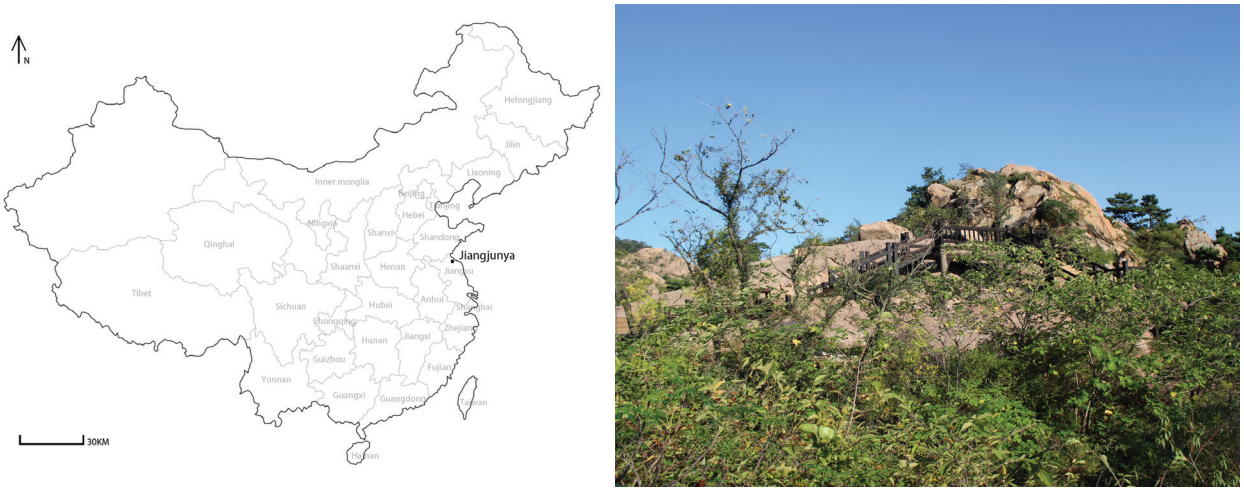

***Figura 1**. Location and landscape of Jiangjunya rock art*

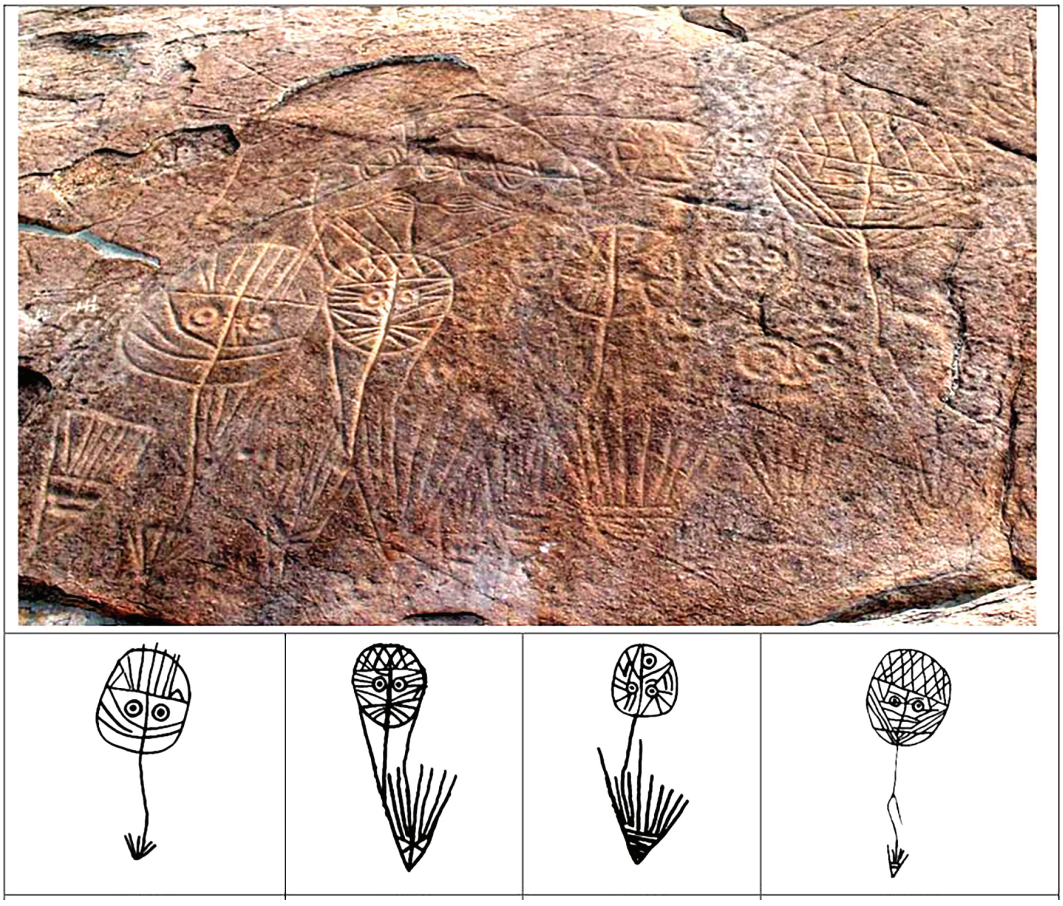

***Figura 2**. The masks and rice images in the Group 1 of Jiangjunya rock art.*

published in: Tang H., R. G. Bednarik, and G. Kumar, 2014. "Preliminary report of the 2014 rock art dating expedition of China", *Purakala* 24: 63–75; Zhang Jiaxin (张嘉馨), 2017. *A Study on the Chronology and Iconography of Jiangjunya Rock Art*, Ph.D. Dissertation; Zhang Jiaxin, 2018. "Dating Issues in Rock Art Research: A Case Study of the Jiangjunya Rock Art", *Journal of Central University for Nationalities*, Issue 4.

2. The grouping of the Jiangjunya Rock Art in this article follows the grouping method of the Lianyungang Historical Relics Protection Research Institute. The relevant groups, as well as their specific introductions and image numbers, refer to the author's doctoral dissertation titled A Study on the Chronology and Iconographic Implications of the Jiangjunya Rock Art (《将军崖岩画年代学与图像意涵研究》). In the numbering system, H represents seedlings, R represents masks, T represents the sun, and F represents abstract symbols; for example, the third mask in Group 1 of the Jiangjunya Rock Art is numbered 1-R3.

on the style and consistency of the rice seedlings' engravings in Group 1, the date can be estimated to be around 3800 years ago. To understand the "masks and rice seedlings" rock art, it should be placed within the prehistoric agricultural context of southeastern coastal China. "According to archaeological data, rice cultivation in China has a history of 10,000 years. By 6000 BC, rice planting in the middle Yangtze River basin and Huai River basin had become quite substantial. Over the next several thousand years, by 3000 BC, rice cultivation had spread throughout the Yangtze River basin and much of southern China. At this time, rice cultivation also began in the Yellow River basin."[3] Kazuo Miyamoto's analysis of the formation and diffusion of agriculture in Northeast Asia suggests that during the climatic changes from the Pleistocene to the Holocene, including brief periods of cold climate, rice cultivation emerged in central China. Initially, the yield of these crops was low, but with the warm, moist climate from 6500 to 3000 BC, agriculture developed into organized cooperative farming in the regions where it began, leading to the rapid evolution of social organization. During this period, wild rice transitioned to cultivated rice on a large scale, and the importance of rice in social life gradually increased, supported by rising productivity and the development of settled agriculture.

Based on current archaeological data, the earliest discovery of rice farming remains in the southeastern coastal region of China is at the Erjian Site (二涧遗址), located only a few hundred meters from the Jiangjunya Rock Art. The Erjian Site belongs to the Qingliangang (青莲岗) culture period, and imprints of rice husks have been found in the fired clay at the site, dating back approximately 6,500 years. This indicates a long history of rice farming in the region, and the images of rice in the Jiangjunya Rock Art are representations of this agricultural practice. To date, 29 locations with wild rice remains have been discovered in the Lianyungang, with the earliest site, Zuokougong (左口公), dating back to the late Paleolithic Age. In 1962, the Jiangsu provincial cultural relics team unearthed fired clay mixed with Japonica rice husks from the lower layer of the Erjian Site, and two ceramic pestles possibly related to rice processing were also discovered. In 1959, the Xuzhou Museum (徐州博物馆) collected Japonica rice grains from the lower layer of the Longshan Culture (龙山文化) at the Yancangcheng Site (盐仓城遗址) in Ganyu County (赣榆县), dating back almost 7,000 years, indicating that Japonica rice cultivation existed in the Lianyungang 7,000 years ago. At the Chaoyang Site (朝阳遗址), located between Xinpu (新浦) and the Lianyungang urban area, the analysis of the pottery shards unearthed from the site, jointly conducted by the Nanjing Museum (南京博物院) and the Agriculture Department of Japan's University of Miyazaki, detected rice phytoliths. These pottery shards date back 6,000-5,000 years, belonging to the Dawenkou Culture (大汶口文化).[4] By the Longshan Culture period, rice farming had become widespread in the Lianyungang. Ancient rice samples (one sample of ancient rice, designated as H11; dating back 4200-4000 years ago) were found at the Houdatang Site (后大堂遗址) in Ganyu County, and seven drainage ditches and over ten thousand square meters of paddy field remains were discovered at the Tenghualuo Site (藤花落遗址), proving that large-scale rice cultivation existed in the region over 4,000 years ago (A total of four samples of ancient rice were collected from the Tenghualuo Site in Lianyungang, specifically designated as H97, H72, H149, and G8; dating back from 4500 to 4000 years ago). The Tenghualuo and Houdatang Site findings indicate a key period in the evolution of ancient rice into Japonica rice.[5] In the lower layer of the Jiaozhuang site (焦庄遗址) in Donghai County (东海县), carbonized Japonica rice from the Shang Dynasty was unearthed. Furthermore, the second excavation at the Erjian site revealed numerous drainage facilities from the Warring States period, suggesting that irrigation and drainage systems were already in place over 3,000 years ago, closely related to rice farming.

Furthermore, a significant number of stone tools related to rice farming have been discovered at Neolithic sites in Lianyungang. For example, in the Guanyun County (灌云县) Dayi Mountain (大伊山) stone coffin tomb, perforated stone axes, chisels, and sickles were uncovered, crafted from locally sourced granite, fine-grained gneiss, and amphibolite. Stone hoes were excavated from the Chaoyang Neolithic Site (朝阳新时代遗址) and the Dacun Site (大村遗址), while stone sickles were found at the Dacun, Erjian, Baigejian (白鸽涧), and Huaguoshan Xinhuacun Sites (花果山乡新华村遗址). Stone knives were unearthed at the Zhongyun Shenglicun Site (中云乡胜利村遗址) and the Yishan Zhuanwachang Site (伊山镇砖瓦厂遗址), and stone pestles, likely used for threshing rice, were discovered at the Dongzoushan Site (东陬山遗址). Moreover, rice remains have been found at various archaeological sites near Lianyungang, including the Liujiazhuang Site (六甲庄遗址) in southern Rizhao (日照), where carbonized rice grains were retrieved from early Longshan Culture clay samples. At the Yaowangcheng Site (尧王城遗址), also in southern Rizhao, flotation revealed carbonized rice grains of Longshan Culture, which was identified as japonica rice. A large number of agricultural remains, including carbonized rice grains, were uncovered at the Liangchengzhen Site (Longshan culture), along with a considerable quantity of rice phytoliths. Over 280 carbonized japonica rice grains were discovered through flotation from five pit clay samples at Zhuanglixi (庄里西), Tengzhou (滕州). Based on archaeological evidence from Lianyungang and its surroundings, rice cultivation in this region can be traced back to 7,000 years ago. By the Longshan Culture period, more than 4,000 years ago, rice farming was already widespread throughout Southeast China's coastal areas.[6] During the Longshan to Yueshi Culture (岳石文化) periods, relevant water management facilities also developed on a significant scale, enabling large-scale rice cultivation. The rice seedlings images

[3] Chen Yong (陈勇), *Principles of Human Ecology* (《人类生态学原理》), Beijing: Science Press, 2012, p. 106.

[4] Data Source: Luan Fengshi (栾丰实) and Kazuo Miyamoto, *Early Agriculture and Anthropological Studies in the Haidai Region* (《海岱地区早起农业和人类学研究》), Beijing: Science Press, 2008, p. 42.

[5] Lin Liugen (林留根) and Zhang Wenxu (张文绪), "Research on Ancient Rice from the Tenghualuo and Houdatang Longshan Cultural Sites in the Huang-Huai Region" (《黄淮地区藤花落、后大堂龙山文化遗址古稻的研究》), *Southeast Culture* (《东南文化》), Issue of 2005, pp. 15-19.

[6] Pei Anping (裴安平) and Zhang Wenxu, *Collected Works on Prehistoric Rice Cultivation Research* (《史前稻作研究文集》), Beijing: Science Press, 2009, p. 153.

in the Jiangjunya Rock Art created approximately 3,800 years ago, likely correspond to the late Longshan to early Yueshi Cultural periods, when rice farming was at its peak. Kazuo Miyamoto suggests that the advent of agriculture transformed the way of life for prehistoric people, shifting from a subsistence economy based on hunting and gathering to a productive economy. The rise of agricultural production also spurred rapid development in prehistoric settlement patterns. Furthermore, the emergence of agricultural-related rituals and ceremonies coincided with the shift from wild rice to domesticated rice, occurring once rice became a primary food source and was widely cultivated. Rituals involving rice offerings appeared after the domestication of wild rice.[7] This corresponds with the flourishing of rice culture in the region. In recent fieldwork by the author, it was found that in Machang Village (马场村), Ganma Town (赣马镇), Ganyu County (赣榆县), there still exists a tradition of offering rice seedlings in rituals. These rituals are typically performed in the spring and autumn, when rice seedlings are burned in offering to the stone ancestors. However, with the process of urbanization, only a few elders in the village continue to practice this ritual.

In the first group of petroglyphs, there are four masks connected with rice seedlings, forming large, vivid, and elegant depictions. These images are among the most representative in the Jiangjunya Rock Art. Concerning the relationship between the rice seedlings and the masks, one interpretation suggests that the masks are emerging from the rice seedlings, representing the legend of "humans born from plants." Another interpretation from a totemic perspective holds that the rice seedlings represent the totem of a clan, while the masks symbolize the clan's leaders. However, the plant-born human myth alone is insufficient to confirm the meaning of the images in this group, as this assumption lacks substantial evidence specific to Jiangjunya. Based on the analysis of the carvings, microerosion dating results, local rice culture, and the overall sequence and logic of the masks in the Jiangjunya Rock Art, it is proposed that the rice seedlings were carved later than the masks. Their meaning likely points to a ritual where rice seedlings were used to worship the masks (the masks representing deities or ancestors).

First, based on the author's field research and relevant literature, during the ancient times in the southeastern coastal region of China, within the framework of Dongyi Culture (东夷文化), bird worship and myths that humans were born from bird eggs (such as the legend of the divine bird giving rise to the Shang dynasty) (天命玄鸟、降而生商) prevailed. There is currently no evidence to support the idea that humans were born from plants or rice serving as a clan totem, lacking cultural background support. Second, from observations of the carvings at the site, the engravings of the masks are deeper and more heavily weathered than those of the rice plants. If the images of plants and masks were created simultaneously as part of "humans born from plants" myths, it would likely follow a more balanced and symmetrical artistic style, as seen in other prehistoric artworks such as painted pottery and jade ornaments found nearby. These typically exhibit symmetrical patterns. However, the relationship between the masks and the rice seedlings lacks this symmetry and balance. Instead, the lines connecting the rice seedlings and the masks appear more natural and spontaneous. This is particularly evident in figures 1-R3 and 1-R7, which clearly show connection marks between the central line of the masks and the rice seedlings. Third, according to microerosion dating results, the rice seedlings' carvings date back 3,856 years, while the masks carvings date back to different periods: 1-R1 to 3,685 years ago, 1-R3 to 4,499 years ago, 1-R7 to 5,099 years ago, and 1-R9 to 4,413 years ago. Only 1-R1 dates later than the rice seedlings, but further analysis of the carving marks and stylistic elements suggests that 1-R1 was created at the same time as 1-R3 and 1-R9. Therefore, it is possible that the date obtained for 1-R1 was affected by later modifications, and thus it was excluded from the analysis. Instead, based on the dates of other grid-patterned masks, this type of creation is still dated to the early and middle periods of the Longshan Culture. Consequently, the rice seedlings' carvings are later than the masks' carvings, rendering the "humans born from plants" hypothesis untenable. Fourth, considering the entire Jiangjunya Rock Art, masks depictions can be traced back at least 8,000 years to the "ancestor-shaped masks (人祖形人面)." These masks are the dominant images in the second, third, and fifth groups, demonstrating a clear continuity in their representation throughout the site. In contrast, rice seedlings only appear in the first group. The earliest evidence of rice cultivation in this region comes from the Erjian Site, which belongs to the Qingliangang Culture period. Rice cultivation became more prominent during the Longshan Culture period. Thus, in ancient times, the masks images were created first, establishing a systematic tradition of such depictions. Only later, with the domestication of rice, did it become a significant crop in the region. Fifth, from the perspective of cognitive models and social structures, the creation of rice-related petroglyphs occurred in the late Longshan and early Yueshi Cultures, when agriculture had become more advanced and stable, leading to the initial stages of religious formation and the establishment of relatively complete ritual systems. The concept of "humans born from plants" typically emerged in early human societies during the animistic phase, where myths focus on philosophical questions such as "Where do I come from?" In the later historical periods of the Longshan Culture, characterized by the rise of city-states and class stratification, religion mainly addressed issues related to material prosperity and the spiritual justification of rulers' authority, often manifested in the form of the "divine right of kings." Through rituals and religion, the legitimacy of the ruling class's governance was reinforced.

II. Discussing the observation of astronomical phenomena to regulate agricultural production from "stellar rock art"

Culture is a holistic system; the emergence of certain phenomena does not occur in isolation within a particular time and space context. The knowledge of observing astronomical phenomena to determine the time requires long periods of observation, summary, and the accumulation of natural phenomena. In order to explore the meaning behind the cupules in the Jiangjunya Rock Art, this paper outlines the progress made by

[7] Kazuo Miyamoto, "Theories on the Origin of Agriculture and the Beginning of Rice Farming in China" (《农耕起源的理论与中国稻作农业的开始》), *Journal of the Japanese Society for Chinese Archaeology* (《日本中国考古学会会报》), Issue 10, 2000.

prehistoric people in the Subei (northern Jiangsu) and southern Shandong regions, as well as the Central Plains, in mastering astronomical knowledge and expressing celestial phenomena, drawing on relevant ancient astronomical sites in surrounding areas. The earliest records of astronomy in China can be found in the Classic of Yao of the Book of Documents (尚书·尧典), which describes astronomical observations and the calendar system during Emperor Yao's era. The text states: "Thus he (Emperor Yao) commanded Xi and He to honor Heaven, observe the sun, moon, stars, and constellations, and to diligently impart the seasonal timing to the people (乃命羲和，钦若昊天，历象日月星辰，敬授民时)." These activities of observing celestial phenomena and determining the time helped early people first achieve a sense of order in both time and space. Human understanding of time was realized through the observation of the movement and changes of key constellations, which were used to guide agricultural production.

The On Titles of Comprehensive Discussions in the White Tiger Hall (白虎通·号) states: "In ancient times, people subsisted on the meat of birds and beasts. By the time of Shennong, as the population grew, birds and beasts were no longer sufficient to meet people's needs. Thus, Shennong took advantage of the seasons, allocated the land's resources, invented the plow and the hoe, and taught people to farm. He was divine and transformative, and he made the people adapt to this, hence he was called Shennong (patron of agriculture) (古人之皆食禽兽肉，至于神农，人民众多，禽兽不足，于是神农因天之时，分地之利，制耒耜，教民农作，神而化之，使民宜之，故谓之神农也)." The development of agriculture required adherence to the cycles of the heavens, and the formation of systematic astronomical knowledge facilitated the steady advancement of primitive agriculture. According to Feng Shi's (冯时) research, this systemization of astronomical knowledge can be traced back to the early Neolithic period. In the late Paleolithic era, early concepts of heaven and earth, as well as the soul's ascent to the heavens, had already emerged. By the early Neolithic, as agricultural needs grew, the knowledge of observing celestial phenomena to guide agricultural timing became more systematic and practical. Around 8,000 years ago, people were already able to determine the solstices and equinoxes. Before the invention of astronomical instruments, ancient people often relied on natural objects for observation. An example mentioned earlier is the pottery motifs from Ju County (莒县), which depict the sun rising directly above the central peak of Wufeng Mountain (五峰山)—a phenomenon observable only during the spring and autumn equinoxes.

Astronomer Wang Yumin interpreted the arrangement of cupules as direct depictions of ancient star constellations. He suggested that the size and placement of these cupules in the Jiangjunya Rock Art correspond to the star patterns of that era and that the rocks above the cliff served as sacred objects for worshiping the heavens.[8] Feng Shi analyzed unearthed silk manuscripts and proposed that "heaven and earth were formed only after Fuxi (伏羲) married Nüwa (女娲)." This indicates that humanity's understanding of the heavens coincided with the development of a fixed marriage system. The earliest marriage system in the strict sense was precisely the extra-clan marriage system, which marked the birth of the matriarchal clan society. As the female ancestor and founder of the marriage system in the minds of ancient people, Nüwa can also be regarded as the symbol of the birth of the matrilineal system. The silk manuscript's description of Fuxi marrying Nüwa is actually just the later generations' memory of their ancestors' lives in the pattern of the patriarchal pairing family. Around the late Paleolithic era, early humans likely had well-established concepts of heaven and earth, accompanied by primitive worship for ancestral spirits, which is manifested as the simple imagination of early ancestors about the different worlds of life and death. These concepts not only led to the birth of astronomy but also shaped unique forms of primitive religion."[9] Looking at the history of stellar maps, the astronomical imagery found in M45 of the Yangshao Culture Site (仰韶文化遗址) at Xishuipo (西水坡), about 380 kilometers from Jiangjunya Rock Art, reflects that the owner of the tomb is a shaman who knows the world and can communicate with it, having a lofty status and power. "The shape of the tomb M45 at Xishuipo embodies the traditional concept of 'round sky and square earth'. Inside the tomb, there are representations of the Big Dipper, Azure Dragon, and White Tiger, which indicate the dates of the spring and autumn equinoxes and the winter solstice, and they date back a long time (more than 6,000 years ago). Some scholars believe that it has already formed a star system. It is not just a few constellations but reflects the entire starry sky visible at that time. It is still a fledgling system, but it can already correspond with the star systems that have existed since ancient times."[10] This indicates that Chinese early astronomy had already developed sufficiently and the ancient people had reached a considerable level of observation of astronomical phenomena 6,000 years ago. Judging from the complete star recognition system reflected in the stellar map at Xishuipo in Puyang (濮阳), it is reasonable to consider 6,000 years ago as the origin of various coordinate systems, including the equatorial coordinate system. As for the appearance of the equatorial coordinate system during the Warring States period, it was obviously a quite sophisticated and independent system.

Therefore, the stellar petroglyphs represented by the cupules in the second group of the Jiangjunya Rock Art cannot predate 6,000 years ago (Fig. 3). The agricultural system and scale at the Tenghualuo Site indicate that by this time, the ancestors had already mastered astronomical knowledge that could support large-scale agriculture during this period, and the system of observing the heavens and determining the time had been basically improved. Thus, the lower limit for the dating

[8] Wang Yumin (王玉民), "A New Exploration of the Ancient Astronomical Maps in the Jiangjunya Rock Art - Concurrent Discussion on the Astronomical Significance of the Rock Rock at Junshan Mountain, Yueyang" (《将军崖岩画古天象图新探——兼论岳阳君山岩画的星象意义》), *Studies in the History of Natural Sciences* (《自然科学史研究》) (Beijing), Vol. 1, 2007, pp. 30-43.

[9] WFeng Shi, *Chinese Archaeoastronomy* (《中国天文考古学》), Beijing: China Social Sciences Press, 2011, p. 49.

[10] Wu Ruzuo, *Ancient Chinese Civilization and Witchcraft* (《中华古代文明与巫》), originally published in Ancient Civilization Research (《古代文明研究》), edited by the Institute of Archaeology, Chinese Academy of Social Sciences and the Research Center for Ancient Civilizations, Chinese Academy of Social Sciences, Beijing: Cultural Relics Publishing House, 2005.

***Figura 3**. Rubbings of the second group of Jiangjunya rock art.*

of the stellar map in the second group of the Jiangjunya Rock Art is no later than 4,000 years ago, and possibly even earlier. As the population grew and food demand increased, astronomy became crucial as ancient people shifted from a primitive hunting-gathering economy to an agricultural economy. Without understanding astronomy and phenology, it is impossible to grasp the laws of agricultural production and transform wild rice into domesticated rice. Therefore, the origin of agriculture is closely related to the development of astronomy. The ancient ancestors needed to accurately grasp the time and solar terms in order to conduct agricultural cultivation and production, as well as hunting in the mountains and fishing at sea and hold sacrifices and celebrations at the right time. Therefore, the movement and changes of celestial bodies such as the sun, moon, and stars became the criteria and basis for judgment. With the improvement of agricultural productivity and the solution of practical problems faced in agricultural planting, the accuracy of astronomical observation has also been continuously improved, and a time cycle has been established through the cycle of celestial movements. "Celestial phenomena is the treasure in farming... The one who cultivates is human, the one who brings forth growth is the land, and the one who nourishes is the heaven (凡农之道，厚之为宝……夫稼为之者人也，生之者地也，养之者天也)."[11] In primitive society, where subsistence heavily relied on the natural environment, mastering the laws of nature and phenology was particularly crucial. Only by cultivating at the right time could one expect abundant harvests; in other words, the need for agricultural development served as the driving force for deeply mastering astronomical knowledge.

In primitive societies, not everyone could master astronomical knowledge to observe celestial phenomena and measure time. Thus, those who held such knowledge, like shamans or clan leaders, held significant power and status. This is one source of authority in primitive societies. Because the work of observing celestial phenomena and measuring time was monopolized by rulers, astronomy inherently carried strong political connotations from its inception. Clearly, in ancient societies with relatively low levels of productivity, if someone through their wisdom and practice could master celestial phenomena that appeared mysterious to most people and maintain the survival of the clan through their observations and timing, such knowledge itself acquired a sense of power. When

[11] Master LYU's *Spring and Autumn Annals* (《吕氏春秋》), translated and annotated by Lu Jiu (陆玖), Beijing: Zhonghua Book Company, 2011.

celestial observation and timing served as the foundation of royal authority, the recognition that the ruler's power was derived from the divine naturally emerged. Based on such recognition, Supreme Being and Emperors were created, and imperial organizations were established. Direct blood relations between emperors and kings were confirmed, and the concept of ancestors sharing heaven was formed, which in turn led to the development of rituals and institutions related to the heavens, celestial phenomena, ancestors, and the state, as well as philosophical reflections on Yin-Yang (阴阳) and ethics. As stated in the Measuring the Capital of Yi Zhou Shu (《逸周书·度邑》), King Wu governed the people and built cities "by relying on heaven (其惟依天)." The foundation of ancient royal power clearly lay in mastering celestial observation and timing, which gradually led to the development of the political ideology of the divine right of kings. Astronomical knowledge, to a large extent, was a political ruling technique. Since expertise in celestial observation and divination was essential for rulers, the ruler's divine privileges and the professionalization of shamans were mutually causative. Rulers, while delivering celestial timing to the people, also manipulated their destinies, and as society evolved, this became the source of the divine right of kings. Conversely, the stellar maps in the Jiangjunya Rock Art, created during the Neolithic era when productivity was still undeveloped, were not merely individual artistic creations but were necessary for the survival and development of the clan and a means to consolidate the leadership of the clan leader. Similarly, the stellar maps composed of cupules in the rock art at Erjian Rock Art and Baigejian Rock Art in Mount Jinping, which are similar in era, social background, and cultural connotations to the second group of the Jiangjunya Rock Art, reflect the primitive ancestors' worship for the heavens and their connection with celestial observation, calendrical systems, and seasonal rituals.

III. The "Rock Shrine" Rock art at Jiangjunya and agricultural worship

The fourth group of the Jiangjunya Rock Art is located on the horizontal rock surfaces atop a small hillock. This group consists of four large rocks, one large and three small (Fig. 4). On the horizontal surface of one of the large rocks, there are 19 cupules (Fig. 5), and among the four rocks, 9 square patterns are scattered. Based on microerosion dating, the cupules are approximately 5,380 years old. Of the square patterns, three could be microerosion dated: the age of 4-F-1 is about 3,685 years ago, 4-F-3 about 2,035 years ago, and 4-F-6 about 857 years ago. Field observations and analysis of the carvings indicate that the cupules were made using a grinding technique and were crafted with stone tools (Fig. 6). The square patterns were mostly created using a chiseling technique; earlier patterns were made with stone tools, while later patterns were made with metal tools, leaving V-shaped grooves. Records of Haizhou Literature (《海州文献录》) states: "In the Yanlishe of Xiangping, a huge rock emerged, measuring over ten feet in length, supported by three smaller rocks at its base (裹平延里社生大石，长丈余，下有三小石为足)."[12] This refers to

[12] Records of Haizhou Literature was provided by the Lianyungang Historical Relics Protection Research Institute.

***Figura 4**. The Group 4 of "Rock Shrine" at Jiangjunya.*

the large rock in the fourth group at Jiangjunya. The author believes that this large rock is the "Rock Shrine", a remnant of ancient sacrificial rites. The cupules on the rock were likely used for blood sacrifices or libation.

The sacrificial site of "Rock Shrine" and its Significance

Chinese archaeologist Yu Weichao (俞伟超) believes that "as early as the primitive era, many agricultural tribes around the world observed crops growing from the land. Without understanding the reasons for the growth of crops, and driven by the desire and dependence on bountiful harvests, land worship emerged. In ethnology, this is known as 'Mother Earth' worship (‘地母’崇拜). In ancient China, this worship was called 'She'(shrine,社).[13] A single case cannot be taken as evidence. The reason why the large rock is interpreted as a site for sacrifice is not only based on the fact that the main cultural background of Jiangjunya Rock Art is agricultural civilization, but also because many sites related to agricultural sacrifices have been discovered in the Central Plains and Liaoning, including the Neolithic Early Cishan Site (磁山遗址), Dongshanzui Site (东山嘴遗址), Zhengzhou Shang City Site (郑州商城遗址) in early Shang Dynasty, and Qiuwan Site (丘湾遗址) in late Shang Dynasty (Fig. 7).

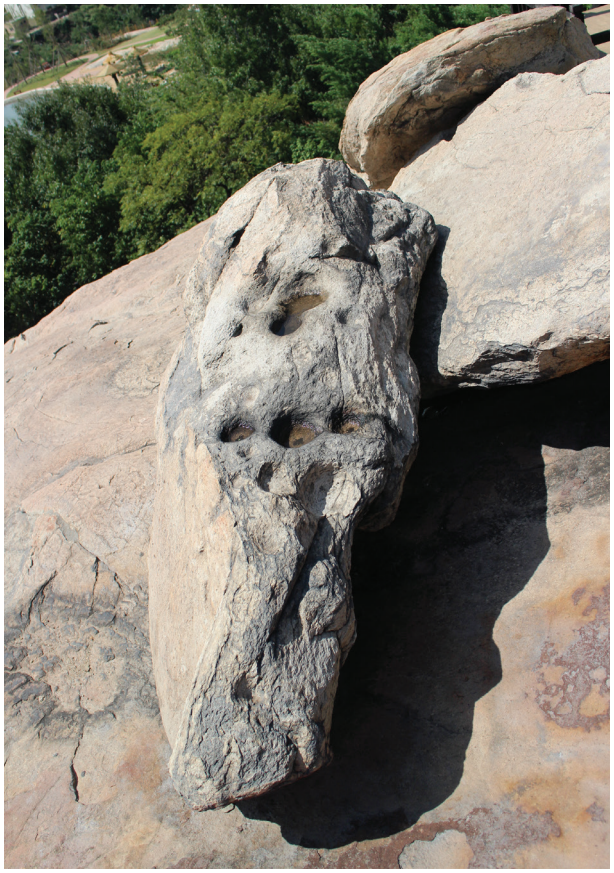

***Figura 5**. The Cupules on the "Rock Shrine".*

***Figura 6**. One of the cupules on the "Rock Shrine".*

The Cishan Site is located on the bench terrace of the north bank of the Nanming River, approximately 1 km east of Cishan Village (磁山村), Wuan City (武安市), southern Hebei Province (河北省). The Cishan Site dates back to over 7,000 years ago. Within the ash pits discovered at the Cishan Site, there are piles of millet ash, generally with a thickness of 0.2-2 meters, with 10 ash pits having a thickness of over 2 meters. This indicates that agriculture had already begun to take shape. Large rocks were discovered at the site, and Jin Jiaguang (金家广) believes that these large rocks served as the main shrine for sacrifices. In addition, a human skeleton was unearthed in the T21 area of the site, which is located to the east of T8. This human sacrifice is closest to F1. The phenomenon of using human sacrifices in agricultural and land-related worship is only recorded in the literature related to community sacrifices. In summary, the large rocks at the Cishan Site are relics of agricultural worship, and there is a possibility that human sacrifices were used in these worship ceremonies.

The Dongshanzui Site (东山嘴遗址) (Fig. 8), is located in Dongshanzui Village (东山嘴屯), Zhangjingyingzi Village(章京营子村), Xinglongzhuang Township (兴隆庄乡), Kazuo County (喀左县), Chaoyang City, Liaoning Province, dating back approximately 5,000 years. Within the "square site, there are a large number of rocks, consisting of densely arranged and upright long stones, forming a slightly oval shape." The "long stones are mostly made of sandstone, with pointed tops and flat bottoms, taking a conical shape and reaching approximately 85 centimeters in height,"[14] At the symposium on the Dongshanzui Site held in 1983, all participating experts agreed that this was an important sacrificial site. Mr. Yu Weichao (俞伟超) believed it to be the most sacred sacrificial place for agricultural tribes during

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[13] MYu Weichao (俞伟超): "The Presumed Shang Dynasty Sacrificial Site at Qiuwan Sie, Tongshan" (《铜山丘湾商代社祀以及的推定》), *Pre-Qin and Han Archaeological Essays* (《先前两汉考古学论集》), Beijing: Cultural Relics Publishing House, 1985.

14 Guo Dashun (郭大顺) et al., "Excavation Report on the Hongshan Culture Architectural Complex Site at Dongshanzui, Kalazuo County, Liaoning Province" (《辽宁省喀左县东山嘴红山文化建筑群址发掘报告》), *Wenwu* (《文物》), November 1984, Issue 11.

***Figura 7**. The Main Shrine of Qiuwan Shrine[15].*

***Figura 8**. Dongshanzui, Kazuo County, Liaoning Province.*

the matriarchal stage, suggesting that the stone circles might be an altar for worshiping patron of fertility or agriculture, while the stone rectangles represented an altar dedicated to the Mother Earth.[16] Mr. Wang Zhenzhong (王震中) proposed that this site was "the most primitive shrine site in eastern China, where primitive people, with a certain degree of development in both reproductive worship and land worship, integrated these two aspects through interpenetrating and mutually interacting, eventually forming a brand-new entity of worship—the 'She' (shrine). The worship of 'She' represents a higher stage of primitive worship.[17] Furthermore, Mr. Zhao Guohua (赵国华) commented that "these long sandstone stones are symbolic of male genitalia, and the rectangular foundation site is likely the location of the shrine dedicated to the 'She'."[18] This also indicates the close relationship between agriculture, sacrifice, rock shrines, and male genital worship. The Zhengzhou Shang City Site, located in the old city of Zheng County (郑县) and the area around Beiguan, in the eastern part of Zhengzhou City, Henan Province, belong to the early Shang Dynasty cultural sites. They are of a large scale and are widely regarded by the archaeological community as the ruins of the Shang Dynasty capital. The ruins of sacrifice in Zhengzhou Shang City were discovered in the northeast corner of the city. There are six large rocks in the middle of the site, with the central one being the highest, and five others placed around it. The eight sacrificial pits around it seem to be arranged in three rows, roughly oriented from northeast to southwest, slightly perpendicular to the eastern section of the northern city wall. These sacrificial pits are all rectangular vertical pits, with dogs buried inside. The pits vary in size, and the number of dogs buried in each pit is also different. Beneath the dog skeletons in Pit 15 are two human skeletons, and beneath the dog skeletons in Pit 18 are piles of scattered human bones.[19] This indicates the close relationship between sacrifice and rock shrines, as well as the sacrificial practices using human and animal victims. The Qiuwan Site (丘湾遗址), located in Qiuwan (丘湾), Tongshan County (铜山县), Xuzhou City, Jiangsu Province, are the sacrificial relics of the late Shang Dynasty and are also the closest agricultural sacrificial site to the Jiangjunya. The Qiuwan Site covers an area of about 3,000 square meters, with the sacrifice ruins occupying 75 square meters. At the center of the sacrificial relics are four large rocks placed in the southeast, southwest, northwest, and northeast directions respectively, with their lower parts buried in the soil. These rocks constitute the main part of the shrine. Around the rocks, 20 human skeletons, 2 human skulls, and 2 dog skeletons were unearthed, with the heads of these human and dog skeletons facing the large rocks. There are no fixed tombs for these human and dog skeletons, nor are any burial tools or funeral objects found. The burial style of all human skeletons at the Qiuwan Site is prone with knees bent, and most of them have their hands tied behind their backs. It can be inferred that this was a place where human sacrifice rituals were conducted.[20] These ancient sacrifice sites, which expended enormous social resources to create such ritual venues, aimed at the core to control the legitimacy and sanctity of ancestral worship rights through rituals such as honoring ancestors and "revering the past and respecting the ancestors," thereby unifying the tribe and stabilizing social order.

Sheji Rituals (社祭, ritual offerings to the Local God of the Land) hold great significance in Chinese culture. As Wen Yiduo (闻一多) stated in his Postscript to Chen Mengjia's Comprehensive Study on the Rituals of Gao Mei(高禖, fertility), Suburban Shrines, and Ancestral Temples (《跋陈梦家高禖郊社祖庙通考》): "I have long argued that the study of ancient Chinese cultural history should place She(社) at its core. Broadly speaking, the most fundamental aspects of human life are but two things: for the individual, it is marriage and food; for society, it is prosperity and wealth. Thus, the most important customs and rituals of our ancestors were focused on seeking offspring and rain, both of which are embodied in Shrine (余尝谓治我国古代文化史者，当以'社'为核心。大抵人类生活中最基本者不过二事，自个人言之，曰男女，曰饮食；自社会言之，则曰庶，曰富。故先民礼俗之重要者莫如求子与求雨，而二事又皆寓于社").[21] Chen

[15] Image Source: Xie Su (谢肃). "A Brief Discussion on the Shrines of the Shang Dynasty" (《简论商代的社》), *Central Plains Cultural Relics* (中原文物》), Issue 5, 2008, p. 50.

[16] Symposium on Dongshanzui Site (《座谈东山嘴遗址》), *Wenwu* (《文物》), November 1984, Issue 11, pp. 12-13.

[17] Wang Zhenzhong (王震中): "The Primitive Altar at Dongshanzui and the Cult of 'Shrine' in Ancient China" (《东山嘴原始祭坛与中国古代的社崇拜》), *World Religions Research* (《世界宗教研究》), Issue 4, 1988, pp. 82-91.

[18] Zhao Guohua (赵国华): *Theory of Reproductive Worship Culture* (《生殖崇拜文化论》), Beijing: China Social Sciences Press. 1990.

[19] Yang Xizhang: *Chinese Archaeology: Xia-Shang Volume* (《中国考古学·夏商卷》), Beijing: China Social Sciences Press, 2012, p. 352.

[20] Zhang Guangzhi: Archaeology of Ancient China (《古代中国考古学》), Beijing: SDX Joint Publishing Company, 2013, p. 439.

[21] Wen Yiduo, "Postscript to Chen Mengjia's Comprehensive Study on the Rituals of Gao Mei, Suburban Shrines and Ancestral Temples" (《跋陈梦家高禖郊社祖庙通考》), *Tsinghua University Journal*, Issue 3, 1937.

Yinke (陈寅恪) also remarked, “Those who study the history of Chinese culture should place She (社) at the core.”[22] The primary functions of the shrine centered around reproductive worship and land worship. Prayers for rain and other related elements can all be classified under the broader umbrella of land worship aimed at achieving a bountiful harvest. The author believes that both reproductive worship and land worship share the common goal of fertility, with the former focusing on the proliferation of the human population and the latter on the abundance of crops, exhibiting a fundamental homology. Over time, reproductive worship evolved into ancestor worship, and alongside land worship, these two forms became the primary meanings of sacrifices.

From the perspective of reproductive worship, Guo Moruo (郭沫若) believed that the character “祖” (ancestor) in “田祖” (ancestor of agriculture), anciently written as “且” (Chinese character), and depicted in oracle bone as  , symbolizes the male genitalia.[23] Similarly, the character “社” (Chinese character) in “社祭” (Sheji rituals), is anciently written as “土” (Chinese character). In the oracle bone inscriptions, the shape of “土” is  , similar to the “Zu” in the oracle bone inscriptions, which should also be a symbol of male genitalia. As Guo Moruo stated in Interpreting Ancestor and Ancestress (《释祖妣》), “Ancient people originally regarded the sexual organ as divine, referring to it as either ancestor or shrine (古人本以性器为神，或称之祖，或谓之社)”. In terms of land worship, in the oracle bone inscriptions of Wu Ding (武丁), the character “土” is “depicted as ○ or |○|, resembling the shape of a land block. Later generations built round mounds on the ground to symbolize the shrine (后世之社于地上立圆丘象之).”[24] Sacrificing to the land was essentially sacrificing to the shrine, and such practices were abundant in ancient texts. For example, in Gongyang Zhuan (《公羊传·僖公三十一年》), it is written: “The feudal lords offer sacrifices to the land (诸侯祭土),” with He Xiu (何休)’s commentary explaining, “By land, it means the shrine (土谓社也).” Legends speak of the shrine of the Yu (虞) clan being a mound of earth. In Guanzi (《管子·轻重戊篇》), it states: “The ruler of the Yu... consecrated a mound of earth as the shrine (有虞之王……，封土为社).” The Shuowen Jiezi (《说文解字》) defines “shrine” as “the master of the land,” consisting of the characters “示” (Chinese character, meaning divine matters) and “土” (社，地主也。从示土). “示” represents “the divine patterns displayed in the sky, revealing good fortune or ill fortune to people (示: “天垂象，見吉凶，所以示人也). It is composed of “二”, which is the same as the ancient form of the character “上” (Chinese character), meaning up,” with three dangling strokes symbolizing the sun, moon, and stars (从二。(二，古文上字)三垂，日月星也). Observing the heavens helps to discern seasonal changes (观乎天文，以察时变). All words related to ‘示’ follow this pattern (凡示之属皆从示)”. Thus, “Shrine” signifies offering sacrifices to the land as if it were a deity. The Book of Rites (《礼记·郊特牲》) states, “The shrine embodies the divine principles of the land (社所以神地之道也).” Further, “The shrine represents the collective deity of the five types of land. The land is vast and cannot be revered in its entirety, so mounds of earth are consecrated as shrines and worshipped to give thanks for its bounty (社者，五土之总神，土地广博不可遍敬，故封土为社而祀之，以报功也).”[25] In ancient China, the shrine encompassed numerous functions. It was worshipped during spring planting, known as “Spring Praying (春祈)”; during autumn harvest, referred to as “Autumn Gratitude (秋报)”; and in winter, with the slaughter of animals, designated as “Great Sacrifice (大割)” or “Sacrifice of the Twelfth Month (腊祭).” In addition, shrines were worshipped during solar and lunar eclipses, during droughts to pray for rain, for the prosperity of the human population, and before military campaigns.

Huainanzi (《淮南子·齐俗论》) once stated, “The rites of the Yin people used stones for their shrines (殷人之礼，其社用石).”[26] Similarly, Rites of Zhou (《周礼·春官·小宗伯》) recorded, “The main image of the shrine was generally made of stones (社之主，盖用石为之)”[27]. The tradition of erecting stones as shrines originated from the Dongyi tribe and was carried on into the Yin Dynasty. As mentioned earlier, archaeological sites of rock shrines in the regions of Xuzhou and Zhengzhou serve as evidence of this custom. “In summer, the ruler of Song sent the ruler of Zhu to offer the son of the Zeng state to the shrine at Cicuishu, intending to affiliate with the Dongyi tribe (夏，宋公使邾文公用鄫子于次睢之社，欲以属东夷”).”[28] “Another example is “In autumn, the seventh month, Pingzi attacked Ju and captured Quan. After presenting the captives, they began to use human beings as sacrificial offerings at the Bo shrine (秋七月，平子伐莒，取郠。献俘，始用人於亳社)”.[29] The customs of sacrificing humans and dogs at shrines were traditional practices of the Dongyi people, particularly prevalent in the ancient period in the regions of northern Jiangsu and southern Shandong. As evidenced by the Qiuwan Site in Xuzhou, where human and dog sacrifices were found, it indicates that the Dongyi people maintained this tradition even in the late Shang Dynasty. The use of human sacrifices in the Zhou Dynasty may have been inherited from the remnants of the Yin people (Bo shrine) and the Dongyi rock shrine. This practice was especially common in the southeast coastal regions of China and persisted until the Spring and Autumn Periods.

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[22] Wen Yiduo, "Postscript to Chen Mengjia’s Comprehensive Study on the Rituals of Gao Mei, Suburban Shrines and Ancestral Temples" (《跋陈梦家高禖郊社祖庙通考》), *Tsinghua University Journal*, Issue 3, 1937.

[23] Guo Moruo (郭沫若), "Interpreting Ancestor and Ancestress" (《释祖批》) in Guo Moruo’s Works: *Archaeology Section, Research on Oracle Bone Characters* (《郭沫若全集·考古编·甲骨文字研究》), Beijing: Science Press, 1982.

[24] Chen Mengjia (陈梦家), *A Comprehensive Study of Oracle Bone Inscriptions from the Yin Ruins* (《殷墟卜辞综述》), Beijing: Zhonghua Book Company, 1998, p. 583.

[25] *Commentary on the Classic of Filial Piety by Zheng Xuan* (《孝经郑注疏》), Beijing: Zhonghua Book Company, 2016.

[26] Huainanzi (《淮南子》): translated and annotated by Chen Guangzhong (陈广忠), Beijing: Zhonghua Book Company, 2012.

[27] *Rites of Zhou* (《周礼》): translated and annotated by Xu Zhengying (徐正英) and Chang Peiyu (常佩雨), Beijing: Zhonghua Book Company, 2014.

[28] The Commentary of Zuo (《左传》): translated and annotated by Guo Dan (郭丹), Cheng Xiaoqing (程小青), and Li Binyuan (李彬源), Beijing: Zhonghua Book Company, 2016.

[29] The Commentary of Zuo (《左传》): translated and annotated by Guo Dan (郭丹), Cheng Xiaoqing (程小青), and Li Binyuan (李彬源), Beijing: Zhonghua Book Company, 2016.

In his essay, An Analysis of the Legend of the Goddess of Gaotang (《高唐神女传说之分析》), Mr. Wen Yiduo pointed out that "the Gao Mei (高禖, the goddess of fertility and marriage) worshipped by ancient ethnic groups were all their respective ancestors, and the essence of worshipping Gao Mei was a primitive religious activity centered on female reproductive worship." Wen Yiduo's contribution lies in identifying the content of female reproductive worship within the context of social rites. However, he did not elaborate on why the stones used to represent Gao Mei, often elliptical pillars, slabs, or rounded stones, what the similarities are between these stones and femininity, nor why these stones were specifically designated as "Shizu" (石祖, literally meaning "stone ancestor," where "zu" undeniably connotes maleness). Although Mr. Guo Moruo, in his Interpreting Ancestors and Deities (《释祖批》), noted that these stones were symbols of the male genitalia, stating that ancient people originally regarded the sexual organ as divine, referring to it as either ancestor or shrine (古人本以性器为神，或称之祖，或谓之社), "and further believed that the character "Zu (祖)" in "Tianzu" (田祖) originally written as "qie (且)" in ancient scripts, resembling a male genitalia in oracle bone, was based on the need for agriculture, giving rise to the worship of rock shrine. "The 'sacrifice to the Earth God (祭社土)' is essentially a homage to the reproductive capacity of the land."[30] "'Shrine' in the pre-Qin period was a complex entity encompassing a vast array of worship practices, which could be dynamically categorized into primary and secondary forms, with its most fundamental essence being a fusion of land worship and reproductive worship."[31] Worship of rock shrines emphasizes the worship of the land's reproductive abilities, i.e., the worship of material reproduction, while ancestor worship underscores the adoration of human reproductive capabilities and the affirmation and distinction of lineage, representing the worship of human reproduction. Both were paramount events for prehistoric ancestors and shared a similar nature. In sacrifices, the connotations of agricultural abundance and population growth were juxtaposed, a manifestation of prehistoric ancestors' "homoeopathic magic (顺势巫术)" mindset. For example, according to records and research in pre-Qin literature, "when the swallows arrive, a grand sacrifice is offered to Gao Mei with cows, sheep, and pigs (元乌至之日,以太牢祠于高禖)."[32] Marital unions between men and women necessitated the observance of Gao Mei rites, and Gao Mei stones served as both shrine stones and motifs of the Gao Mei cult. In the first group of rock art, offerings of rice seedlings to ancestors/deities demonstrate the formation of narrative and scenic elements, signifying the establishment of systematic ritual practices and the emergence of rudimentary religious forms. However, during this period, the state had not fully separated from bloodline organizations, with familial-clan structures and political authority existing on the same plane. This is akin to Hou Wailu (侯外庐)'s concept of an Asiatic state (亚细亚式国家), where the state is intertwined with the family, known as the "altar of land and grain (symbolizing the state)."[33]

Exploring the function of "cupules" from the customs of "rock shrine", "blood sacrifice" and "libation"

Cupules, also known as "stone caves" in China, refer to rock art carved into hemispherical shapes, mostly found on horizontal rock surfaces and occasionally on vertical or inclined rock surfaces. In terms of size, cupules typically have a diameter ranging from 2cm to 10cm and a depth of 0.5cm to 2cm.[34] Occasionally, there are larger cupules rock art, with profiles roughly shaped like hemispheres or pot bottoms. The spatial distribution of cupules rock art is global, with discoveries on all continents except Antarctica, and in vast numbers.[35] Cupules are generally believed to have emerged during the Pleistocene and Holocene periods. Records of cupules in archaeological and ethnographic data are not common, yet cupules are universally prevalent worldwide, with a long historical tradition that has persisted in some regions to this day. They are also the most numerous types of rock engravings currently existing in the world.

Based on the above discussion, the function of the large rock in the fourth group of the Jiangjunya Rock Art is essentially determined as a rock shrine for agricultural sacrifices. As for the function of the 19 cupules in the large rock, according to the literature records of the

[30] Wang Zhenzhong: *The Origin of Ancient Chinese States and the Formation of Kingship* (《中国古代国家的起源与王权的形成》), Beijing: China Social Sciences Press, 2013, p.204.

[31] Wang Zhenzhong: *The Origin of Ancient Chinese States and the Formation of Kingship* (《中国古代国家的起源与王权的形成》), Beijing: China Social Sciences Press, 2013, p.203.

[32] *Book of Rites* (《礼记·月令》): translated and annotated by Hu Pingsheng (胡平生) and Zhang Meng (张萌), Beijing: Zhonghua Book Company, 2017.

[33] Chao Tianyi, "Re-examining the Relationship Between the Origin of the State and Bloodline and Geographical Factors" (《重新认识国家起源与血缘、地缘因素的关系》), *Journal of Historical Theory Research* (《史学理论研究》), 2014, Issue 2.

[34] Bednarik, R.G, "A short ethnography of cupules", In: Querejazu Lewis, R., Bednarik, R.G. (Eds), *Mysterious Cup Marks: Proceedings of the First International Cupule Conference*. BAR International Series 2073, Archaeopress, Oxford, 2010. pp. 109–114.

[35] Bednarik, R.G. "Cupules". *Rock Art Research* 2008, 25(1), pp. 61–100.

[36] Source: *Xinhua Dictionary's official website*: http://xh.5156edu.com/

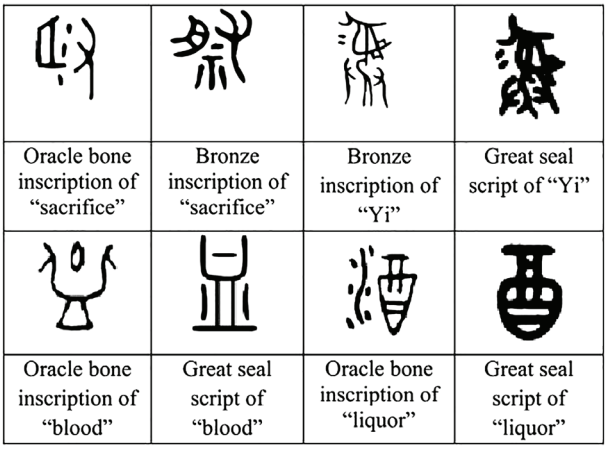

***Figura 9**. The hieroglyphs of "sacrifice", "Yi" (ritual vessel), "blood", and "liquor"*[36]

Xia, Shang, and Zhou dynasties, it can be inferred that they served as vessels for blood or liquor sacrifices. Oracle bone inscriptions are pictographic characters. By examining the "dots" in the characters "Sacrifice" (祭) and "Yi" (a general term for ritual vessels, particularly drinking vessels) (彝), it can be concluded that sacrifices are related to liquids, and the liquids commonly used for sacrifices are "blood" and "liquor," offered to deities with reverence (Fig. 9). "Sacrifice" is defined as "conveying human affairs to the deities (言人事至于神也)" (Shangshu《尚书·大传》). Using "blood" or "liquor" as a medium to honor the deities achieves the purpose of connecting humans with the divine. From the shapes of the oracle bone and bronze inscriptions of "blood" and "liquor", they resemble cupules, not directly depicting the substance of blood or liquor but rather depicting the shape in which they are contained. Therefore, from a pictographic perspective, it is plausible that cupules were used to hold blood or liquor for sacrificial purposes.

According to historical records, Shang Tang (㚔), the first king of the Shang Dynasty, personally "fasted, cut his hair and nails, and offered himself as a sacrifice to pray for rain at the shrine (斋戒断发断爪，以己为牲，祷于桑林之社)." This shows that the ruler of the Shang Dynasty cut his nails and offered himself as sacrifices to pray for rain and abundant harvests at the shrine. The Rites of Zhou (《周礼·春官·大宗伯》) states, "Blood sacrifices are offered to the gods of the land and grain (以血祭祭社稷)." Qing Dynasty scholar Jin E (金鄂) explained in Records of Antiquity (《求古录》): "Blood sacrifice involves dripping blood onto the ground, similar to pouring fragrant liquor as an offering (血祭，盖以滴血于地，如郁其鬯之灌地也)." This is also mentioned in Gongyang Zhuan(《公羊传·禧公十九年》), which records that the Zhulou people captured Duzi and used him as a sacrifice at the shrine. The method involved piercing his nose to let blood flow onto the shrine(侏娄人执都子，用之。恶乎用之？用之社也。其用之社奈何?盖叩其鼻以血社也). In Guanzi (《管子·揆度》), it is written, "The law of weights and measures states... Those who claim to be able to cultivate the land but fail to do so shall be killed and their blood used to consecrate the shrine (轻重之法曰，……自言能治田，不能治田者，杀其身以衅其社." The phrase "liquor as a means of ritual" signifies the prevalent use of liquor in ancient sacrificial ceremonies. According to inscriptions on oracle bones from the Yin Ruins, liquor served two primary purposes in these rituals: to be enjoyed by ancestors and deities, and possibly to be consumed by shamans to help them achieve a spiritual state of communion with the divine. The crystallization of customs and etiquette is a lengthy process, and records in pre-Qin literature regarding blood sacrifices and libations suggest that the practice of offering blood or liquor may have originated in even earlier historical eras. Moreover, archaeological discoveries related to shrines often reveal human and animal sacrifices, particularly in the Dongyi region where Jiangjunya Rock Art is located, where the custom of human sacrifice was prevalent. In China's southeastern coastal regions, the brewing industry had already taken shape during the Dawenkou Culture period (大汶口文化时期), and numerous pottery vessels unearthed from this era were used for storing liquor. Therefore, interpreting these practices as blood sacrifices or libations aligns with the cultural context. The large rock in the fourth group of Jiangjunya Rock Art represents a relic of "rock" shrine, with cupules serving as vessels for blood and liquor offerings. To this day, the regions of northern Jiangsu and southern Shandong still observe folk sacrificial customs such as "Rock Godfather (石干爸)" and "Rock Godmother (石干妈)," whose cultural significance resonates with the worship of rock shrine, potentially a tradition passed down from ancient times. From legends and records in pre-Qin literature about the Dongyi ethnic group, we can discern traces of the custom of "erecting rocks as shrines" and the practice of offering blood or liquor sacrifices, which were prevalent at that time.

"The symbolic meanings and worship of Mother Earth, human reproduction, agricultural production, and the sacredness of women, among others, can only develop and form a complex religious system in an agricultural society. Similarly, it is evident that in a pre-agricultural society dedicated to hunting, humans are unlikely to perceive the sacredness of Mother Earth with the same manner and fervor as those in an agricultural society. Thus, the variety in religious experiences stems from the different economic, cultural, and social organizations in which people find themselves."[37] Through a comparative analysis of the rock shrine in the fourth group at Jiangjunya and related regions (such as Xuzhou, Zhengzhou, etc.), as well as a cultural analysis of the contemporary culture in Lianyungang, this article basically confirms that the "one large and three small" rocks are prehistoric "rock shrine" sacrificial relics, symbolizing reproductive worship and ancestor worship, and were places where people prayed for abundant harvests of people and crops.

Marcel Granet (葛兰言) believes: "Land worship, with the Earth God and God of Grain as its objects of worship, fosters a public bond among people within the hierarchical order of feudal society. It maintains public relations among families and between groups within the feudal class system... The construction of altars symbolizes the territorial boundaries of various local groups."[38] Based on the author's investigation of the rock engravings in Lianyungang, comprehensively considering factors such as volume, etched motifs, and the quantity and richness of images, the shrine sacrificial site at Jiangjunya is the highest-ranking extant in the region, likely serving as the sacred site for the entire clan or tribal chiefdom at that time. Building upon the research of rock shrines, and drawing from information such as oracle bone inscriptions, pre-Qin documents, surrounding human sacrifices, and abundant remains of the brewing industry, it is inferred that the "cupules" on the rock shrines were used to hold blood or liquor during shrine sacrifice ceremonies, and possessed a profound symbolic significance.

Furthermore, the location of Jiangjunya Rock Art, "below the high mountains and above the smaller hills," also embodies the connotation of traditional sacrifice and agricultural culture. In China, records of sacrificial sites are often associated with round or square mounds, as evidenced in Rites of Zhou(《周礼》) and Book of Rites(《礼记》), which state that "in the winter solstice, the round mound on the ground is used for sacrifice (冬日至，于地上之圜丘)," "sacrifices to Heaven may be offered on a round mound, a square mound, or in the southern suburbs

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[37] (Romania) Mircea Eliade, *The Sacred and the Profane* (《神圣与世俗》), translated by Wang Jianguang (王建光), Beijing: Huaxia Publishing House, 2002, p.7.

[38] Marcel *Granet Religion of the Chinese People*. New York, Harpercollins College Div,1977.

(祭天或于圜丘，或于方丘，或与南郊)," and "Di (禘) is a sacrifice to the vast sky on a round mound (禘为祭昊天于圆丘)." In primitive society where architecture was not yet developed, such round or square stone or earth mounds became the chosen sites for worship. Jiangjunya Rock Art occupies such a location, situated below towering mountains and above smaller hills. Surrounded by mountains on three sides and facing a plain, the stone mound formed amidst the embracing mountains serves as a natural altar.

IV. Conclusion

The "rice seedlings and masks" images in Group 1 of the Jiangjunya Rock Art depict the offering of rice as a sacrifice to ancestral deities (represented by the masks). The cupules in Group 2 reflect stellar rock engravings, while the "large rock" in Group 4 represents the ritual of sacrifice in the "Rock Shrine". The cupules on the "large rock" may have been used for blood sacrifices or libation rituals. Mount Jinping, where the Jiangjunya Rock Art is located, is a coastal area with streams and terraces that have been inhabited by ancient humans for over ten thousand years. The area also contains the Jiangjunya Site, as well as the Taohuajian (桃花涧旧石器遗址), Jiudian (酒店旧石器遗址), and Erjian Sites (二涧旧石器遗址). Around 10,000 years ago, as the climate warmed, and as global plains underwent a cultural transition from the Paleolithic to the Neolithic era—shifting from a hunter-gatherer lifestyle to agricultural civilization—this region saw the dawn of agriculture and entered the Neolithic period. People began to settle and domesticate wild plants and animals, with the development of rice agriculture playing a particularly crucial role in the evolution of social, economic, and cultural practices. This development supported the construction of city-states, the formation of social hierarchies, and the growth of ritual ceremonies. The Jiangjunya Rock Art is created against the background of farming culture and is closely related to the worship of celestial bodies and agricultural sacrifices in agricultural culture. It is an important site for rituals and sacrifices in ancient times.

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