

REVIEW ARTICLE

A STUDY OF THE TYPES OF RESIDENTIAL ARCHITECTURE IMAGES IN CHINESE ROCK PAINTINGS AND THEIR EVOLUTION

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ABSTRACT

Rock art in northern and southern China are rich in matrices, and architectural motifs are numerous and rich in type in Chinese rock art. This paper combs through the architectural imagery on Chinese rock art, classifying and organizing the existing iconographic material from Chinese rock art, distinguishing, and categorizing the different architectural styles within them. To explore the differences in the way people lived in different regions of China in ancient times, it examines in detail the characteristics and causes of the architecture in the rock art images of residential buildings in China, as well as their evolutionary patterns. It reflects the original creativity and aesthetic orientation of the ancient ancestors, and better reflects the differences in the lifestyles and environmental characteristics of the ancient ancestors and the reasons for these differences, providing a partial reference for the study of traditional architecture and habitat.

KEYWORDS:

Chinese Rock Art, Dwelling Types, Iconography, Architectural Features

1. INTRODUCTION

This paper is focused on the main image research materials from works "Chinese Rock Art Patterns", "Chinese Rock Art" edited by Gai Shanlin (盖山林), "History of Rock Art Discovery in China" edited by Chen Zhaofu (陈兆复), and "The Complete Collection of Chinese Rock Art" (in five volumes), edited by the Editorial Committee of the Complete Collection of Chinese Rock Paintings, and selects images of residential buildings that have been well preserved and have relatively clear images to date as the object of study, and finally collects and collates 88 images. The

final collection consists of 88 images of 106 residential buildings. These include cave dwellings, nest dwellings, raised-floor buildings, huts, tents, horizontal tents, and long houses (Figure 1); they are found in a wide range of regions, including Yunnan, Inner Mongolia, Xinjiang, Tibet, Ningxia, Jiangsu, Guizhou, and Guangdong (Figure 2). The building types

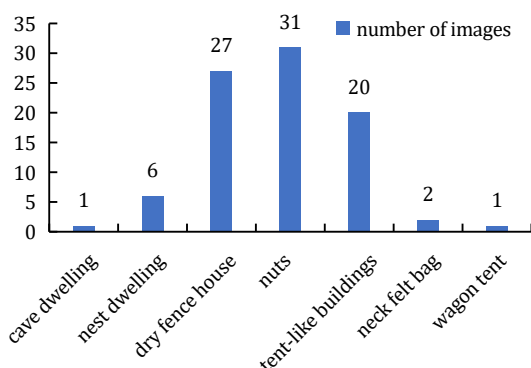


Figure 1: Statistical map of the types and numbers of architectural rock art



Figure 2: Map of the distribution of architectural rock art in China

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in the rock paintings in the south are mainly nesting houses and dry fence house on the ground floor, while those in the north are mainly tents and long houses, and the building styles are very much related to the local natural environment. This type of subject matter spans a wide range of periods, and it has been shown that these architectural images

were depicted from the Neolithic to the late Qing dynasties, and that they were painted mainly during the period from the Northern and Southern Dynasties to the Sui and Tang dynasties. The collected images are in the form of actual photographs and photocopied copies.

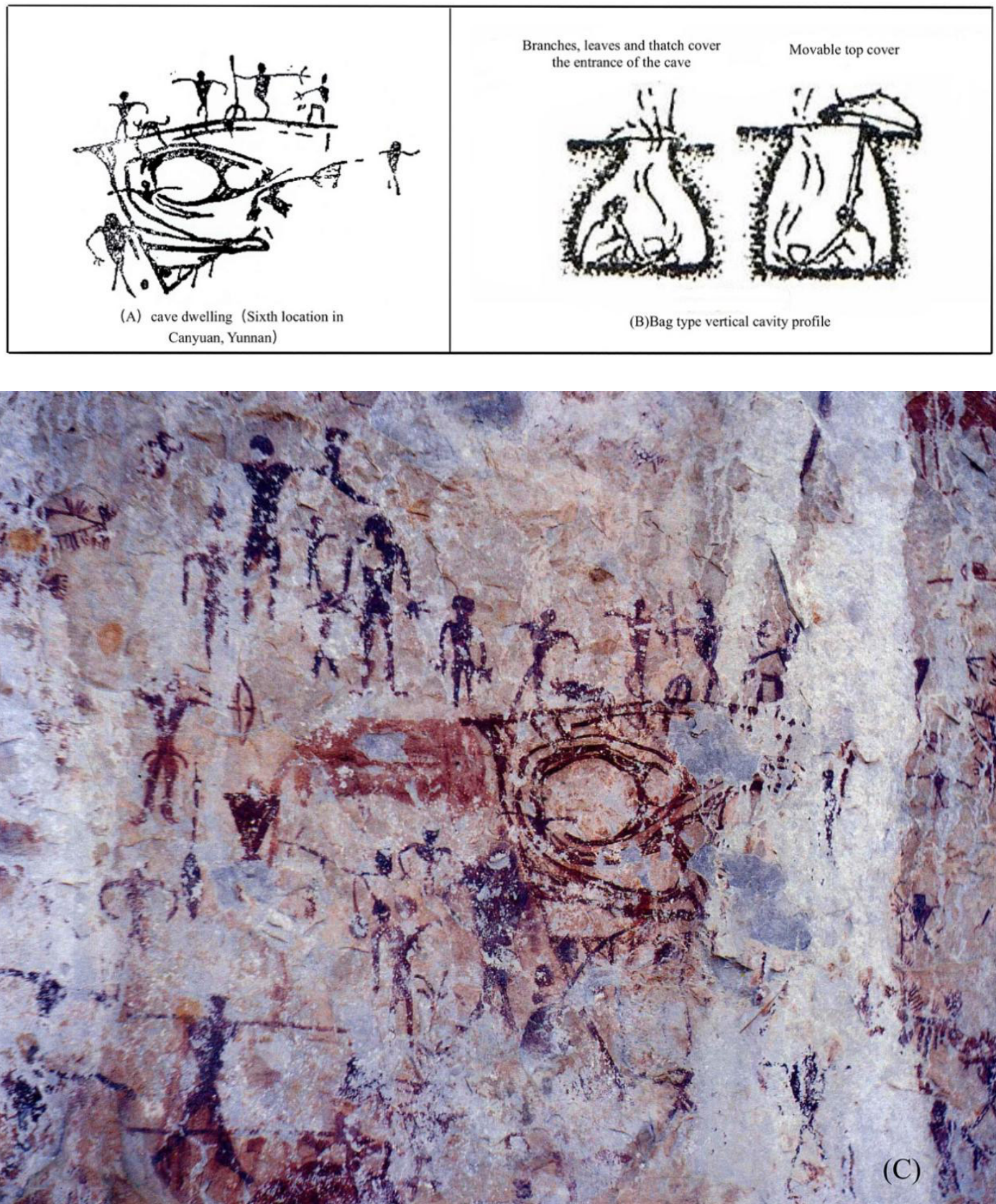


Figure 3: (A) Rock drawing of a cave dwelling (copy); (B) schematic section of a pocket-shaped vertical cave; (C) Rock painting of a cave dwelling in real life (Xiangdianmu Murals, Site 6, Cangyuan, Yunnan)

2. TYPES AND CHARACTERISTICS OF ARCHITECTURAL IMAGES IN CHINESE ROCK ART

2.1 “Cave Dwelling” Image in Chinese Rock Art

It has been proven that cave sites with human habitation have been found in Beijing, Liaoning, Guizhou, Guangdong, Hubei, Jiangxi, and Zhejiang, and that most Paleolithic humans chose caves as a place to live, regardless of the north or south (Pan, 2009). A cave dwelling image was found at Rangdianmu (壤典姆) (Site 6), Cangyuan, Yunnan (Figure 3 (A)), which shows a cave entrance, presumably the entrance to a cave; the entrance is circular, with spiral lines and short lines drawn around it, indicating that there are some fine rocks at the entrance, which appear to have been built up artificially, layer by layer, and a man on the left side of the cave, with his arms flat outstretched, as if about to emerge from the cave. It seems that he is about to come out of the cave. Outside the cave, dozens of people can be identified, including two people holding animals that have just been successfully caught, adults with children, two-handed weapons, and a man holding a spear in one hand and a bull's horn in the shape of a battle, all with different dynamics, vividly depicting the prosperity of human life in groups in ancient times.

The rock art depiction suggests that the architectural form of this cave dwelling would have been a vertical cave. Such vertical caves are generally pocket-shaped, narrow at the top and wide at the bottom, with a round or less regular oval opening, topped by a movable roof of branches and thatch tied into a conical shape (Figure 3 (B)), and a small, simple space inside the cave. Early midden processes were mostly round caves, presumably because, firstly, the circle was a more convenient form of excavation due to the limitations of the camping apparatus, and secondly, the circular plan was easier for the construction of the conical roof at the top. The development of cave dwellings is divided into horizontal and vertical developments, with the horizontal development being primitive horizontal caves and horizontal cave kilns, and the vertical development being pocket-shaped vertical caves and semi-subterranean

vertical caves. This rock painting depicts the early stages of the vertical development of cave dwellings, which were the predominant form of construction in the first and middle Neolithic period and one of the most widely used forms (Li, 2020).

There are few records of cave dwellings in Chinese rock art, and there are no other rock art depicting cave dwellings. It may be noted that cave dwellings existed not only in the north of China, but also in the Cangyuan generation in Yunnan, and that *the Rites of Passage* (《礼记》): “In winter they lived in caves, in summer they lived in nests (冬则居营窟, 夏则居增巢)” suggests that cave dwellings and nests were not classified solely based on geographical circumstances.

2.2 “Nest Dwelling” Images in Chinese Rock Art

The nest dwelling is a primitive building built on trees by ancient ancestors using existing natural materials, so it is also called “tree house”. The ancient nest dwellings in China appeared around the Paleolithic period, and none of them have survived because the construction materials of nest dwellings were all wooden structures. *Han Feizi* (韩非子)—*Five Wormwood* (《韩非子·五蠹》): “In the ancient times..... constructed wood for nesting to avoid group harm. (上古之世.....构木为巢, 以避群害。)” Cangyuan area is hot and humid, there are many beasts and reptiles, and the number of humans in ancient times was outnumbered. For safety reasons, the construction form of nesting can produce a certain safe distance from the ground vertically to resist the attack of beasts and insects and snakes, while the number of trees in the Cangyuan area is large and tall, which is also a construction form formed by taking advantage of nature's natural advantages. Later nest residence has more functions, after *The garden rule - Xiangdi* (明·计成《园治·相地》) said: “the foot to conquer the city hidden, is better than the nest residence, can seek seclusion for the haunted place, Hu She near the party figure far; get free that attainment, with the pleasure of travel.” (足征市隐, 犹胜巢居, 能为闹处寻幽, 胡舍近方图远; 得闲即诣, 随兴携游。) It means that this type of building like tree house has become a form of residence for ancient or modern human beings to escape from the hustle and bustle

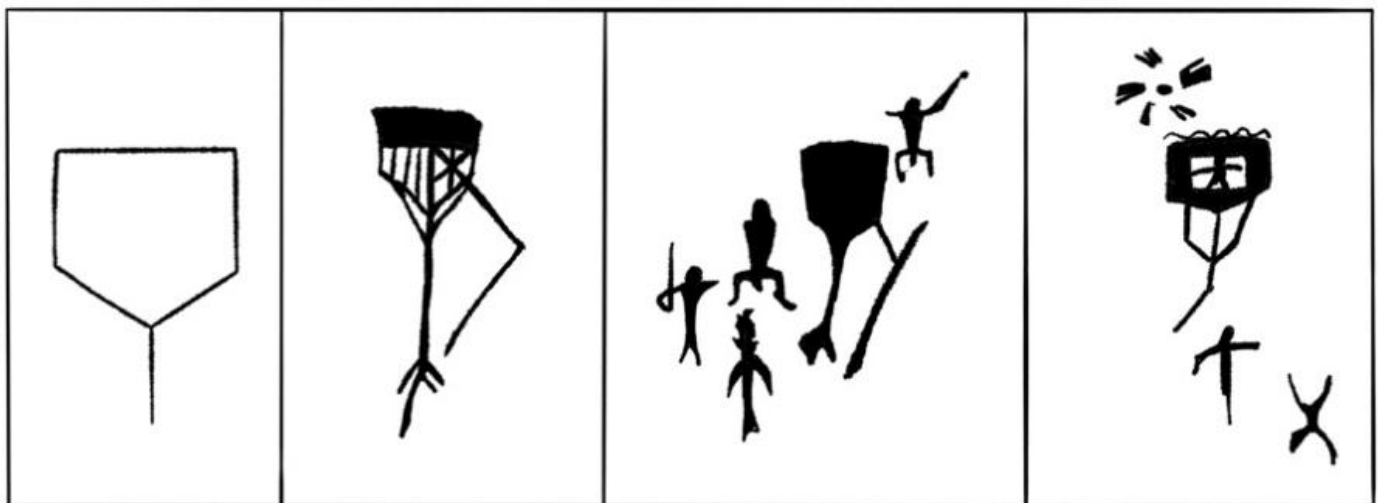


Figure 4: A nesting figure in a rock painting (Cangyuan, Yunnan)

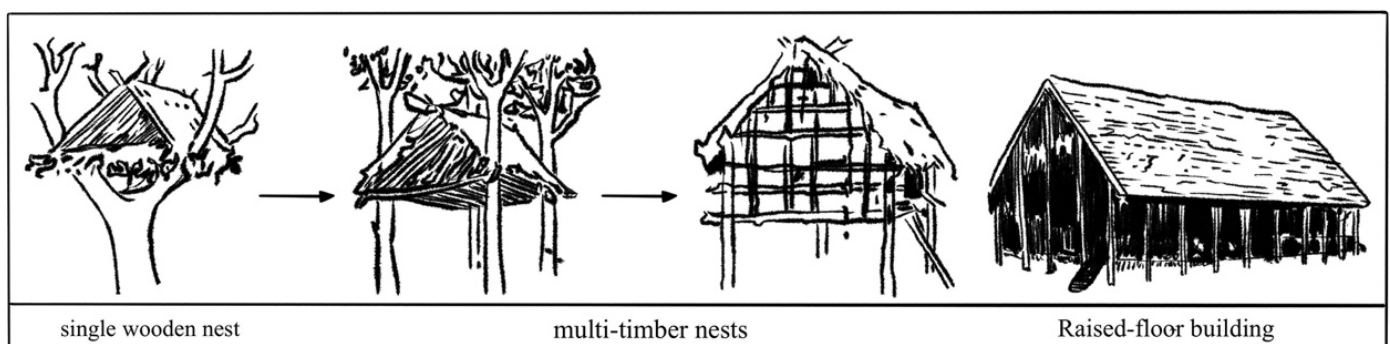


Figure 5: Nest House Development Sequence Chart

and pursue nature.

There are three rock art paintings of nesting in the Cangyuan area of Yunnan Province, and all of them are of a single wooden nest framed by a tree (Figure 4). The pentagon represents the house covered by the tree, and the straight line represents the trunk of the tree, which is concise but vivid. On this basis, the rock painting depicts a tree house structure with lines, a highly generalized one with all black paint, and a decorative pattern of wave patterns on the roof, the exact meaning of which is unknown, with a person inside the window as if looking out.

This is the most primitive form of nesting, after which there are multi-timber nests, i.e., nests framed by several adjacent trees (Figure 5), which are more stable and have an expanded living area.

2.3 "Raised-Floor Building (Galan)" Images in Chinese Rock Art

Raised-floor building is a more perfect architectural form gradually formed based on the nesting house, indicating that the ancient people not only rely on the existing tools of the natural session, but consciously began to make tools to build houses. Architectural terminology on the raised-floor building is explained as: Raised-floor building, an architectural form of elevated wooden building. The bottom floor is elevated to raise livestock, and the upper floor is occupied by people, with the characteristics of moisture and good ventilation, suitable for hot and humid areas. It is also called high column, pavilion column, hemp column. Ancient books also have a lot of records of raised-floor building, "The book of Man" Volume 4 (《蛮书》卷四) said: "take the wooden skin to cover the shape. (裸形蛮.....惟取木皮以蔽形。)" "The Southwest Barbarians' Book of Customs and Lands (《西南夷风土记》) said: "The dwellings are bamboo buildings on the upper floors, people on the upper floors, livestock

living below. (所居皆竹楼上, 人处楼上, 畜产居下。)" The book of Wei - Liao zhuan (《魏书·僚传》) said: "according to the trees to accumulate wood to live on it, the name is called dry fence. (依树积木以居其上, 名曰干栏。)" Xi Man Cong Xiao (宋《溪蛮丛笑》) said: "to huge wood row than..... name is called raised-floor. (以巨木排比.....名曰干栏。)" Qing Yi Tong Zhi (《清一统志》) said, "all like to set up the building, the name said raised-floor. (俱喜架楼, 名之曰干栏。)"

All the rock paintings in China with raised-floor buildings are found in the southern region. Twenty-one such images were found in Cangyuan, Yunnan. One place was found in Mamayan (马马岩), Guanling County (关岭县), Guizhou Province. There are two places in Liuzhizhou Mountain (刘志洲山), Lianyungang, Jiangsu Province. And one place in Gaolan Island (高栏岛), Zhuhai, Guangdong Province. This rock art is abstract and exaggerated, but it can be vaguely distinguished that there are scenes depicting dry-column houses.

The roofs of the raised-floor building depicted in the rock art at Cangyuan in Yunnan are divided into three main styles: oval, triangular, and inverted trapezoidal. A village is depicted at the Gunrang kai (滚壤开) rock art site at the second site in Cangyuan, Yunnan (Figure 6). In this assemblage, 16 raised-floor buildings are depicted (Figure 6 in red), which are clustered in the middle of the rock painting, arranged in a circle, with horizontal lines extending outwards at the ends of the village, representing the road leading out of the village. It is clear from the image that the village is reasonably well laid out, well-built and inhabited by many people. The raised-floor buildings are all depicted very simply, either as line drawings or entirely in color, with the roofs of seven of the houses on the left being unpainted but outlined in line segments, while the roofs of the nine houses on the right are all painted red and outlined. One of the two houses is painted in the middle of the village, and the area painted is



Figure 6: View of a village consisting of raised-floor building (Gunxiangkai Murals, site 2, Cangyuan, Yunnan, copy)

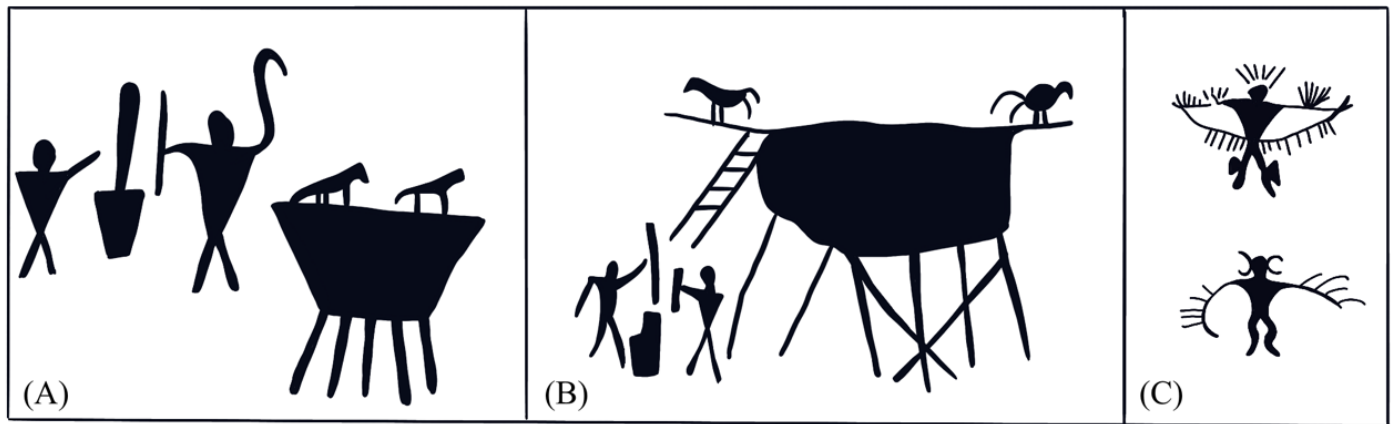


Figure 7: (A) & (B) Rock painting of a raised-floor building (Cangyuan, Yunnan Province); (C) rock painting of an image of a feathered man (Cangyuan, Yunnan Province)

larger than the surrounding houses, with a figure holding a shovel-like implement next to the house. This use of both solid painting and outlining to distinguish the different nature of things is also common in other locations in the Cangyuan rock art: some indicate different genders, others different identities, and in this rock art may indicate two different types of occupants, such as clans or families, within the same village territory. In addition, outside the village, there is a dry-roofed house with an unpainted roof, which resembles some of the present-day field huts or barns built outside the village (it is still customary for the local Wa (佤族) to build their barns outside the village). The rock art images show that these buildings are of a full raised-floor construction, with the main structure raised off the ground and made of wood. The advantage of this type of construction was that it allowed the inhabitants of the house to leave the damp ground and to have a breathable and dry environment. The pillars downstairs are the main load-bearing structure of the building, carrying the weight of the whole house above, so the load-bearing capacity of the pillars is an important factor in the choice of trees to carry the weight of the house above (Zhong, 2016). This type of raised-floor construction is one of the earlier raised-floor constructions and later, in a more mature stage, semi-raised-floor constructions and flat-rail constructions emerged.

In addition, there are two detailed raised-floor building in Cangyuan, Yunnan Province (Figure 7), which exist independently of each other. The roofs of these two raised-floor buildings are decorated with double birds, which is probably a manifestation of totem worship, i.e., bird

worship. Most of the portrait rock paintings in Cangyuan, Yunnan, depict feathered figures with their heads or arms decorated with dense feathers and their arms in the shape of outstretched bird wings, and there are many such images forming a system. *Shan Hai Jing – Hai Wai Nan Jing* (《山海经·海外南经》) said: “The Republic of Feathers is in its southeast. It is a human long head, body born feathers..... its long cheeks. (羽民国在其东南。其为人长头，身生羽.....其为人长颊。)” The above is the description of the Shanhaijing for the feathered people and the feathered people’s country, and can also confirm the existence of the feathered body in the Cangyuan area of Yunnan, this raised-floor building with double bird decoration may be its tribal houses, but also a symbol of bird worship, but also reflects that the architecture of the time to meet the residential function at the same time, but also began to focus on the decorative nature of the building.

Guizhou Mamayan (马马岩) also has two petroglyph images of raised-floor buildings, both of which are in the shape of a square trapezoidal bucket. Before writing was created, ancient ancestors often used simple images to record their lives, and petroglyphs were one of the main ways they recorded at that time. Looking at some of the images of rock art now compared with ancient writing, some similarities can be identified. There are similarities between the painting method of the two rock paintings of raised-floor building in Mamayan and the writing method of ancient scripts. Figure 8 shows the comparison between the rock painting of the house in Mamayan and the word “Nan” (“南”字) in Jin (金文) and Oracle. From the evolution of the script, the writing style is very

Oracle				
Jinwen				
Rock paintings of dry-pen houses in Mamayan				

Figure 8: Comparison of the rock painting of a raised-floor building (Mamayan, Guizhou) with the oracle bone and Jin inscriptions for the word “Nan”

similar to that of a raised-floor building, with a grass cover on top and a wooden frame structure underneath. The houses of the Buyi people (布依族) living in this nearby generation are still raised-floor building (Wang, 1990). There is also a theory that the two images of raised-floor building refer to granaries. The granaries in rural areas of Guizhou are only a few feet high at the bottom, which is very similar to the structure of these two rock art images. From the structural point of view, the low height of the two images of raised-floor building belongs to the low

raised-floor architectural system. Due to the hot and humid environment with many mosquitoes, the raised-floor building in China were mainly distributed in the south, which also mentions the evidence of the prevalence of raised-floor building in the south of China from the other side.

The two rock paintings of raised-floor building in Mamayan have certain similarities with the writing style of ancient characters. Figure 8 shows a comparison between the rock painting of the house in Mamayan

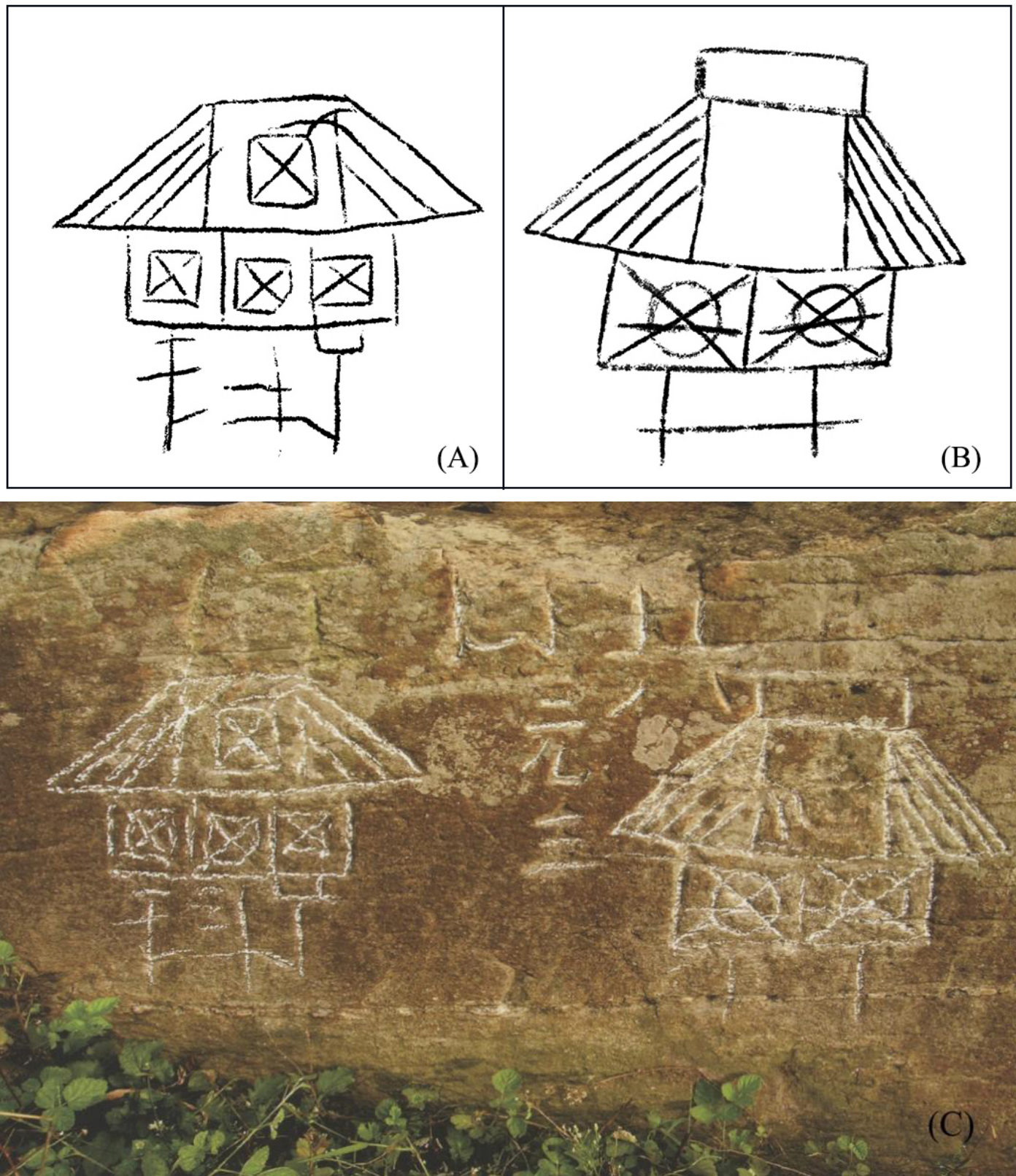


Figure 9: (A) & (b) Rock painting of raised-floor buildings (copy); (C) Rock painting of raised-floor buildings in real life (Liuzizhou Mountain, Lianyungang)

and the character “Nan” in Jin and oracle bone inscriptions. From the evolution of the script, the writing style is very similar to that of a raised-floor building, with a grass cover on top and a wooden frame structure underneath.

There are two rock paintings of raised-floor buildings on Liuzizhou Mountain (刘志洲山) in Lianyungang, Jiangsu, on the west rock south of Miss Cave, carved in the late Western Han Dynasty. The two parallel

raised-floor buildings (Figure 9) are shown with symmetrical crossed symbols for the windows, and the columns, floor, and eaves, which are diffused in the water, are clearly visible, with birds, deer, pond fish, water waves and grasses dotting the landscape. The carving technique is shaded, and the lines are bold and strong, giving it an antique quality. However, in contrast to the previous raised-floor rock paintings, the depiction is more detailed and concrete, as it was carved later than the other raised-floor rock paintings, and the raised-floor buildings at this time are more

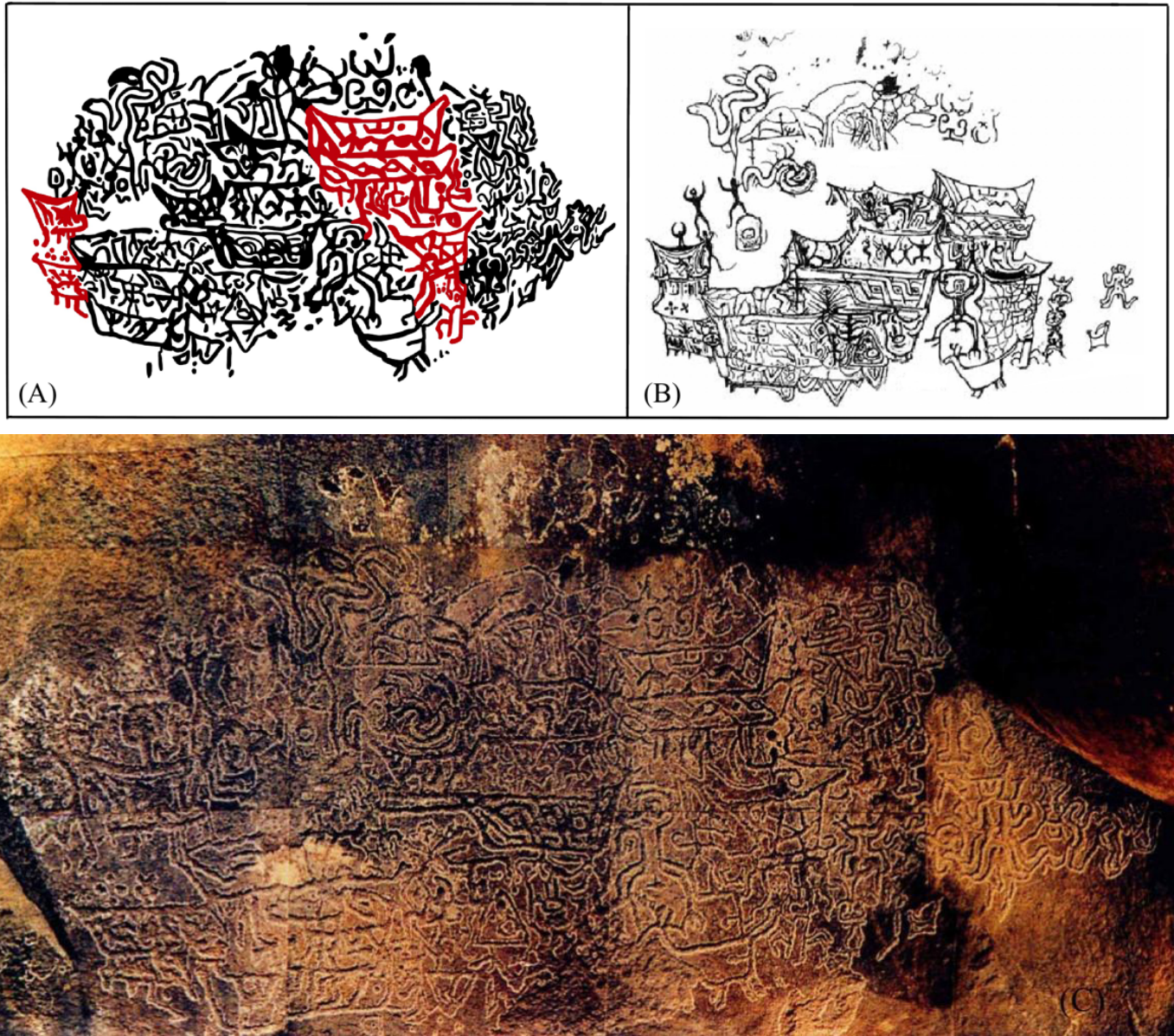


Figure 10: (A) Assembled rock painting on Gaolan Island, Zhuhai (the red part depicts a dry bar building); (B) facsimile of the original rock painting; (C) Combined petroglyphs in real life (Gaolan Island, Zhuhai)

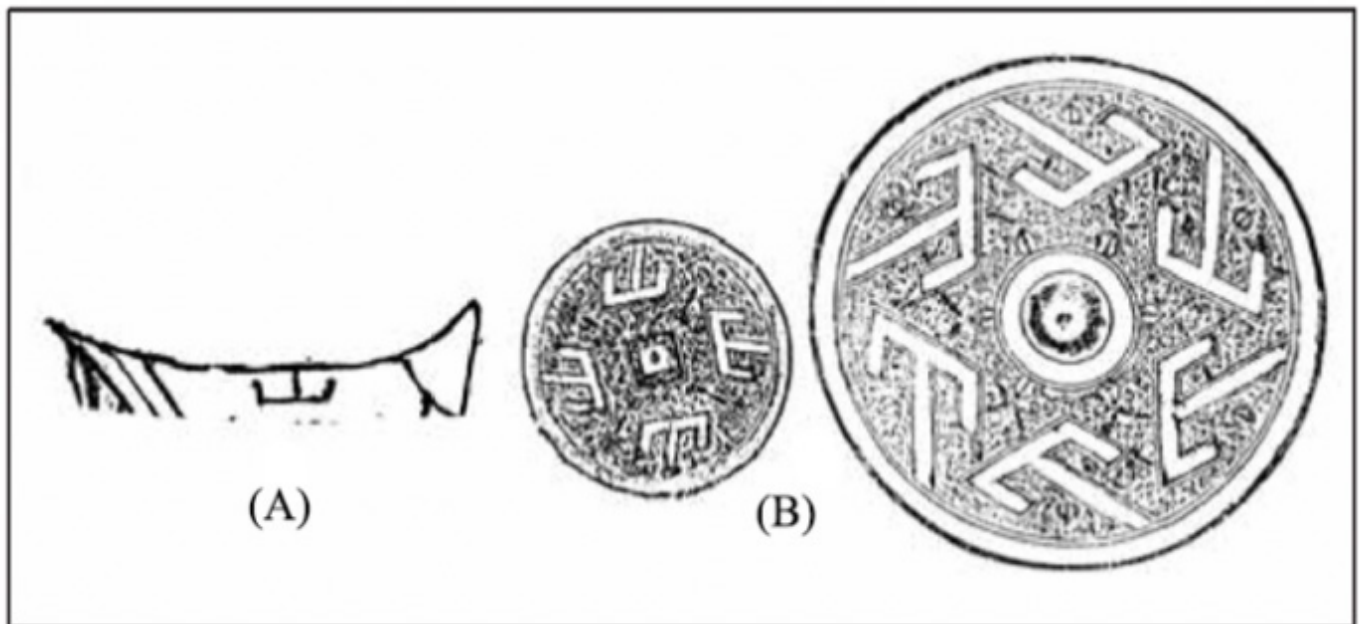


Figure 11: (A) The text “山” engraved on the roof; (B) the four “山” texts and the six “山” texts engraved on the bronze mirror excavated from the Tomb of the South King of Yue in the Western Han Dynasty, Guangzhou (compiled by the Guangzhou Municipal Cultural Management Committee and others)

similar in structure and appearance to modern raised-floor buildings.

Depictions of raised-floor buildings have also been found at the Baojingwan rock painting site (宝镜湾岩画点) on Gaolan Island (高栏岛), Zhuhai, Guangdong. In the 'Hidden Treasure Cave' site ("藏宝洞"画址), the main rock painting is 5 meters long and 2.9 meters high, and is a composite rock painting with a large, abstract design, depicting raised-floor building in the lower left and lower right parts of the picture respectively. In the lower left part of the scene there is a large boat with a man standing in the boat, dressed like a wizard, and a civet-like animal form in front of the prow of the boat. In the upper left of the boat there is a boat-shaped, raised-floor building with four distinct dots above it, possibly representing stars. The central right-hand part of the scene depicts the figures and the house structure, which is a raised-floor building with a double-roofed roof and a 'mountain' inscription ("山"字) in the center of the roof (Figure 11), the meaning of which is explained in the Feng Su Tong (《风俗通》): "The Youshan clan was the descendants of the ancient Lishan clan." It is therefore likely that the owner of this house was an official in charge of the mountains and forests, and possibly a descen-

dant of the Shan clan. In addition to the 'mountain' inscription placed in the middle of the roof, there are several decorative motifs painted around it, and the main wall is represented by a grid, with a flat seat under the body of the house and a tall figure dancing between the front of the house and the boat (Figure 10 (A)). The clouds and thunder patterns in the houses, whose compositional forms have been around since the Shang and Zhou periods in China, were commonly found on tiles and on woven patterns of silk during the Qin and Han periods in China.

The raised-floor building that appear in the rock paintings in the Cangyuan and Guizhou regions of Yunnan were built on mountainous or flat terrain, while those in the Lianyungang and Zhuhai regions were built in water, which is related to the geographical environment. Yunnan and Guizhou are mountainous regions in the south-west, while Lianyungang and Zhuhai are coastal regions in the south-east, and this is where the height of the raised-floor building comes into play, as they can be built on undulating mountainous terrain as well as on wading ground. However, the raised-floor buildings petroglyphs all appear in the south, indicating that the raised-floor building was one of the main types of dwellings in

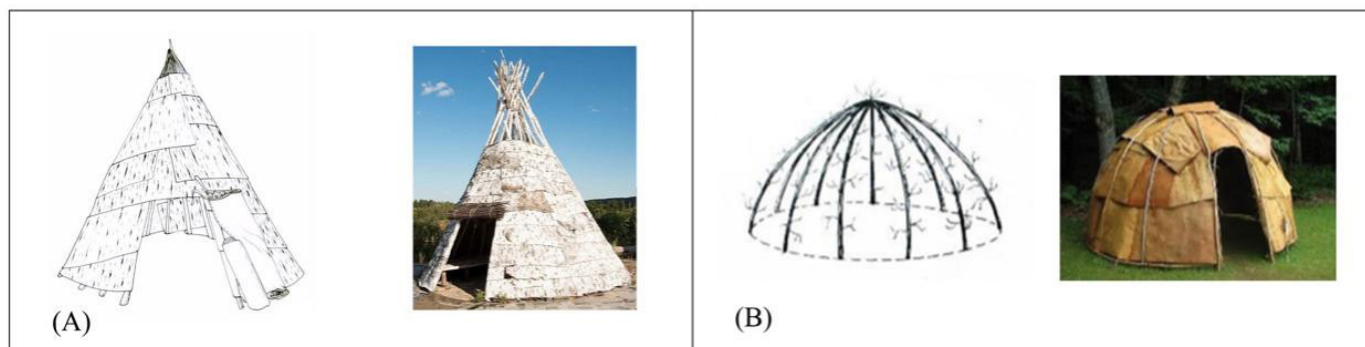


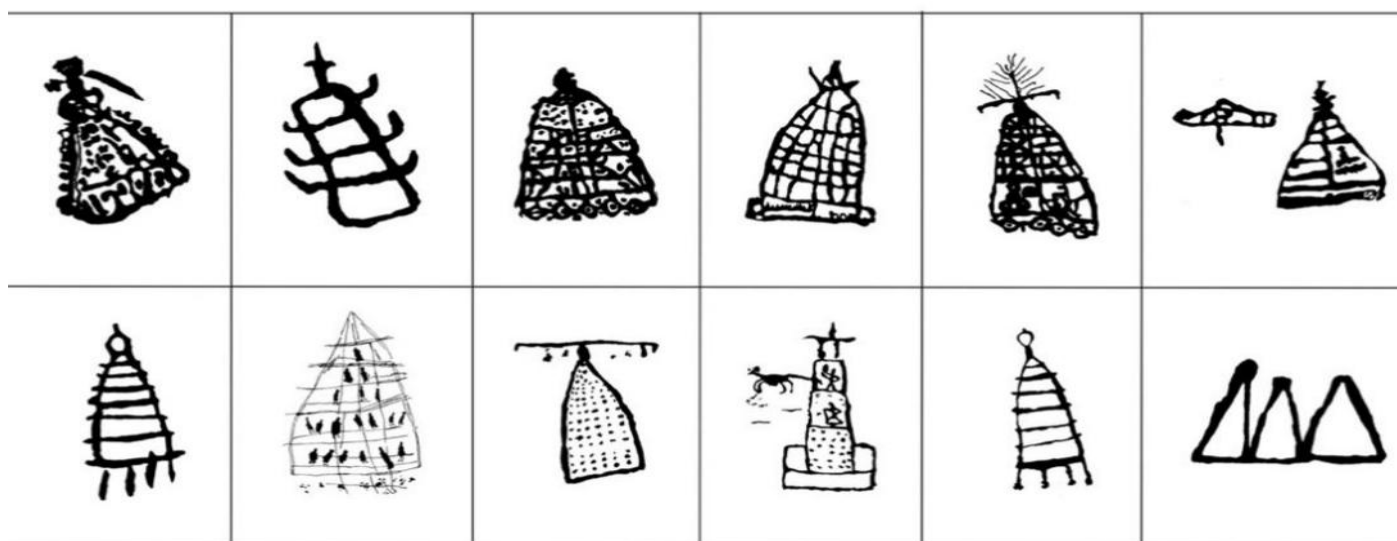
Figure 12: (A) Conical huts form drawing; (B) hemispherical huts form drawing

the south from ancient times, and that it was the product of the ancient ancestors' interaction with the objective natural environment and their subjective wisdom.

2.4 "Huts" Images in Chinese Rock Art

Early huts are divided into two types: conical huts and hemispherical huts (Figure 12). Cone-shaped huts have been prevalent among the hunting people and reindeer people living in the forest from ancient times to the present, and it is the earliest and most common form of hut-type

buildings (A, 2013). The petroglyphs found in our petroglyphs are all such conical shacks (Figure 12 (A)), and no petroglyph images of hemispherical shacks have been found, so we will not dwell too much on hemispherical shacks, which also indicates that the creators of these shack petroglyphs lived in the middle of hunting civilization, and these conical shacks belong to the earliest form of shack-like buildings. There are 17 petroglyphs depicting huts among the existing petroglyphs in China, including a tribal picture consisting of 18 huts, all of which are from the Mandera Mountain (曼德拉山) and Dajing Mountain (大井山) areas in Inner Mongolia.



曼德拉山帐篷岩画

Figure 13: Hut petroglyphs (Mandela Mountains, Inner Mongolia)

The rock art of shanties in the Mandera Mountains of Inner Mongolia (Figure 13) exist either singly or in rows of two or three, arranged in a zigzag pattern, and some are carved together with other subjects in a mixed manner. These petroglyphs are small, generally around 5 cm-20 cm, with dense images and exquisite and characteristic depictions. The overall shape of the shanty petroglyphs is triangular, and the top is elaborate, some resembling the top of a tower. All the shanties are built by wooden poles, and the horizontal poles used often reach thousands, and the vertical poles are of different sizes and shapes, and the overall structure of the shanties is very similar to the present-day slanting pillar, which is the traditional house of Oroqen people in the deep forests of the Daxingan Mountains (大兴安岭) (Liu, 2011). The wooden pole for building "Xieren pillars (斜仁柱)" is called "Xieren (斜仁)", and a "Xieren pillars" needs 30 or 40 wooden poles of more than 4 meters high, which are built into a conical frame. Covered with elk skin fence in winter (Figure 14), a "Xieren pillars" about three blocks, it is made of two dozen elk skin fan to play the role of warmth. In summer, it is covered with birch bark fence, and the birch bark is peeled off and steamed to make it soft, and then processed into a meter wide fence, which is durable. Oroqen people live in three or five families, or six or seven families together called "Wulileng (乌力楞)", and the "Xieren pillars" of these families are basically arranged in a single line.

There are detailed and vivid descriptions of shacks in China "with trees as branches and animal skins covering the shelter". Robert Lowe in his book "civilization and barbarism" chapter 9 said: "From the Arctic through Siberia to Latin America, many similar cone-shaped living spaces can be seen, supported by wooden frames and covered with bark or animal skins for insulation and rain protection." Thus, it can be seen both foreign and domestic, the handful of Xieren pillars such a building form in the nomadic people received great popularity, has been the most common form of construction of pastoralists at that time. This form of

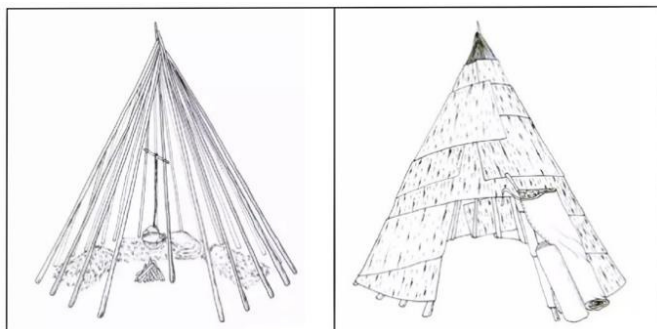


Figure 14: Interior view of the huts with its exterior covering



Figure 16: Diagram of the evolution of Mongolian huts to tent-like buildings



Figure 17: (A) Rock art of a neck felt tent (Yinshan, Inner Mongolia); (B) diagram of the internal and external structure of a neck felt bag; (C) early diagram of a "felt tent with a neck"; (D) "Baizi Tent" in the wall painting of the Northern Wei tomb (Shaling, Datong)

and skeleton differentiated from the independent ledge, has experienced the foot frame type, lattice structure type, and finally developed into a net type ledge. *Architectural terminology* (《建筑学名词》) on the tent-



Figure 15: The huts in the Mandela rock art A tribal diagram

housing is popular among nomadic groups throughout the world (Tong, 2011).

The picture of the tribe composed of huts is located on the high mountain of Mount Mandela (Figure 15), and there is a huge bull-sized stone block with 18 huts on it and a large tent in the middle. It is also very large in the picture, divided into five layers of curtains, each of which is inscribed with a person, indicating that they live in it, and the deepest curtain has only one person in it, who is supposed to be a chief. This tent has the same format as other small tents, and a person stands outside the tent, probably the owner of this tent. Because it is a large tent, the figure of the standing man is also huge, so that it fills up the empty space on the side and encompasses all the standing men near the small tent in his robe. Each standing man has his hands on his chest, holding an oval-shaped object that is small at the top and large at the bottom. From the analysis of the image, it is likely that a tribe is represented. The huts are of different sizes and the spatial distribution is clearly defined in terms of priorities. In the lower left corner of the picture, there is a group of horseback riders running like this tribe, and this perspective is extremely interesting, as if the picture is folded over, which must be an exaggerated technique.

2.5 "Tent-Like Buildings" Images in Chinese Rock Art

Tent-like buildings are gradually evolved from the form of the shed to a wide felt tent structure (Figure 16), the difference between the two is that the roof of the huts is spire, while the roof of the tent is a circular roof, due to technological progress, the inner wall evolved a ring-shaped wooden components, and gradually evolved into independent skylights

like building is explained as: felt room, also known as "yurt", "felt bag". It is one of the traditional Chinese dwelling types. It has a circular shape, with a diameter between 5m and 30m. Its structure is light and sim-

ple, easy to disassemble and relocate, and has the characteristics of cold and rainproof. It is the main architectural form of Mongolian dwelling in China. Ancient literature has a lot of records, *Umaru Xianbei Dong Yi biography* (《乌丸鲜卑东夷传》) said: "living in no permanent place, to the dome for the house. (居无常处, 以穹庐为宅。)" Yan Tie Lun (《盐铁论》) said: "Xiongnu dome-weaving willow for the room, felt mat for the cover. (匈奴穹庐—织柳为室, 毡席为盖。)" All the above records are the various forms derived from the tent.

Two types of tent forms, the felt hut and the car tent, appear in our rock art depictions. Two figurative petroglyphs depicting felt huts and several symbolic petroglyphs representing felt huts are found in our petroglyphs, and another special form of felt huts is also shown in petroglyphs - the car tent, and this type is found in the petroglyphs of Inner Mongolia and Xinjiang regions of China.

2.5.1 "Neck Felt Tent" Images in Chinese Rock Art

The neck felt tent is the earlier type of residence in the development sequence of the tent, and its architectural structure is a net type of ledge.

The Liang Shu - Henan Zhuan (《梁书·河南传》) said: "There were houses, mixed with the Baizi Tents (百子帐), and the vault opened to the sun. (有屋宇, 杂以百子帐, 穹庐向日开。)" A rock painting of a ger type felt tent in the shape of a neck type felt hut was found in the Yinshan (阴山) region of Inner Mongolia (Figure 17 (A)). The outline structure of this petroglyph is depicted rather like a necked felt tent, with a 'garlic-head' shape, the outer outline depicted in thick lines and the interior with a grid pattern drawn in thin lines, indicating a webbed ledge, with two outer leather strips and a high, narrow door shape for easy access. The remainder of the white space indicates the doors and windows, and the most distinctive feature of the 'necked felt tent' is its 'necked skylight', which is also represented in the petroglyphs. The present-day yurt has evolved from the neck felt tent.

2.5.2 "Wagon Tent" Images in Chinese Rock Art

Wagon tent is a tent with wheels. Its main function is to be used as a temporary shelter for tired herders on the way of migration. It has been popular on the Mongolian plateau from 4000 to the beginning of the 20th century, and the first recorded people who used it were the Scythians



Figure 18: Rock painting of a car tent on the Xilinguole grassland in Inner Mongolia

around 800 BC. Herodotus in the "History" is this description of the car tent: "The number of wheels of the car tent are 2, 4, 6 wheels, built with a wooden frame, the upper set of felt for the tent, mainly by the ox or horse to pull". In ancient times, there are also some records of wagon tents in China. *The Old Book of Tang - Xi Zhuan* (《旧唐书·奚传》) said: "customs with the Turkic,..... living with felt tent and use the car for the camp. (风俗同于突厥,居有毡帐, 兼用车为营。)" ; "Xiong Nu Zhuan" (《匈奴传》) said: "line is the car for the room, stop is felt for the hut. (行则车为

室, 止则毡为庐。)" All the above are records of the wagon tent, which can have both residential and travel functions.

Xilinguole grassland (锡林郭勒草原) wagon tent rock art (Figure 18), from the image, its biggest feature is symmetry, with symmetrical horses and symmetrical wheels; the second feature is symbolism, with almost the same depiction of horse forms, with the polka-dotted wheel and carriage represented by a central line, and the wagon tent represented by "

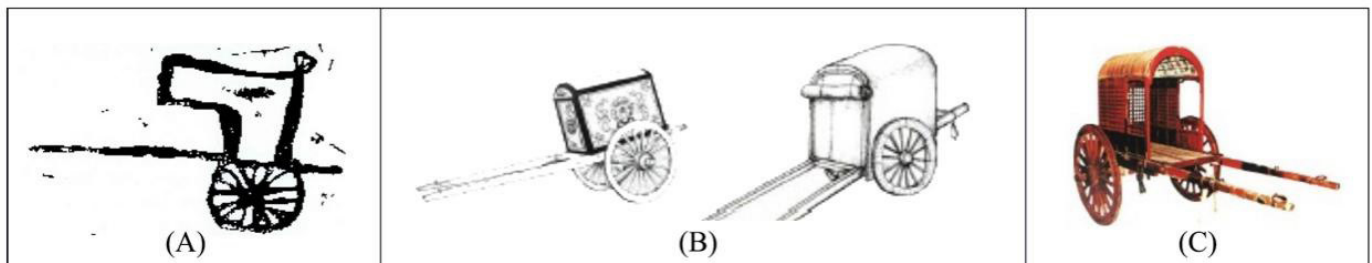


Figure 19: (A): Rock art of a boxcar (Yinshan, Inner Mongolia); (B): drawing of the structure of the "boxcar"; (C): a realistic view of the "boxcar"



Figure 20: (A): Rock painting of Gaolun Chelu in Helan Mountain, Ningxia; (B): A realistic view of Gaolun Chelu

Xilinguole grassland (锡林郭勒草原) wagon tent rock art (Figure 18), from the image, its biggest feature is symmetry, with symmetrical horses and symmetrical wheels; the second feature is symbolism, with almost the same depiction of horse forms, with the polka-dotted wheel and carriage represented by a central line, and the wagon tent represented by “⊕” or “⊙” simple symbols to represent; the third characteristic is the lack of perspective, drawing a horse on each side of the carriage with a back to each other, all for a flat display.

wooden board, and the tent is rectangular in shape with supports inside. In contrast (Figure 19 (B) (C)), the shape of this car tent petroglyph is that of a boxcar. When describing the caravans used by the Mongols in the 13th century, the European emissary Rubruch wrote: “The support of a rectangular tent is made of thin, flexible and unbreakable branches, with a rounded top, also supported by branches, and after the whole structure is made, a felt soaked with milk or butter is put on top of the entire wooden frame structure, both warm and rainproof.” This tent form had two main functions, as it was more elaborately decorated and could be used as a service car to carry VIPs, or to carry goods. The shape of this boxcar is very similar to today’s horse-drawn carriages.

There were many forms of tents to suit the various terrains and inclement weather, and the Gao Che tribe created a form of tent with huge wheels and a height higher than the main body of the tent, which they called ‘Gao Che (高车)’. *The Book of Wei - Gaoche Biography states* (《魏书·高车传》) that “the car was taller and had as many spokes as possible. (车较高大, 辐条至多。)” A rock art very similar to this depiction of a high cart (Figure 20 (A)) has been found in the Helan Mountains (贺兰山) of Ningxia, China, which takes the form of a side-shaded representation of a double-cockpit, two-wheeled cart with a felt tent on the carriage, which

could be used for people or to house them. It is distinguished by its huge wheels and high height, somewhat like the wheels of today’s off-road vehicles, and by the greatly increased number of spokes on the wheels, as well as by the fact that its compartment body has a variety of external shapes that are not fixed.

2.5.3 Other

There are also many petroglyphs in which simple geometric symbols are used to represent tents. In petroglyphs from the northern steppe area, geometric symbols like “⊕” and “⊙”, which resemble tents, are often seen to appear in combined petroglyphs, where the “⊕” cross, representing the crossed wooden frame structure at the top of the dome, and the repeated appearance of this crossed wooden frame as the main load-bearing structure in the petroglyphs also represents its importance. The ‘M’ symbolic image appears in the rock art of Zhuozi Mountain (卓子山) in Wuhai, which is the shape of the dome as seen from the side. These simple symbolic figures are often found in assemblage petroglyphs, where the many crisscrossing lines that run throughout the painting can be interpreted as paths to and from the tent, forming a narrative picture.

2.6 “Horizontal Tent” Images in Chinese Rock Art

At almost the same time as the tent petroglyphs, there were other housing styles in the northern regions of China. A rock art of a horizontal tent was found in Yumin County (裕民县), Xinjiang, which is a combination rock painting with a thin line enclosing an unenclosed figure indicating

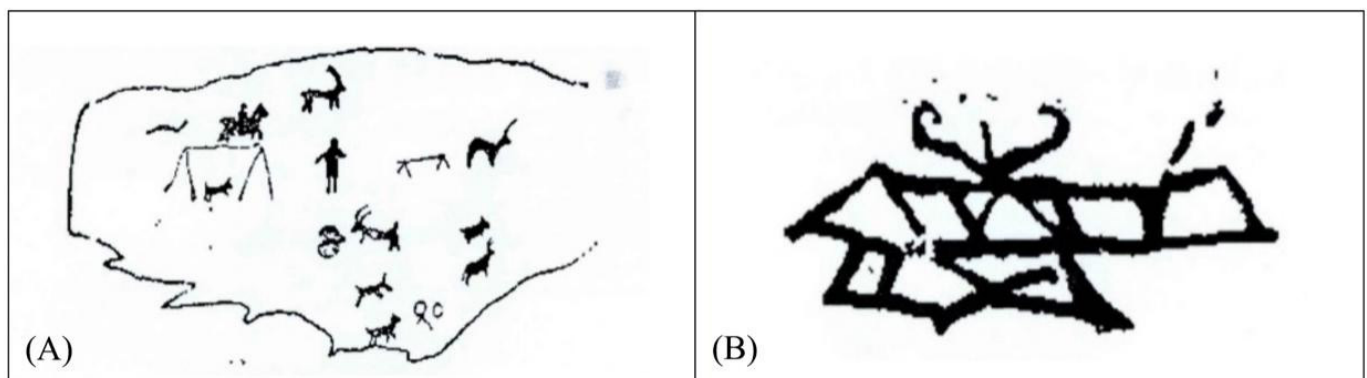


Figure 21: (A) Rock art of Horizontal Tent (Yumin County, Xinjiang); (B) Rock art of Long House (Xingdi, Xinjiang)

an area where herders lived, and shows two people, one stationed next to the tent and one herding sheep, with cattle and sheep dotting the grassland to the right of the tent. The style of the tent in the rock engraving is, however, a two-sided sloping one, unlike the Xiongnu and later Turkic ‘domes’. The Han Book – Xiong Nu Zhuan (《汉书·匈奴传》): “The dome, also the tent, is shaped like a dome. (穹庐, 旃帐也, 其形穹隆。)” This building form is horizontal tent (Figure 21 (A)), the top is a horizontal bar, two vertical poles on either side to support, the whole is a flat long trigonal structure. The structure is simple and has a large living space, but its main architectural structure is still distinct from the tent. This assembled rock art also contains two written symbols “𐰽” and “𐰺”, the meaning of which is not yet explained.

2.7 “Long House” Images in Chinese Rock Art

One of the rock paintings in Xinjiang’s Kuluke Mountain (库鲁克山) Xingdi (兴地) depicts a long house, called the “long house” or “big house” (Figure 21 (B)), with a mountain symbol in the middle of the roof, which is like the above-mentioned mountain symbol on the roof of the Zhuhai raised-floor building. Many scholars believe that this is a house inhabited by the Cypriots, and the “mountain” shaped symbol in the middle is the clan emblem, which is the common symbol of the tribe or clan (Chen, 2008). Its structure is more complex than the horizontal housing, more rooms, larger, longer, and more solid.

3. CONCLUSION

The expression theme of petroglyphs can reflect the living methods of ancient human beings. Based on the classification and summary of architectural petroglyph images, the following points can be summarized in this paper. In ancient China, the dwelling style in the southern region was mainly raised-floor construction, while in the north, the main building material was wood, mainly huts and tents. All building forms from the cave for the beginning, the evolution of the southern order is the cave-nest-raised-floor building, while the evolution of the northern order is the cave-hut-tent. It seems that the “village map” depicting large village life scenes like the one in the Cangyuan area of Yunnan in the south has not been found in the northern part of China. This is related to the productive life of the north and the south at that time, with the inhabitants of the north living in a non-sedentary, nomadic way of hunting and herding, and the inhabitants of the south living in a sedentary way of farming and picking. It is undeniable that these architectural forms were invented to meet the changes in the local climate and terrain. In terms of the age of the rock paintings, most of the painting periods in the north are earlier than those in the south. In terms of architectural forms, while the basic rules remain unchanged, various subdivisions have evolved due to differences in ethnic culture and needs. What is clear is that the survival of these petroglyphs can provide various original materials for understanding the aesthetic sense of our ancient people, the cultural characteristics of different ethnic groups and their living environment.

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REFERENCES

- A-latengaode, 2013. Genealogy and typology of Mongolian architecture. Tsinghua University, Pp. 56.
- Chen, Z.F., 2008. History of Rock Art Discovery in China. Shanghai People's Publishing House, Shanghai, Pp. 283.
- Li, G.L., 2020. Research on the evolution and development of traditional Chinese raw earth construction techniques. Beijing Architecture University, Pp. 49-50.
- Liu, P.L., 2011. Construction and application of genetic mapping of traditional Chinese settlement landscapes. Beijing University, Pp. 128.
- National Committee for the Revision of Scientific and Technical Terms, 2014. Architecture Terms. Scientific Publishing House, Pp. 76.
- Pan, G.X., 2009. History of Chinese Architecture (Sixth Edition). China Construction Industry Publishing House, Pp. 17-18.
- Tong, Y.S., 2011. A Study of Primitive Agricultural Culture in Chinese Rock Paintings. Nanjing Agricultural University, Pp. 156.
- Wang, L.F., Luo, X.M., 1990. Cultural Images on the Cliff Wall--Examination and Preliminary Exploration of Ancient Rock Paintings in Guanling. Journal of Guizhou University (Social Sciences), Pp. 70-77.
- Zhong, Y.Y., 2016. Research on the artistic characteristics and development of dry bar style architecture. Popular Science & Technology, Pp. 113-115.

