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## REVIEW ARTICLE

# THE CULTURAL CHARACTERISTICS AND RELEVANT STUDIES ON DAXINGANLING ROCK ARTS

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## ABSTRACT

The Daxinganling, situated in northeastern China, is the watershed between the Inner Mongolia Plateau and the Northeast Plain. In the northern region of the Daxinganling, numerous red-painted rock arts have been discovered since the turn of the 21st century. Through more than a decade of investigation on the rock arts of the Daxinganling, it has been determined that these rock arts exhibit distinctive regional cultural characteristics. On the basis of multiple field investigations and the exhaustive use of archaeological and anthropological data, a systematic analysis has been conducted to synthesize the cultural characteristics of the Daxinganling rock arts in this paper. The discussion also included rock arts' cultural functions and systematic attribution. The rock arts in the Daxinganling should be a component of the northern woodland hunting cultural system, it was determined.

## KEYWORDS

Daxinganling, Rock Arts, Function, System

## 1. INTRODUCTION

Northeast of China's Heilongjiang Province and the Inner Mongolia Autonomous Region, in northeast Asia's interior, is where you'll find Daxinganling. The Northeast Plain and Inner Mongolia Plains are separated by the mountains as a basin. Daxinganling stretches northeast-southwest for more than 1,200 km, from the bank of the Heilongjiang River in the north to the upper basin of the Xilamuren River in the south. The Daxinganling's dense woods are home to the rock arts, which were discovered on rocks there. Daxinganling rock arts was first discovered in 1974, and to date, more than 50 rock art sites with more than 4,000 individual rock art images have been located, mostly in the northern portion of the Daxinganling.

The study of rock arts in the Daxinganling was still in its early phases when it was first initiated in the 1980s, when only two rock art sites had been discovered. Rock arts have gained worldwide notice since the turn of the 21st century as a result of the ongoing finding of rock arts in the Daxinganling. In 2012, the author began researching the Daxinganling rock arts. The author discovered during the course of the field research that the Daxinganling rock arts exhibited distinctive regional cultural traits, both in terms of expressive content and painting techniques.

## 2. CULTURAL CHARACTERISTICS OF ROCK ARTS IN THE DAXINGANLING

The following shared cultural traits were found by looking over and analyzing the rock art remnants in the Daxinganling.

### 2.1 The Sanctity of the Rock Art Sites

The fact that the Daxinganling rock arts are all drawn on boulders renders them an air of authority and mystique. Figure 1 depicts rock arts painted on smooth rock walls with rock shelters and other rock arts painted on soaring stone structures (Figure 2). However, the flatter open area surrounding these rock art sites suggests that the ancestors' choice of rock art locations was not casual. There is a pattern in the geographical distribution of rock arts, as Mr. Gai Shanlin has noted: "The gathering place of rock arts was undoubtedly a place of worship for ancient inhabitants, a place where clan tribes worshiped ghosts and gods or held grand rituals, and it was frequently a sacred place for sacrificial offerings to deceased tribal chiefs and ancestors" (Gai, 1985). As an illustration, Hamkum in Israel The Niawus believe that the caverns where the Malawi rock arts are located are holy locations where "ancient spirits" live. The author holds that the ancestors chose the rock art sites not only as a location for clan tribes to conduct important rituals to their ancestors, as Mr. Gai Shanlin noted, but also as a location for shamans to communicate with heaven and earth, which not only reflects the northern ancestors' knowledge of the natural world but also contains the spiritual beliefs of the northern ancestors, making the rock arts and the surrounding environment a sacred space.

The northern primitive human gave mountain veneration top priority

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**Figure 1:** The location of the rock arts on Tiantai Mountain (Photo by Hongyan Zhuang)



**Figure 2:** (Right) The location of the rock art of the Divine Finger Peak (Photo by Wanling Xu)

when deciding on the rock art locations. Through holy mountains, also known as the mountains of the universe, the shaman interacted with heaven and earth. The word “shaman” is derived from the Tungus language, and as shamanic culture has been studied, it has evolved from the traditional religious practices of the Tungus people in North Asia and Siberia to shamanism as a global phenomenon, which is supported by ethnographic and archaeological evidence from the Americas, Africa, Central Asia, Southeast Asia, and the Pacific Islands. In Western academics, the word “shaman” has also become widely used. The three-realm worldview that characterizes shamanic society is its defining feature. The higher, medium, and lower realms of the universe are thought to exist, according to shamanic culture. The gods reside in the higher universe, also known as heaven, along with other spirits, the sun, moon, and stars. The realm where people live, alongside a few souls and demons, is known as the middle universe. Monsters inhabit the underground world and frequently harbor ill will toward humans. Shamans were individuals who had special abilities that allowed them to easily move between the three worlds, using methods like spirit travel, to benefit their community by providing blessings, healing, or

predictions.

In the book “Shamanism: Archaic Techniques of Ecstasy”, American scholar Mircea Eliade emphasized that “the three levels of the shamanic universe are connected through an ‘axis mundi’. The shaman has unrestricted entry to all of the world’s levels through this pillar. The universe mountain or universe tree are common emblems for the shamanic earth axis in Central and North Asian societies, respectively” (Eliade, 2018). As many holy mountains in the Chinese myths “Shanhajing”—including Mount Kunlun, Mount Qing Yao, Mount Ling, and Mount Zhao—are also associated to the ascent of shamans or the home of gods. Zhang Guangzhi thought that these mountains should serve as pillars or ladders that connect the universe. As Zhang Guangzhi noted, many northern Chinese ethnic groups have their own holy summits or peaks that mark the location of the country’s founding. They include the Yanchi Mountain of the Xiongnu people, the Great Xianbei Mountain of the Xianbei people, the Muye Mountain of the Khitan people, the Changbai Mountain of the Jurchen people, the Bu’erhan Hele Dun Mountain of the Mongolians, the Yudujin Mountain of the Turkic people, and others. The staircase or structure was where the Wu or shamans “traveled up and down” to or from the heavens in the minds of early humans (Liu and Chen, 2022). The mountain was frequently thought of as the home of the gods. The Daxinganling considered these strange mountain summits to be the axis mundi, or heavenly pillar, linking the three worlds, which they used to locate the rock art locations. Through those summits or peaks, the shaman navigated the three cosmological regions and interacted with both heaven and earth.

Additionally, the rock art locations show how the prehistoric people revered rocks. The genesis and development of humans are closely linked to rocks, and the use of stone implements sped up the process of human evolution. Rock worship are practiced all over the globe. Both rock arts and rock carvings were transported by boulders. The fact that so many rock arts are superimposed on one another also suggests that the ancestors held the belief that these rocks were endowed with a spirituality and divinity that allowed people to invoke and appeal to nature. As a result, these rocks served as both a conduit for communication between heaven and earth and an object of worship. According to Russian scholar Anisimov’s book “The Primitive Religion of the Tungus in Siberia,” which was based on an ethnographic study of the Tungus, “these rocks with images of sacred animals, like the rock “Bugade,” the sacred site of the Tungus’ clan, are the symbols of worship and ritual centers of the primitive residents who lived in the middle Neolithic period by the Lena River” (Anisimov, 2016). “The clan and kin met at the sacred location, or “sacred rock” (on the Kemengjin Mountain), during the Tungus’ “Gilkumuki” rite (a ceremony conducted for producing more offspring), bearing the offering in thanks to the clan deity. Before the ceremony began, the clan members constructed the shaman’s cenotaph and orderly arranged wooden statues of the shaman gods around it. The shaman and her family did the holy dance Gilku in an obviously erotic manner around these statues (especially for the shaman). In general, it is a pantomime dance that mimics a buck pursuing a doe, and the remainder of the performance shows the traits of the animal group” (Anisimov and Yu, 2016).

Another prevalent tradition among northern Chinese people is rock worship. From the Liaodong Peninsula stone shed to the Red Mountain culture stone mound, from the small gravel statues discovered at the Hake cultural relics site to the small stones mixed with the ribs of the dead in the Angangxi culture burials to the small stones sewn into the Manchu shaman’s sacred clothing, all those myths—from the legend of Nüwa melting stones to mend the heavens to the legend of Manchu Oya God who created the world. The Heilongjiang basin’s Tungusic inhabitants have maintained the tradition of boulder veneration for many years. For instance, the Tungusic inhabitants of Daxinganling’s Along Mountain still frequently engage in religious rituals at the rock art-adorned boulders. The mountain deity Bainacha is most revered by the Oroqen people, who make altars out of mounds of boulders (commonly referred to as Ovoo) by the mountain access road. The stone statues “Zhuolu Mafa” and “Zhuoluo Mama,” both of which are spirits in Hezhe ancient folklore, are also present. In Heilongjiang, some Manchu people placed three stones beneath the deity pole, just as they did during the Republic of China era, in an effort to ward off illness and drive out evil. As a result, the Daxinganling rock arts exhibit the traits of rock worship,

which is an expression of nature worship developed by the primitives during the lengthy era of fishing and hunting society.

In conclusion, whatever the site and the environment of the rock arts, none of them are isolated. The rock art images and the environment all constitute a complete sacred space, either solemn or mysterious. Such a space helps fulfill the group beliefs and spiritual aspirations of the rock art makers, who managed to reach the field of communication between the secular world and the sacred world. This is the process by which community memory and cultural identity are strengthened.

## 2.2 Diversity of Content and Subject Matter

In the Daxinganling rock arts, there are mainly images of humans, animals, natural objects such as the sun, moon, and stars, and various abstract symbols. All those symbol groups reflected the hunting, rituals, and witchcraft activities of the ancient ancestors in the Daxinganling area (Figure 3). Among the animal images, there are deer, canines, wild boars, and bears, but only images of cattle and sheep are missing. In comparison, cattle and sheep figures can be found everywhere in northern regions such as the Yinshan Mountains, while only one image of a horse has been found in the Daxingan Mountains. Among the rock arts of animals in the Daxinganling Mountains, the images of deer are the most numerous and are found in various rock art sites in the Daxinganling Mountains, including those of reindeer, moose, and elk. Typical examples are the Jiaonghuadao rock arts, the Aniangni rock arts, and the Songling Zhuangzhi South Line rock arts, which depicted scenes of reindeer taming and roundup. These rock arts are very similar in content and style to the Neolithic rock arts on the upper left bank of the Amur River in Russia. Russian scholars refer to the Neolithic rock arts in the vast area between the Trans-Hingan Mountains and the Heilongjiang River as “primitive forest rock arts”. They noted that “the two styles were clearly established by the 2nd millennium B.C.” (Zhang and Dong, 1995). Soviet scholars called them “deer rock arts” and “hunting rock arts” due to the two different livelihoods reflected. Regionally, the “deer breeding rock arts” are distributed in the upper reaches of the Oryokma River and along the left tributaries of the Heilongjiang River, and the “hunting rock arts” are distributed in the upper areas of the left tributaries of the Shilka and Erguna Rivers” (Zhang and Dong, 1995). Through the analysis of Russian scholars, the rock arts found so far in the Daxinganling show distinct characteristics of forest hunting culture. In contrast, the Red Mountain rock arts in the West Liaoning River basin at the southern end of the Daxinganling Mountains show a mixture of three cultural types: hunting, farming, and nomadic. This is also the demarcation zone for the three cultural types.

## 2.3 Uniformity of Color

Unlike rock arts in Daxinganling, rock arts in the Yinshan Mountains and Helan Mountains in northern China are rock carvings, while the rock arts of the Daxinganling are mostly painted in red, except for a few carvings



**Figure 3:** Rock arts of human and animal images in Gaxian Cave (Photo by Hongyan Zhuang)



**Figure 4:** Songling Zhuangzhi Xishan rock art (Photo by Hongyan Zhuang)

in the rock arts of the Xilamulun River valley in the south. Those rock arts in the red are still very vivid because they are hidden in the deep forests of the mountains, rarely reached by humans (Figure 4). Laboratory tests on the rock art pigments in the North Cave of Daxinganling by the School of Archaeology and Museology, Peking University, showed that the “red pigments are iron ores with high manganese content, such as hematite (ochre,  $\text{Fe}_2\text{O}_3$ ) or limonite ( $\text{Fe}(\text{OH}) \cdot n \text{H}_2\text{O}$ )” (Cui, 2021).

Red ochre is a natural pigment that was often used in prehistoric cave paintings. It was found in 2011 at the Blombos cave site in South Africa, where nine red lines painted by modern humans 73,000 years ago on small stones were found to cross each other. Christopher Henshilwood, an archaeologist at the University of Bergen in Norway, believes that “these red lines are the earliest paintings in human history” (Henshilwood, 2018). Why did the early humans choose red ochre paint for their rock arts? Modern science shows that red is one of the three primary colors of light, with a wavelength of 610–750 nanometers, which makes red the longest wavelength in the spectrum visible to the human eye. Among the colors, red has the strongest visual impact. Red is also one of the psychological primary colors. Experiments show that when red acts on one’s psyche, people could have a faster pulse, higher blood pressure, and more emotional excitement. In addition, red is also the color of fresh blood, being brilliant and bright, wild, and strong. Human beings come into the world with their mother’s blood; therefore, the color red could easily evoke the association of life as blood is the source of life. At the same time, red is also the color of the sun and fire, symbolizing light, warmth, and eternity. Therefore, in primitive people’s thinking, red had been a symbol of vitality and the immortality of the soul.

In the Paleolithic era, the custom of early humans to smear the dead with ochre has been found almost all over the world, a phenomenon presumed to be related to the primitive belief that human death was associated with the lack of red color (blood). The smearing of this color, though it could not bring the dead back to life, would at least indicate a strong emotional desire on the part of the living. Fossilized animal bones impregnated with red ochre were found in many prehistoric sites. The remains of Paleolithic burials in Yakut Sunagin, Eastern Siberia, and Neolithic burials in Little Dezhdimta are dusted with ochre powder. On the American continent, it is also customary to paint the bodies with red ochre in Indian burials. As remnants of the Paleolithic period and inheritors of primitive sorcery beliefs, the indigenous people of modern Oceania also often paint their bodies with ochre, intended to enhance their strength.

In China, red is the most prominent color among traditional colors. In the origin of Chinese civilization, the worship of red started in the Paleolithic era; for example, after the death of the Late Paleolithic hilltop cavemen, “hematite powder was sprinkled around the deceased, and all the piercings of the ornaments were almost always red, as if their clothing had been dyed with hematite” (Jia, 1978). In 2010, a small bone fragment unearthed at the Xuchang Man site in Henan Province was found to have seven parallel lines stained with red ochre. This artifact is about 110,000 years old, about 40,000 years older than the oldest modern human painting from South Africa. On July 8, 2019, the study was published online in the prestigious international archaeological journal

"Antiquity" (UK). The first author of the paper, Professor Li Zhanyang of Shandong University, pointed out that the findings may help people understand the origins of human use of symbols and painting, which laid the foundation for language, mathematics, and art (Henan Daily, 2019). Together with archaeologist Francisco De Errico of the University of Bordeaux, France, Li Zhanyang conducted production trials and further tests on this bone fragment, suggesting that it may be an intentionally carved piece by early modern humans (early *Homo sapiens*) (Henan Daily, 2019).

Among the Neolithic cultures, the Yangshao and Majiayao cultures in the Yellow River basin have unearthed a large amount of red-colored pottery, and the Red Mountain culture in the Western Liaoning River basin has also unearthed red-colored pottery more than 6,000 years old. In the ritual pit of the Ma'anqiao Mountain site of the Red Mountain Culture, a stone plow filled with red pigment was unearthed. In the Heilongjiang River Basin, the Songnen Plain, Zhaoyuan Wanghaitun Neolithic site, Baibai Bao culture site, Hanshu II site, Pingyang burial site, red pottery, and "red dyed human bones" were discovered. For example, in Ping Yang burial, "some human bones in three tombs have a few spots of red, such as M119 on the ribs, femur, and armpit, M120 on the fibula and metacarpal, and M61 on the femur and armpit" (Tan et al., 1991). In the Angara River valley of Siberia, Russia, the red ochre pigment sprinkled around the bones of the 4000 B.C. Serovo Khotoruk cemetery and the red-clad, thin-skinned, polished pottery ritual vessels were discovered at the Voznesenovka site on the lower Heilongjiang River. These discoveries are manifestations of red worship.

In Chinese archaeology, the worship of the color red is known to have had "ritual" and "religious" meanings. The northern peoples held burial rituals with blood sacrifices, such as marking their faces, burial with ochre and vermilion. Ochre powder has been excavated from the Neolithic site of Anganxi in the Neng River basin. On the face of the "Xiaohe Princess" from the Xiaohe Cemetery in Lop Nor, Xinjiang, 4,000 years ago, was painted in red. The French cultural anthropologist André Leroi Gourhan explained the use of the pigment ochre in the late Paleolithic in the chapter on "Pigments" in his book *Les Religions de la Préhistoire* by saying that "generally speaking, it was used to symbolize blood and therefore life, especially the life of the dead" (Leroi-Gourhan, 1990). Most of the world's rock arts, with the exception of rock carvings, are painted in red, with ochre as the main pigment. The Daxinganling primitives also chose red ochre pigment to paint rock arts, which had a more distinct meaning of life.

## 2.4 Simplicity in Modeling

In the rock arts of the Daxinganling Mountains, there are images of human figures, animal figures, crosses, X-shaped, V-shaped, crossed circles, and dots. These images are painted or outlined by a single continuous line, forming a "linear structure" in which the shape, volume, and texture of the object are depicted by the interlacing lines. The pursuit of simplicity reflected the aesthetic characteristics of antiquity. The outlines of human and animal figures demonstrate a beauty of dynamics. The figures in the rock arts of the Daxinganling are seldom stationary, they are either walking, dancing, hunting, or offering sacrifices to the heavens, but their simple structure shows a strong dynamic beauty. For example, although there are only three human figures in the rock art of the Tal River in Xinlinbi Prefecture, the dance movements of these three figures are coherent. The left human figure has both arms bent, hands up, and legs crossed. The man in the middle has one arm naturally bent, the other arm up, while the body is slightly S-shaped. The right human figure has both hands naturally hanging down in a swinging shape (Figure 5). The whole group of rock art figures was painted in one go, showing the beauty of rhyme and rhythm.

The "relationship between the figure and the bottom of the rock arts in Xing'anling is a binary contrast between pure image and rock art. The rock arts here are different from the cave rock arts in the West, where painting and carving are mixed, and facet and outline are blended, with a multi-layered image relationship" (Zhu, 2013). This beauty of the simple line exhibited by the rock arts of the Daxinganling makes them unique among primitive arts. In his exploration about the founding role of Asian-American civilization in the world, Zhang Guangzhi points out that Western civilization is different from Asian-American civilization



Figure 5: Rock arts of Tar River in Bizhou (Photo by Haijun Mou)

(Zhang, 2002). Differences in origins of Western and Asian-American civilizations possibly lead to different attributions, and the European cave rock art style predicts and prefigures the realistic style of Western classical paintings. Chinese rock arts, on the other hand, also implies the basic characteristics of Chinese painting with line modelling. As Mr. Li Zehou concludes, "In this historical process from reproduction to representation, from realism to symbolism, from form to line, people unconsciously created and cultivated a purer (line is purer than color) form of beauty and a sense of aesthetic form" (Li, 1994). In the long history of Chinese painting, prehistoric rock arts in the Stone Age already determined the style of Chinese painting.

## 3. FUNCTIONS OF ROCK ART IN THE DAXINGANLING

Like rock arts in other regions, the different themes of rock art in the Daxinganling are endowed with different purposes of creation. The functions of rock arts in the Daxinganling are summarized, and can be roughly divided into the following functions.

### 3.1 Functions of Homeopathic Magic and Contagious Magic

According to British anthropologist Fraser, the ideological principles of witchcraft can be basically divided into two types. One is the so-called like begets like, or the so-called result can influence the cause. The second is that objects that have been in contact with each other can continue to interact with each other even after they have been detached from each other. The former is known as the law of similarity, and the latter is called the law of contact or the law of infection. According to the law of similarity, the practitioner of witchcraft wishes can produce every effect through imitation. According to the law of contact, the practitioner of witchcraft can use anything that has come into contact with a person to exert an influence on him or her (James, 1960). The former witchcraft is called homeopathic magic and the latter, contagious magic.

Many rock paintings remain in the world, especially many early rock arts are featured by both homeopathic magic and contagious magic. For example, images of hunting animals and animals being hunted are depicted on rocks because the artists believed that this would attract real animals and realize the purpose of successful hunting. The rock art images of four animals with their heads facing downward, which symbolize death, at the Feilong Mountain's rock arts in Daxinganling, and the rock art images of hunters sieging animals with pulling arrows on the southern line of Songling Zhuangzhi have this kind of feature (Figure 6). There are some rock arts depicting of the image that male and female mate with each other. This kind of rock arts aim to promote reproduction and the population development of their clans, such as the rock arts of fertility at rock painting sites, such as Shenzhi Peak and East Mazongshan. Until modern times, some people still believed that needling a muppet or straw man can make the enemy injured or dead. In addition, the red worship of the rock arts in the Daxinganling also has an implication of homeopathic magic. When the primitive ancestors practiced witchcraft, they used the red color as a symbol of



**Figure 6:** Rock art on the southern line of Songling Zhuangzhi (Photo by Hongyan Zhuang)

the sun to communicate with heaven and earth; also used the red color as a substitute for blood and endowed the red color with the strong magic power. Therefore, the red color has gradually become a symbol of witchcraft rituals.

### 3.2 Functions of Primitive Religion

In *The Golden Bough*, Frazer details that the difference between witchcraft and religion is that "witchcraft wanted to control the forces of nature through a form peculiar to witchcraft. Only when this proved ineffective, did people want to seek the gift of God through prayer, and only when people saw that even worship could not make God show the grace, did people step into the door of true science. Thus, witchcraft, religion, and science arose one after another."

Some scholars believe that rock arts are the products of primitive religious worship. In northern China, a considerable number of rock arts are related to primitive religious worship, including those in Daxinganling, because whether it is the early clans or tribes in Daxinganling, or the recent Oroqen, Ovink, Mongolian and other peoples, they all believed in primitive religion- Shamanism. Shamanism originated from the theory of animism and believed in multiple gods. The heaven, earth, sun, moon, water, fire, animals, plants, etc. are regarded as the gods with divine power. They not only can give blessings to people, but also can cause disaster to people. Therefore, ancestors had different ways of creating rock arts- painted these natural objects or directly on the rocks, or personified and then painted them on the rocks, or painted the magic activities of Shamanism on the rocks. For example, a variety of animal images, the sun, moon and stars, human figure, human-animal combination, man-God image on the Daxinganling rock arts were available for people to sacrifice and worship.

The theory of the origin of rock arts and Shamanism was first proposed in 1967 by Andreas Lommel, Director of the National Ethnographic Museum in Munich, Germany. It is based on the exploration of Eskimo, African, Siberian, Australian, and American prehistoric and tribal art. In his monograph "The World of the Early Hunters", Andreas Lommel cited an example from Siberia, "where shamans acted as messengers between the worlds of the living and the dead. The destiny of the tribe fell into the hands of the shaman, because shaman was the only power with the power to have a dialogue between the gods, the ancestors, and the mystical world. The shaman of ..... Siberia virtually penetrates into the interior of the earth, speaks with the underworld and conveys messages from the underworld to the living." According to Lommel, "The cave paintings of Western Europe represent animal spirits rather animals. These spirits emerge from the rocks, the meeting place of spirits, and the spirits are shown against the torches of shamans. It is in these caves that the shamans meet with the spirits they pray to. In this way, the rock arts merely reveal the traces of the spirits' manifestation, which the shaman had long recognized in nature. In this particular case, the art of rock arts was merely used to refine or explain the forms of nature" (Anati and Liu, 2007). Thereafter, Jean Clottes and David Lewis Williams developed Lommel's theory of Shamanism. According to Jean Clottes, the rock arts are depictions of shamans in witchcraft action, and also emphasize

the state of mind when the shaman's soul possesses him or her into a state of half-consciousness. "According to Shamanism, communication with the other world often involved the possession of the spirit of some animals. Shamans believed that he could often integrate with one animal spirit, change the appearance and become all or part of that animal. Shamans could also manipulate their souls to travel to the other world and communicate with the deities or spirits there for protection or help. Shamans believed they could realize the separation of the physical body from their own souls. In this way, shamans act as messengers between the real world and the world of the spirits, protecting the safety and property of the tribes" (Clottes and Tang, 2018).

The theory that some prehistoric rock paintings is related to shamanic practices is now accepted by many researchers. In the Late Paleolithic and Neolithic, shamanic culture spread throughout Eurasia and was also a spiritual belief and a long cultural tradition of the tribes living in the Daxinganling and Heilongjiang basins. However, the religious function is just one of the functions for the rock arts in the Daxinganling, and this role is complemented by other factors.

### 3.3 Notation Function

Before the invention of writing, the primitive ways of remembering things included the use of objects, symbols, and pictures. rock arts were one of the important means of picture and symbolic noting. Whether in the Stone Age before the invention of writing, or in the civilized age after the invention of writing, most of the tribes living in the Daxinganling and the Heilongjiang River valley, only had language but had no writing, so the images on rock arts became important carriers for noting things, preserving the collective memory of the communities and transmitting information, and perhaps also for imparting knowledge for the sake of education.

There are many symbols for noting events and numbers in the rock arts in the Daxinganling, such as numerous dot-shaped symbols, cross-shaped symbols, and several straight lines (vertical lines) next to animals and other graphics. Some rock arts consisting of human-shaped images, animal-shaped images and complex graphic images may be records of certain events or rituals. For example, the rock arts in Feilongshan and the south line of Zhuangzhi are characterized by recording ritual scenes with their rich and complex images and a certain solemn and mysterious sense of ritual. These rock arts are both records of shamanic ritual activities and sanctuaries for later generations of clansmen to worship, so that later generations of clansmen can trace back to both the historical memory of the tribes during the disastrous flood and dialogue with their ancestors by using their souls.

Because of the ambiguity of primitive thinking, a rock art or a group of rock arts often implies more than one function, perhaps multiple functions at the same time. Mr. Gai Shanlin thinks northern Chinese rock arts have two functions, "one for religious functions and the other for secular functions. The religious ones re painted for the gods, while the secular ones are painted for people" (Zhang and Dong, 1995). No matter which function it belongs to, its ultimate purpose is to realize the utilitarian purpose of human. People were convinced that the influence produced through rock arts could lead to bountiful hunting harvests, prosperous people, tribal survival, clan growth, soul ascension, etc. For this reason, the site of the rock arts gradually became the social and cultural and ritual center of a clan or tribe.

## 4. SYSTEMATIC ATTRIBUTION OF ROCK ARTS IN THE DAXINGANLING

Professor Anati divides the world rock arts into five categories from the viewpoint of content, style, and type. These five categories are attributed to groups with specific economic and technological characteristics. Specifically, these 5 categories include 1. early hunters (who did not yet know about bows and arrows); 2. early gatherers (who mainly relied on vegetables for food); 3. evolved hunters (who used bows and arrows); 4. pastoralists and breeders; and composite economic groups, whose significant portion of livelihood came from agriculture.

According to Anati, the rock arts created by the early hunters are homogeneous in style, but also have a system of symbols and certain

associations. At first glance, the rock arts seem to be more complex or mysterious than those of their later periods. They also do not seem to represent the trivial details of the scene. When they wanted to show hunting scenes, the early hunters did not illustrate attacks on prey or hunters circling up an animal, but rather they chose to express themselves through codes: obviously, animals were extremely important to these people and were the main subject of the portraits they made. The animal is always accompanied by ideograms, which represent not only epithets but also verbs, adjectives, and predicates. In other words, the ideographic system here expresses words with a logic of reasoning.

The evolved rock arts of hunters began to illustrate real scenes, and they borrowed small episodes, trivialities, and increasingly resorted to details. This universal language, which could be read by all, was gradually replaced by local dialects. Linguistic and visual clusters began to take shape, a phenomenon that probably coincided with the differentiation of oral languages. In the art of archaic humans with complex economic forms, the components of the symbolic system changed and became comprehensible only to people from specific cultural circles.

This led to Anati's classification of Asian rock paintings. "A brief overview of the Asian region shows that four major developmental stages occurred one after another: Siberia was the only place with a large number of early hunters, although small groups of early hunters also existed in India and Central Asia, and the flourishing of evolved hunters indicates a major development of artistic creativity, which probably occurred in the first half of the Holocene (between 10,000 and 7,000 B.C. The art of pastoral breeders was discovered mainly in the steppes of Central Asia and in several regions of western China. The art of composite economic groups, on the other hand, was dispersed throughout the Asian continent and is still preserved in tribal art in some provinces" (Anati and Liu, 2007). When Anati published his views on the analysis of Asian rock paintings, the Daxinganling rock paintings had not yet been discovered on a large scale, so his study did not include information about the rock arts in Daxinganling. If we follow Mr. Anati's classification, most of the Daxinganling rock arts should belong to early hunter rock arts in terms of content and style, with a small portion of evolved hunter ones.

The Chinese rock art system was initially divided into two systems in terms of content: north and south. After the 1980s, with the discovery and in-depth study of many Chinese rock arts, scholars divided rock arts into multiple systems according to the natural geographical environment, economic and cultural types, and the family of rock arts in the region where the rock arts are located. For example, according to the geographical environment of the region where the rock arts are located, Ge Shanlin divided the Chinese rock arts into four regions: northeast agricultural and forestry region, northern grassland region, southwest mountain region and southeast coastal region (Ge, 1992); Tang Huisheng classified Chinese rock arts into three systems: northern grassland animals, southwest rock arts and southeast rock carvings (Tang, 1993); From the perspective of ethnology, Zhang Yasha divided the Chinese rock art into five ethnic systems, namely, the human figure image system of the ancient Dongyi ethnic group, the rock art system of the hunting and herding people of the Dihu ethnic group in the northern grassland, the yak rock art system of the ancient Qiang people in the western Qinghai-Tibet Plateau, the painted rock art system of the southwest Puliao ethnic group, and the water rock art system of the Baiyue ethnic group in the southeast coastal area (Gong and Zhang, 2006).

In fact, these three divisions do not contradict each other, but they are based on different grounds. However, with the discovery of a large number of cupule rock arts of Jucishan in the Central Plains region of Henan and Daxinganling rock arts in the Northeast, these three regional and systematic divisions cannot fully encompass all rock arts in China. Because of the late discovery of the Daxinganling rock paintings, the three scholars mentioned above have not yet included the Daxinganling rock paintings in their study. If the rock arts in Daxinganling are included in the northeastern agricultural and forestry region based on the study of Ge Shanlin, there is no geographical controversy, but in terms of characteristics, the rock arts in Shanklin more of the characteristics of forest hunting culture. In contrast, Tang Huisheng's "northern grassland animal system" and Zhang Yasha's "northern grassland Dihu system of rock arts" refer more to the rock carvings of Yinshan and Helan

Mountains, so both cannot cover the rock arts of the Daxinganling. Therefore, the rock arts of the Daxinganling and the rock arts of the Heilongjiang River basin (both sides of the Heilongjiang River) should form their own system.

Forest culture is an independent cultural form and it refers to a forest cultural belt south of the tundra in the northern hemisphere. The ancestors of its various ethnic groups lived a semi-sedentary life. The major economic forms at that time were fishing and hunting, as well as gathering and animal husbandry, etc. One of the characteristics of local hunting culture is also known as the siege. Eight banners of Manchu nationality originated from the siege. Russian scholars refer to the Neolithic rock arts in the vast area between the Outer Xing'an Mountains and Heilongjiang as "primitive forest rock arts", and pointed out that "Around 2,000 BC, two styles were clearly established. The former Soviet Union scholars called them about 'deer raising' rock arts and 'hunting' rock arts, because the two different kinds of life have been reflected in the rock arts. From the regional perspective, 'deer raising' rock arts are distributed in the upper reaches of the Olkma River and the left tributaries of Heilongjiang Province, while the 'hunting' rock arts are distributed in the upper reaches of the left tributaries of the Shileka River and Erguna River" (Zhang and Dong, 1995). The rock arts in the Daxinganling are highly similar to the rock arts in Russia in terms of both content and style.

Archaeological and molecular anthropological materials show that all archaeological materials of the Daxinganling from the Paleolithic period 30,000 or 40,000 years ago at the Laogouhe site of Mohe, Tahe's 18 stations site, the Huma Laoka site, the Hake site, the Huzhong Beishan cave site, and the historical period of the Donghu, Xianbei, Turkic, Khitan, Nuzhen, Mongolian, and the recent Oroqen and Ewenki peoples all demonstrate a consistent economic pattern of fishing, hunting and gathering. Second, modern molecular biology also confirms this idea. "The high degree of regional continuity exhibited by the genetic structure of the population in the Nenjiang River basin in the past 11,000 years ago was neither interfered by foreign genes nor suffered from human species replacement" (Ning, 2017). The findings by Qiamei Fu's team, published online in the journal *Cell* on May 27, 2021, traced the time even further to 14,000 years ago. "The difference between the southern and northern populations of East Asia was already formed near the end of the Last Ice Age, and the earliest East Asian Palaeartic populations (represented by AR19K individuals) appeared in the Heilongjiang region. This result advances the time of genetic differentiation of the South-North East Asian populations (9500 years ago) previously found in the study by nearly 10,000 years. .... What about the movement of populations in northern East Asia after the Late Holocene Ice Age? Previous research on the paleogenomes of the hunting and collecting population (DevilsCave\_N individuals from the Far East of Russia, 7,700 years ago) in the Guimen Cave in the early Neolithic period in the Heilongjiang Basin showed that the population in the Heilongjiang Basin had genetic continuity since about 8,000 years ago, but the population situation before 8,000 years ago is still unknown. In this study, authors obtained genomic data of 16 individuals from the Heilongjiang region after the Last Ice Age and before 8,000 years ago (about 14-0.9 million years ago) to investigate the genetic history of this gap in the population and make valuable findings. The study revealed that the people in the Heilongjiang River Basin in the post-Last Ice Age was the closest to those of the Early Neolithic Guimen Cave in terms of genetic composition compared to other East Asian populations. According to the results, the genetic continuity of the Heilongjiang basin populations may have begun as early as 14,000 years ago, which is 6,000 years further forward than previously proposed by the hypothesis. This conclusion is consistent with the archaeological record of pottery and jade in the Heilongjiang region first appearing 15,000 years ago" (Mao et al., 2021). Culturally, these communities or Shamanistic group which practiced an ancient primitive religion, also maintained continuity in their spirituality until recent times. Thus, under the perspective of shamanic culture, these ancient Northeastern ethnic cultures as well as modern Oroqen and Ewenki ethnic cultures can find ethnic cultural symbols and prototypes in Daxinganling rock arts. Therefore, from the archaeological and molecular anthropological materials, it may be more appropriate to infer that the Daxinganling rock arts are the rock art system of northern forest hunting.

## 5. CONCLUSIONS

In conclusion, as a cultural heritage left by the ancestors of the Daxinganling region, Daxinganling rock arts are a pictorial language formed by rock painting creators and users during their long-term interaction with nature and themselves. Among the rock arts of northern China, the Daxinganling rock arts not only have distinct cultural characteristics, but also form their own system—the northern forest hunting rock art system of rock art. Although this conclusion needs to be further researched and confirmed, we hope that more rock art researchers will pay attention to this conclusion, and more concerted study can be made on the rock arts of Daxinganling.

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