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RESEARCH ARTICLE

A STUDY ON THE ARCHAEOLOGICAL CHRONOLOGY AND ICONOGRAPHIC TYPES OF HUMAN-FACES PETROGLYPHS IN THE XILIAO RIVER BASIN

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ABSTRACT

Utilizing existing archaeological surveys and research findings, this study organizes and analyzes the distribution and image types of human-faces petroglyphs in the Xiliao River Basin, using the known archaeological periods as a reference system. By integrating the structural characteristics and stylistic features of the human-faces petroglyphs images with the relevance to archaeological remains, and employing a comprehensive comparative method using archaeological materials and iconography, this study conducts a horizontal comparative study on the main types of archaeological materials and human-faces petroglyphs in the Xiliao River Basin. It establishes a preliminary chronological scale, organizes the main stylistic types for each period, and attempts to establish a chronological and spatial framework for the development and evolution of human-faces petroglyphs from the Neolithic period to the historical period in the Xiliao River Basin, conducting indirect periodization and classification research.

KEYWORDS

Rock Art, Iconography, Archaeology, Human-Faces Petroglyphs, Types

1. INTRODUCTION

The Xiliao River Basin in China is an area where human-faces petroglyphs emerged relatively early and also serves as a significant turning point and intersection. The human-faces petroglyphs in this region are characterized by a complex ecological environment, a complete range of types, a long continuity period, and a broad influence range. In terms of quantity, style types, and production methods, they exhibit comprehensiveness and representativeness. At the same time, the Xiliao River Basin is the most developed and mature area among all human-faces petroglyph distribution sites within the archaeological cultural region system. Based on this, it is necessary to conduct an in-depth periodization study on the various types of human-faces petroglyphs in the Xiliao River Basin of China.

The Xiliao River Basin is located in the northeast of China, at the connecting triangular area of the Inner Mongolia Plateau, the North China Plain, and the Northeast Plain. Its main tributaries include the Laoha River, the Xilamulun River, Wuerjimuren River and the Jiaolai River, and the entire river system is composed of dozens of smaller rivers such as Yin River and Yingjin River. The Xiliao River Basin has always been a converging area of the fishing, hunting and gathering culture in Northeast China. The farming culture in the Central Plains, and the nomadic culture in the North. The terrain of the entire region

is high in the west and low in the east. The western part is a mid-mountain platform, which gradually changes to low mountains and hills towards the east, and finally to plains. It belongs to the transitional zone between the first and second step surfaces in eastern China. This geographical environment is an ideal habitat for multi-ethnic settlement, transportation, integration, and dispersion.

The development sequence of ancient cultures here includes the Xinglongwa, Zhaobaogou, Fuhe, Hongshan, Xiaoheyuan, and Lower Xiajiadian cultures. The time span is equivalent to the middle Neolithic Age to the early Bronze Age in China, approximately 8000-3000 years ago. The nomadic cultures that emerged later generally include the historical and cultural stages of the Donghu, Wuhuan, Xianbei, Khitan, and Mongolian ethnic groups, experiencing the Iron Age (Xi et al., 2007).

The Xiliao River system is one of the main cultural sources in eastern Inner Mongolia Autonomous Region. There are extremely rich ancient cultural remains within the basin, which is praised by the archaeological community as the "Mesopotamia" of China. Comprehensive comparative research between archaeological discoveries such as settlement and tomb sites and cultural relics, and human-faces petroglyphs is very helpful for judging the chronological stages.

Determining the age of rock art remains a challenging issue in current

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Table 1: The Nature of Archaeological Cultures in the Xiliao River Basin since the Holocene (Adapted from: Xi Yongjie et al., “Early Bronze Civilization in the Xiliao River Basin”)

Cultural Type	Time Period (years ago)	Cultural Characteristics
Xiaohexi Culture	10,000~8,150	Gathering, fishing, and hunting
Xinglongwa Culture	8,150~7,350	Gathering, fishing, hunting, and primitive agriculture coexist; sedentary culture
Zhaobaogou Culture	7,150~6,150	Entering the plow agriculture stage, domestication, fishing, hunting, and gathering are important, social division of labor begins, sedentary culture
Hongshan Culture	6,660~4,870	Developed plow agriculture, gathering and fishing become supplementary, further social division of labor; sedentary culture
Xiaoheyuan Culture	4,600~4,100	Fishing and agriculture are equally important, with a noticeable decline in agriculture compared to the Hongshan period
Xiajiazhan Lower Layer Culture	4,100~3,300	Prehistoric agriculture is developed, fishing and hunting are supplementary, animal husbandry is prevalent; sedentary culture, settlements have functional differentiation
Xiajiazhan Upper Layer Culture	3,200~2,200	Animal husbandry is dominant, late period sees the emergence of agricultural culture, bronze ware is developed; few settlement sites are found

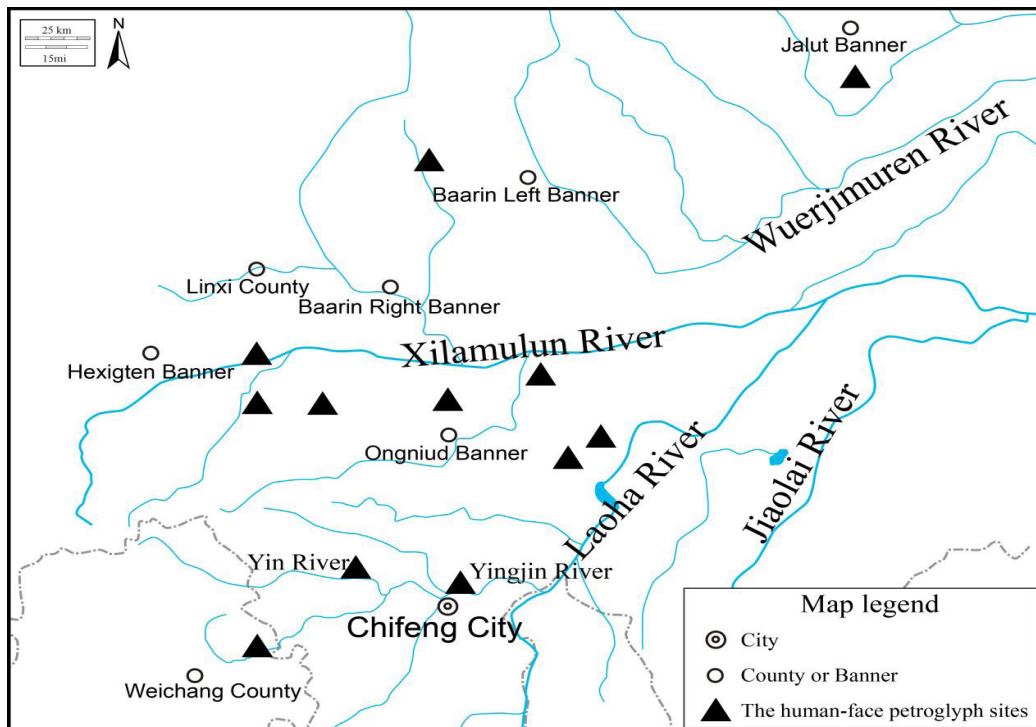


Figure 1: Distribution Map of Human-Face Petroglyphs in the Xiliao River Basin

research. Scholars have employed various methods to infer the age of human-face petroglyphs in the Xiliao River Basin. In “Research on the Archaeological Chronology of Human-Face Petroglyphs in the Xiliao River Basin,” Sun Xiaoyong conducted a comprehensive dating analysis by examining production techniques such as manufacturing tools and incisions. By comparing the themes, modeling styles of the petroglyphs with unearthed cultural relics, he divided the human-face petroglyphs in the Xiliao River Basin into three periods (Sun,2014). Xiao Bo and A.L. Zaika’s research indicates that the “drop-shaped eye” human-face petroglyphs in this basin evolved differently in various stages and had connections and dissemination relationships with other cultures in northern China, as well as those in the Russian Far East and the central and southern regions of Siberia (Xiao and Zaika.,2017) Other scholars, such as Zhuang Hongyan (Zhuang,2023) and Gou Aiping (Gou,2017), discussed the origin and dissemination of human-face petroglyphs from the perspective of cultural diffusion.

Animal-themed rock arts, especially those of deer, account for about 80% of all the images in the Xiliao River Basin. Ge Shanlin judged that they have a profound connection with the “deer-raising” rock arts in the Heilongjiang region (Gai and Gai,2002). The distribution of human-faces petroglyphs are also very extensive. The main areas involved include the Yingjin-Yin River Basin of Chifeng City, Hexigten Banner,

Ongniud Banner, Baarin Right Banner, Jalut Banner of Tongliao City, and Weichang County in Hebei Province, etc. (Figure 1).

Under the current technological means and the framework of archaeological knowledge, accurately dating rock art remains a challenge that has not yet been overcome. Although there are individual instances of rock art unearthed through archaeological excavations in the Xiliao River Basin that serve as evidence, they only provide a lower limit of stratigraphic relationships and cannot precisely determine the specific creation dates of the petroglyphs. Therefore, the periodization here is merely a rough division to facilitate a deeper understanding and grasp of the image types. The basis for this division is to use archaeological remains with accurate dating as the primary reference, to argue the correlation between human-faces petroglyph image types and the surrounding archaeological cultures; then, by combining comprehensive factors such as production techniques, superimposition relationships, trace judgments, and stylistic features, a basic correlation sequence is established, leading to the identification of four broad periods: Xinglongwa-Zhaobaogou, Hongshan, Xiaoheyuan-Xiajiadian Lower Layer, and the historical period. For convenience, the archaeological community’s summary of the various cultures and their cultural characteristics in the Xiliao River Basin from the Holocene to the historical period is cited as follows (Table 1).

Since the beginning of the Holocene, the prehistoric cultures in the Xiliao River Basin, including the Xinglongwa Culture, Hongshan Culture, and Xiajiazhan Lower Layer Culture, have seen the continuous growth and strength of primitive agriculture. This development is primarily the result of human progress and is also related to the favorable climatic conditions during the Holocene Climatic Optimum. The sudden interruption of the Hongshan Culture at its peak and the replacement of the developed agricultural culture of the Xiajiazhan Lower Layer by the pastoral culture of the Upper Layer are mainly attributed to climate deterioration. Overall, the human-faces petroglyphs in the Xiliao River Basin correspond to four distinct developmental stages of archaeological cultures, each with its relatively unique stylistic characteristics and formation conditions, and there are some obvious evolutionary processes in the compositional features of the images.

2. THE XINGLONGWA-ZHAOBAOGOU CULTURAL PERIOD

In the early Holocene, the rise in temperature led to a long period of warm and humid climate in the Xiliao River Basin, with widespread deciduous broadleaf forests, creating favorable natural conditions for human development. This environment was suitable for the development of primitive gathering and fishing cultures, on which the Xiaoheyuan Culture was formed. Following the Xiaoheyuan Culture, the Xinglongwa Culture was a typical mixed economy where fishing, gathering, and primitive agriculture coexisted. Subsequently, during the Zhaobaogou Cultural period, which coincided with the peak of the Holocene Climatic Optimum, the stable warm and humid climate promoted the development of agriculture, laying the foundation for the rise of the Hongshan agricultural culture (Xi et al.,2007).

In the northern part of the Xiliao River Basin, at the Baiyinchangkan site of the Xinglongwa Culture in Linxi County, a stone-carved human figure (Figure 2) was unearthed, with an extremely simplified facial modeling technique, where the eyes are constituted by only two oval-shaped concave pits. In addition, a shell human face, a stone human face inlaid with shell decorations, and a Dongzhai-type double stone human face were also unearthed (Duan,2005). The shell human face (Figure 3a) has concentric circular eyes, no eyebrows or nose, with

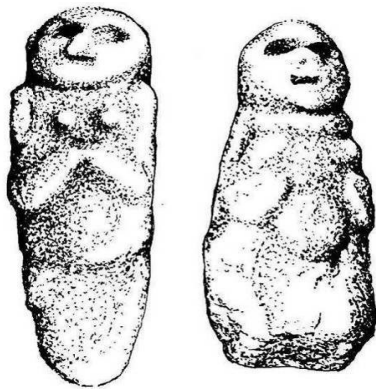
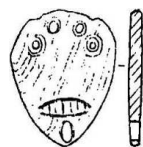


Figure 2: Xinglongwa Culture human figure unearthed at Baiyinchangkan (Source: Wang Gang, "From the Xinglongwa Stone Carvings to Primitive Worship")

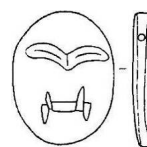
two round dot decorations above the brow center; the mouth is open, showing vertical lines representing teeth; there is an oval dot decoration below the mouth. The inlaid shell stone human face (Figure 3b) has eyes represented by two upward curved connected arcs, no nose, and a mouth with sharp upper and lower slots. The double stone human face (Figure 3c) has eyes and mouth as three round concaves, with eyebrows and nose bridge forming an integrated "connected eyebrow vertical nose" structure. In 1982, at Zhaobaogou Site No.1 in Aohan Banner, a pottery human head (Figure 3d) was unearthed, with complete facial features, simple and realistic style, and no excessive decoration. At this time, pottery decoration was mainly geometric patterns, and the decoration of human face images had not yet had a significant impact. The discovery of these human face images indicates that as early as 8000 to 6000 years ago, during the Xinglongwa and Zhaobaogou cultural stages, there was already a tradition of making human face images in the Xiliao River Basin. From the perspective of image composition, the facial contour processing of these carvings and sculptures at this time was more arbitrary, generally based on a realistic oval shape; the eyes already had three basic forms: round concave, concentric circle, and flat eyes; with the eyebrow part emphasizing the realistic structure of "connected arc eyebrows", and there were also "connected eyebrow vertical nose" structures integrated with the nose bridge; and the mouth had three forms: round concave, open mouth showing teeth, and slot line.

Human-faces petroglyphs with the same structural features as the shell human face in Figure 2a have only been found in 7 instances throughout the Xiliao River Basin, with 6 of them concentrated in two locations: Bai Miaozi Mountain and Jianyan Mountain in Ongniud Banner. These human-faces petroglyphs are all larger in volume compared to other human face images, clearly dominating (Figure 4 a~f). They all combine the two basic expressive forms of "concentric circular eyes" and "open mouth showing teeth" to constitute the structural characteristics of the face. The modeling style of the petroglyphs is simple and primitive, and the production method is grinding, with very ancient traces that have long been consistent with the color of the rock surface. However, the grooves are generally very deep and can still be recognized under side light conditions. These petroglyphs are less than a hundred kilometers away from the Baiyinchangkan site, belonging to the same mid-Neolithic cultural system in archaeological terms (Tian.2003). The consistency of image features, the unity in spatial position, and the uniqueness of facial feature composition within the region indicate that the creation time of these human-faces petroglyphs is likely to be the same period as these unearthed carved human faces, and they are the earliest works in the Xiliao River Basin. The farthest case appears in Kangjiawan of the Yin River Basin (Figure 3g), chiseled on a huge rock covered with 70 images, with obvious decorative features of the surrounding human faces, already a relatively late work. This phenomenon indicates that the early image features have a certain range of continuity and dissemination.

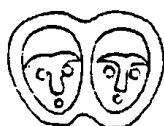
In the Beifudi Phase I site of Yi County, Hebei, which is located in the intermediate zone between the Central Plains, Northern, and Shandong cultural regions, more than ten pottery masks carved from the belly pieces of straight-bellied pots were unearthed (Figure 5). The archaeological age is comparable to the Xinglongwa Culture, and the modeling style is realistic. Archaeologists speculate, based on the quantity unearthed and their placement, that they might have been auxiliary sacred artifacts used for rituals or witchcraft for driving away



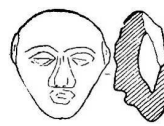
a. Baiyinchangkan Shell Mosaic Human Face



b. Baiyinchahkan Inlaid Shell and Stone Human Face



c. Dongzhai Stone Human Face



d. Zhaobaogou Pottery Human Head Sculpture

Figure 3: Anthropomorphic faces from the Xinglongwa and Zhaobaogou cultures (Source: Inner Mongolia Autonomous Region Institute of Cultural Relics and Archaeology. Baiyinchanganhan - Excavation Report of a Neolithic Site, Science Press, 2004.)

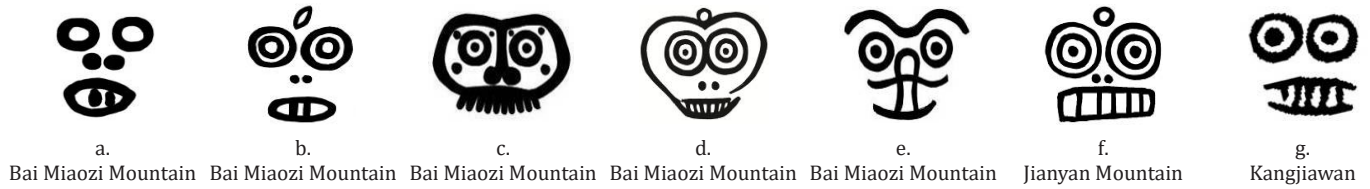


Figure 4: Human-face Petroglyphs with Open Mouth and Concentric Circular Eyes Structure

epidemics, used to disguise deities or ancestors (Duan,2005). At the late Zhaobaogou Houwa site, many talc-carved human face images (Figure 6) were unearthed, whose morphological features basically continued the characteristics of the Xinglongwa Culture, still a relatively simple objective realistic representation. Even the open mouth and exposed teeth in Figure a are almost identical to the mouth shape of the human-faces petroglyphs. Only Figure d has several deeper grooves on the face, which is likely an early form of tattooed face. At the bottom corner of the giant tuber stone in Bai Miaozi Mountain, there is a human face image with the same lines on the cheek area (Figure 6e).The numerous human face image remains that appeared simultaneously north and south of the Yan Mountains are among the earliest and most well-preserved works seen in China to date, indicating that the cultural practice of venerating human faces had developed early in the Yan Mountains and the Xiliao River Basin.

Around the human-faces petroglyphs in the northern part of Ongniud Banner that feature both eyes and mouths, there are also other forms of human face images with diverse shapes. However, the representation of eyes as concentric circles is the most prominent, with single and double circular rings around the eyes being slightly less common. There are also

realistic flat eyes, and some instances where round pits represent the eyes (Figure 7).

Overall, during this period, the human-faces petroglyphs prominently feature the eyes, with the presence and shape of the contours being irregular. The integrated structural form of the connected arc eyebrows and the continuous eyebrow-nose has begun to take shape, and point-like and linear facial decorations have started to emerge. Although these features have been exaggerated and distorted to varying degrees, they still follow a more realistic pattern in terms of the relationship between the facial features, representing a relatively simple and objective visual form.

3. THE HONGSHAN CULTURAL PERIOD

During the Hongshan Cultural Period, which built upon the foundations of the Xinglongwa-Zhaobaogou Culture, a more developed form of plow agriculture emerged, with fishing, hunting, and foraging economies serving as supplements. Society gradually entered the late Neolithic period and the Copper-Stone Age, but stone tools remained the most important means of production (Xi et al.,2007). The discovery of the Niuheiliang site's temple of the goddess, the cairn group, and the sacrificial square indicates that the Hongshan Culture had already developed advanced forms of social organization and a sophisticated religious belief system. The main distribution of human-faces petroglyphs also shifted gradually southward to the Yingjin River-Yin River basin, following the shift in the cultural focus of the Hongshan Culture.

In the Honggerlitu burial site at Qiagan Nur Sum in Baarin Right Banner, Inner Mongolia, two pottery human face images (Figure 8a) were excavated. Their common features include an oval outline, deep grooves forming an arc-shaped eyebrow, eyes and nose represented by circular concaves, and a mouth depicted as a straight groove. Notably, both have two oblique lines extending outward from the lower outer corner of the eyes and the sides of the nostrils, resembling tear traces down the cheeks. The only difference between the two is that the larger one has an almond-shaped flat eye, a realistic detail also found on the goddess statue at the Niuheiliang site. Mr. Guo Dashun has pointed out that the postures of the human figures in Baiyinchangkan, Niuheiliang, and other places are similar, and the treatment of the facial parts is close, all related to the postures of priests (Guo,2008). It seems that the creation of these human face images and human-faces petroglyphs was for the needs of primitive religion.

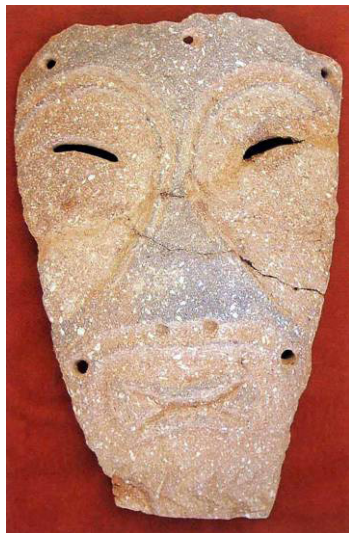


Figure 5: Beifudi Pottery Carved Masks (Source: Duan Hongzhen, "Excavation of the Prehistoric Site at Beifudi, Yi County, Hebei")

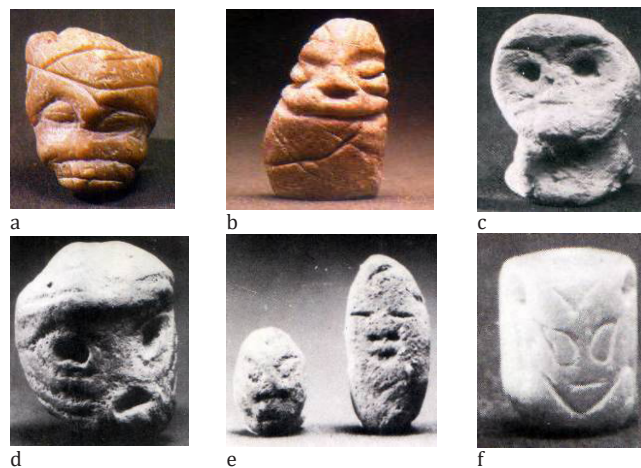


Figure 6: Talc Stone Carvings of Human Faces from the Houwa Site of the Zhaobaogou Culture (Provided by Zhao Hui)

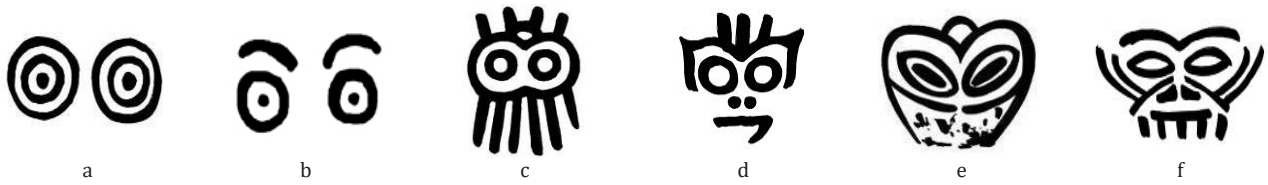
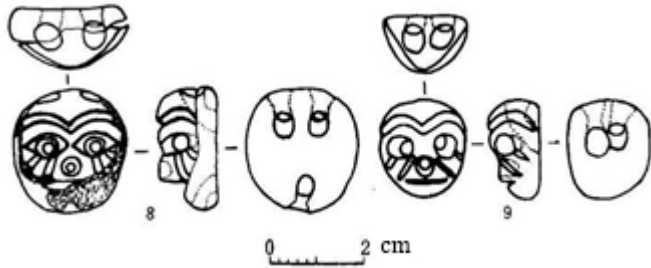


Figure 7: Human-Faces Petroglyphs in the Northern Part of Ongniud Banner



a. Honggerlitu Hongshan Culture Pottery Human Face Sculpture (Source: Subude, "Honggerlitu Hongshan Culture Tombs")



b. Niuheliang Goddess Head Sculpture (Source: Liaoning Provincial Institute of Cultural Relics and Archaeology, "Niuheliang Site")

Figure 8: Human-Face Images in Hongshan Cultural Archaeological Remains



a. Weitang River



b. Banzhijian



c. Banzhijian



d. Kangjiawan

Figure 9: Xiliao River Basin Petroglyphs of Human Faces with Connected Eyebrows and Circular Eyes

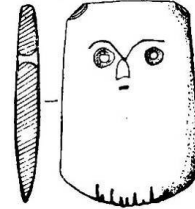
In Hexigten Banner's Weitang River, an unearthed petroglyph (Figure 9a) was discovered, which bears a strong resemblance to the facial composition of the Honggerlitu pottery human face sculptures, featuring connected arc eyebrows, a triangular nose, and the shape of the mouth. It was found by local farmers in the yellow soil layer 3 to 4 meters below the surface while they were extracting soil. By comparing with relevant archaeological reports, the cultural layer of a Xiajiazhan Lower Layer culture site 2 kilometers south of the petroglyph is no more than 1.5 meters thick at its deepest (Gai and Gai,2002). Additionally, two jade facial ornament pieces from the Hongshan Culture collected by the Baarin Right Banner Museum also feature a triangular nose (Wu,2000) (Figure 10 a~b). Therefore, it can be inferred that the age of these artifacts predates the Xiajiazhan Lower Layer culture and should be attributed to the Hongshan period. This facial image with connected arc eyebrows and a triangular nose also appears on a large stone shovel unearthed in Tuoketuo County, which has no practical function (Figure 10c), and similar human-faces petroglyphs are distributed in the Yin River basin as well as in Ongniud Banner.

Since the 1970s, a type of pendent cloud-shaped jade artifact has been unearthed from several archaeological remains of the Hongshan Culture (Liu,1998) (Figure 11), among which some have a unique decorative pattern, representing eyes with two symmetrical counterclockwise swirling whorls, a styling method that had not appeared in the earlier Xinglongwa and Zhaobaogou cultural periods. This swirling decorative style has also appeared on pottery unearthed from the Niuheliang Hongshan Culture site (Figure 12). Some scholars believe that this swirling decorative style, which appears extensively in the Miaodigou Culture remains, corresponds roughly to the middle period of the Hongshan Culture. The swirling pottery of the Hongshan Culture mainly appears in the fourth phase, with an archaeological age dating between 3500 and 3000 BC (Suo and Li,2011) Before the Hongshan Culture, the pottery decorations in the Xiliao River Basin were primarily characterized by zigzag patterns. The popular black arc patterns, swirling patterns, and arc-edged triangular patterns in the painted pottery at this time may have been influenced by the Miaodigou Culture (Wu,2000). In the northeastern Heilongjiang River Basin, this swirling style was also popular during the same period and appeared extensively

in rock art and other archaeological remains, with a popularity that far exceeded that of the Xiliao River Basin. Therefore, there is also the possibility of mutual influence between the Northeast Asian swirling style and the Hongshan Culture of the Xiliao River. In summary, the swirling pattern that appeared on various carriers around 6500 to 5000 years ago became one of the typical styles of the middle period of the Hongshan Culture.

In the Yingjin River-Yin River basin, there are two human-face petroglyphs with a style similar to the eyes of the cloud-shaped jade artifacts, unearthed at the Sanzadian Stone City site of the Xiajiazhan Lower Layer Culture. According to reports from the Inner Mongolia Institute of Cultural Relics and Archaeology, one of them is described as "double vortex patterns, partially pressed under the stone walls of Xiajiazhan Lower Layer Culture buildings"; the other is a "facial pattern composed of double vortex patterns and folded lines (Figure 13a)," carved on a bedrock in the center of a passage. Along with these, an additional concave pit petroglyph was also unearthed. These three petroglyphs were excavated, and as the archaeologists have stated: "Based on their stratigraphic position within the site, it can be confirmed that the creation time of these petroglyphs should be at least contemporary with or earlier than the Xiajiazhan Lower Layer Culture."(Guo and Hu,2006) This clear stratigraphic correspondence between the petroglyphs and the archaeological culture is extremely rare in the country, providing a scientific basis for dating the petroglyphs. Additionally, archaeological materials indicate that a vortex pattern image in Gushanzi, Yingjin River-Yin River basin, is pressed under a six-meter-thick accumulation layer of the Xiajiazhan Lower Layer Culture (Gai and Gai,2002) corroborating the petroglyphs from Sanzadian and further confirming the fact that this type of petroglyph predates the Xiajiazhan Lower Layer Culture.

The vortex pattern and folded line combination human face structure found at Sanzadian (Figure 13a) is also discovered on a perilous cliff at the Hongshan Culture site on Red Mountain in Chifeng City (Figure 13b). The two share almost identical morphological characteristics, with the only difference being that the Sanzadian petroglyph was made by deep chiseling and grinding, while the Hongshan petroglyph was created by dotted pecking. Considering the difficulty of production, the Hongshan



a, b: Baarin Right Banner Jade Human Face (Source: Xi Yongjie, "Aesthetic Charm of Hongshan Culture Jade Sculptures")

c. Tuoketuo County Large Stone Spade (Source: Chen Xingcan, "Several Ground Stone Tools Discovered in Tuoketuo County, Inner Mongolia")

Figure 10: Hongshan Culture Human-Face Relics

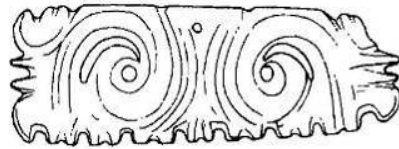


Figure 11: Hongshan Culture Cloud-shape Jade Artifacts (Source: Liu Guoxiang, "A Study on the Cloud-shape Jade Artifacts of the Hongshan Culture")

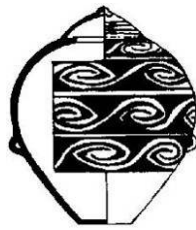


Figure 12: Pottery Decorations Unearthed at Niuhefang (Source: Suo Xiufen, "A Study of the Hongshan Culture," etc.)

located in the Yingjin River-Yin River basin and should be works from the same period.

Judging from the production methods and traces, the petroglyphs in the Yingjin River-Yin River basin that belong to the same period as the vortex patterns have begun to exhibit some new plastic features and structural types (Figure 14). These mainly include: square contours with rounded corners (a~c), multiple arc-shaped wrinkle decorations on the forehead (d), combinations of oval contours and rays (e~f), and the "connected arc eyebrow" structure of outline-less human faces that has become standardized (g~k), etc.

petroglyph, located on a steep mountaintop cliff with very narrow footholds and difficult leverage, is quite challenging to create a complete figure; on the other hand, the Sanzadian petroglyph, situated on a gentle slope of the stone city and close to a water source, is relatively much easier to produce using deep chiseling and grinding techniques. These human-face petroglyphs, primarily characterized by vortex patterns, are

Overall, during the Hongshan Cultural Period, although eyes remained an essential element in human-faces petroglyphs, the prominent role of concentric circular eyes has been significantly diminished, with an increase in flat eyes and round dot eyes; the eyes have evolved from circular, concentric circles, and double rings to vortex patterns; the standardization of vortex eyes, rayed contours, and connected eyebrow



a. Sanzadian Petroglyphs



b. Hongshan Petroglyphs

Figure 13: Vortex-Eyed Human-Faces Petroglyphs in the Yin River-Yingjin River Basin (Photographed by Zhu Lifeng)



a

b

c

d

e

f



g

h

i

j

k

Figure 14: Human-Faces Petroglyphs from the Hongshan Cultural Period in the Yin River Basin

eyes has become a new expressive feature; multiple wrinkles on the forehead and various metaphorical decorative elements such as tear traces have begun to appear on the face; the composition of various elements of the human face tends to become more standardized, regularized, and symbolic.

4. THE XIAOHEYAN-XIAJIAZHAN LOWER LAYER CULTURAL PERIOD

Following the Hongshan Culture, the Xiaoheyan Culture marks a transitional phase to the Xiajiazhan Lower Layer Culture, with the influence of the Central Plains culture becoming increasingly significant as it moved northward, approximately during the Copper-Stone Age. This period coincides with a cooling event within the Holocene warm period around 5000 to 4000 years ago, which saw the first expansion of the Horqin Sandy Land. The once-flourishing Hongshan agricultural culture declined, with a reduction in settlement sites, and the fishing and hunting culture regained its importance. Around 4000 years ago, river downcutting formed the current second-level terraces and new floodplain benches, providing safer and more suitable places for agriculture during the Xiajiazhan Cultural period (Xi et al.,2007). The distribution of human-faces petroglyphs further expanded during this time, reaching its most prosperous phase.

In the southern part of Ongniud Banner, at the Maohai Mountain and Dahei Mountain petroglyph sites, there are numerous human-faces petroglyphs with ear and head ornaments, which represent a very unique style of petroglyphs found within the Pacific Rim. These human-faces petroglyphs have distinct facial features and contours, and a preference for rhombus or almond-shaped faces seems to represent a unique mark of a certain ethnic group. The decorative features outside the contours are also very distinct, mainly consisting of concrete representations of cross shapes and fish fins and tails. This combination of human faces with fish patterns has precedents in the painted pottery of the Yangshao Culture in the Neolithic Age of China, both featuring ear ornaments, cheek decorations, and triangular peaks, with themes being a combination of human face patterns and fish patterns. However, the composition of these petroglyphs is not a simple juxtaposition of human faces and fish patterns as seen on the Banpo painted pottery, but rather a transformation of the fish's body into a human face.

Figure 15b is the most complete and delicate human face image existing at Dahei Mountain, prominently featuring "fish fins," "cross-shaped stars," and large triangular zigzag patterns. Judging from the image, it can be intuitively referred to as a "fish pattern human-face image." The specific composition method involves decorating the upper half of the diamond-shaped human face with dense large triangular zigzag patterns, adding a fish tail at the jaw, and fish fins at the gill area, integrating the fish pattern and the human face image into one. This composition method is significantly different from the early human face images in the northern part of Ongniud Banner, with a clear span of ages. Its basic characteristic is the composite construction of various modeling elements, which, although inherited from the "connected arc eyebrows + triangular nose" style of the Hongshan Culture period, is rigorously shaped, emphasizes

fixed patterns, and adds decorations to the ears and top areas. These petroglyphs, chiseled on the dark brown basalt, have marks that are slightly lighter than the deep tone of the rock surface but already very close, indicating a considerable age. The main production method is point pecking, with fine chisel points, each about 1 to 2 millimeters in diameter. Some lines, after pecking, are further processed by grinding, with widths mostly between 5 to 8 millimeters and depths within 2 millimeters. It is relatively difficult to achieve this level of processing using Neolithic stone chisels and grinders within such width ranges; it is highly likely that metal tools were already employed.

Every detail of the human face image is executed with extremely standardized and rigorous decorative techniques. The vivid depiction of fish patterns may be related to the livelihood of people at the time, which was primarily based on fishing. The direct decoration of cross-shaped stars adds a touch of mystery to the image. These star shapes easily evoke associations with light, seemingly expressing the people's longing for warmth at that time.

Archaeological remains from the Xiaoheyan culture period have not yielded materials corresponding to the fish-patterned human faces, but many large triangular zigzag pattern pottery unearthed at sites such as Shipengshan exhibit the same decorative techniques as seen on the top of the fish-patterned human faces (Figure 16). In addition to the consistent form, both pursue a compositional effect that is refined and symmetrical.

The aspiration for light and the desire to improve living conditions coincide with a 600-year cooling event that began around 4800 years ago in the Xiliao River Basin (Xi et al.,2007). During this period, the climate deteriorated, the population decreased, and the land suffered from severe desertification due to long-term extensive agricultural activities (Song et al.,2002). It is quite possible that before the rise of the Xiajiazhan Lower Layer Culture, there was a group in this area that primarily relied on fishing, hunting, and gathering for their livelihood. In the face of climate cooling and agricultural decline, they did not choose to migrate to warmer southern regions but instead bravely faced the difficulties by staying in the dry and cold, barren ecological environment. Judging from the straight-line distance between the petroglyph sites of Dahei Mountain and Maohai Mountain, the activity range of this group was not large, leaving behind fish-patterned human face images within a relatively small area (Zhu, 2013).

Contemporary with the fish-patterned human-faces petroglyphs, there are also almond-shaped or oval human-faces petroglyphs, similarly adorned with cross-shaped or fin-shaped earrings (Figure 17). The core facial images of the petroglyphs from this period are characterized by a basic composition of connected arc eyebrows, round eyes, triangular noses, and elliptical mouths. This structured composition has been found in both the Yingjin River-Yin River basin and the Baichagang River basin, but without the additional decorations of cross shapes or fins, suggesting that they likely belong to a late Hongshan Culture period, slightly earlier than the Xiaoheyan Culture, and represent a transitional type.

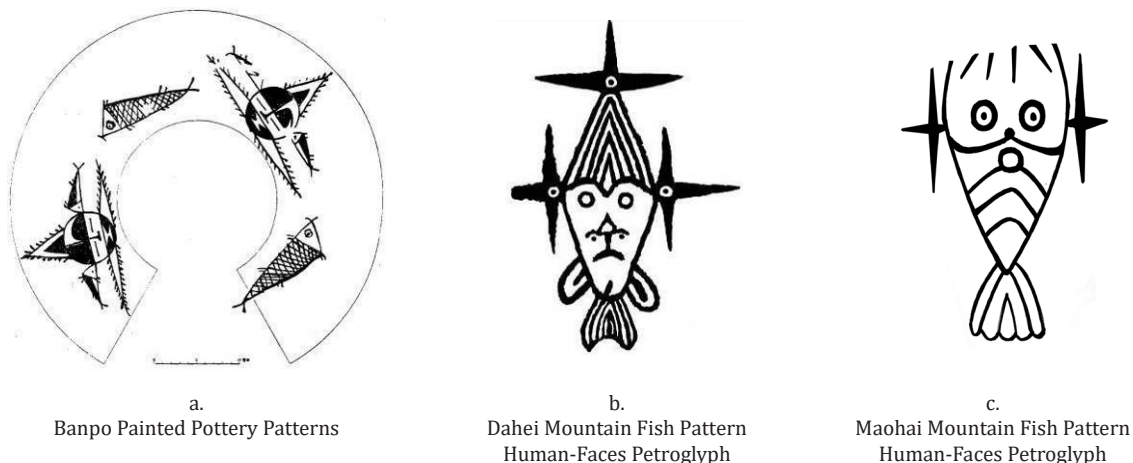


Figure 15: Fish Pattern Human-faces Relics

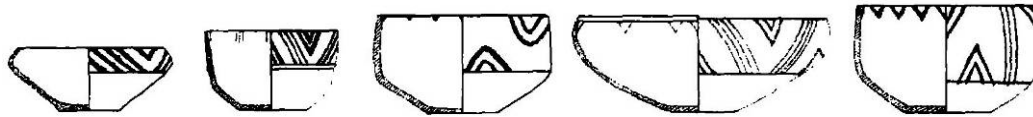


Figure 16: Pottery Decorations from the Shipengshan Site of the Xiaoheyuan Culture (Source: Suo Xiufen, "Preliminary Exploration of the Xiaoheyuan Culture Periodization")

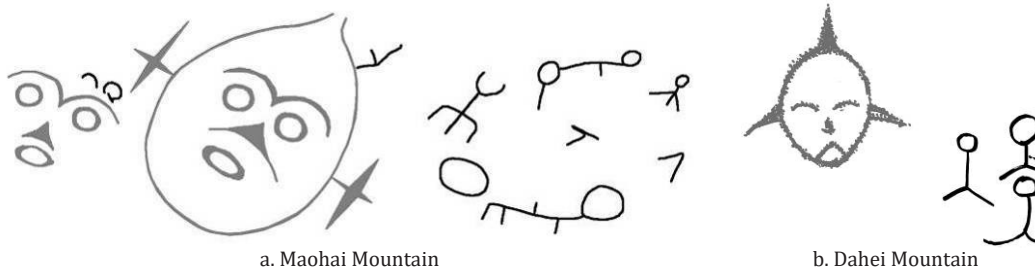
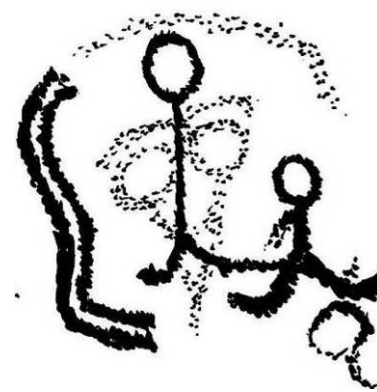


Figure 17: Petroglyphs in the Southern Part of Ongniud Banner



a. Dahei Mountain Superimposition Relationship Original Diagram



b. Dahei Mountain Superimposition Relationship Traced Diagram

Figure 18: Superimposition Relationships of Petroglyphs at Dahei Mountain

On top of these earlier human-faces petroglyphs, a large number of symbolic petroglyphs have been superimposed (Figure 18). These symbols are relatively newer, roughly made, and clearly date to a period later than the fish-patterned human faces. The lines are created by dotted pecking or shallow grinding, often showing distinct scraping marks from metal tools, and some appear to be casually made, lacking deliberate embellishment. These petroglyphs have apparently lost their sacred significance and more closely resemble notational symbols, reflecting a human instinct for marking. The shapes are mostly simple circles and "person" shapes connected to form running humanoid figures, with additional symbols resembling constellations.

Among these symbol petroglyphs composed of circles and lines, there are very few representations of human faces, which are the latest works in the Ongniud petroglyphs. The accompanying images from this period feature animals, primarily reindeer, with some animals depicted with ropes around their necks, indicating that the livelihood at the time was clearly pastoral. Therefore, the petroglyphs could not have been made earlier than the rise of animal husbandry in the Xiajiazhan Upper Layer Culture about 3000 years ago. The trend of climate becoming drier and colder during this period led to the gradual replacement of dryland agriculture with pastoralism, which was better adapted to the cold and dry climate. It is highly likely that the petroglyphs were made by nomadic peoples. Comparing the two phases of petroglyphs at Dahei Mountain and Maohai Mountain, which are distinctly different in style and content, and also in the techniques used, it is probable that they were not created by the continuation of the same ethnic group.

In the Yingjin River-Yin River basin, at petroglyph sites such as Banzhijian and Kangjiawan, there are many square-contoured human faces and outline-less combinations of eyebrows, eyes, and noses with a similar stylistic approach. The use of "connected arc eyebrows" and "triangular noses" in these combinations is quite common, with a distinct stylistic characterization. Similar images have also been found

at the petroglyph sites of Dalishan in Zarud Banner and Panjiadian in Weichang County, and should be considered works from the same period. Notably, a large boulder petroglyph from Kangjiawan, which was relocated to the Shi Boyuan in Chifeng city due to the construction of the Sanzadian Reservoir, covers an area of 20 square meters on one side and is densely packed with 70 images of various forms, the vast majority being human faces. Judging from the U-shaped grooves, they appear to have been made with stone tools; the abrasion marks on the yellow ochre granite have blended with the stone surface, but the traces are shallow, making it unnoticeable from a distance that this was once a sacred wall of images revered by ancient people. In addition to the aforementioned characteristics, many of the human face contours here are composed of wavy and hinged patterns, featuring more arbitrary shapes like triangles and trapezoids, filled with decorative significance. They bear a striking resemblance to the facial styles on jade artifacts from the Liangzhu and Shijiahe cultures of the same era (Figure 19a), and are even essentially identical to the animal-faced halberd images unearthed from the Shang tombs at SuBuTun in Shandong (Figure 19b), likely influenced by the northward spread of the cultures around Lake Tai and the Haidai region. Similar human face images have been found in the Central Plains up to the Western Zhou period, indicating that this style persisted for over a thousand years. During the Xiaoheyuan-Xiajiadian Lower Layer Culture period, which had entered the Copper-Stone Age and the Bronze Age, intricate decorations appeared on painted pottery, jade, and bronze ware, influencing the modeling of human-faces petroglyphs, with the Kangjiawan human-faces petroglyphs being a specific manifestation.

Another unique feature is the emergence of plant forms in the petroglyphs of this stage, mostly branch-like "canopy" structures combined with human faces. This may indicate a deep exchange between the groups that venerated human faces and those that worshipped forest trees, showing signs of cultural integration. In the Haidai region, during the 1960s, more than ten large-mouthed pottery zuns used for rituals were unearthed at the Dawenkou Culture site in Ju County, Shandong. One of

them has a tree-like plant carved at the top of a geometric symbol on the outer abdominal wall, which some scholars believe to be a ritual symbol for Pray for a bountiful harvest (Liu, 2002). The appearance of this symbol may be slightly earlier than or roughly contemporaneous with the plant petroglyphs at General Cliff in Lianyungang, Jiangsu. In the Xiliao River Basin, located on the southern slopes of the Greater Khingan Range, people have lived among forests and grasslands since ancient times. The “canopy” type human face images here, adorned with branch-like headgear, are not only for the ritual function of Pray for a bountiful harvest but are also likely a reflection of the tree burial customs of the northern Altaic-speaking peoples.

Tree burial was a popular ancient funeral practice among many northern ethnic groups. The Mongol ancestors, the Shiwei clan, the Khitans, and the Jurchens, who emerged from the densely forested Greater Khingan Range, all had the custom of tree burial, reflecting the shamanistic concept of these nations that “the spirits of the deceased return to the forest” (Figure 20). For instance, during the Northern Dynasties, the Shiwei people would “mourn for three years upon the death of their parents, placing the bodies on the trees in the forest”(Liu,2002). Even up to the Tang Dynasty, the Shiwei still maintained this custom; the Khitans believed that “those who mourn and cry for their dead parents are not brave. They place the bodies on the mountain trees, and after three years, they collect the bones and burn them”((Tang) Li,1974). After the mid-Liao period, tree burial became rare (Song and Shi,2001). Petroglyphs reflecting the custom of tree burial have a clear distribution pattern on the northern grasslands of China, with discoveries along an east-west distribution belt from the Xiliao River to Alashan, and they are found in great numbers.

In summary, during the Xiaoheyuan-Xiajiadian Lower Layer Cultural Period, the human-faces petroglyphs began to widely integrate various different image elements. The production methods started to include the use of metal tools, and the level of refinement clearly increased. This was specifically manifested in an increase in detailed depictions, the geometrization and decoration of contours, and the standardization of facial feature combinations becoming more apparent. Correspondingly,

with the increase in decoration, the depth of the grooves made by the production tools, whether stone or metal, became much shallower than in the previous two periods.

5. THE HISTORICAL AND CULTURAL PERIOD

Around 3300 years ago, the Holocene Climatic Optimum came to an end, and with the rise of pastoral culture, the Xiajiazhan Lower Layer Culture was replaced by the Xiajiazhan Upper Layer Culture. As the climate in the Xiliao River Basin became drier and colder once again, there was a cultural transformation; the agricultural culture of the Xiajiazhan Lower Layer declined, and the first prosperity of pastoral culture began (Xi et al.,2007). Petroglyphs reflecting the pastoral economy significantly increased in the Xiliao River Basin, and the center of this development shifted towards the Baichagang River Basin. The focus of the artists shifted more towards the animals upon which people depended for survival, and human-faces petroglyphs were no longer the main subject of representation, often found sporadically among animal petroglyphs.

According to the survey report by Zhang Songbai and Liu Zhiyi, on a fragment of stone in Shanqian Village of the Baicha River Basin, there were two finely lined oval contour petroglyphs and two outline-less human-faces petroglyphs, which have now been lost (Figure 21a). The two outline-less human faces feature stylized connected arc eyebrows and heavy ringed eyes. The most distinctive feature is the presence of one large and one small patterned human face. The facial features retain the legacy of the Xiaoheyuan period, with connected arc eyebrows, concentric circle eyes, triangular noses, and open mouths showing teeth, all present. The cheeks have incised lines, and the contours are adorned with connected arc decorations. The two images seem to have gender attributes, with one having an inner and the other an outer arc-shaped contour decoration, representing expansive and restrained polar expressions. The one with concentric circle eyes and rays is likely to be female, and this face is larger, which corresponds to the shamanistic tradition of female dominance. The petroglyph has finely incised lines that could not have been achieved with stone tools, indicating it is a work from the Bronze Age, later than the Xiajiadian Lower Layer



Figure 19: Archaeological Remains with Rich Decorative Style (Source: Zhang Guangzhi, “The Formation of Chinese Civilization”) and Human-faces Petroglyphs

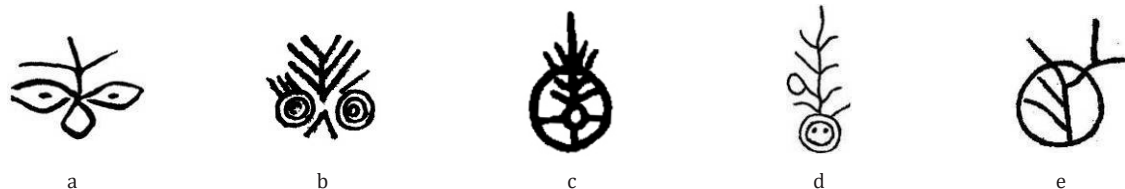


Figure 20: Human-faces Petroglyphs Combined with Plants in the Xiliao River Basin

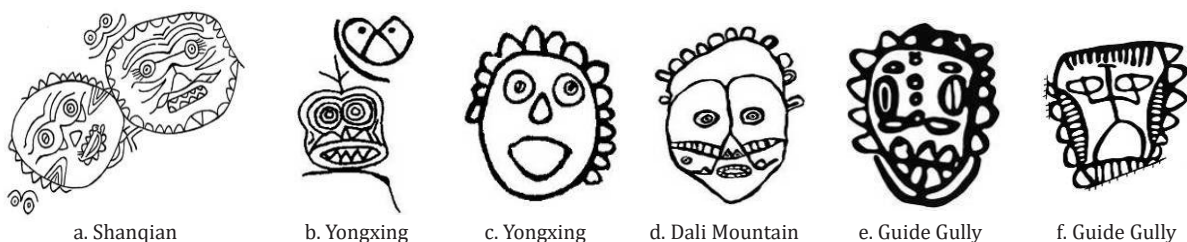


Figure 21: Xianbei Style Human-faces Petroglyphs

Culture. Petroglyphs of the same style have also been found in the nearby Yongxing site, showing a strong decorative significance.

This intricate decorative technique with dense lines and arc-shaped contour borders is consistent with the style of a large human face image at Dali Mountain in Zarud Banner, and is also found in Kucaigou at Zhuozhishan and Guidegou at Helan Mountain, and is more commonly seen in the gold plaques of the Ordos and Xianbei styles. A human-faced gold ornament plaque unearthed at Bei Halatu in Yaolin Maodu Sumu, Horqin Left Middle Banner (Figure 22), was a protective amulet used by Xianbei nobility (Xu,2006), with its oval head edge decorated with arc patterns. The use of arc patterns in China was mainly popular in the bronze mirror decorations from the Warring States period to the Han Dynasty, which corresponds in time with the gold ornament plaques and petroglyphs. In 1988, villagers in Baarin Right Banner discovered a Han Dynasty bronze mirror while digging an irrigation ditch (Miao,1989) (Figure 23), indicating that this decorative style, widely circulated in the Central Plains, had already influenced the Xiliao River region.

This technique was not found in the previous Xiajiazhan Lower and Upper Layer cultures, therefore, the human-faces petroglyphs with a consistent style are likely to be works from the period when the Xianbei regime was active in the Xiliao River Basin, between the 2nd and 6th centuries AD. A bronze-gilded mask was discovered at the Mao'ershan tomb in Jilin (Figure 24), and archaeologists speculate that it might be a mask from the ancient kingdom of Buyeo, which is roughly contemporaneous with the Xianbei(Guo,2005), with its copper bubble decoration on the top of the head and the treatment of the open mouth being essentially the same as that of the human-faces petroglyphs at Dali Mountain, indicating that there was continuous exchange and contact between the prehistoric cultures of the Xiliao River Basin and the northeastern coastal region.

In the Xiliao River region, a human-faced bronze plaque unearthed at the Hongshanhou site of the Xiajiazhan Upper Layer culture (Figure 25a) indicates that the funerary custom of burying masks with human face images began at least 3000 years ago; whereas the gold mask covering the face in the tomb of Princess Chen of the Qinglongshan in Naiman Banner (Figure 25b), dated precisely to 1018 AD according to the epitaph (Sun,1987), several human-faced images with similar head



Figure 22: Xianbei Gold Ornament Plaque from Horqin Left Middle Banner (Source: Xu Ying, "Nomadic Ethnic Groups' Plastic Arts in Northern China")



Figure 23: Han Dynasty Bronze Mirror Unearthed in Baarin Right Banner (Source: Miao Runhua, "Discovery of a Han Dynasty Bronze Mirror in Baarin Right Banner, Inner Mongolia")

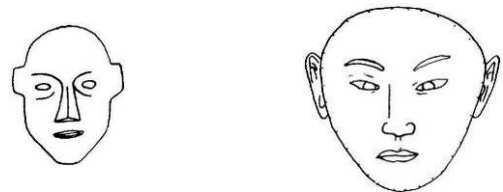
features in Pingfang and Wangjiayingzi are likely to be works from the same period (Figure 26). Some scholars believe that among the northern ethnic groups who practice shamanism, this custom of covering the face has specific forms and meanings, serving as a funerary implement and a product of shamanic soul concepts (Guo,2005). Therefore, the late period of human-faces petroglyphs may have lasted for about 2000 years, roughly from the Xiajiazhan Upper Layer culture to the Liao Dynasty.

In the Yin River basin, at petroglyph sites such as Banzhijian and Wangjiayingzi, there is a type of human-faces petroglyph with a bald head but depicted with an arc-shaped hairline (Figure 27), which seems to be related to the popular "skinned hair" style of the Khitans. This image of skinned hair is similar to the hairstyle of the Khitans depicted in the murals of Liao tombs. Its overall appearance is also very similar to the bronze or gold and silver masks unearthed from Khitan tombs. These human-faces petroglyphs are likely to be works of the Khitans from the Liao period or earlier, characterized by realism and secularization.

In the Heyan Village, Hexigten Banner, along the middle reaches of the Xilamulun River, there are several realistically styled human-faces petroglyphs. The top one-third of each face is delineated to resemble an area like a flat-topped hat, with a bun on top, and two of the hat brims are adorned with circular decorative objects in the center, appearing very exquisite. The facial expressions are relatively simple, with less emphasis on the depiction of eyes; two of the human faces even omit the eyes altogether (Figure 28a). Similar hat styles are commonly seen in the tomb murals of the Mongol Yuan and Liao Jin periods, and those with decorative inlays on the brims appear to have held a higher social status (Figure 28b). Both Khitan men and women had the custom of wearing earrings and necklaces (Song, 2001), and the circular decorations appearing on the necks of the human-faces petroglyphs are likely related to this custom, suggesting that they should be works of the Khitans from the historical period.



Figure 24: Bronze Mask from Mao'er Mountain (Source: Guo Shuyun, "Northern Funerary Masks and Shamanic Concepts of the Soul")



a. Hongshanhou Human-faces Bronze Plaque b. Princess Chen Gold Mask

Figure 25: (Source: Liu Bing, "A Preliminary Discussion on Metal Masks in Liao Dynasty Funerary Customs and Related Issues")

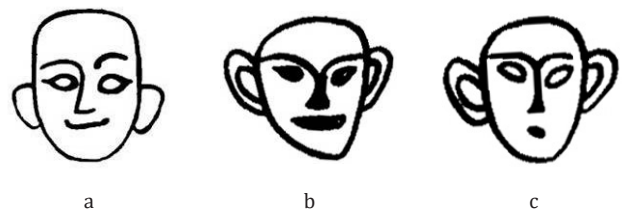


Figure 26: Mask-type Human-faces Petroglyphs at Wangjiayingzi, Yin River



Figure 27: The Custom of Skinned Hair in Petroglyphs and Tomb Murals

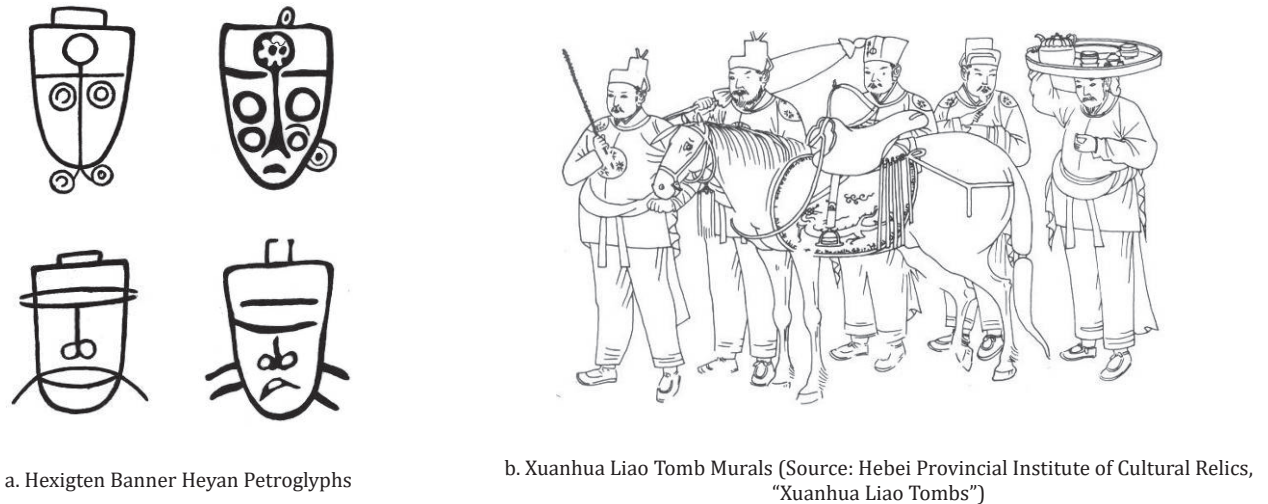


Figure 28: Liao Dynasty Hat Styles in Petroglyphs and Tomb Murals

Table 2: Chronological Table of Human-Faces Petroglyphs in the Xiliao River Basin

Period	Time	Archaeological Culture	Distribution Area	Main Types
I	About 8000 - 6500 years ago	Xinglongwa Culture Zhaobaogou Culture	Northern Ongniud Banner	A. Concentric circular eyes + open mouth showing teeth B. Simple facial markings
II	About 6500 - 5000 years ago	Hongshan Culture	Northern Ongniud Banner Weitang River Baicha River Yingjin River-Yin River	A. Connected arc eyebrows B. Vortex pattern eyes C. Rayed contours D. Multiple wrinkles
III	About 5000 - 3300 years ago	Xiaoheyang Culture Xiajiadian Lower Layer Culture	Southern Ongniud Banner Yin River Baarin Right Banner Zarud Banner Weichang County	A. Fish pattern human faces B. Star-shaped earrings C. Connected arc eyebrows + triangular nose D. Tree canopy E. Square contours F. Wavy curved contours
IV	About 3300 - 1000 years ago	Historical and Cultural Period	Southern Ongniud Banner Baicha River Xilamulun River Yin River Zarud Banner	A. Contours + connected arc patterns B. Delicate facial markings C. Skull-shaving style D. Headdresses

6. CONCLUSION

Through the above comparative analysis of the archaeological cultures and human-faces petroglyphs in the Xiliao River Basin, it can be concluded that around 8000 to 6500 years ago, during the Xinglongwa-Zhaobaogou cultural phase, the human-faces petroglyphs developed a typical style that emphasized concentric circular eyes, emerging in a smaller area with a simple and solemn expression of divinity and the beginning of tattoos, marking the early stage of human-faces petroglyphs in the Xiliao River Basin. Around 6500 to 5000 years ago, the Hongshan Culture saw further development, expanding its coverage area and

evolving into several more fixed stylistic patterns such as connected arc eyebrows, vortex-patterned eyes, rayed contours, and multiple wrinkles, emphasizing the polytheistic attributes of primitive religion, which represents the second stage of the development of human-faces petroglyphs. Between approximately 5000 to 3000 years ago, during the Xiaoheyang Culture and Xiajiadian Lower Layer Culture period, the focus of human-faces petroglyphs began to shift southward and spread to a larger area, featuring patterned characteristics such as fish-patterned human faces, star-shaped earrings, triangular noses, tree crowns, square contours, and wavy curved contours, becoming more closely related to primitive religion and customary beliefs. Both in terms of quantity

and coverage, they reached their peak, marking the third stage of the development of human-faces petroglyphs. Between approximately 3000 to 1000 years ago, as the Central Plains entered the historical and cultural period, the petroglyphs in the Xiliao River Basin shifted to primarily depicting animals with the development of animal husbandry. Influenced by Eastern, Western, and Central Plains cultures, the human-faces petroglyphs continued to undergo some new changes, such as connected arc patterns on the contours, fine tattoos, skinned hair styles, and headdress decorations, with a clear enhancement of decorative intentions and a trend towards secularization. However, their numbers significantly decreased and were eventually replaced by other forms of art, marking the fourth and final stage of development (Table 2).

During the first two developmental stages, the emergence and rise of human-faces petroglyphs coincided with the peak of the Holocene Climatic Optimum in the Xiliao River Basin. The original agricultural culture, accompanied by fishing, hunting, and gathering economies, began to develop in the suitable ecological environment and reached its peak during the Xiaoheyan and Xiajiazhan Lower Layer cultural periods (Xi et al., 2007). Various indications suggest that the development of settled agriculture in the mixed economy region was the basis for the emergence and prosperity of human-faces petroglyphs in the Xiliao River Basin. Although the development and flourishing process of

human-faces petroglyphs may not be entirely consistent with the rise and fall of agricultural culture, it was a catalyst for the diversification of styles in human-faces petroglyphs.

Integrating the above analysis, the periods and main types of human-faces petroglyphs in the Xiliao River Basin are summarized as follows:

Based on the comprehensive study of the periods and stylistic types, it can be preliminarily determined that the diversity of human-faces petroglyph styles is a comprehensive reflection of the living environment, ways of livelihood, and the differences in ethnic cultures. The distribution of human-faces petroglyphs and the particularities of their associated ethnic cultures represent different cultural connotations, and the influence of the local cultural ecology plays a decisive role in the emergence of unique local types. The facial composition methods of human-faces petroglyphs show a regional distribution trend from realistic to abstract, and from objective to subjective. The compositional forms of the elements of the human face gradually become more patterned, standardized, and symbolized. In the final stages, the geometrization of contours, the decoration, and the standardization of facial organ combinations become more evident, presenting characteristics of realism and secularization (Figure 29).

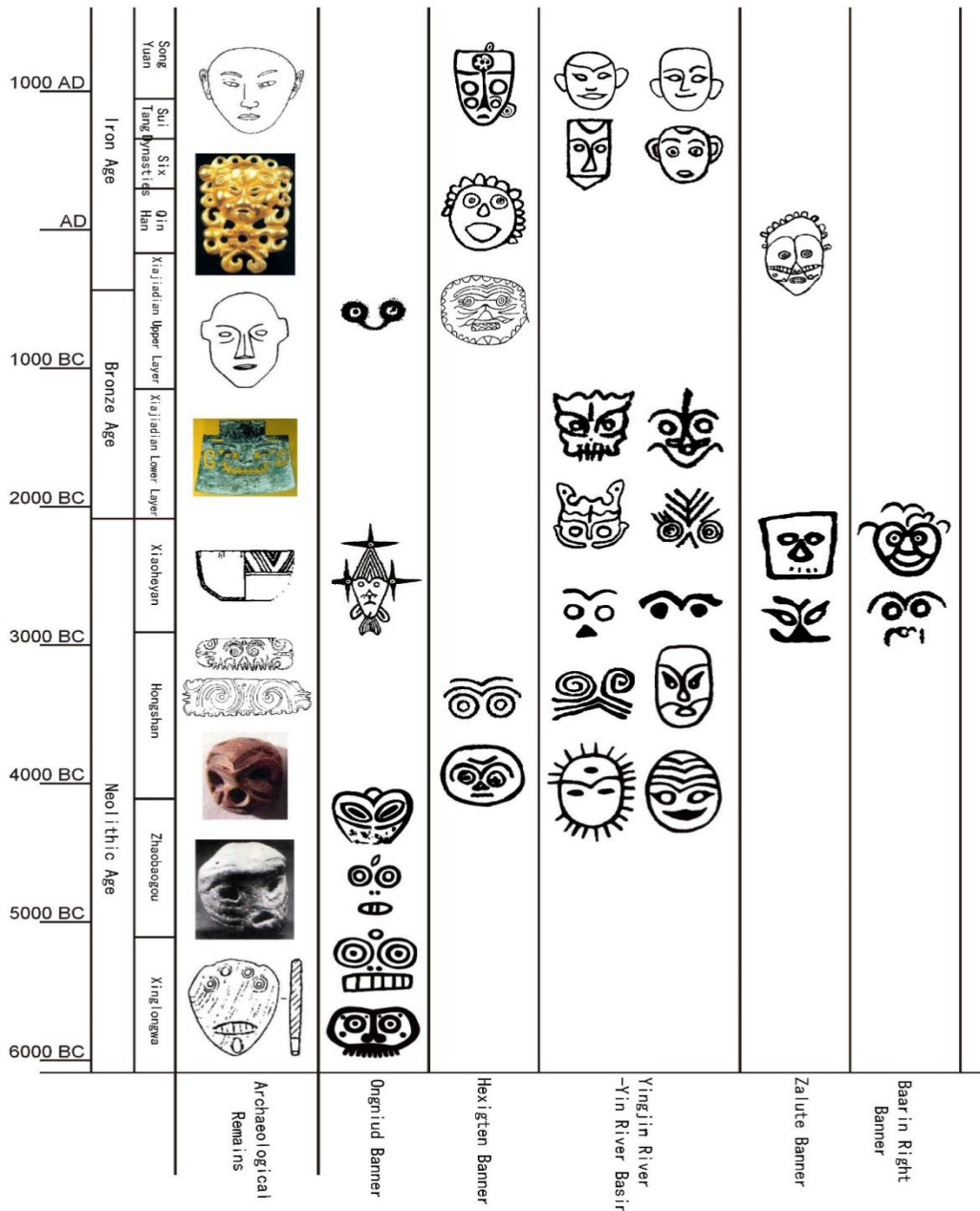


Figure 29: Correspondence between Human-Faces Petroglyphs and Archaeological Cultures in the Xiliao River Basin

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