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### RESEARCH ARTICLE

# PRELIMINARY EXPLORATION OF ROCK ART IN DONGSHAN, LINGWU, NINGXIA, CHINA

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### ABSTRACT

The Dongshan rock art in Lingwu, Ningxia, discovered around in the late 1990s, are numerous and relatively diverse in type. It can be said that this discovery fills a geographical distribution gap of rock art in Ningxia and plays a significant role in revealing the complex trajectories of regional cultural interaction and civilizational exchange. However, due to its relatively recent discovery, and the scholarly literature remains scarce, there is limited public awareness of it. Based on this, this paper will provide a brief introduction to the Lingwu rock art, covering its discovery, geographical location, depicted content, and manufacturing techniques. It will also preliminarily discuss their chronology, artistic style and cultural affiliation, aiming to draw academic attention and thereby stimulate further in-depth research into this regional rock art tradition.

### KEY WORDS

Ningxia, Dongshan, Rock art, Content, Age, Style

Lingwu, located in the central part of Ningxia Hui Autonomous Region, China, extends 98 kilometers north to south and spans 54 kilometers east to west. Its geographical coordinates lie between 105.59°-106.37°E and 37.60°-38.01°N. Due to its location at the junction of the Ordos Platform's western margin fold belt and the Lingyan Platform with the Yinchuan Graben, Lingwu exhibits a terrain characterized by higher elevations in the east and lower elevations in the west. It is naturally divided into two major geomorphic regions: the eastern mountainous area and the western plain, representing a transitional zone from Sahel to steppified desert. With elevations ranging from 1,236 to 1,452 meters, the area has a mid-temperate continental arid climate. Deep within the heart of Yinchuan Plain lies Lingwu, a city on the eastern bank of the Yellow River with a long history and ancient culture. Beyond its renowned Shuidonggou Paleolithic cultural site—a national key cultural relic protection unit—the area also features multiple archaeological sites from different eras, including the Sandaogou Culture, Hengchengzhai, and Han Dynasty tomb clusters.

## 1. DISCOVERY AND INVESTIGATION OF ROCK ART IN LINGWU, NINGXIA

Rock art of Ningxia is primarily distributed across Shizuishan, Helankou, Qingtongxia, Zhongwei, and other areas, following a north-to-south and east-to-west distribution pattern, totaling over 40 sites. It's predominantly based on objective representations of real-world objects.

The discovery of Lingwu rock art initially began in the late 1990s, when scholars gradually started investigating them. In his book, Mr. Zhou Xinghua (2002) recorded that he and local cultural relics workers discovered 15 single-stone rock art on a small hill near Erdao gully

in July 1988. Mr. Li Xiangshi (2005) also conducted two field surveys on them. Staff members of the Lingwu Cultural Relics Management Office, while investigating the Neolithic cultural site of Sandao gully on the east bank of the Yellow River, discovered hundreds of rock art images on stones on nearby slopes. Subsequently, local cultural relics departments continued their exploration and discovered more rock art images. In 2003, the Ningxia Rock Art Research Center formed a team, led by the Lingwu Cultural Relics Management Office, to conduct rock art surveys. Rock art was found in areas such as Sandao gully, Ma'anshan gully, Toudao gully and Erdao gully. Due to the large distribution range, the working team decided to suspend the survey and start organizing a joint investigation team; In 2005, the Ningxia Rock Art Research Center and the Lingwu Municipal Cultural Relics Management Office jointly established the Lingwu rock art survey working group, which conducted field investigations in multiple areas of Lingwu City's Linhe town. This survey was the first comprehensive and systematic rock art census conducted after the discovery of rock art in Lingwu in the 1990s, during which 520 groups of over 2,000 individual rock art images were found, and the distribution areas and quantity of Lingwu rock art were basically clarified.

Compared with other regions of Ningxia's rock art, while Lingwu Dongshan rock art shares certain commonalities in themes, styles, methods, and archaeological value, it also exhibits distinct differences. Its rich connotations and unique forms highlight clear regional characteristics, demonstrating distinctive aesthetic and innovative values. However, due to its relatively late discovery, limited previous field surveys, and the absence of published research reports and academic monographs, academic understanding of it remains extremely limited. In light of this, in September 2005, the Ningxia Rock Art Research Center collaborated with the Lingwu City Cultural Relics Administration. Over a month-long

period, they conducted a comprehensive and systematic survey of the Dongshan rock art sites in Lingwu, collecting extensive raw data and firsthand information. After meticulous post-production organization, the "Investigation Report On Ningxia Lingwu Rock Art" (Qiao Hua, 2013) was officially published in 2013, filling a research gap in this field. This article is a condensed version of the seminal publication.

## 2. INTRODUCTION TO THE ROCK ART OF DONGSHAN, LINGWU

Lingwu Dongshan, located within Lingwu City, bordering the Yinchuan Plain, is a gently sloping hilly area. It belongs to the western section of the Lingyan Platform in the southwestern Ordos Platform. Due to prolonged wind erosion, the surface vegetation here remains sparse. Three ancient river valleys carved by mountain floods—named Ma'anshan gully, Erdao gully, and Sandao gully—run through this region. Dongshan rock art in Lingwu was engraved on the wilderness slopes and valley gentle slopes along these river valleys. Lingwu's rock art was mainly created on isolated stones with brown or dark brown patina. These isolated stones are located at the top, middle, or bottom of slopes, mostly facing north and south, and fewer facing east and west. The isolated stones distributed on alluvial fan surfaces are mostly rolled down from slopes.



Figure 1 Environment of Dongshan Rock Art in Lingwu

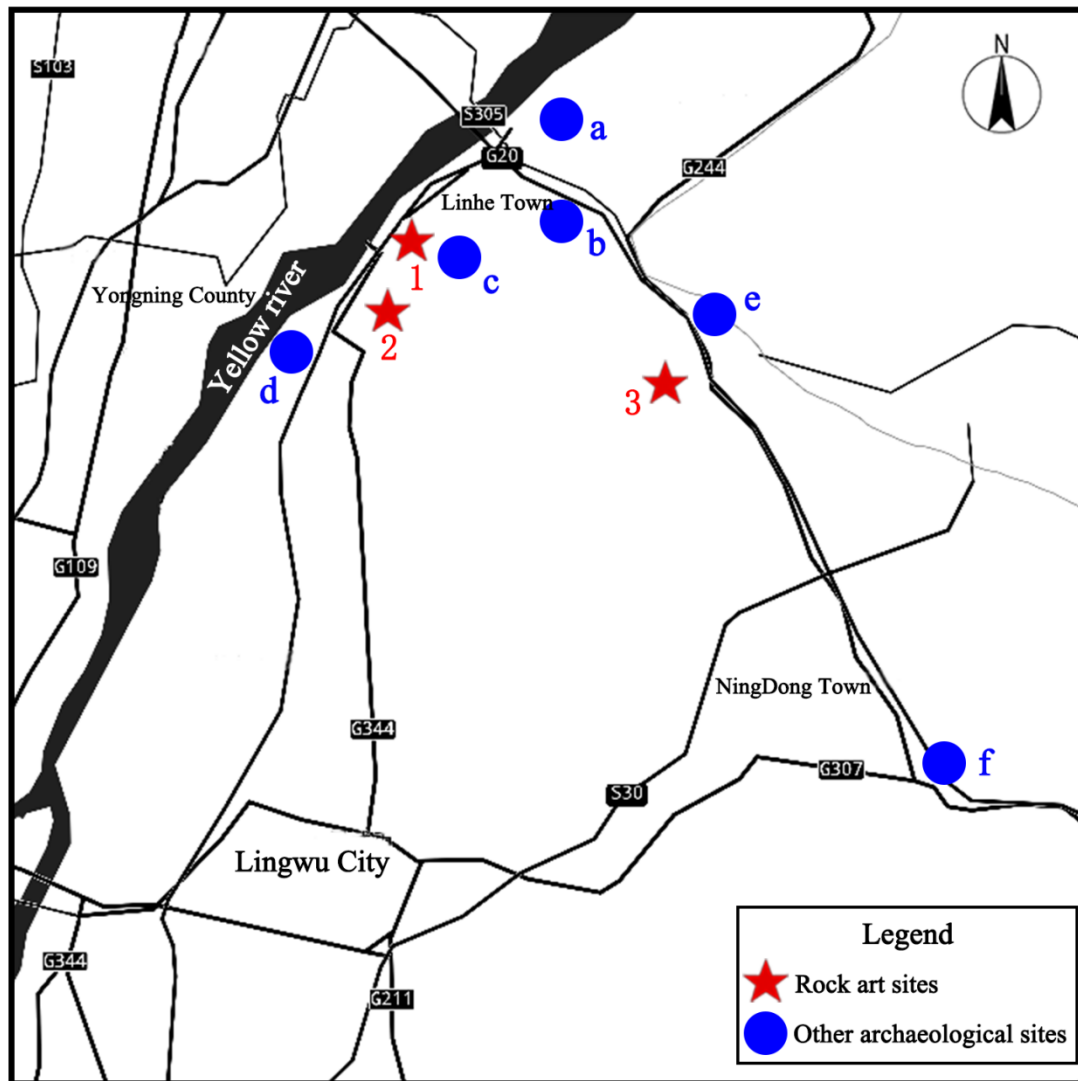


Figure 2 Distribution Map of Dongshan Rock Art and Relics in Lingwu: (1) Ma'anshan Gully Site; (2) Erdao Gully Site; (3) Sandao Gully Site; (a) Hengchengbao Site; (b) Ma'anshan Ganlu Temple; (c) Han Dynasty Tombs; (d) Sandao gully Culture Site; (e) Shuidonggou Ancient Culture Site; (f) Ciyaobu Site.

**Table 1** Classification Statistics of Lingwu Rock Art

Heritage Areas Content	Ma'anshan Gully	Erdao & Sandao Gully	Museum and Centre Collections
Big-Horned Sheep	342	338	314
Argali	1	1	None
Human Riding	4	12	3
Human Shooting	7	1	6
Camel	3	2	None
Horse	60	56	51
Dog	2	11	None
Deer	2	1	2
Cattle	4	None	1
Wolf	22	8	5
Strange Animal	7	4	5
Human Figure	35	33	41
Human Face	4	8	5
Handprint	1	None	None
Squatting Human Figure	7	3	7
Bird	8	3	6
Plant, Waterfowl	1	None	3
Spiral Symbol	25	32	20
Unknown Animal	1	1	None
Other Patterns	16	22	8

The distance between the isolated stones varies, and their distribution and arrangement are irregular, either exposed or semi-buried in sand and gravel. They come in different sizes and shapes. The hardness of the stone is approximately 4 to 6 on the Mohs scale, mostly are red or gray sandstone. The smallest chiseled stone surface of the monoliths is only more than 10 centimeters, while the largest chiseled stone surface reaches 1.5 meters. The largest single rock art measures up to 0.7 meters, and the smallest single rock art is only 2 centimeters in size. Rock art is primarily created on rock surfaces using stone or metal tools with different techniques such as percussion, grinding, and incising. Among these, rock art made by the pecking method account for the majority. From the grooves and incisions of the rock art patterns, the deepest groove reaches 0.5 centimeters, while the shallowest incision is merely a break in the rock's surface skin. Due to the use of different tools, the grooves of the rock art images also vary, mainly including 'V'-shaped, 'U'-shaped, and '┐'-shaped grooves.

The selected stones are all massive black or dark brown rocks. These hard stones, typically exceeding 6 degrees in hardness, are primarily composed of conglomerate and sandstone. They exhibit diverse shapes and sizes, with surface dimensions ranging from over ten centimeters to two or three meters.

Field research conducted in 2005 revealed the remarkable diversity of Lingwu rock art, featuring human figures, human-faced, symbols, and animal motifs alongside vivid depictions of hunting, herding, dancing, and warfare. Of particular significance are the numerous abstract symbols with distinctive designs and enigmatic meanings discovered in the area. Statistical data indicates that 77 spiral-patterned rock art pieces were identified at Dongshan (Quoted from field survey data of Ningxia Rock Art Research Center), all created through dense-point chiseling techniques and representing the largest proportion of symbolic motifs.

Through comprehensive surveys, 431 stones with rock art have been identified in Lingwu region, with 165 found at Ma'anshan gully, 86 at Erdao gully, and 45 at Sandao gully. An additional 135 pieces are housed in institutions including the Ningxia Museum and Yinchuan World Rock Art Museum. The animal figures prominently features sheep, horses, deer, wolves, dogs, and camels. Notably, sheep dominate as the most frequently depicted subject, accounting for 63.5% of the total imagery—nearly two-thirds of the collection. These depictions showcase diverse artistic techniques and stylistic variations. Artists typically emphasize elongated, curved horns and plump, agile bodies. Through precise proportions, they capture the sheep's form and movements with minimal brushstrokes, achieving remarkable visual tension despite the simplicity of the technique.

### 3. INTRODUCTION TO REPRESENTATIVE IMAGES OF DONGSHAN ROCK ART, LINGWU

#### 3.1 Rock Art in Ma'anshan Gully

Ma'anshan gully is located 50 kilometers northeast of Lingwu City. It gets its name because the mountain body resembles a saddle. Rock art is generally carved on isolated stones of varying sizes on the slopes. The rock surfaces are mostly smooth and flat, and due to weathering, they often display black or brown patina. The content of the rock art is relatively rich, including images of animals such as sheep, horses, wild boars, wolves, camels, and birds, as well as human figures, human faces, and symbolic images.

Stone. The rock measures is 66 centimeters in length, 35 centimeters in width, and approximately 29 centimeters in height. It was produced using the pecking technique, with clean and smoothly executed outlines. The rock surface has brown patina. There are 6 identifiable images in



Figure 3 Sheep Images in Ma'anshan Gully



Figure 4 Hunting Scene in Ma'anshan Gully



Figure 5 Spiral Symbol in Ma'anshan Gully



Figure 6 Animal Figures in Ma'anshan Gully

the rock art, all depicting big-horned sheep (Figure 3). The sheep have either single horns or double horns. Four of them are depicted with double horns and two legs; the double horns are generally long and curve backward. They have thick, short necks, distinct head contours, and their bodies are portrayed as silhouetted side profiles using large-area grinding or coarse lines. Their bodies are robust, with broad and straight backs, and short, pointed tails that curve backward. One is depicted with double horns, two legs, short horns that curve upward, a lowered head, a thick and short neck, and a distinct head contour; the body parts are indicated with relatively coarse lines, with a broad and straight back; the two legs are upright. One is depicted with a single horn, two legs, a single horn that curls forward, a lowered head, a neck connected in a straight line to the body, body parts indicated with relatively coarse lines, a broad and straight back, and upright two legs.

Stone. The rock is approximately 89 centimeters in length and 66 centimeters in width. It was made using the pecking method, with neat and smooth outlines along the lines. The rock surface has a deep brown patina. The rock art was carved on both sides of the rock, among which 17 identifiable images can be recognized, including 1 human figure, 4 horses, 11 big-horned sheep, and 1 strange animal (Figure 4). The human figure is located in the lower left corner of the rock face. It has a round head and a slender neck, with the torso rendered in silhouette to define the body contour; one arm is extended forward, holding a semicircular bow, while the other arm is drawn back, as if pulling an arrow, as if hunting; there is a male genitalia between the legs, highlighting male characteristics. The horse images have double horns and two legs, with upright ears, raised necks, heads facing forward, and the torso part expressed with relatively thick lines, while the other parts have slightly thinner lines, longer tails naturally hanging down, and bent legs in a running posture. The big-horned sheep vary in size, mostly with double horns and two legs, horns pointing upward or backward, mostly with raised necks and heads up, and their torso parts all expressed through

silhouettes to show the side contour, mostly with short tails, and the style is vivid and lifelike. One animal has a strange shape and is difficult to identify. Its torso part is expressed with relatively thick lines, with a triangular protrusion on the back, raised neck and head up, and slightly bent legs.

Stone. The rock is approximately 84 centimeters in length and 30 centimeters in width. It was made using the chiseling method, with neat and smooth lines along the edges. There is brown patina on the surface of the rock. There are three identifiable images in the rock art, all of which are spiral symbols (Figure 5). The spiral patterns are outlined with relatively thick lines. One of the images appears blurred, possibly due to later human scratches, with both inner and outer lines being closed.

Stone. The rock measures is 101 centimeters in length and 64 centimeters in width. It was crafted using the pecking method, with the lines' edges and contours being neat and smooth. The rock surface has a black-brown patina. The picture area is approximately 80 centimeters long and 50 centimeters wide. There are 11 identifiable images within it, including 4 horses, 2 riders, and 5 big-horned sheep (Figure 6). The horses have their ears stretched forward, heads lowered with distinct head contours, necks curved, and bodies depicted in silhouette to show side profiles, with strong backs and full hindquarters, and tails hanging downward. The human figures are indistinct. The big-horned sheep are portrayed with double horns and two legs; the horns either curve backward or curl backward, with their necks raised and heads lifted. Their bodies are indicated by thick lines for side profiles, legs either bent or straight and all leaning forward, with short tails curl up.

Stone. The rock is approximately 79 centimeters in length and 89 centimeters in width. It was made using the pecking method, with neat outlines along the lines. The rock surface has a deep brown patina. Among the identifiable images are 15, including 2 human figures,



Figure 7 Animal Figures in Ma'anshan Gully



Figure 9 Squatting Human Figures in Ma'anshan Gully



Figure 8 Spiral Symbols in Ma'anshan Gully



Figure 10 Animal Figures in Erdao Gully

3 horses, 9 big-horned sheep, and 1 ox (Figure 7). Two of the human figures stand on one side of two of the sheep; their heads are round, and their body parts are depicted with finer lines. Their legs are spread apart front and back in a walking posture, resembling two shepherds herding sheep. The horse images are located directly above the rock surface, with their heads lowered, ears upright, bodies rendered with coarser lines, legs standing straight, and tails naturally droop. The big-horned sheep mostly have single horns curved backward, with their necks raised. The body part is depicted in a silhouette-style side profile, and there are two types of legs: two-legged and four-legged, with most having short tails that raised upward. Some images show superposition and disruption, making them unidentifiable. The ox image has a head lowered, with the body part rendered in coarser lines. It has a triangular protrusion on its back, tiptoes raised, and legs pushed backward.

Stone. The rock measures is 50 centimeters in length, 35 centimeters in width, and approximately 30 centimeters in height. It was crafted using the pecking method, with deep chisel marks and neat edges along the lines. The rock surface has a brown patina. There are four identifiable images in the scene: three spiral symbols and one animal image (Figure 8). The spiral symbols are outlined with relatively thick lines to form spiral patterns. One spiral rotates clockwise, and two rotate counterclockwise, with four coils from the center outward. The three spiral symbols are connected by two thick lines. The animal image resembles a horse, with a slender head and a trunk represented by a curved thick line. Its abdomen is prominent, and its two hind legs are spread apart in a standing position.

Stone. The rock is approximately 100 centimeters in length and 54 centimeters in width. It was made using the pecking method, with neat and smooth outlines along the lines. The surface of the rock has black-brown patina. There are 6 identifiable images, all of which are human figures (Figure 9). Among them, there are 5 squatting human figures and 1 figure of a person shooting an arrow. Of the squatting human figures, 2 are depicted with thick lines, having round heads and thick necks: one has both elbows bent upward, and another has both arms downward, with both legs half-squatting to form a squatting posture; one of these figures has male genitalia, indicating a male characteristic. Other 3 squatting human figures are depicted with finer lines, also with round heads and thin necks. Their torso parts are represented by long and straight thick lines.

Most have both arms bent upward, and most have both knees bent in a half-squatting position to form a squatting posture; some of these figures have male genitalia, indicating male characteristics. The figure of a person shooting an arrow is located to the upper right of the squatting human figures. It has a round head and thin neck, with the torso part depicted in a silhouette-like outline. One arm holds a bow, and the other is bent in a pulling-back-to-shoot posture; the bow is crescent-shaped, and the knees are bent forward. It resembles a hunting scene. Other images are difficult to identify.

### 3.2 Rock Art in Erdao Gully

Erdao gully rock art is located in Erdao gully, Linhe Town, Lingwu City. They are situated in a hilly area, with the rock paintings generally carved on isolated stones on the slopes. The isolated stones vary in size; the larger ones are approximately 3 meters in length and 0.4 meters in width, while the smaller ones are about 0.1 meters in length and 0.2 meters in width. The rock surfaces are mostly smooth and flat, and due to weathering, they often display black or dark brown patina on the surface. The content of the rock art is relatively rich, including images of animals such as sheep, horses, deer, and tigers, as well as human figures, celestial images, and textual symbols.

Stone. The rock measures is 69 centimeters in length and 64 centimeters in width. The methods of making are line engraving and pecking. The rock surface has a black-brown patina. There are 6 identifiable images, including 2 leopards, 3 big-horned sheep, and 1 ring symbol (Figure 10). The leopards have their necks raised and heads lifted, with slightly open mouths. Their bodies are outlined with thick lines, and within

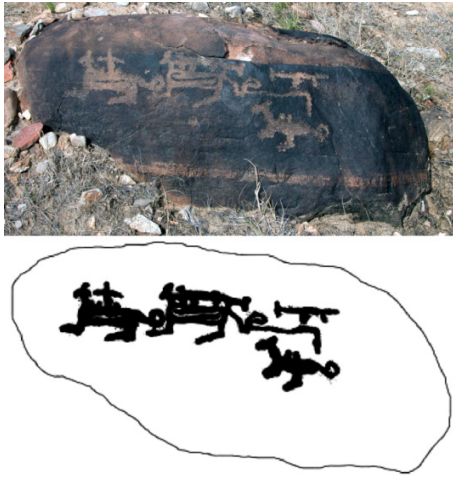


Figure 11 Human Riding Figures in Erdao Gully



Figure 12 Symbolic Images in Sandao Gully

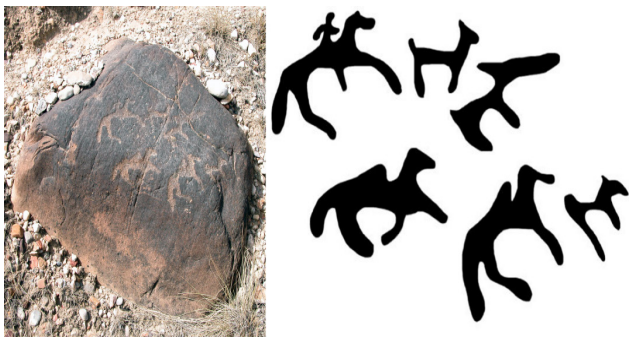


Figure 13 Herding Scene in Sandao Gully



Figure 14 Spiral Symbol in Sandao Gully



Figure 15 Human Figures in Sandao Gully



Figure 16 Animal Figures in Sandao Gully

the outlines, there are zigzag patterns. They have long tails that hang naturally, and their legs are forward-leaning, exhibiting a decorative style. The sheep come in two types: single-horned with two legs and double-horned with two legs. They also have raised necks and lifted heads, with horns curved backward. Their bodies are depicted with relatively thick lines, short tails backwards, and two legs bending forward. The ring symbol is an image of a ring outline with relatively thick lines. Some images are difficult to identify.

Stone. The rock measures 93 centimeters in length and 79 centimeters in width. It was made using the pecking method. The rock surface has black-brown patina. Due to weathering, parts of the rock surface are damaged and eroded. There are 5 identifiable images, including 2 riders,

1 horse, and 2 big-horned sheep (Figure 11). In the rider images, the horse raises its neck and head; the body is outlined with relatively thick lines, forming a rounded rectangle, with interior straight or inverted S-shaped decorative lines. The horse's tail curls backward, and its legs bend forward, giving a running posture. A person rides on each horse's back: one human figure is clear, with the head, neck, and body connected by a straight line, and both arms extended horizontally to the sides. The other human figure is overlapped by an upper sheep image, making details hard to identify. The two sheep stand facing each other: one has two horns and four legs, the other has one horn and two legs. The horns are short and upward-curving; they lower their heads, with the neck and body forming a straight line. Both bodies are rendered with relatively thick lines, with slightly arched backs, short tails curved backward, and

straight legs. The horse image in the lower right corner raises its neck and head; the body is depicted with thick lines, has two protrusions on the back, bent legs, and a tail curling backward.

### 3.3 Rock Art in Sandao Gully

Sandao gully is located to the southeast of Erdao gully. It is also situated in a hilly area, where rock art was generally carved on isolated stones of varying sizes. The rock surfaces are mostly smooth and flat, and due to weathering, they often display black or dark brown patina. The content of the rock art is relatively rich, including images of animals such as sheep, horses, and dogs, as well as human figures and a small number of symbolic images. In addition to the rock art, the Sandao gully site has been discovered. On the surface of the site, scattered pottery sherds and stone tools such as polished stone adzes, axes, knives, and scrapers have been collected. Cultural relics such as jade pendants and jade bi discs have been unearthed, and this site belongs to the Neolithic Age.

Stone. The rock is approximately 86 centimeters in length and 93 centimeters in width. It was made using the pecking technique, with neat and smooth outlines along the lines. The surface of the rock has black-brown patina. There are three identifiable images: one nebula-like pattern, one big-horned sheep, and one cross-shaped image (Figure 12). The cross-shaped image is on the left side of the scene with no other distinctive features; a smaller big-horned sheep image is located slightly below the center, depicted with two horns and two legs, looking upward with its neck raised, the horns curved backward in a 'V' shape, the legs slightly forward-leaning, and a short tail raised upward; the most prominent image consists of multiple irregular circles, resembling a nebula.

Stone. The rock is approximately 64 centimeters in length and 42 centimeters in width. It was made using the pecking, with deep chisel marks and neat, well-defined edges to the lines. The surface of the rock has a black-brown patina. There are 6 identifiable images, depicting 3 riders and 3 big-horned sheep (Figure 13). Each rider is portrayed as a person riding a horse. The horses have raised necks and heads facing forward, with thick necks; their body parts are indicated by bold lines, and their tails trail backward. The human figures on the horses are relatively small in scale. One figure is more distinct, with one hand reaching back to support the horse's back and the other extending toward the horse's neck area. Other two human figures are more blurred. In front of each of the three rider groups, there is an animal resembling a big-horned sheep. These animals are depicted with single horns extending backward, raised necks and heads, bodies outlined by bold lines, short tails raised upward, and front legs bent forward, giving the impression of running.

Stone. The rock is approximately 60 centimeters in length and 45 centimeters in width. It was made using the pecking method, with deep chisel marks and neat, smooth edges along the lines. The surface of the rock has a black-brown patina. There are four identifiable images: one

spiral symbol and three animal images (Figure 14). The spiral symbol is an image outlined with thick lines in the shape of concentric circles, consisting of 6 circles from the inside out, from large to small. The animal images are distributed below the left, below the right, and at the top of the spiral symbol. They have single horns and two legs, with varied head shapes but not distinctive features, and their single horns are curved. The various parts of their bodies are depicted with relatively thick lines, and their tails are raised upward, resembling sheep.

Stone. The rock is approximately 76 centimeters in length and 58 centimeters in width. It was created using the pecking method, with the lines' edges forming neat and smooth contours. The rock surface has black-brown patina. There are 10 identifiable images, including 4 human figures and 6 big-horned sheep (Figure 15). Three human figures are closely grouped in the lower middle part of the rock art; their body parts are depicted with relatively thick lines, with round heads, bent elbows hanging down with arms, and legs spread apart, with one figure having a male genitalia between its legs. One human figure is located on the left side of the scene, with a round head, a trunk section with lines slightly thicker than those of other images, hanging arms, and standing with legs spread apart, with male genitalia in the middle, emphasizing male characteristics. The big-horned sheep images have two types: single-horned with two legs and double-horned with two legs. Most images face forward with horns curved backward, and their body parts are rendered with relatively thick lines, often with short tails that raised upward.

Stone. The rock is approximately 59.7 centimeters in length and 48.4 centimeters in width. It was made using the pecking method, with deep peck marks and neat, smooth lines along the edges. The surface of the rock has black-brown patina. There are 6 identifiable images: 4 big-horned sheep, 1 horse, and 1 anomalous animal (Figure 16). The big-horned sheep images are mostly depicted with raised necks and heads, with single or double horns curved backward. Their bodies are rendered with relatively thick lines, often with short tails raised upward, and front-leaning legs. The anomalous animal in the center of the scene has its body contour presented in a silhouette style from the side, with a rounded body, a long neck, and a curled tail, making it difficult to identify. The horse has a large head outline, with a lowered head, short and upright ears, and its body also rendered in a silhouette style from the side. It has a long tail that hangs naturally and stands on straight legs.

### 3.4 Rock Art in Museum

Lingwu rock art is mostly distributed on isolated stones in open wilderness areas. Some local villagers once moved the rock blocks with rock art to their homes for use in building houses, constructing



Figure 17 Hunting Scene in Lingwu



Figure 18 Squatting Human Figures in Lingwu



Figure 19 Animal Figures in Lingwu



Figure 20 Animal Figures and a Spiral Symbol in Lingwu



Figure 21 Animal Figures in Lingwu



Figure 22 Animal Figures in Lingwu

sheepfolds, etc., which led to the destruction of rock art in the wild. Considering the protection, Ningxia Museum, the previous Ningxia Rock Art Research Center, and Yinchuan World Rock Art Museum have carried out stones collection work among the public, collecting the scattered stones that have been brought to residents' living areas for scientific management and protection.

Stone. The rock measures 80 centimeters in length and 60 centimeters in width. It was made using the pecking method, with relatively deep marks. The surface of the rock has a black-brown patina. Among the identifiable images, there are 17, including anthropomorphic figures in standing, hunting, and squatting postures, as well as animal images of different types such as sheep, horses, and deer. The animals are depicted as running in the same direction (Figure 17). The horse images mostly have small head contours, with their necks raised and heads lifted, ears upright, and heads facing forward; the body is represented in a silhouette style to show the side profile, with a robust build; the horse tails are long and drifting towards the rear, the front legs are inclined forward, and the hooves and leg joints are depicted. The deer at the top of the image have small head contours, raised necks and lifted heads, antlers in a branching tree-like shape; the body is also represented in a silhouette style; the legs are upright, the buttocks are rounded, the tail

drifting towards the rear, and the hooves and leg joints are shown.

The human figure in the upper left corner of the image has a round head, an indistinct neck, one arm holding a bow, and the other arm bent at the elbow with an arrow, as if about to shoot a deer ahead. The figure has a robust build, with legs standing sideways, showing the feet. To the left of the archer is another human figure, also with a round head and indistinct neck. Its arms appear bent upward, with a broad chest and narrow waist. The legs are spread apart, and there is a prominent male genitalia in the middle, highlighting male characteristics. The images of the big-horned sheep mostly depict them with their heads raised, looking upward, with horns standing upright or backward. Their bodies are indicated by thick lines, legs are either standing straight or leaning forward, and their tails are generally short, raised upward.

Stone. The rock is approximately 90 centimeters in length and 60 centimeters in width. It was made using the pecking method, with shallow chisel marks and neat contour lines. The surface of the rock has brown patina. There are 4 identifiable images in the rock art: 2 squatting human figures and 2 big-horned sheep (Figure 18). The various parts of the human figures are represented by relatively thick lines; the head is round, the neck and body are indicated by a single thick line, the arms

are bent upward, the legs are spread apart and crouch down, forming a squatting posture, with a genitalia (or tail) between the legs, exhibiting male characteristics. The big-horned sheep images are located on both sides of one of the human figures. The lines are simple, the head features are not very distinct, seemingly looking up with their necks raised, with a single horn pointing backward. The various parts of their bodies are represented by thick lines, with straight legs and a short tail raised.

Stone. The rock is approximately 77 centimeters in length and 58 centimeters in width. It was made using the pecking method, with shallow chisel marks and neat edges along the lines. There is brown patina on the surface of the rock. Among the identifiable images in the rock art, there are 10, including 5 big-horned sheep and 5 horses (Figure 19). The big-horned sheep are located at the very top of the rock face; two of them stand facing each other, lifting their necks and heads forward, with their horns short and curved backward in a 'V' shape. Their bodies are depicted with relatively thick lines, and their short tails are raised upward, with both front legs leaning forward. The horse image at the bottom of the screen is relatively distinctive: it lowers its head, has erect ears, slightly open mouth, a thick neck, and the body is outlined with four thicker lines. Its tail is raised upward, and its front legs are leaning forward. Several other images are quite abstract and difficult to identify.

Stone. The rock is approximately 77 centimeters in length and 75 centimeters in width. It was made using the pecking method, with deep chisel marks and neat edges along the lines. The rock surface has black-brown patina. There are 9 identifiable images in the rock art: 7 big-horned sheep, 1 human figure, and 1 spiral symbol (Figure 20). The big-horned sheep images mostly have their necks raised and heads lifted, with slender necks, forward-facing heads, and often shorter horns, some looks "V" shape; the body is depicted in a silhouette-style side profile, with some sheep showing obviously abdominal areas; the legs are either upright or bent forward, and most have short, upward-curved tails. The human figure has a round head, slender neck, flat shoulders, hanging arms, with one hand showing three fingers, a slender torso, and legs spread apart standing, with a male reproductive organ visible in the middle, exhibiting male characteristics. The spiral symbol is outlined with relatively thick lines in a counterclockwise direction, forming 5 circles from the inside out.

Stone. The rock is approximately 120 centimeters in length and 70 centimeters in width. It was made using the pecking method, with deep chisel marks, bold lines, and an uneven edge contour. The rock surface has black-brown patina. There are 16 identifiable images in the rock art, including 14 big-horned sheep and 2 horses (Figure 21). The big-horned sheep are mostly depicted with single horns and two legs, facing forward with their necks raised. The single horns are short and curve backward; the body is shown as a side profile silhouette; the legs are slightly forward-leaning, with joints and muscles indicated, and the short tail is raised. The two horses are positioned in the center of the rock face, standing opposite each other. They have large head contours, upright ears, thick necks, with the body and neck outlined by relatively thick lines. Their legs are straight, and the horse tails hang naturally. The style is relatively abstract.

Stone. The rock is approximately 68 centimeters in length and 60 centimeters in width. It was made using the pecking method, with deep chisel marks and uneven edges along the lines. The rock surface has black-brown patina. There are few identifiable images in the rock art, including six big-horned sheep and one ladder-like pattern (Figure 22). Among the big-horned sheep, one has a single horn and two legs, while the others have two horns and four legs, their heads lowered, horns curved backward, necks connected seamlessly to their bodies, trunks depicted with relatively thick lines, legs upright, and short tails raised. The ladder pattern is represented by a series of thin lines indicating steps. Some images are difficult to identify.

#### 4. MAIN CONCLUSIONS

The discovery of Dongshan rock art in Lingwu, Ningxia has overturned the academic consensus that rock art was absent along the eastern bank of the Yellow River, filling a critical gap in the geographical distribution

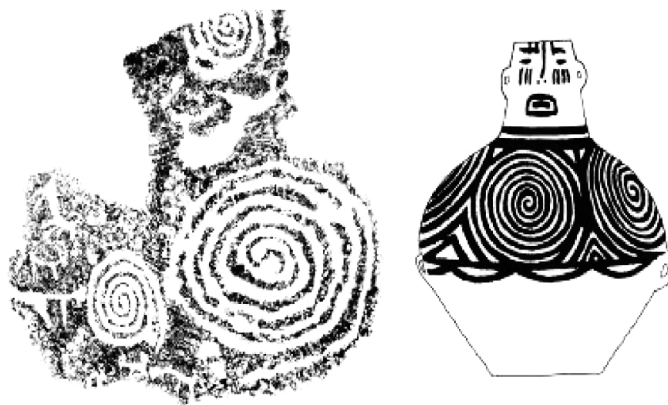


Figure 23 Spiral Symbols in Lingwu & Spiral Symbols in Majiayao

of rock art in Ningxia. This breakthrough allows researchers to gain a broader perspective and more comprehensive understanding of this entire geographical unit, providing complete temporal and spatial context for future in-depth studies.

#### 4.1 On the Age of Lingwu Rock Art

After the discovery of Lingwu rock art, many experts have put forward their views on the production era of Lingwu rock art based on factors such as the content and themes, techniques, degree of patina, styles, superimposition of images, and comparisons with Helan Mountain rock art and Weiningbeishan. There are mainly the following three viewpoints (Lingwu Rock Art, 21).

Firstly, Mr. Zhong Kan believes that although the Shuidonggou late Paleolithic site and the Sandao gully Neolithic Site are not far from the Lingwu rock art, even within the same site circle, there is currently no archaeological evidence to prove that the Lingwu rock art was left by the ancient humans living in this area during that period. From the content of the rock art, most of the Lingwu rock art depict animals, pastoralism, and a small number of hunting scenes, and should belong to the same period or a later period as the Helan Mountain rock art and the Zhongwei Beishan rock art.

Secondly, through observation and measurement of the rock Xanthoria elegans, Mr. Li Xiangshi believes that the age of the early Lingwu rock art approximately were 6000-5000 years ago, the middle-period ones to around 4000-3000 years ago, and the late-period ones to about 2000 years ago. He holds that the Lingwu rock art are relatively ancient and one of the oldest regions for rock art in Ningxia.

Thirdly, Mr. Zhou Xinghua posits that based on their environment, themes, content, style, techniques, and temporal characteristics, the Lingwu rock art share similarities with those from Zhongwei's Xiangshan area but differ from the Helan Mountain rock art. He suggests that many of these images likely belong to an early period.

From the patterns observed in northern rock art, areas with dense concentrations of rock art are often regions where nomadic tribes once lived. This is also true for the distribution area of Lingwu rock art, where historically, northern ethnic minorities such as the Quanrong, Xianyun, Xiongnu, Xianbei, Tujue, Huihu, Tubo, and Dangxiang successively grazed, hunted, and reproduced. During a comprehensive investigation of the geographical location, environment, techniques, and thematic content, we found that these rock art has long production cycles, large temporal and spatial spans, and belong to different types from different eras. Therefore, these rock art should have been carved by different ethnic groups in different historical periods. Since the rock art was created by different ethnic groups in different periods, some images overlap with each other, which also brings uncertainty to the determination of their ages. Despite this, we combined archaeological materials, themes, techniques, and the historical background, and

used traditional archaeology and comparative studies to analyze the production time of the Lingwu rock art, thereby dividing their age into three distinct periods.

**Early-period.** We believe that the early Lingwu rock art was created between 7,000 and 5,000 years ago. During this period, there were only a few images made using stone tools for grinding or chiseling, but the quantity was few.

**Middle-period.** They were roughly created between 5000-2000 years ago, during which the largest number were produced. The production methods and tools used were diverse, with most employing metal tools or a combination of metal tools and tools from earlier periods. This time period was also the main production phase of Lingwu rock art, characterized by a relatively large quantity.

**Late-period.** Rock art should be dated from the Song Dynasty (including Xixia) and Yuan Dynasty, or a period after that, more than 1000 years ago. This dating is primarily inferred from the presence of textual symbols (mainly Xixia script) among the motifs and the relatively refined execution of certain rock art. The rationale is that advancements in production and lifestyle would have led to improvements in toolmaking technology, which in turn would have enhanced the skill involved in creating the rock art.

#### 4.2 On the Stylistic Features of Lingwu Rock Art

In both spatial composition and visual presentation, Dongshan rock art in Lingwu demonstrates a predominantly realistic style characterized by simple yet ingenious creativity and well-structured, compact compositions. Within the limited dimensions, these rock art vividly portray visually significant scenes of daily life and symbolic narratives from ancient times. The artists' technique is notably refined and deliberate, creating an overall aesthetic that radiates striking beauty.

When examining the artistic techniques, the Dongshan rock art in Lingwu, though simple and rustic in style, rarely features completely abstract, illegible human or animal figures. Particularly striking are the scenes depicting hunting, herding, dancing, and warfare, which ingeniously incorporate a profound sense of life, rendered with exceptional complexity. The images are arranged in staggered heights and balanced density, creating a rhythmic composition that radiates vitality and dynamic energy.

The selection of rock surfaces for creating such ceremonial typically involves large-scale craftsmanship, far from arbitrary choices. Within the same stone surface, images of varying positions, heights, and types create a harmonious interplay, enriching the viewer's visual experience through layered compositions. Some designs even cover entire surfaces with minimal blank space. Most carving maintain clear primary-secondary relationships and distinct thematic focus. Despite diverse arrangements, they demonstrate remarkable orderliness and directional coherence, evoking a profound sense of ritualistic significance. This artistic practice appears to depict specific ceremonies or authentically portray particular scenes, carrying deep cultural symbolism that awaits further exploration to reveal its hidden meanings and aesthetic value.

It is noteworthy that the spiral symbols extensively appearing in the Lingwu rock art include both isolated and clustered forms, rotating clockwise or counterclockwise with varying numbers of concentric circles—some reaching up to six layers, demonstrating a strong sense of rotation. These spiral symbols bear remarkable similarities to the spiral motifs on Majiayao painted pottery, indicating a certain historical connection. Their stylistic evolution and inheritance lineage show close correlation, exhibiting comparable temporal characteristics and stylistic trends. Existing research indicates that “the painted pottery culture in northwestern China continued westward along the Wei River during the Yangshao and Majiayao periods” (Ren Ruibo, 2017), indirectly reflecting the vigorous expansion of Majiayao painted pottery culture. Lingwu region was evidently influenced by Majiayao culture or its branches. These influences are manifested in the creation of rock art through inherited relationships and cultural homogeneity. Naturally,

some variations and expansions occurred, with production materials evolving to liberate forms and techniques from rigid constraints. Such transformations likely resulted from intentional emphasis on ethnic distinctiveness to differentiate from other communities. Consequently, this type of rock art is relatively earlier in chronology. In their article “Imagery Study of Northern China's Spiral Symbols Rock Art,” Prof. Zhang Yasha and colleagues categorized Lingwu's spiral symbols into standard and decorative types, suggesting these symbols are largely associated with the Yellow River's imagery. They clearly reflect the unique relationship with the river, serving as an ancient iconographic record that integrates survival practices and religious rituals while embodying the cultural essence of the Yellow River in northern rock art systems (Zhang Yasha, 2023).

#### 4.3 On the Regional Affiliation of Lingwu Rock Art

In the Lingwu rock art, the majority of images are animals, with the number of ‘sheep’ being the largest among them. In addition to the “sheep” shaped rock art, other animal-shaped rock art of cattle, dogs, horses, camels, and others have also been discovered in the Dongshan area of Lingwu, with a considerable number. Among these, the proportion of horse-shaped rock art ranks second only to sheep rock art, exceeding one-tenth of the total image count. These animals are all closely related to pastoral and hunting themes, and similar images are widely found in other regions of northern grassland nomadic cultures. Notably, the human-shaped images in Lingwu Dongshan is arranged radially with multiple animals surrounding them, often presented in linear formations, though some details vary. The prominence of these typical Eurasian steppe artistic features in Lingwu Dongshan rock art indicates that the region was also impacted by such foreign cultural influences. These characteristics align with the historical process of “officially initiating East-West cultural exchanges during the Xia period, reaching a peak in interactions between Eastern and Western populations from the Shang to early Han dynasties... while nomadic and pastoral activities gradually became dominant from the Xia to early Han periods” (Ren Ruibo, 2017). A typical example is the discovery of numerous artifacts with East-West cultural characteristics in high-status noble tombs of the Pazyryk culture (6th-3rd century BCE) unearthed in Russia's Altai region. Similarly, the Majiayuan cemetery in Tianshui City, Gansu Province (4th-3rd century BCE) has yielded numerous relics featuring Persian cultural elements, including images or patterns of argali sheep, palm leaves, and honeysuckle-like motifs. Beyond Majiayuan, such cultural features have also been observed at sites including Xigoupan in Inner Mongolia, Qingshuiliuping in Gansu, and Chenyangchuan in Guyuan, Ningxia. In her article “Analysis of Persian Cultural Elements in the Majiayuan Cemetery”, Pan Ling examined these cultural elements and concluded that they were likely introduced to China through Xinjiang by early nomadic groups from Central Asia and neighboring regions influenced by Persian culture. Through these significant archaeological sites, it can be outlined that the general contours of how early nomadic communities served as mediators in cultural interactions between Eastern and Western civilizations during their integration with neighboring cultures.

Additionally, depicting horse riders have been discovered in the region. Although such images account for a small proportion of the total rock art, “the appearance of horses and their riders in these paintings should be considered a significant indicator of specialized nomadic practices” (Huo Wei, 2013). Historical records indicate that “during human history, the world's major specialized nomadic groups emerged between approximately 1000 BCE and 400 BCE” (Wang Mingke, 2008). Comparative analysis suggests that the hunting and herding-themed rock art at Lingwu Dongshan likely date to after this period, possibly even later.

In conclusion, the Lingwu rock art belongs to the Northern Chinese Grassland system, and also is an important part of the Eurasian Steppe system. All the subjects depicted in these rock art have been found across the aforementioned regions.

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