



# EXCAVATION OF ARTISTIC CHARACTERISTICS AND INHERITANCE AND DEVELOPMENT STRATEGY OF BRICK CARVING IN THE HAN DYNASTY FROM THE PERSPECTIVE OF SONGSHAN CULTURAL ECOLOGY

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## ABSTRACT

In order to explore the value of the cultural and ecological development of Songshan, this paper takes the brick carving of the Han Dynasty as the research object. Electron microscopes, infrared equipment, and scanners are used to observe the shape, material, structure, color and other artistic characteristics of Han Dynasty brick carvings, and excavate their archaeological value. The results show that the brick carving materials used in the Han Dynasty were mainly clay, kaolin, and coarse sand, and the structure was relatively compact. Han brick carving is mainly based on seal carving, hollowing, polishing, etc., and the carving form is closely integrated with the material of Han bricks. The shape of Han bricks is mainly dragon pattern and phoenix pattern, and the lines are curves and arcs, the colors are mainly blue, red and black, and the dyes are copper sulfate, iron oxide, cinnabar, charcoal, etc. The shape and color of the Han brick carving are coarse, but the connotation is profound, and it has the style of the Western Regions. Therefore, the artistic characteristics of brick carving in the Han Dynasty are obvious, with high inheritance value, and can promote the development of Songshan cultural ecology.

**Keywords:** Songshan Cultural Ecology, Han Dynasty Brick Carving, Aesthetic Characteristics, Han Dynasty Craftsmanship.

## INTRODUCTION

Known as "Zhongyue", Songshan has always been one of the five famous mountains in China, and is also a famous Taoist holy place in history, with profound historical and cultural heritage and rich natural landscapes. Songshan has a long history, a classic cultural gathering and beautiful natural landscape, all of which provide a beautiful ecological environment and a strong historical background for the development of brick carving art in the Han Dynasty. After the formation of the cultural and ecological vision of Songshan, people realized that the development of brick carving in the Han Dynasty had a certain relationship with the cultural ecology of Songshan (Ding et al., 2023; Guardé-Paz & Kwan-Wai, 2022). The cultural ecology of Songshan refers to the unique cultural phenomenon and the complex system of interaction with the natural environment within the area, with Songshan as the center. The concept includes tangible cultural heritages in the Songshan area, such as ancient buildings, brick carvings, stone carvings, etc., and intangible cultural heritage, such as Han Dynasty festivals and folk customs, religious beliefs, and artistic performances. Moreover, the cultural ecology of Songshan also refers to how special cultural phenomena gradually grow, develop and inherit based on the region's unique natural environment. Songshan Mountain, located in the northern part of Henan, China, is one of the five mountains concept proposed in the culture of the Han Dynasty in China, commonly known as "Zhongyue" (Lee,

2021; He et al., 2022), since ancient times, Songshan has many reputations, such as "Tianzhong Mountain" and "Heaven and Earth" and so on. Because the geographical location of Songshan is relatively special and has a very deep historical and cultural heritage, Songshan and some surrounding areas have naturally given birth to their own unique cultural ecosystem. Moreover, Songshan is also one of the birthplaces of Taoism, and has a close relationship with Chinese martial arts, and has a certain origin with Shaolin Temple martial arts. In Songshan, the cultural ecosystem formed by it can show the philosophical concept and practical experience of harmonious coexistence between man and nature. In Songshan, people can enjoy the beautiful feeling brought by the natural landscape and feel the integration with the natural environment by appreciating Songshan's architecture, religion, and art (Li et al., 2021). For example, the various landscapes of Songshan have a close relationship with Zen Buddhism and show people's high recognition and endless appreciation of natural ecology. Overall, the Songshan cultural ecosystem is a comprehensive system containing both tangible and intangible cultural heritage, and can show a unique natural environment, closely intertwined with human ideological activities, religious concepts, humanistic thoughts, etc. Based on this, it can be seen that the Songshan cultural ecosystem can not only reflect the profundity of this region's historical and cultural content but also show the richness of its cultural forms and the harmony between man and nature. Based on this, this paper will deeply study the artistic characteristics of brick carving in the Han Dynasty from the perspective of Songshan cultural ecology, analyze the aesthetic characteristics, religious beliefs, and social outlook contained in the brick carving art of Han Dynasty in the process of excavation, and reveal its deep connection with Songshan cultural ecology. Finally, this paper also analyzes the inheritance and development strategy of brick carving culture in the Han Dynasty from the perspective of Songshan cultural ecology. By formulating a reasonable inheritance and development strategy, people can better protect and inherit the brick carving art of the Han Dynasty, and better develop the brick carving art of the Han Dynasty under the cultural ecology of Songshan. At the same time, it can inspire Chinese contemporary artists to better realize that there is a good space for innovative integration between classical and contemporary art elements (Liu et al., 2023; Sun et al., 2023).

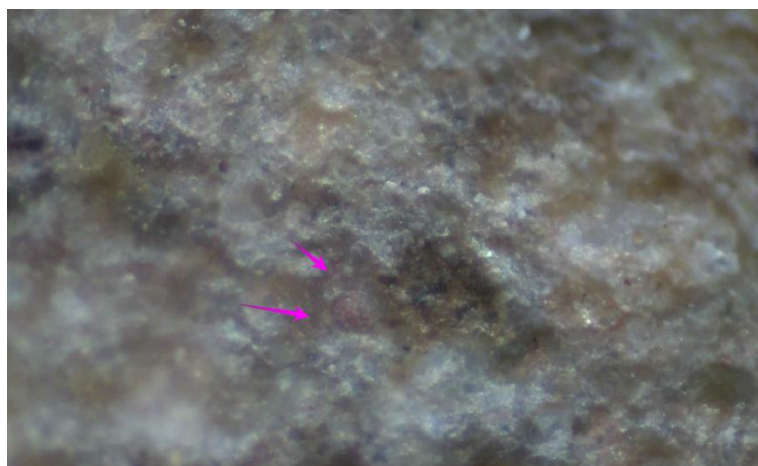
## METHODOLOGY

Taking Han bricks as the research object, the composition, shape, color, structure, density, and material of Han bricks were observed with high-definition microscope (4K, 4~5x microscope, Xi'an, Shaanxi), scanner (electronic scanning, accuracy of 0.1cm, Jinan, Shandong) and infrared scanner (1Hz, Dongguan, Guangdong). The test samples are imitations, and the data comes from the public network.

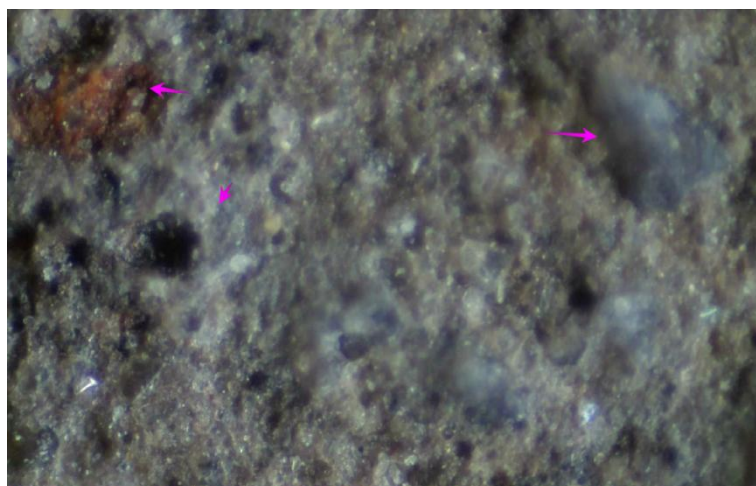
## RESULTS

### The Material of Han Brick Carving

Taking the material of Han brick carving as the research content, the high-definition microscope and scanner were used to observe and analyze its composition, and the results are shown in [Figure 1](#).



Quartz



Iron Oxide, Copper Sulfate

Figure 1. Composition of Han Brick Carving

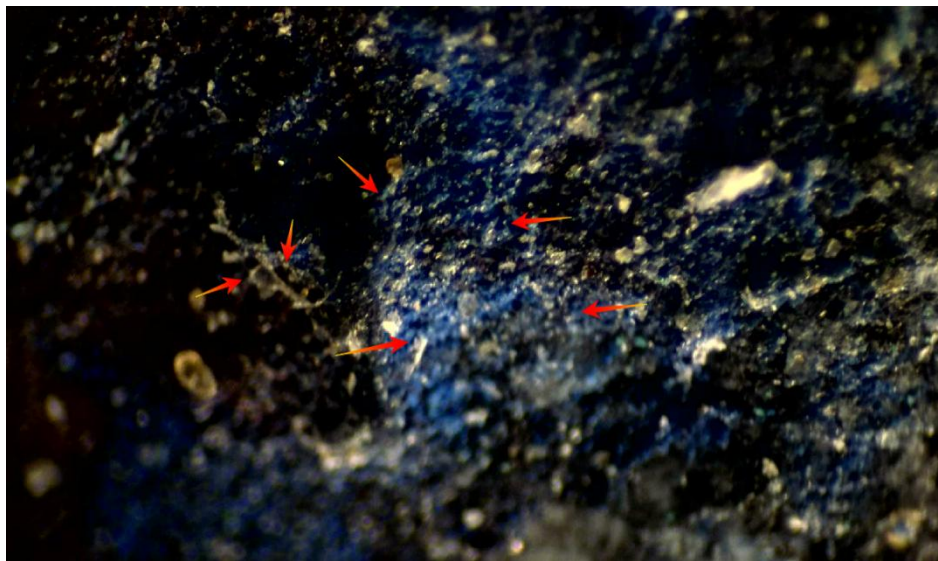
The observation in Figure 1 shows that the Han brick carvings are mainly made of clay, iron oxide, copper sulfate, and ferric oxide, and the overall composition is relatively complex. Searching for relevant information, it was found that the Han brick carvings in the Songshan area were mainly made of clay and granite seals, so the composition of the Han brick carvings was complex. Songshan is located in the middle of Henan Province and is one of the five mountains in China, also known as "Zhongyue". Songshan is one of the sacred sites of Taoism in China, and at the same time, it occupies a key symbolic position in the culture of the Han Dynasty. Since the Shang Dynasty, people have recorded about Songshan, such as the belief in the gods and the relevant content of the sacrificial activities. With the continuous advancement of the historical gears, Songshan has gradually become a place where Buddhism, Taoism coexist and religious beliefs are very prosperous, and a unique religious culture has been formed. The Han Dynasty (202~220 AD) was a glorious period in Chinese history and was also one of the key development periods of Chinese Han Dynasty culture. During the Han Dynasty, Songshan was one of the sacred places of Taoism and was respected by the people. At that time, Songshan not only often held various religious activities and had a deep belief in the Han Dynasty but also emerged with a lot of distinctive, excellent brick carvings and buildings. In the Songshan area at that time, a variety of art forms such as brick carving and murals in the Han Dynasty were widely used and formed a certain scale of development, and at the same time, showed a unique and rich connotation of art forms and styles (Ma et al., 2021; Mo et al., 2023). In the Han Dynasty, the Songshan area was a holy religious place of Taoism, in the field of religious belief and art, so the content of Han brick carving was very rich. Summarizing the relevant information, it is found that the main components of Han brick carving are shown in Table 1.

Table 1. Main Components of Han Brick Carving

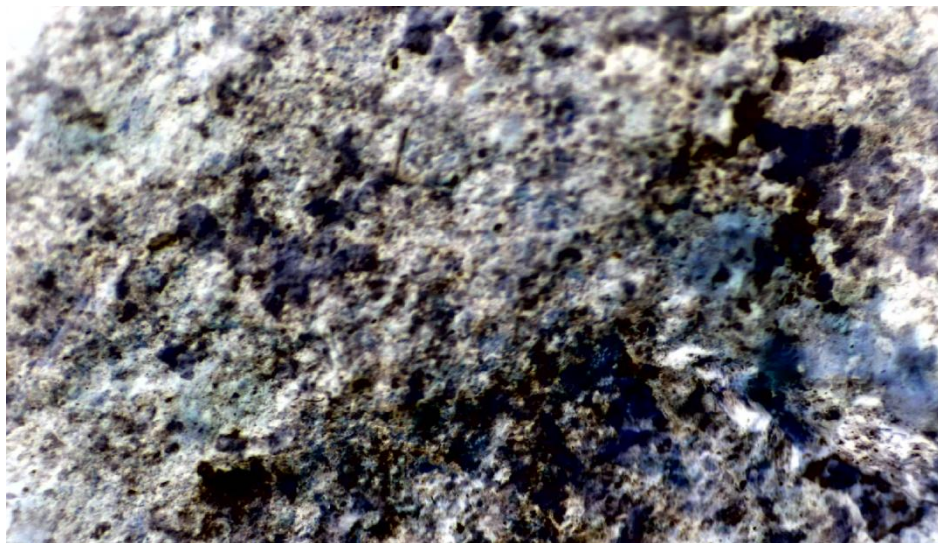
Period	Ingredient	Dye	Form of Production
Western han dynasty(202 BC~8 AM)	Granite, basalt, clay	Iron oxide, cinnabar, calcium carbonate, carbon, copper sulfate	Seal carving, painting
Eastern han dynasty(25~220 AM)	Clay, quartz, feldsparite, bluestone, mica, kaolin	Iron oxide, ferric oxide, calcium carbonate, lead oxide, carbon, copper sulfate	Seal carving, printing, painting

From Table 1, it can be seen that there are certain differences in the main components of Han brick carving in the Eastern Han Dynasty (25~220 AD) and Western Han Dynasty (202 BC~8 AD) periods, mainly because the brick carving technology in the Eastern Han Dynasty (25~220 AD) period was developed, and dyes such as lead

oxide and ferric oxide were obtained through trade with the Western Regions. During the Western Han Dynasty (202 BC~8 AD), brick carving developed backwardly, mainly seal carving and painting, so the number of brick carvings was small. During the Eastern Han Dynasty (25~220 AD), the number of brick carvings increased and the colors became more vivid, as shown in Figure 2.



Eastern Han Dynasty (25~220 AD)



Western Han Dynasty (202 BC~8 AD)

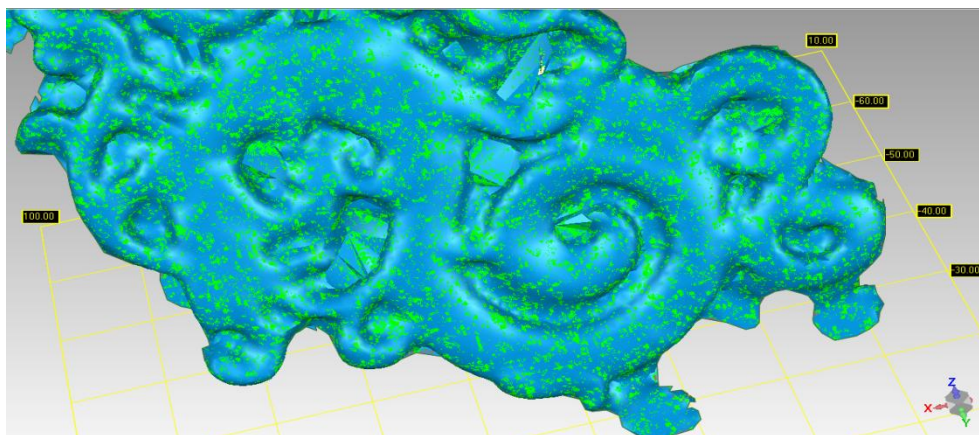
Figure 2. Observation of Brick Carving Dyeing

Through comparison, it is found that the color of brick carvings in the Western Han Dynasty (202 BC~8 AD) is lighter, and the color of the Eastern Han Dynasty (25~220 AD) is darker, mainly due to the different dye compositions. Plant dyeing was mainly used in the Western Han Dynasty (202 BC~8 AD), and in the Western Han Dynasty (202 BC~8 AD), the color of inorganic salts was more vivid. At the beginning of the Western Han Dynasty (202 BC~8 AD), the brick carving art of the Han Dynasty was initially formed, and the dye was single. The art of brick carving in the Han Dynasty can be traced back to the early days of the Western Han Dynasty (202 BC~8 AD), and the pottery production technology mainly influenced the brick carving technology. The brick carvings of the early Western Han Dynasty (202 BC~8 AD) were generally based on simple graphics or decorative patterns as the main picture (Shuanghuai & Fang, 2022), and their expressions were also very simple, and they

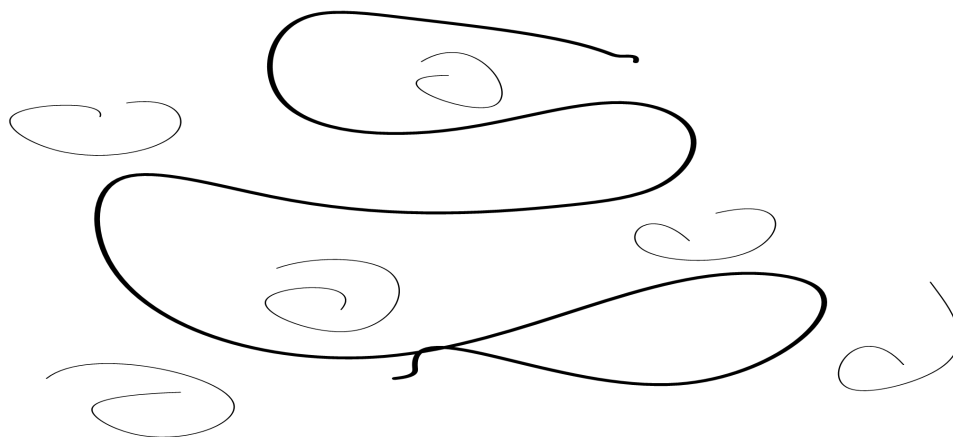
were generally used in architecture and as decorative parts. From the middle of the Western Han Dynasty (202 BC~8 AD) to the beginning of the Eastern Han Dynasty (25~220 AD), it was the development stage of brick carving skills in the Han Dynasty. With the gradual passage of time, brick carving in the Han Dynasty formed a variety of different themes and styles, and its forms of expression were enriched, and at the same time, it became more detailed and vivid. During the Western Han Dynasty (202 BC~8 AD), brick carving in the Han Dynasty began experimenting with various new themes, such as Buddhism, animals, mythology, history, etc. In addition to some decorative patterns, there are also some use of geometric figures to express, and accompanied by figures and myths, Taoist symbols, etc., so the color increases red, yellow, etc.; in the late Eastern Han Dynasty (25~220 AD), the style of brick carving art in the Han Dynasty gradually changed, for example, the style of its works has begun to move towards realism and expressionism, and has a more prominent and three-dimensional performance ability, in the details of the depiction, but also more exquisite, more smooth and realistic, so the use of strong contrasting colors. In the late Eastern Han Dynasty (25~220 AD), brick carving craftsmen began to try to innovate technology and methods, so techniques such as relief carving, deep relief, and shallow carving were also widely used, but the importance of color was insufficient. During the Western Han Dynasty (202 BC~8 AD), the brick carving art of the Han Dynasty gradually became more complex from the initial simple form, and the skills and methods were constantly updated, and formed a benign development, and its content, subject matter, technology, etc., have been greatly enriched and improved, so great importance is attached to the use of color.

**The Shape and Structure of Han Brick Carving**

Han brick carving is mainly square and round, so the shape of the drawing is the dragon, phoenix, cloud and other ornaments, and pays attention to the flexible use of lines, so the shape is more streamlined, as shown in Figure 3.



Dragon Scanning



The dragon Pattern is Simplified

Figure 3. Imaging of Scan Results

As can be seen from Figure 3, the shape of the Han brick carving is mainly streamlined, and it presents a cloud-like dragon pattern. The brick carving of the Han Dynasty in the Songshan area often includes relief and bas-relief, and the use of these two forms can make the patterns and figures on the brick surface more prominent, with a three-dimensional sense, and its artistic expression is also relatively strong. Second, the delicate details. The brick carving of the Han Dynasty from the perspective of Songshan cultural ecology pays great attention to the texture and lines in the details, and all parts are often handled extremely exquisitely, such as the outline of the figure or the texture of the animal, etc., which is very clear and meticulously carved, which can show the superb skills and unique aesthetics of the craftsmen of the Han Dynasty; the overall structure of the Han brick carving is close, indicating that the internal material is stable, as shown in Figure 4.

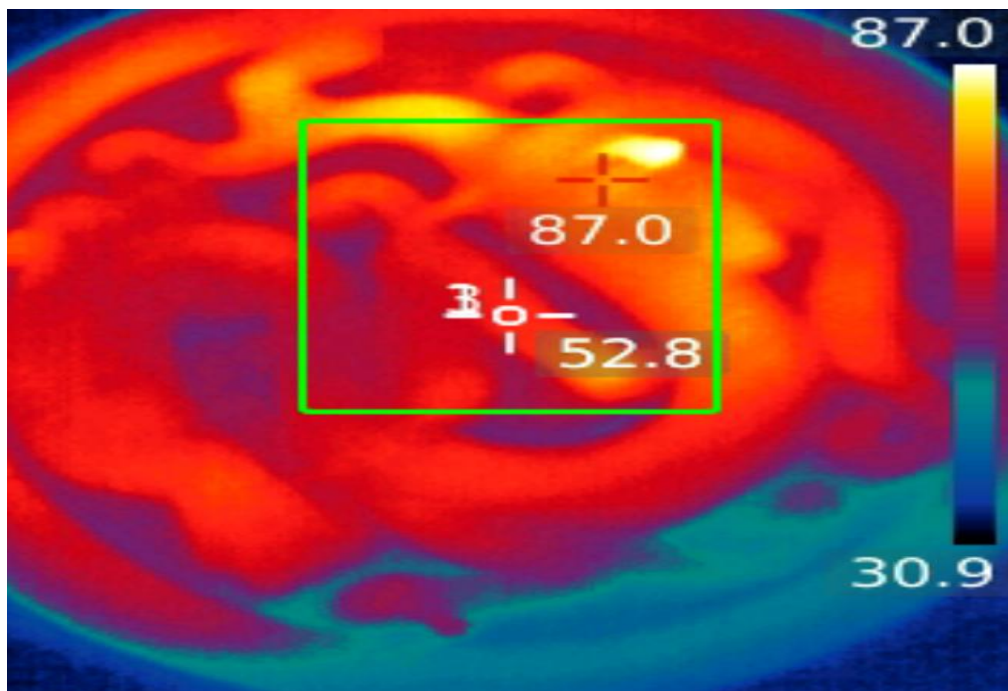


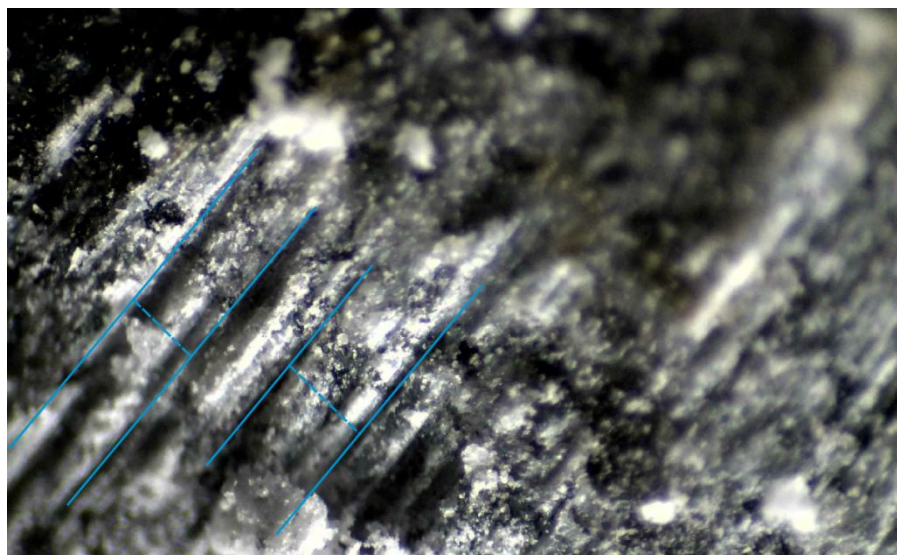
Figure 4. Internal Infrared Scan of the Dragon Pattern

As can be seen from Figure 4, the internal structure of the Han brick carving is reasonable and the material is stable, indicating that the Han brick carving attaches great importance to the material of the seal carving, so as to prolong its preservation time. At the same time, the Songshan culture during the Han Dynasty also had a profound impact on the further development of the Han Dynasty's culture in China. As one of the five mountains in China, Songshan has become one of the holy places of Taoism in the Han Dynasty, so there are more seals with dragon patterns and phoenix patterns. Taoism in the Songshan area has formed a certain development, and many Taoist temples have been established here, attracting many Taoist priests to practice here. Han brick carving pays more attention to religious content. At the same time, the natural scenery and aura of the Songshan area are also very suitable for Taoist cultivation and enlightenment. In addition to Taoism, Buddhism also formed a certain spread in the Songshan area during the Han Dynasty. At that time, many Buddhists in the Songshan area had come here to worship and practice. During the Eastern Han Dynasty (25~220 AD) period, many excellent brick carvings emerged in the Songshan area and were widely recognized, such as "Dragon Pattern", "Cloud Pattern", "Huns", etc., and showed a unique artistic style, forming a healthy Songshan cultural ecology (Tao et al., 2023; Shuanghuai & Fang, 2022). At the same time, Songshan was a famous cultural mountain in the Han Dynasty, and it was an important place for philosophical inquiry and exchange of knowledge in the Han Dynasty, so the brick carving will also display the content of seeking immortals. During the period of Emperor Wu of the Han Dynasty, Liu Che visited Songshan. From the perspective of political status, the important sacrificial activities of the imperial family in the Han Dynasty also chose Songshan as the main place many times, and the sacrificial activities not only have important religious significance but also can reflect the combination of imperial power and religious beliefs. Regarding political symbolism, Songshan, as one of the five mountains, also has extraordinary political symbolic significance. For example, the emperor needed to inspect Songshan and related religious ceremonies, which could demonstrate his power, authority, and legitimacy regarding imperial rule. It can be seen that during the Han Dynasty, Songshan had already played an extremely important role in the fields of religion,

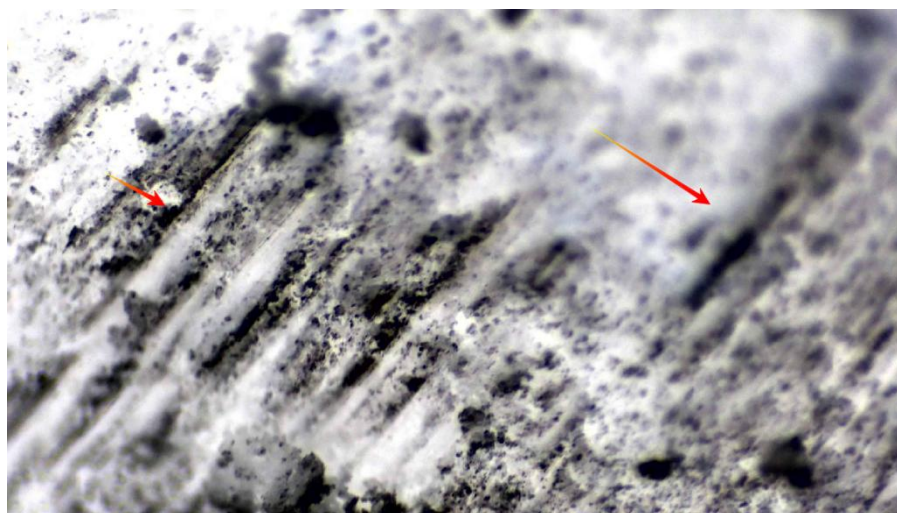
culture and politics. At the same time, it positively and profoundly impacted society. In this way, the Songshan cultural ecosystem has naturally become a key part of the culture of the Han Dynasty in China.

### Techniques of Brick Carving

Comparing the content of brick carving in the Han Dynasty, it will be found that the techniques of brick carving are divided into several types, seal carving, printing and drawing, or mixed techniques. Through microscopic observation, it is found that the depth of seal carving of brick carving is shallow, mainly printing and painting, as shown in Figure 5.



The Pattern of the Seal Carving



The Material of the Seal Carving

Figure 5. Seal Carving Form of Brick Carving in the Han Dynasty

As can be seen from Figure 5, the technique of brick carving in the Han Dynasty was very exquisite, and the distance between the seal carving patterns was the same. Moreover, reverse observation shows that the pattern of the brick carving in the Han Dynasty is consistent with the material. In the Han Dynasty brick carvings in the Songshan area, the theme of nature can reflect the people's pursuit of the concept of harmonious coexistence between man and nature at that time, which represents a desire for vitality and harmony. Based on the depiction of elements such as flowers, birds, dragons and phoenixes, the work can show a natural scene of prosperity, prosperity and vitality. The dragon and phoenix elements have the symbol of mascots, representing authority and

power, and good luck. At the same time, the flowers and birds also have a very beautiful, very serene, and full of poetic meaning, which can represent the beautiful expectations of the people in the Songshan area for the future life at that time. Moreover, the natural theme brick carving of the Han Dynasty in the Songshan area also has a certain aesthetic taste and the function of skill display. The brick carvings of the Han Dynasty with natural themes can not only reflect the appreciation of natural themes and the yearning for natural beauty of people in the Songshan area at that time, but also reflect the craftsmanship level and delicate and natural aesthetic taste of the Han Dynasty society (T. Wang et al., 2021; Wu & Zhao, 2021). For example, for the form and texture of some animals and plants, and the capture of wonderful moments of animals, craftsmen can create them lifelike and full of vitality. It can be seen that the craftsmen of the Han Dynasty not only had the ability to capture details in detail. At the same time, the Han Dynasty brick carving paid great attention to standardization, as shown in Figure 6.

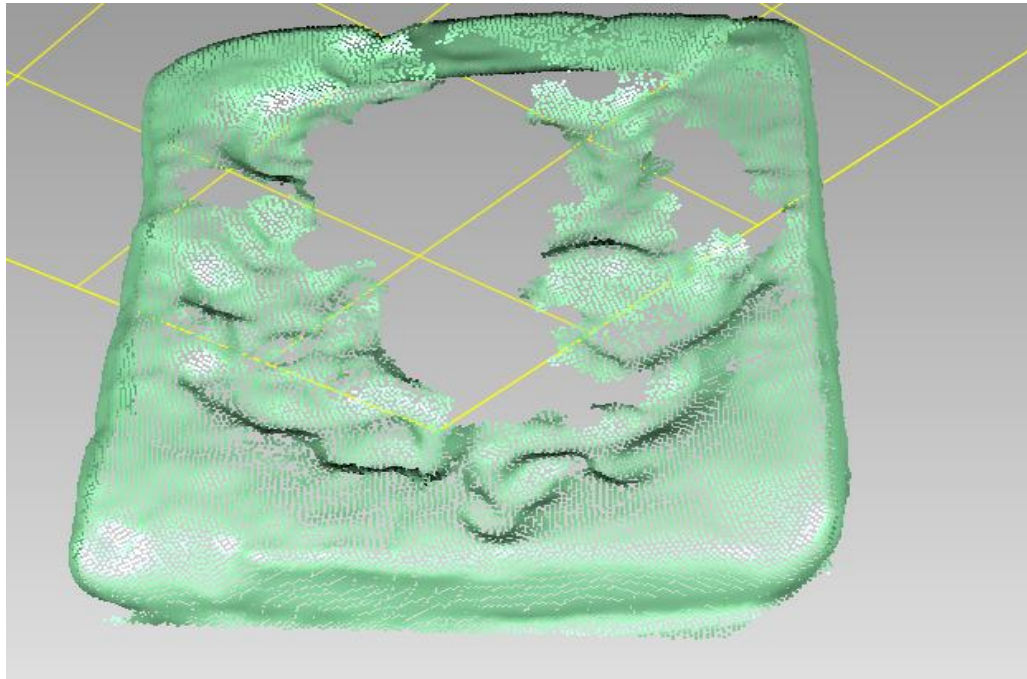


Figure 5. The Overall Structure of Han Dynasty Brick Carving

As can be seen from Figure 6, the brick carving is square, the interior is circular, and the shape is symmetrically designed based on the central axis, indicating that the brick carving in the Han Dynasty paid great attention to the matching of the structure. The ideological connotation and cultural meaning are all in line with the concept advocated by the Songshan cultural ecology, and in the treatment of patterns, great importance is attached to standardization, reflecting Taoist thought. Taoist cultural theme: the style characteristics of Han Dynasty brick carving. Use different forms of seal carving to show the subtlety of Taoism. The brick carvings of the Han Dynasty in Songshan under the theme of Taoist culture have a very mysterious atmosphere, and many of the elements in them also have supernatural characteristics. Through the depiction of Taoist gods, beasts, immortals and other elements, the brick carvings can express the Han Dynasty's beautiful yearning for supernatural powers, Taoist thought, and the spiritual world, sometimes even with worship. Moreover, some mysterious symbols and ritual scenes full of Taoist characteristics also make the work more otherworldly and mysterious. Through the form of seal carving and the color of painting, the mystery of religion is enhanced. The cultural ecology of Songshan is closely related to Taoism, and the Taoist theme brick carvings of the Han Dynasty in the Songshan area often use various Taoist symbols and symbols to express people's belief in Taoism and have certain philosophical thoughts. For example, Tai Chi patterns and Bagua patterns were also elements of brick carving in the Han Dynasty in the Songshan area at that time. In short, Han Dynasty craftsmen often used various brick carving techniques to show strong Taoist symbolism and spirituality, so as to form an expression of persistent exploration of the meaning of life, and involve mysterious content such as the origin of life in the universe. Finally, the five elements of yin and yang. In the Han Dynasty Taoism-themed brick carvings in the Songshan area, the content of the theory of the five elements of yin and yang is very vivid and can be fully reflected. Through the specific depiction of the five elements, many Han Dynasty brick carvings in the Songshan area contain human attention to the principle of mutual balance of all things in the universe, and this admiration of the five elements of yin and yang can reflect a certain uniqueness. At the same time, the work can also show the cultural and



ecological characteristics and Taoist content of the Songshan area, which has a strong connection.

## **THE DEVELOPMENT STRATEGY OF BRICK CARVING IN THE HAN DYNASTY FROM THE PERSPECTIVE OF SONGSHAN CULTURAL ECOLOGY**

### **Enrich the Cultural and Ecological Theme of Songshan**

Mythological themes and natural landscape themes, Taoist themes, etc. Moreover, from the perspective of Songshan culture and ecology, the Han Dynasty brick carving has very obvious aesthetic characteristics, and from the perspective of Songshan culture and ecology, the Han Dynasty brick carving with the theme of natural landscape also has obvious artistic characteristics. First, styling. From the perspective of Songshan culture and ecology, the shape of the Han Dynasty brick carving with the theme of natural landscape has the characteristics of pursuing authenticity and idealization. Han Dynasty craftsmen carefully observed and understood some natural elements, such as landscapes, animals and plants, to create idealized images that could conform to the laws of nature. For example, in some Han Dynasty mountain stone and brick carvings, the mountain stones carved by craftsmen not only have the characteristics of ruggedness, but also have simplified (or exaggerated) artistic techniques (H. Wang et al., 2022), so that they will appear both real and vivid, and full of artistry; From the perspective of visual expression, the lines of Han Dynasty brick carvings with natural themes often vary in thickness and contrast, thus showing a simulation of the changes in light and shadow of natural phenomena. In this way, the craftsman can create a varied visual effect for the audience, and use the fine depiction of details and the simple combination of lines to make the picture delicate and atmospheric and full of visual effects. For example, in terms of space processing, the brick carvings of the Han Dynasty with the theme of natural landscape often have a strong sense of hierarchy and progressive depth. Through the layered portrayal of the front, middle and long shots, the craftsmen combined the virtual contrast techniques to construct a spatial structure full of a strong sense of three-dimensionality and rhythm for the audience. This treatment allows the brick carving to show a rare sense of movement. It also makes the natural landscape even more impressive. In short, from the perspective of Songshan cultural ecology, the craftsmen of the Han Dynasty created brick carvings in natural landscapes with extremely fine and strong artistic characteristics, which reflects the exploration and expression of the integration of natural aesthetics and humanistic spirit by people in ancient society. In addition, it also expresses the elegant outlook on life of the people of the time. From the perspective of Songshan cultural ecology, the Han Dynasty brick carvings with Taoist themes also show strong modeling, visuality and spatiality. First, styling. From the perspective of Songshan cultural ecology, the shape of the Han Dynasty brick carvings with Taoist themes generally presents many immortals, mythical beasts, cranes, etc., and the images generally have supernatural characteristics and a sense of mystery. For example, the flowing robe and kind face, the fairy spirit fluttering and leisurely posture, etc. The craftsmen will use more artistic and exaggerated techniques to express the image, appearance, temperament, etc. of Taoist mythological images, and secondly, visuality. From the perspective of Songshan cultural ecology, the visual characteristics of Taoist-themed Han Dynasty brick carvings are that they often have symmetrical or layered techniques, and use this to create a three-dimensional, extremely mysterious and ethereal visual effect. Generally speaking, the works will have bright colors and ornamentation to enhance the attractiveness and visual sense of the brick carving, and thirdly, the spatiality. From the perspective of Songshan cultural ecology, the Han Dynasty brick carvings with Taoist themes will show the techniques of perspective and illusion, thus showing the combination of virtual and real, clear hierarchy and other spatial effects. This kind of artistic expression can make the Han Dynasty brick carving with Taoist themes more three-dimensional, more otherworldly temperament, and make people interested.

### **Han Dynasty Brick Carving Tourism to Develop the Cultural Ecology of Songshan**

In the current era, the brick carving of the Han Dynasty has a very long history, and under the influence of factors such as erosion and man-made destruction, many brick carvings of the Han Dynasty are not complete enough. This, combined with the lack of current funding to ensure their restoration, has challenged the conservation of precious cultural relics. Based on this, people need to better protect, inherit and develop the brick carving of the Han Dynasty, and protect, inherit and develop the brick carving culture of the Han Dynasty (Xu et al., 2024; R. Zhang et al., 2022). There is a need to set up special tours for this purpose. For example, in art colleges and vocational and technical schools, professional tours related to the art of brick carving in the Han Dynasty are opened, and the historical knowledge and cultural value, artistic value, and related craft techniques of brick carving in the Han Dynasty are taught. In this way, students can cultivate their interest to have a deeper understanding of the art of brick carving in the Han Dynasty and be interested in the cause of protecting and inheriting the art of brick carving. Second, establish a mentor-apprentice inheritance system. From the perspective of Songshan cultural ecology, some schools that open this kind of tourism need to establish a special master-apprentice inheritance system for tourists, so that experienced brick carving craftsmen and artists can

directly teach and guide the skills, and teach the main skills to the students, so as to ensure the accurate inheritance and subsequent development of this Han Dynasty skill; In this way, through their learning and experience, more people can know and understand the brick carving skills of the Han Dynasty, so as to improve people's understanding, attention and respect for the brick carving art of the Han Dynasty. Relevant organizations can develop an online education platform on the art of brick carving in the Han Dynasty, and upload and share videos of the art of brick carving in the Han Dynasty, teaching videos of related skills and techniques, and tourism resources, to use Internet technology to improve the educational coverage of brick carving art and increase its public influence. In the art of brick carving, modern design elements can be integrated, and innovative brick carving with modern sense and cultural characteristics of the Han Dynasty can be created, so as to attract more young people to know, understand and love the brick carving culture of the Han Dynasty; One can explore the use of new materials, the integration of Han dynasty techniques, and better brick carvings, such as resin and ceramics, to improve the durability and expressiveness of the work, and finally, cross-border collaboration (Xu et al., 2024; R. Zhang et al., 2022). People can carry out cross-border cooperation with contemporary artists and designers and explore new ways of expressing Han Dynasty brick carving art in the current cultural context to improve artistic innovation in this area. Social media promotion. Social media platforms, such as Weibo and Douyin, can be used to carry out marketing and promotional activities and raise awareness of the art of brick carving in the Han Dynasty and online mall sales. Relevant parties can establish an online mall to specialize in the sales of Han Dynasty brick carving artworks and other related products from the perspective of Songshan cultural ecology, and expand the coverage of the market, so as to attract more people's attention and collection; Combine the brick carving and cultural content of the Han Dynasty with the tourist attractions of Songshan, and set up an exhibition area of the Han Dynasty brick carving of the Songshan faction in the scenic spot, so as to carry out related cultural activities to attract more tourists to participate (Y. Zhang & A. Pollard, 2022; Zhushchikhovskaya & Buravlev, 2022).

### **Exploring the Brick Carving Culture of the Han Dynasty**

Regularly hold relevant exhibitions of brick carving art in the Han Dynasty, so as to show people the historical background of brick carving art, its craftsmanship and style, and enhance people's understanding of the brick carving art of the Han Dynasty in Songshan area. From the perspective of Songshan cultural ecology, in order to better inherit and develop the brick carving art of the Han Dynasty in Songshan area, it is necessary to hold regular brick carving cultural exchange activities in Songshan or surrounding areas. Relevant parties should also actively invite brick carving artists, craftsmen and scholars at home and abroad to carry out in-depth cultural exchanges and discussions, so as to promote the further promotion of the brick carving art of the Han Dynasty with Songshan characteristics, so that it can better face the world; Relevant personnel need to combine the art of brick carving and modern design in the Han Dynasty, and retain the artistic characteristics of brick carving in the Songshan area of the Han Dynasty under the perspective of Songshan cultural ecology, and innovate in combination with modern aesthetic elements, so as to create new brick carvings and handicrafts to better broaden the market and improve the economic value of brick carving; From the perspective of Songshan cultural ecology, relevant personnel need to actively establish the Han Dynasty brick carving brand with Songshan cultural and ecological characteristics, and carry out multi-channel publicity and promotion through network media and Han Dynasty media, network, tourism APP, etc., so that people can truly understand the charm of brick carving in Songshan area. Based on this, we can better promote the further protection and inheritance of the brick carving art of the Han Dynasty, which is rich in the cultural and ecological characteristics of Songshan, and integrate it into the aesthetics of modern society, and at the same time, retain its own characteristics, so as to enhance its artistic vitality and social and cultural influence. Under the principle of Songshan cultural ecology, people can use 3D scanning technology to implement comprehensive digital protection and restoration of Han Dynasty brick carvings, and at the same time, establish a special virtual digital archive for them to ensure the integrity of Han Dynasty brick carvings and preserve them for a long time, and secondly, virtual exhibitions and interactive experiences. AR technology can be used to create a virtual exhibition of Han Dynasty brick carving so that the audience can better understand the historical background of Han Dynasty brick carving art and its artistic characteristics, artistic and cultural value in the virtual space, and finally, establish an online learning platform. When the online learning platform is completed, it can provide people with online tourism and educational resources of Han Dynasty brick carving art so that users can learn and understand Han Dynasty brick carving skills through the online platform—professional archaeological tourism. Relevant parties can set up archaeological tourism and workshops on Han Dynasty brick carving of the Songshan faction to teach the production techniques and historical knowledge of Han Dynasty brick carving of the Songshan faction so as to cultivate more brick carving artisans and artists. Relevant parties can set up a scholarship program to subsidize students who are aspiring or have potential and talent in the Han Dynasty brick carving major and support them to carry out further study and support them to carry out relevant practices to achieve the goal of training professionals better.

Based on the above strategies, we can better promote the application of modern technology and innovative means in the inheritance and development of brick carving art in the Han Dynasty and promote the further prosperity of brick carving art in the Han Dynasty so that the cultural form of the Han Dynasty can get new vitality (Zhou et al., 2023).

### CONCLUSION

As a famous Taoist holy place in China, Songshan carried rich religious and cultural values with a profound historical and cultural heritage, among them, Han Dynasty brick carving as one of the important art forms in ancient China, in the ecological environment of Songshan, showing a unique artistic style and artistic connotation. This paper excavates the artistic characteristics of brick carving in the Han Dynasty from the perspective of Songshan cultural ecology, carries out relevant comparative research, and reveals the unique charm of brick carving art in the Han Dynasty in terms of shape, subject matter, style and other aspects. The results show that the brick carving in the Han Dynasty was designed according to the material, and the brick carving is divided into printing, seal carving and drawing. The materials used in brick carving are clay, kaolin, feldsparite, etc., and the dyes are copper sulfate, ferric oxide, and iron oxide. The design of the brick carving is mainly based on the cloud dragon pattern, and the shape conforms to the seal carving standard of the Han Dynasty, showing the characteristics of symmetry in the middle and clear outline. Based on this, people can discover the artistic value and aesthetic significance of brick carving in the Han Dynasty, and provide basic support for the further protection, inheritance and development of brick carving art in the Han Dynasty. In short, from the perspective of Songshan cultural ecology, people need to protect the brick carving art of the Han Dynasty as much as possible, and actively explore its artistic value, so as to better promote the development of the brick carving art of the Han Dynasty in modern society. The brick carving of the Han Dynasty has profound cultural value, which supports Songshan's cultural and ecological development and promotes the development of tourism and archaeological culture in the region. There are some deficiencies in the research in this paper, mainly because there are few materials on brick carving and limited samples, so there are some deficiencies in the research process. In the later stage, we will focus on sample collection to enrich the relevant research content.

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