

# Research on the Protection and Utilization of Hanging Foot Buildings from the Perspective of Functionalism: A Case Study of Xijiang Miaozhai

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## Abstract

Traditional dwellings carry rich history, culture and ethnic customs, and to protect traditional ethnicity is to protect the traditional culture of the Chinese nation. In the context of Chinese-style modernization and urbanization, with the rapid development of tourism in Xijiang Miaozhai, the exploitation of tourist attractions has intensified, and the function of the hanging foot building has changed and gradually lost its ethnic identity. In this paper, we will carefully analyze the construction techniques and functional changes of the Xijiang Miao Village, analyze the problems and causes of its current conservation and utilization, and analyze its conservation and utilization value on this basis to propose effective countermeasures. The study is of guiding significance and application value for the sustainable conservation and utilization of the Xijiang Miao Village and for the conservation and utilization of other traditional dwellings in China.

## Keywords

Functionalism; Hanging Foot Building; Xijiang Miaozhai; Conservation and Utilization.

## 1. Introduction

### 1.1. Research Background

China is a vast country with many ethnic groups and all of them have their own characteristics. Under the influence of different topography and natural conditions, each ethnic group has produced numerous beautiful and colorful traditional residential buildings. There are Beijing courtyards expressing "deep houses and courtyards", kilns on the Loess Plateau with "warm winters and cool summers", water towns in Jiangnan with "small bridges and flowing water", and The "unity of heaven and man" in Fujian Hakka Weilong House and so on. In the south, there is the unique pole-and-rail architecture - the hanging foot tower, which is an ancient ethnic architecture system dating back as far as the primitive society and has high research value. The Xijiang Miao Village, the subject of this paper, is the largest Miao village in China and even in the world, and is a "living fossil" of the architecture of ancient Chinese inhabitants with its continuous clusters of hanging foot towers. However, with the development of urbanization and modernization, many significant changes have occurred in the production and lifestyle of Miao villages, as well as some irrationalities in the protection and utilization, which to a certain extent threaten the living space of the hanging foot tower. This phenomenon not only strips away the humanistic landscape, traditional culture, design concept, architectural features and folk customs built on the hanging foot tower, but also gradually reduces the love and heritage of the younger generation for the traditional culture of Xijiang Miao Village. Nowadays, the hanging foot tower of Xijiang Miao Village is in danger, and it is urgent and necessary to rescue and protect, develop and utilize, and research and develop.

## 1.2. Research Significance

The Miao Village Hanging Foot Tower is a physical witness to the ancient architectural relics of mankind and the inheritance and development of dry bar architecture provided by the Miao in a mountainous environment, and is a historical and cultural treasure left by the Miao ancestors. Xijiang Miao Village develops Miao cultural tourism with traditional ethnic cultural resources as the core, among which, the hanging foot tower is an important core resource of ethnic cultural tourism. By promoting ethnic cultural products and linking cultural tourism consumers with tourism suppliers, the Miao Village constitutes a traditional ethnic cultural tourism industry, which has played a great role in developing the economy and improving the life of people in ethnic areas. The role played by the Hanging Foot House in the development of the Miao is very important and is one of the keys to the sustainable economic and cultural development of the Miao Village, so whether the Hanging Foot House is effectively protected and utilized is crucial for the Miao Village. From the perspective of functionalism, this paper analyzes the changes of the function of the hanging foot tower in the protection and development of Miao villages, and on this basis, it analyzes the problems and causes of the protection and utilization of the hanging foot tower in Miao villages in depth, in order to propose reasonable countermeasures for the protection and utilization of the hanging foot tower in Miao villages. This study not only provides reference suggestions for the conservation and utilization of Miaozhai foot-hanging towers, but also contributes to the promotion of Xijiang Miaozhai and brings the conservation and utilization of foot-hanging towers to the attention of more scholars and designers in related fields.

## 1.3. Literature Review

### (1) Research on the hanging foot tower

Hanging foot tower is an ancient architecture in southwest China, the most original prototype is a kind of dry-rail dwelling, which stands near the water and is built by the mountain, gathering the spirit of green mountains and water, and blending with the nature. The research on hammock is mainly focused on four aspects: construction techniques, suitability for living, renovation, and conservation and utilization, and the research objects are mainly the hammock of Miao and Tujia families.

In 2018, Jingyi Wang pointed out in his article "Research on the entrepreneurial path of intangible cultural heritage of traditional craft category under productive conservation model - taking Chongqing Tujia hanging foot building construction techniques as an example" that Chongqing Tujia hanging foot building construction techniques currently have problems such as decreasing number of inheritors and weakening practical value, and there are five reasons for the problems. In 2019, HaoGuo pointed out in the article "Research on the Architectural Style and Protection of Xiangxi Tujia Hanging Foot House" that in modern economic construction and rural transformation, new architectural systems are taking shape and old buildings are gradually disappearing, and in such a situation, the hanging foot house which seems to be behind the times is being abandoned, and the hanging foot house architecture as a representative of local Xiangxi As a representative of local architecture in western Hunan, the hanging foot tower is gradually disappearing at an alarming speed. Therefore, the protection of the hanging foot building and the development of the local architectural culture are the issues that we need to pay attention to at present. In 2020, ZhiyuanZhou in the article "Study on the regeneration of the art form of the hanging foot building of the Tujia family in Exi", believes that in the protection and utilization of the hanging foot building, we should start from the excellent art form of the hanging foot building, penetrate into the soul of the building, further grasp the laws of architecture, and regenerate the excellent elements of the hanging foot building in contemporary architecture with rules to follow. In 2021, SiyiYang et al. pointed out in the article "Protection and inheritance of traditional dwelling architecture and culture of the Tujia family

in Exi--Tujia hanging foot tower as an example" that under the background of national advocacy of urban integration and rural revitalization, we should pay attention to the protection and inheritance of traditional dwelling architecture and regional culture of the Tujia family. 2022, HongWang et al. pointed out in the article "Protection and inheritance of traditional dwelling architecture and culture of the Tujia family in Exi Wang Hong et al. mentioned in their article "Study on the suitability of traditional dwelling houses in Qian southeast China" that with the change of production and living patterns of residents in Qian southeast China, local traditional dwelling houses can no longer meet the needs of modern living. This study will provide a theoretical basis and a practical basis for the transformation of the suitability of traditional residential houses in Qian southeast China.

## (2) Study on the hanging foot tower of Xijiang Miao Village

Xijiang Miaozhai is the largest Miao village, and its concentrated foot-hanging towers and splendid Miao traditional culture have made it a unique business card for the promotion of minority culture in Guizhou, and a sacred place for the promotion and dissemination of minority culture. However, with the development of urbanization and modernization, tourists keep pouring into the scenic spots and enterprises keep increasing the development and utilization of the Miao Village, which makes various problems exist in the protection and utilization of the Miao Village. In the past five years, there have been more studies on the hanging foot tower of Xijiang Miao Village, mainly on the inheritance of Miao Village hanging foot tower construction techniques, the protection and utilization of hanging foot tower, and the change of forms.

In 2018, HeweiLiu, in the article "Contemporary Changes in the Form of Traditional Miao Foot-Hanging House in Xijiang Town, Qiandongnan", explains the changes in four aspects of the foot-hanging house: layout, foundation, decoration and decorative patterns, providing research references for the preservation of tangible and intangible cultural heritage and promoting the sustainable development of traditional culture. 2019, LiyuanJia, in the article "Regenerative Design of Miao Residential Foot-Hanging House --In the article "The design of regeneration of Qing House in Xijiang Thousand Household Miao Village", Jia Liyuan explores the possibility of renewing the interior environment of Miao houses through the example of Qing House, and provides a feasible direction and model for the regeneration of Miao houses in the context of the evolving times. In 2020, Li Xuemin conducted a comprehensive analysis of the skills and spatial environment of the Miaozhai foot-hanging buildings in the context of aging, and concluded that the Miaozhai foot-hanging buildings in Xijiang are age-appropriate, which provides a new path for the conservation and utilization of the Miaozhai foot-hanging buildings. In the analysis of the literature on the protection and utilization of hanging foot towers in Xijiang Miaozhai, it is found that scholars more often combine the research on the protection and utilization of hanging foot towers with the research on ethnic culture and tourism development, and there are fewer studies on the protection and utilization of hanging foot towers in Xijiang Miaozhai alone.

## 1.4. Research Methodology

Literature research method: Collecting and organizing Chinese and foreign literature, collecting materials on the real situation or historical condition of the research object in a purposeful and planned manner, so as to comprehensively and correctly understand the issue to be researched, and summarizing the information in the literature on this basis, and using it as an important research basis for the dissertation.

Investigation and research method: Through the actual investigation of Xijiang Miao Village, talking with relevant people and other ways to get first-hand information, but also through some authoritative institutions to collect survey data for analysis and research. The information

collected will be analyzed and synthesized and summarized, and scientific and reasonable solutions will be proposed under the comprehensive and systematic research.

## 2. Analysis of the Current Situation of Protection and Utilization of the Hanging Foot Tower in Xijiang Miao Village

### 2.1. Basic Research Overview

#### 2.1.1. Functionalism

Functionalism refers to the emphasis on functionality and practicality in design, which means that any design must ensure the full expression and use of the product's function, followed by the product's aesthetics. The term "functionalism" appeared in the field of philosophy as early as the 18th century. Functionalism was the basic concept of the modernist design movement, which had a profound influence on the industrial movements of various countries, and in the middle of the 19th century, the industrial revolution developed and the field of architecture changed dramatically. The types of architecture became more and more diverse, and the traditional architecture could no longer meet the needs of people's lives. In the 1880s and 1890s, Sullivan of the Chicago School put forward the slogan "form follows function", which became a trusted design doctrine in the architectural world. In the 1920s, Corbusier proposed the concept of "architecture as a machine for living", which gave a new connotation to functionalism and advocated a simple and clear mechanical beauty. Functionalism flourished in the field of architecture in Europe and America. However, in the 1930s, a group of functionalists began to distort the meaning of functionalism, mainly engineers and developers, who believed that "economical and affordable" architecture was functional architecture. Eventually, some architects began to doubt the idea of functionalism, and after the 1950s, supporters of functionalism began to dwindle and the idea began to be criticized, eventually being replaced by postmodernism.

#### 2.1.2. Xijiang Miaozhai

Xijiang Qiandu Miaozhai is unique in China and the largest Miao settlement in the world, with more than 1,200 Miao families. It is 36 kilometers from the county seat of Leshan County, 35 kilometers from Kaili City and about 200 kilometers from Guiyang City. As a very mature tourist destination, it has convenient transportation facilities and is directly accessible by public transportation from all major cities in Guizhou. It consists of more than ten natural villages built on the mountains, surrounded by mountains on all sides, with unique wooden hammocks hanging between the mountains, and more than a thousand hammocks varying in height with the ups and downs of the terrain, with layers and layers of mountains. 1982, Xijiang Miaozhai was listed by the Guizhou Provincial People's Government as an ethnic style tourist attraction on the eastern route of Guizhou. 1992, Xijiang Thousand-House Miaozhai was listed as a Guizhou Provincial Cultural Relics Protection Unit. 2005, Xijiang Thousand-House In 2002, Xijiang Miaozhai was listed as a 4A-level tourist attraction.



Figure 1. Xijiang Miao Village overall appearance map

### 2.1.3. Hanging Foot Building

Hanging foot tower, also called "hanging tower", is a traditional residence of Miao, Buyi, Dong and Tujia ethnic groups, mostly found in southeastern Chongqing and northern Guizhou, western Hunan, western E and southeastern Qian. Hanging foot tower is mainly built near the mountain and water, sitting west facing east or east facing west. It belongs to the dry-rail building, but is different from the general dry-rail building, because it is suspended, so it is called semi-dry-rail building.

The most basic feature of the hammock is that the main house is built on the ground, and the compartments are connected to the main house, with only one side on the ground and the other three sides overhanging and supported by pillars. The distinctive architectural style makes it not only ventilated and dry, but also protected from poisonous snakes and wild animals, and miscellaneous things can be put under the floor. There are various structural forms of the hammock, including the single-hung type, which is the most common form and is characterized by an overhanging compartment on only one side of the main house, with wooden pillars underneath. There is the double-hung type, which is developed from the single-hung type, i.e. both ends of the main house have overhanging compartments. There is the Siheyuan style, which is developed on the basis of the double-hung style and is characterized by the fact that the upper part of the hanging part of the compartment at both ends of the main house is connected to form a courtyard. There is also the double house hanging type, which is developed on the basis of the single hanging and double hanging, i.e. adding another layer to the general hanging building. There is also a flat lift type, whose main feature is that it is built in a flat dam, and according to the topography, there is no need to lift the feet, but the compartment is lifted up and supported by wooden pillars. Support with wooden pillars fall to the ground and the ground level of the main house, so that the compartment is higher than the main house.

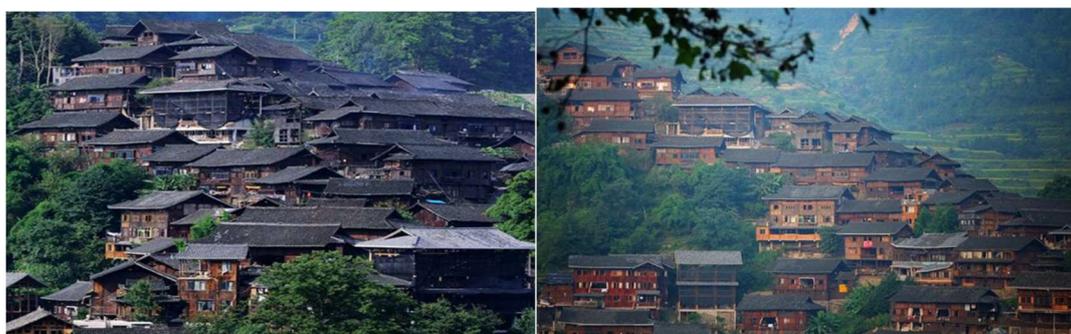


Figure 2. Xijiang Miao Village Hanging Foot Tower

## 2.2. Changes in the Function of the Hanging Foot Tower in Xijiang Miao Village

### 2.2.1. Characteristics of Xijiang Miao Village Settlements

Xijiang Miaozhai is an open-air museum showing the history of the development of the Miao people. In the eyes of Chinese and foreign folklorists, it is the most complete place to preserve the "original ecology" of the Miao culture. Mr. Yu Qiuyu said, "To answer everything with beauty, look at Xijiang to know the world of Miao Village", the beauty of Xijiang is exquisite and atmospheric.

The spatial organization of Xijiang Miaozhai has no artificial order, adapting to the characteristics of the terrain and not forcibly changing the natural environment. The hanging foot tower of Xijiang Miao Village extends from the foot of the mountain to the ridge, soothing and spreading, and the building height is low, which conforms to the original ecological form of the mountain and maintains the integrity of the mountain ecosystem to the maximum extent in order to achieve an organic combination of architecture and natural trends. Miaozhai hammock will make reasonable use of local construction resources when building, such as in the Qingshui

River, Leigong Mountain and Duliu River basin, the geological characteristics of debris rock choose cedar tree to become an important building material for the Miao people who live there, while in the South and North Pan River basin, the product of limestone geological characteristics is stone slab, so the hammock architectural style of mainly wood and stone, which are rich in resources, with brick and tile earth materials, is naturally formed in the building.

### 2.2.2. Hanging Foot Building Construction Techniques

The construction technology of Miaozhai hanging foot tower is a local traditional handicraft technology in Leshan County, Guizhou Province, and is one of the national intangible cultural heritage. Miaozhai hanging foot tower originates from the form of "nest dwelling", built with bamboo and wood, the lower part is in the form of openwork, which is called "semi-dry fence" wooden structure building, and this type of building is mainly in the minority settlement.

#### (1) Process Features

Miao Village hanging foot building construction techniques are the embodiment of the ancient construction techniques inherited from its ancestors in adapting to the new environment in the mountains and gradually perfecting them, with distinctive craft characteristics. First, it is environmentally friendly, with the advantages of simplicity, stability and moisture resistance, and also saves arable land and building materials. The hanging foot tower of Xijiang Thousand Household Miao Village with different shapes is rich in vitality in form and is a heavenly and human-like architectural structure. After the Miao people moved in, in order to leave more flat land for farming, adapt to the local natural conditions and enable the ethnic group to flourish, most of the dwellings were built on the steep slopes from 30° to 70°, and the wooden hanging foot tower with the pierced bucket structure was created on the basis of the traditional dry-rail construction. The second is the unique structure, the Miao Village hanging foot building frame are connected by mortise and tenon. There are thousands of mortise and tenon holes in the pillars, beams and square of a house, and the carpenters never use drawings, only with ink buckets, axes, chisels, saws and various plans in mind, they can make the pillars connected to the pillars, square and square, beam and beam, so that a 3-story wooden building standing on the steep slope, which shows the level of craftsmanship of the Miao residential construction craftsmen. Thirdly, the unique style of the hanging foot tower has made it famous overseas. Generally speaking, the half of the hanging foot tower is built on the slope with a large inclination, with the back half on the rocky ground and the front half supported by wooden pillars, and the building is built with locally produced wood. By making reasonable use of the slope, the upper and lower roof bases are formed, with long pillars on the lower level and short pillars on the upper level, so that the ground in the front half is parallel to the ground in the back half of the room, thus forming a half-sided building with a very different style.



**Figure 3.** Craft features of Xijiang Miaozhai hanging foot tower

## (2) Process Flow

The creation of Miao Village hanging foot building is to choose an auspicious day, and there is a perfect creation process. First, the foundation of the house is chosen, mostly on the edge of the fort or immediately adjacent to the fort, on the open space suitable for building a house. If it is not wide enough, the slope should be cut and paved. The second is to prepare the materials, usually in the peak of summer when the farm is free. The most important thing is to select the middle pillar. When cutting down the middle pillar, incense, paper money, wine, fish and glutinous rice are brought to the foot of the tree to pay respects. The master will cut a few axes first, and then others will cut. Thirdly, the ink is sent, after the material is dried and shaved, the carpenter starts to send ink. When the ink is issued, the master pinches the line at one end of the pier, the carpenter straightens it on the column, and then pops it with force. If the ink line is straight and even, it is a sign of good fortune, otherwise another hair. Fourth is the demolition of square chisel eyes, according to the carpenter's inking pattern, with saws, chisels, axes and other demolition through the square, chisel eyes and tenons, repair sawing beams. Fifth is the establishment of the house, the establishment of the house frame and beam on the same day. The whole clan gathers together and works together to erect the new house. Relatives and friends come with gifts to celebrate. Sixth, the gate is erected and a rooster is killed for sacrifice. After building the house and putting up the walls, the move is done on an auspicious day.

### 2.2.3. Changes in the Function of the Hanging Foot Building

(1) Changes in the layout of the hanging foot tower: The Miao in Xijiang Miao Village are a farming people, and the partitioning and layering of the hanging foot tower is based on the basic needs of the traditional farming lifestyle. The traditional Miao foot-hanging building is generally divided into three floors: the bottom floor is for storing miscellaneous things or raising livestock, the flat floor is for living, and the top floor is for storing food. The functional space on the flat floor is centered on the hall, with bedrooms on both sides of the hall, a semi-outdoor retreat in front of the hall, and a recreation area outside the retreat, and a fire pit behind the hall, where cooking, dining, and heating in winter can be done. The flat floor is the center of daily living, where guests are received or weddings and funerals take place. However, with the development of modernization, the fireplace room and hall of the traditional hanging foot building are gradually replaced by modern kitchen and living room, and due to the development of tourism, some people build new houses or renovate the old ones to operate B&B or Nongjiala. The first floor is no longer stacked with miscellaneous goods or breeding, but mostly transformed into stores or stores for self-occupation as well as setting up operation rooms, etc. The flat-floor hall is changed into a folklore lobby to receive guests and dining, and the top floor is no longer stored with food but transformed into an attic to provide more accommodation space. In addition, traditional hammock houses would have a space for worship inside the house, but nowadays, ritual activities are gradually reduced and simplified, and most of the hammock houses no longer have a separate space for worship inside.

(2) The change of the foundation of the hanging foot tower: In order to prevent moisture, the traditional hanging foot tower of the Miao Village will be placed in the position of the pillar after the ground is compacted, while the conditions of the foundation are not too good, the platform is built with pieces of stone or pebbles. However, the construction speed of traditional hammock building with stones is not too fast to keep up with the development of commercialization of Xijiang Miao Village, and at the same time, traditional hammock building is more used for family living, so we are very concerned about the daily protection and repair of hammock building. The commercialized hammock will face the problem of unstable foundation due to different degrees of damage, so that the foundation of the hammock in Xijiang Miao Village is now generally made of reinforced concrete and forms a platform, with the roof frame standing on top of the platform, completely replacing the original stone foundation.

(3) Changes in the decoration of the hanging foot building: Miao zhai used to have more difficult living conditions, doors and windows must not only consider ventilation and lighting, but also whether to keep warm, so the size of the doors and windows of the traditional hanging foot building are relatively small, requiring bending down to pass. Nowadays, people pursue more convenient and practical, brightly lit interior spaces, and the size of doors and windows has been enlarged to become the common size of doors and windows in modern buildings, while the windows are mostly designed with a combination of wood and glass, which is both practical and ventilated. In addition, local Hmong residents want to increase their income through the tourism economy, and in order to make tourists comfortable, the lodges are decorated by learning Han Chinese living habits.

### **2.3. Analysis of Problems in Conservation and Utilization**

#### **2.3.1. Management Issues**

The development of tourism in Xijiang Miao zhai is now in an accelerated stage, and the traditional foot-hanging buildings have been protected and utilized to different degrees due to the rapid development of tourism, but there are still some problems of uncoordinated management. Firstly, the information management is not perfect, as the number of hanging foot towers in Qiandu Miao zhai is large, and when it comes to the peak tourism period, there is often a lack of dedicated supervision and management, which to a certain extent leads to asymmetric and untimely information, so that when the hanging foot towers are damaged, they are not repaired in time and may aggravate the degree of damage. Secondly, the lack of effective supervision mechanism, Xijiang Thousand Miao Village protection and use of facilities part of the construction of "heavy construction, light management" situation, the town government departments usually focus on the completion of the construction tasks assigned by the higher levels, and the lack of effective supervision mechanism after the completion, often after the completion of the phenomenon of no one to manage no one to supervise. Third, the lack of experience in the management of the Miao Village. Third, the lack of management experience, many hanging foot building in the Miao Village after the repair, Miao Village residents also want to maintain a good state of repair, but due to the lack of management experience, can not be based on the real-time situation of the hanging foot building for regular maintenance and management, most of them are passive repair, often making the degree of damage further aggravated.

#### **2.3.2. Fire Protection Issues**

Xijiang Thousand Household Miao Village is both a tourist attraction and a witness of history. Not only that, the Thousand Household Miao Village still has more than 1,300 traditional Miao foot-hanging buildings, which is the largest and most typical foot-hanging building complex in China. Most of the buildings in the scenic area are hanging foot buildings, which cannot be replicated once they burn down, and the damage caused cannot be measured. Miao zhai had met with fire and destroyed nearly a quarter of the village. Nowadays, the firefighting situation in Xijiang Miao zhai has improved compared with the previous situation, but the firefighting situation is still very serious. The main way for the residents of Xijiang Miao Village to obtain fire prevention knowledge is through TV and government propaganda, and they have a good awareness of fire prevention and fire habits in their lives, but there are more restaurants in the scenic spots, which makes the kitchens prone to fires, and the situation is not optimistic in terms of mastering some basic fire fighting skills and knowledge, and few people can skillfully use fire extinguishers and fire hydrants. In addition, the Miao Village houses are crowded, narrow and steep passages, wood and other combustible building materials, there are certain fire safety hazards.

### 2.3.3. Problems of Creation Techniques

With the development of society and the change of people's life concept, the local young people in Xijiang are no longer willing to live in the hammock and learn the related construction skills, so there is a lack of artisans to build the hammock. At the same time, there are certain requirements for geology and timber for the construction of the hanging foot tower, and the task of preventing landslides and fire prevention is heavier after completion. Therefore, the continuation and physical protection of the culture of hanging foot tower construction skills in Xijiang Qiandu Miaozhai are facing extremely serious challenges.

Firstly, the traditional way of construction has been impacted. With the development of commercial tourism, new architectural elements have entered strongly, impacting the traditional way of construction of Miaozhai hanging foot tower. In terms of construction materials, the wood tension has increased the cost of building houses. At the same time new building materials such as bricks, cement and steel have entered into the construction of the Miaozhai hammock. The intervention of these new materials and components is very incongruous with the wooden hammock as a whole, but the locals may regard these new materials as high-class and fashionable. In terms of tools used, modern construction tools such as chainsaws are already used in local house building, which naturally improves productivity and is a natural choice for local craftsmen, and there is nothing wrong with that. However, the use of electric machinery can replace some traditional tools, which in turn can lead to the risk of losing the methods and techniques of using these traditional tools. In terms of construction, some buildings have adopted new types and methods altogether. Second, the concept of change, in the impact of foreign culture, the local people's ideology is also changing. Especially after the increase of commercial tourism development, the local Miao people also issued a "people's hearts are not ancient" lament. The sense of national identity and identity is gradually fading, and many young people are no longer willing to live in the old hanging foot tower, considering living in wooden houses as a kind of backwardness and preferring tall and neat buildings. In addition, at present, the economic income of the craftsmen who build the hanging foot tower is at a high level in the local area, but young people are not willing to learn the skill of building a hanging foot tower, which means that the reduction of inheritors is an important factor threatening the inheritance of this heritage. Thirdly, the fragility of the inheritance method, the inheritance method of the traditional hammock construction process is completely autonomous and spontaneous, with human factors playing a decisive role, and the inheritance method is relatively fragile. For heritage transmission, the number of master apprentices is relatively small, and the spread of heritage is very small, which is not conducive to its promotion and survival.

### 2.3.4. Commercialization Issues

In the past, the hanging foot tower in Xijiang Miao Village was unique to the Miao family, but along with the demand of tourism development, the tower was transformed into modern entertainment facilities. What people see now is the hanging foot building, but in fact the interior decoration of the hanging foot building is the same as the modern house decoration style, which is gradually "Hanization" and "urbanization" and has lost the traditional Miao architectural style. As the unique architecture of Xijiang Thousand-House Miao Village, the long-term "Sinicization" will make the uniqueness of Xijiang Miao Village become commonplace and eventually lose the precious architectural folklore tourism resources.

### **3. Protection and Utilization Strategy of the Hanging Foot Tower of Xijiang Miao Village**

#### **3.1. Conservation and Utilization Value of the Hanging Foot House in Xijiang Miao Village**

##### **3.1.1. Tourism Value**

The development of the Miao Village is Miao cultural tourism with traditional ethnic cultural resources as the core, of which the Miao hanging foot tower is an important core resource of ethnic cultural tourism. From the perspective of cultural tourism, it is the traditional crafts such as wood carving and stone carving contained in the Miao hanging foot tower communities, together with ancient trees, ancient wells, ancient roads, etc., as well as the rich traditional ethnic culture emanating from the staggered layout of the Miao residential communities, which makes the Miao village hanging foot tower residential architecture produce a very characteristic traditional cultural charm and extremely high tourism value, thus becoming a traditional ethnic cultural tourism destination. The Miao village houses have become a traditional ethnic cultural tourism destination.

##### **3.1.2. Cultural Value**

The most obvious and attractive core resource of Xijiang Miao Village is its unique minority culture. It is mainly reflected in its architecture, costumes, food, and living customs, the most important feature of which is its architecture. Architecture is the solidification of history, the soul of the nation, and the extension of cultural heritage. The entire Miao Village is made up of thousands of wooden foot-hanging towers in the landscape of the village, and the excellent traditional culture of the Miao people contained in the village. The protection and utilization of the hanging foot towers can arouse people's love for the traditional culture of the village and inspire a strong sense of regional and ethnic identity.

##### **3.1.3. Historical Value**

Xijiang Miao hanging foot tower originated from the dry bar architecture of ancient residents in the south, and is a living fossil of the architecture of ancient Chinese residents. This kind of architecture has a history of thousands of years, and the dry-rail architecture of Yuyao Hemudu site in Zhejiang Province, 7000 years ago, has reached a high level. The earliest civilization of the Miao originated in the middle and lower reaches of the Yangtze River, and the Xijiang Miao are the inheritors of this ancient architectural style, and the Xijiang Miao Village Hanging Foot Tower is not only the inheritance of culture, but also the witness of history.

#### **3.2. Conservation Strategy of the Hanging Foot Tower of Xijiang Miao Village**

##### **3.2.1. Respect the Original Appearance of the Building and Regulate Conservation Management**

Reconstruction of hammock buildings is not an effective way to protect ancient buildings, and the existing hammock buildings should be protected according to the principle of "authenticity". Maintaining the most original and natural appearance of the buildings is the most fundamental starting point for the protection of our national culture. In the conservation of the Miao Village, it is necessary to maintain the traditional function of the hanging foot building and to restore its original appearance, and at the same time to meet the basic requirements of moisture-proof and insect-proof wooden structures, and to ensure the rationality of the internal space planning. In addition, it is not only necessary to establish a series of rules and regulations for the protection and management of Miaozhai foot-hanging buildings and standardize the protection and management procedures, but also to improve the protection and management experience of the villagers and strengthen the information management of the protection of the foot-

hanging buildings, so that the damaged foot-hanging buildings can be timely found and effectively repaired at the first time.

### **3.2.2. Strengthen Fire Management and Enhance Fire Prevention**

In order to preserve the original appearance of traditional architecture, the national cultural heritage from generation to generation, the Miao Village should comprehensively improve the comprehensive management of fire safety, and strive to build a "firewall". First, regular training on fire safety knowledge to improve the fire safety knowledge and fire-fighting skills of all personnel, to implement the "prevention-oriented, combined with fire prevention" approach to fire prevention work. Second, the establishment of the fire work leadership group to ensure the normal development of safety production in the village, to further improve the management of safety production. Third, according to the actual situation in the village and the distribution of sources of danger, key areas and other risk analysis, and develop a comprehensive emergency plan, and regular emergency management training and comprehensive exercises on accident prevention, hazard identification, emergency response, basic rescue, escape and self-rescue, in order to improve the ability to deal with risks and prevent accidents.

### **3.2.3. Preserve Construction Skills and Promote Talent Cultivation**

With the decline of the construction of the hanging foot tower, there are fewer and fewer craftsmen in the construction of the Miao Village hanging foot tower, and the craft is in danger of being lost. It is urgent to cultivate inheritors and protect the construction techniques. First, to establish a protection agency for the construction skills, set up a management agency for the protection of traditional foot-hanging buildings, whose task is to coordinate the investigation and archiving of traditional foot-hanging buildings, heritage protection management, publicity and scientific research. Secondly, it protects the inheritors of the construction skills, organizes the declaration and evaluation of the inheritors of the traditional construction skills of the Miaozhai hanging foot building, and establishes a complete and continuous system. Financial support is provided to inheritors who have difficulties in life, and necessary places for inheritance activities are provided to inheritors. Thirdly, the training of talents in building techniques, organizing professional and technical training courses, inviting representative inheritors and highly skilled craftsmen to teach their skills to ordinary craftsmen and apprentices.

## **3.3. Utilization Strategy of the Hanging Foot Tower in Xijiang Miao Village**

### **3.3.1. Strengthening the Integration of Cultural and Creative Products with Architectural Culture**

With the development of cultural and creative industries, cultural and creative products are becoming a carrier of cultural heritage into our lives. The creative transformation and innovative development of traditional culture through cultural creativity is an important way to realize the use value of traditional culture in contemporary times. The traditional hanging foot tower of Miao Village is the condensation of the wisdom of the Miao people for thousands of years, and this very representative regional cultural element is a very valuable design material, so it can be extracted and used for designing cultural and creative products. Transforming the static traditional architectural elements into movable and ornamental cultural products, giving new vitality and contemporary value to the traditional architectural elements, is of great practical significance to promote the "living" inheritance of the traditional architectural elements, and at the same time, not only can show the cultural heritage and taste, but also can experience the unique regional characteristics in three dimensions.

### **3.3.2. Use of High-tech Means to Restore and Present**

Relying on high and new technology, it can make the use of the hanging foot tower come alive, and can promote the in-depth excavation of the cultural connotation and contemporary value

hidden in the hanging foot tower. First, to create a new model of exhibition of the hanging foot tower, relying on digital networks and integrated media technology, through cloud exhibition, cloud live, cloud archaeology and other means to break the space and time constraints, multi-dimensional display of the gorgeous hanging foot tower, so that the people get more convenient, such as immersive viewing experience. Second, the theme of the times, digging deeper into the rich spiritual implications of cultural relics, so that it is compatible with modern culture and real life, production and launch of the Hanging Foot Tower as the background of online literature, short videos, animation and other popular masterpieces, so that cultural relics speak, let history speak. Third, museums and cultural relics protection units can build a network communication and interactive platform to tell the story of the Hanging Foot Tower, spread historical knowledge, etc. by carrying out regular live broadcast and other activities to provide high-quality online public cultural services and enhance people's participation.

### 3.3.3. Interactive Experience Products Around the Architectural Space

The tourism industry of Xijiang Miaozhai is the mainstream industry of industrial development nowadays, the number of visitors is increasing, and the demand of visitors with the development of modernization has not only stayed at the stage of basic demand, but instead there are more derivative demands, such as immersive experience, interactive experience, etc. Carrying out interactive experience products in the architectural space can reduce the commercialization of the hammock and retain the original static display to visitors. First, by recreating large immersive ancient scenes, the audience can return to the history of thousands of years ago. Secondly, the interactive experience of "knowledge display + escape room" is designed to allow the audience to have a personalized cultural education experience in the fun of the game. The third is to create a 360° multimedia circulating theater, allowing the audience to fully perceive the vitality of culture in a multi-dimensional space.

## 4. Conclusion

Under the background of modernization and urbanization, ethnic minority settlements are gradually affected to different degrees, and the protection and utilization of traditional residential architecture has become a key issue. Traditional residential architecture is the carrier of national culture and the witness of national history, so it is important to protect and utilize traditional residential architecture for the promotion and dissemination of national culture.

This paper explores the changes of the basic and derivative functions of the Xijiang Miaozhai hammock in the context of rapid development of tourism by analyzing the characteristics of the Xijiang Miaozhai settlement and the characteristics and construction process of the hammock construction techniques from the perspective of functionalism, and finds that the hammock has developed from the basic function of "production + residence" to "It is found that the layout, foundation, and decoration of the hanging foot tower are constantly catering to the present needs as the function changes. Based on the above study, we analyze the problems and causes in the protection and utilization of the Xijiang Miaozhai foot-hanging buildings in recent years, and explain the tourism value, cultural value and historical value of the protection and utilization of the foot-hanging buildings, so as to propose a strategy for the protection and utilization of the Xijiang Miaozhai foot-hanging buildings.

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