

Inheritance and Protection of Qianfenxi Village from the Perspective of Spatial Gene

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Abstract:

Traditional villages record historical memories, which have unique regional spatial characteristics and humanistic values. They represent the process and result of human interaction with the natural environment. However, at present, most traditional villages are facing development difficulties, and new demands are put forward for the space of traditional villages, which not only need the improvement of practical functional materials, but also need the inheritance of cultural spirit. In this paper, the former Fenxi village in Fujian Province was studied. First of all, the landscape pattern genes, architectural genes and cultural genes of the village were sorted and analyzed from the perspective of spatial genes. Secondly the current difficulties were summarized. Thirdly, according to the extracted gene characteristics, the locality of spatial developments were considered. Finally put forward the development strategy of the village through three aspects of space pattern development, space vitality improvement, and space culture inheritance, in order to achieve high-quality sustainable development of Qianfenxi Village in terms of space activation, cultural inheritance, etc.

Keywords:

Spatial Gene, Traditional Villages, Inheritance And Protection, Development Strategy

1. Introduction

Traditional villages are the important heritage of farming civilization and the sustenance of “homesickness” for generations. However, in the rapid process of modernization, the rapid development of cities has widened the gap between urban and rural development. Traditional villages are faced with such common problems as lack of labor force, destruction of resources and environment, and hollow villages, which make a large number of traditional villages disappear in the long history.

Qianfenxi Village is one of the traditional villages in Pingnan, Fujian Province, China. It is a hilly area with high mountains and dense forests and crisscross streams. Due to the nature of mountains and inconvenient transportation, many traditional villages retain their original style and features, and some of the residences and covered bridges left by the Yuan, Ming and Qing dynasties are well preserved. Qianfenxi Village in Pingnan County is a town with historical and cultural heritage. It

is the epitome of Fujian's farming culture and the spiritual home of local residents. However, under the influence of geographical factors and urban development, the spatial development of the village and town is in a relatively backward state. The village and town industries are still dominated by agriculture and handicrafts, with low economic development benefits. The original road network structure of the village and town is no longer suitable for modern transportation. In the face of the growing gap between urban and rural areas, and the demand for high-quality space from residents in the village, it is urgent to expect the integration of historical culture, human geography and modern development on the basis of respecting the local historical and cultural characteristics.

This paper attempts to analyze the spatial characteristics of Qianfenxi Village, Pingnan County, Fujian Province systematically by using the spatial gene theory. The concept of space gene was put forward by Duan Jin's team in 2019 from the perspective of urban space development theory. With the help of the word "gene" in biology, the team deeply studied the locality of space form inheritance, excavated the regional characteristics of space, and formed a relatively stable and coordinated development model between space, natural environment, history and culture. [1] From the perspective of space gene, this paper explores how to inherit local characteristics and protect cultural heritage in the development of traditional villages, and improve the historical context of traditional villages in modern development through reconstruction of space characteristics. According to the gene attribute, the corresponding development planning strategy of Qianfenxi Village is proposed, so that the rural settlements with rich historical and cultural heritage can have high-quality development space. It is also hoped that the local characteristics of the villages can be fully reflected in this planning strategy, so as to avoid the phenomenon of one village per thousand villages, and explore a new development path for the protection and inheritance of traditional villages.

2. Identification of Spatial Genes in Qianfenxi Village

Qianfenxi Village, located in the south of Pingnan County, started in the reign of Xiande in the Song Dynasty and has been for more than 900 years. The village is surrounded by mountains in the west and water in the east. The stream flows around the village from north to south. It is the junction of Pingurban-rural area, Luxia Township and Changqiao Town. It is 16km away from the county seat and 540m above sea level. The village is mainly named Zheng.

2.1. *Landscape pattern gene*

The pattern of traditional villages is greatly influenced by the natural environment, as well as the social culture of different times. It usually forms the overall context of mountain, water, farmland and residence. The cluster relationship between the road network and buildings of Qianfenxi Village, and the unique order between the residence and the countryside make each village have a landscape pattern with its own characteristics, forming a space gene with great characteristics and charm of traditional Chinese villages. The village is close to the mountain and faces the water, surrounded by one temple, one ancestral temple and five palaces on the east, south and north sides. Ancient dwellings and other traditional buildings are concentrated on the southwest bank of the stream, accounting for about 85% of the total rural buildings. In addition, the village is built along the Dabei River. There is a bridge at the head of the village and at the end of the village to facilitate access to the village.

The landscape pattern of “one mountain, one stream, three bridges” with mountains on the back and water on the surface fully reflects the construction thought of geomantic omen in ancient China. (Figure 1 and Figure 2)



Figure 1. Aerial View of Qianfenxi Village

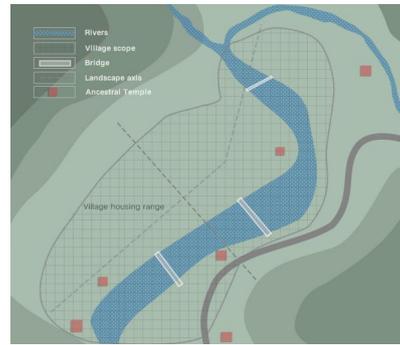


Figure 2. Analysis of Landscape Pattern

The landscape pattern of Qianfenxi Village not only includes the wisdom of the ancestors in site selection and construction, but also passes on the survival concept that the village originates from nature, is born in nature, and pursues the harmonious coexistence of human and nature to the younger generation, which is an important gene that needs to be protected and inherited.

2.2. Building space gene

The main road of Qianfenxi Village is built along the river. The road network in the east of the village is clear, with two vertical lines and three horizontal lines. The building clusters are clear and orderly. On the west side of the village, buildings and farmland are built alternately. The roads are narrow, winding and rugged. The building layout is relatively scattered. The area style of each building unit is different.

2.2.1. Building function and structure

In terms of architectural functions, the village includes traditional dwellings, ancestral halls, temples, study rooms, workshops, shops, etc. Among them, the traditional dwellings include one before the Yuan Dynasty, five before the Ming Dynasty, about 50 in the Qing Dynasty, and about 25 in the Republic of China. In terms of architectural style, it has the typical characteristics of the traditional architecture in the northeast mountain area of Fujian Province, as well as the elements of Anhui architecture.

The ancient dwellings of Yuan Dynasty are located in the north of the village. The architectural style of the late Song Dynasty and early Yuan Dynasty is obvious. The civil structure of the building has two halls, front and rear courtyards, and the two-storey structure of the main hall. The base of the wall and the courtyard are made of talc and hairy stone. The courtyard is laid with cobblestone herringbone, with four open rooms and no column base. After the main hall, there is a house through the back patio into the second courtyard.

There were about 50 buildings in the Qing Dynasty, with similar structural layout. For example, one of the ancient dwellings of the Qing Dynasty was built in the early Qing Dynasty. The old house is a civil structure, with a courtyard, upper and lower corridors, front and rear patios, hard mountain tops, and a two-layer structure consisting of a gate, a lower hall, a main hall, and a back hall on the central axis. The

door frame of the gate is made of green bricks with exquisite carvings such as "Eight Diagrams and Tai Chi Diagram". Half of the gate is inlaid with wooden peonies. Inside the gate, there is a poem couplet on the front of the screen, and the interior is inlaid with wooden lion statues. The courtyard in the middle of the lower corridor is made of granite strips, and two storeys of rooms are built on both sides of the courtyard. The door of the wing room is mainly carved with bats and inlaid with the Eight Immortals' magic tools. The lower gallery has five stone steps and the upper main hall. The main hall is paved with green bricks. The middle of the back hall is a courtyard, and the two sides are kitchens. The wall is decorated with clay sculptures and poems. The front wall foundation is built with finely chiseled stones, horse head wall and hard mountain top, which reflects the architectural characteristics of the residential buildings in the northeast of Fujian during the late Ming and early Qing Dynasties, and contains high architectural technology.

There are about 25 modern ancient residences, mainly located in the south of the village. Structurally, it comes down in one continuous line with the architecture of the Qing Dynasty. It has a rammed earth structure, two patios with one entrance, upper and lower corridors, and two main halls. The courtyard is slightly larger than that in the Qing Dynasty. The space in front of the courtyard is more open without a screen. The lower corridor is also a step up from the main hall. The exterior wall covers the building, and the wall is in the style of gold lettered wall. This architectural style continued until the 1970s.

Table 1. Comparison Table of Folk Houses of Different Times in Qianfenxi Village.

Era	area covered	House structure	Characteristic gene
Folk Houses of the Yuan Dynasty	490m ²	Second access yard, civil structure, hard mountain top	The style is simple, inheriting the architectural characteristics of the late Song Dynasty and early Yuan Dynasty.
Folk Houses in the Qing Dynasty	740m ²	First entrance, civil structure, hard mountain top, horsehead wall	Pay attention to the architectural culture and exquisite carving skills.
Modern Dwellings	180m ²	One entrance, civil structure, hard mountain top	The interior space is more open without screen.

2.2.2. Characteristics of building technology and cultural connotation

The traditional ancient buildings in Qianfenxi Village are full of technological characteristics and cultural connotation in the history of Chinese architecture. After the changes of the times, in order to avoid the war, many northerners moved south for many times. The Han people who moved in combined the architectural culture of the north with the architectural style and materials of the local residents, and added a fire sealing gable on the basis of the original courtyard style courtyard. Therefore, the architectural style of the ancient folk houses not only has the basic characteristics of the Anhui style architectural style of the ancient folk houses in Jiangnan, but also has the characteristics of the residential style of the mountain villages in northeastern Fujian. [2]

The local buildings are generally of one entrance hall, upper and lower corridors, front and rear patios, with good ventilation and lighting. The main hall is mostly of two floors structure, with beautiful people built upstairs. Yellow walls and black tiles, covered with earth walls, have angled horsehead walls, cowl shaped squilla walls,

golden shaped walls, and stacked walls. The earth wall also contains the five elements of “gold, wood, water and earth”, which adds to the elegance of ancient Chinese literati. The houses in the Ming and Qing Dynasties were decorated with carved beams and painted buildings, carved doors and windows, three-dimensional colored clay sculptures and murals on the door walls, and blue bricks in the halls. The modern architecture records the exquisite skills of ancient craftsmen and the wisdom of rural residents.

2.3. Historical and cultural genes

With the rise and fall of a village, culture is deeply rooted in the village space. Good traditional culture is the basis for the growth and spiritual food of local residents, and is also an important form of expression in the space of local cultural heritage. The renewal and inheritance of traditional villages need the intensification of space by culture, and also need to attach the memory of generations of residents, so as to complete the space reconstruction of the comprehensive development of traditional villages.

2.3.1. Bridges

Qianfenxi Village is built along the river, and the bridge is an important channel connecting the village with the outside world. Pingnan County, where the former Fenxi Village is located, is the county with the largest number of covered bridges in China. The wooden arch covered bridge in the east of Fujian represented by Mao Yisheng, a famous bridge expert, is called the "Jurassic Park" in the history of Chinese bridges. [3] In terms of function, the covered bridge is a part of the local unique outdoor space, which can shelter from wind and rain and provide a rest space for villagers. Formally, the bridge is made of wood rafters closely connected with rafters and trusses, without inch nails. The covered bridge looks like a rainbow, which is a demonstration of China's superb bridge technology. Spiritually, each covered bridge is equipped with a shrine to worship the bridge god or the local special gods. On holidays, villagers will come to worship and pray in an orderly manner, hoping that the family will be healthy and the life will be smooth. As a local characteristic symbol, the covered bridge has become a symbol of the villagers' good memory and spirit.

2.3.2. Medicinal Diet

Qianfenxi Village is located in the middle section of Jiufeng Mountains, where peaks towering across valleys, and there are many kinds of wild medicinal materials in the original mountain forests of Pingnan, where the temperature difference between day and night is extremely warm and humid, without severe cold in winter and heat in summer. The common wild medicinal herbs are *Litsea cubeba*, chrysanthemum, rushes, etc., which are used by people to feed on green herbs. The same origin of medicine and food is the wisdom of local villagers to nourish life. Herbs are an important part of villagers' living space. Identifying herbs and ingredients is usually passed down from generation to generation through narration rather than words. [4]

2.3.3. Prosperity of temples

Qianfenxi Village was built near the river and was often plagued by floods. In order to ensure good weather and family health, temples and ancestral halls were built around the village for worship. The temples in the village can be divided into three

categories: ancestral hall, temple and main hall. Most people in the village are surnamed Zheng, so the ancestral temple of Zheng family is built near the river in the center of the village. They will worship in the ancestral temple every festival, wedding and funeral. There is also a Baoen Temple in the village, built in the first year of Tianbao in the Tang Dynasty, which is now rebuilt in modern times. In addition, there are five halls around the village, namely, the Hall of Duke Zheng, the Hall of Zheng at Shuiwei, the Hall of Madame Chen, the Hall of Lin, and the Hall of Tuo. These temples and shrines protect different fields, such as having more children and more blessings, avoiding natural disasters and floods, and family prosperity. It can be seen that the space of ancestral temples has become a living and cultural place for the residents of Qianfenxi Village to believe in, and an important part of historical and cultural heritage.

3. The Development Dilemma of Qianfenxi Village

3.1. Changes in spatial pattern

In recent decades, with the development of industry, new production methods and tools have been introduced. Qianfenxi Village is located in remote mountains, and the landscape pattern has been slightly adjusted in recent years. From the perspective of architectural texture changes, the scale and orientation of the initial house construction in the village are different without planning, and the buildings naturally form rugged and changeable roads. Modern buildings continue to use the original structural materials and spatial layout, but the construction is more orderly and the road network is clearer. In the process of village development, modern buildings are built with brick and concrete, replacing the previous rammed earth wall and wooden frame structure. It is obviously different from the original architectural style, slightly different from the traditional landscape space in visual relationship, and fails to coordinate the overall appearance of the village facade. The texture of the village has changed, and some houses and cultivated land are left unused due to population migration. Some historical architectural techniques have gradually disappeared in the social development.

In addition, the construction of surrounding factories has polluted the water quality of the original villages and rivers, greatly damaging the overall style and features of the villages. Landscape, architecture, history and culture are the characteristics of Qianfenxi Village. The use of existing village space has failed to keep up with the needs of residents. Some characteristic streets and alleys are disappearing, and some rural scenery has become history. It is necessary to retain the characteristic space genes of the village through the overall planning to remove some dead and outdated genes, so as to ensure the sustainable and high-quality development of the village and improve the overall environmental quality of the village.

3.2. Space function deactivation

Qianfenxi Village has a long history and has left a lot of historical relics after the changes of the times. However, the village is facing the disconnection between the architectural functions and the needs of modern functions. The surrounding public facilities have not been improved, and a large number of negative spaces have been left over from the historical development. For example, the attic that has not been repaired and piled up with debris, the simple storage space with low utilization rate around residential buildings, and the abandoned farmland have become the problems

that the village needs to solve urgently. (Figure 3) There is a contradiction between the deactivation of the old things accumulation space and the villagers' demand for modern living space. The key to space activation is to transform and use old things and store them reasonably and efficiently. In addition, the traditional construction technology and materials can no longer meet the expectations of high-quality development of the village. The integration and innovation of new and old technologies and the continuation and development of the original space from the form and function are the development goals of village protection and inheritance.

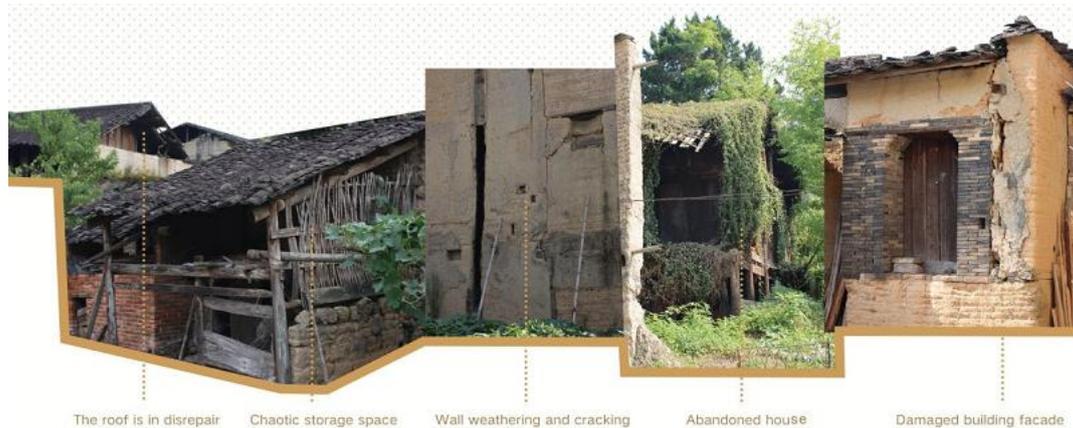


Figure 3. Problems faced by the village space.

3.3. Loss of cultural memory

Some of the residences and temples left over from the Ming and Qing Dynasties have been well preserved, but after the changes of the war and innovation era, the village has not used the previous brick carving and wood carving techniques to build houses. This is the lack of village construction skills, but also the imbalance of people's living space culture. Although temple space has been preserved, it has not been actively repaired, and the scene of cultural prosperity is not as good as before. In the past, the village would gather all villagers to participate in sacrifice or celebration on festivals, but now most of the young people go out to work. The old and young people in the village are not enthusiastic about participating in similar activities. Most of the custom celebrations have been canceled, and cultural memories have disappeared in the memory of a new generation of children. The current situation of the cultural space in Qianfenxi Village can not meet the needs of residents for cultural activities to improve their cultural confidence, nor can it attract foreign tourists to understand the local folk culture and promote the unique cultural history of the village. The cultural space is only superficial, but it can not effectively activate the local cultural industry and drive the revival and development of the village.

4. Development and Protection of Spatial Gene in Qianfenxi Village

Based on the above spatial gene identification and extraction of the current situation of Qianfenxi Village and the summary of the current development problems of the village, this paper will propose feasible strategies for the spatial inheritance and protection of Qianfenxi Village from the perspective of spatial gene from three perspectives of adjusting the spatial pattern gene of the village, stimulating the spatial inactivation gene and revitalizing the spatial culture gene.

4.1. Protection and development of landscape pattern genes

The landscape pattern of the village is the embodiment of the cultural value of the traditional village, and is the crystallization of the wisdom of the villagers in building the village. On the basis of inheriting the original spatial pattern, coordinating the residents' demand for living space in the new era is an important key to the sustainable development of the village. The development of the spatial pattern should still follow the concept of "depending on the situation". The transformation of the spatial clusters on the east side of the village focuses on the relationship between "mountains, rivers, farmland and houses". On the premise of satisfying production and life, it pays attention to the realization of the relationship between buildings and between buildings and mountains, coordinates the accessibility of the vision, and takes into account the sufficient lighting conditions of the residence and the countryside. On the west side of the village, it is necessary to make good use of the terrain to build and transform the visual hierarchy relationship. The newly built buildings need to be coordinated with the surrounding architectural style, which not only focuses on the style and structure of individual buildings, but also takes into account the integrity and unity of the overall village style. In addition, the original historical and cultural space of the village is reserved and built to form a local spatial pattern of "one ancestral temple and five temples are close to the mountain and surrounded by water".

4.2. Transformation and innovation of inactivated space gene

The abandoned buildings, piled debris and wild weeds scattered in the corners of the village can be said to be a part of the history of the village. The purpose of transformation through the space gene theory is to transform the chaotic abandoned space into a place of use with order and vitality.

From the perspective of architecture, some walls of collapsed and abandoned houses can still be used, and most of the foundations are relatively stable, which can be repaired and modern structure optimization can be carried out on the basis of the original houses. The original rammed earth, wood boards, bamboo materials and modern glass and steel can be used to build local characteristic buildings that conform to the local climate and adapt to the surrounding environment. The color, height and volume of the facade of the new and old buildings form a complete and continuous street interface. Residents can feel the historical changes of the new and old times when walking along the street, meet the needs of contemporary residents on the functional form and structure of buildings, and increase people's willingness to live and work in the beautiful countryside.

Considering from the outdoor public space, the village lacks public space, so it is necessary to clean up the waste and sundries in the village, and consolidate the similar waste and old spaces into a place for communication activities in the village. According to the survey, the crowd gathering rate in the outdoor space decreases gradually along the river to the mountain, and the space around the river bank is particularly important. Every time a sacrifice or celebration is held in front of the ancestral hall, a large number of villagers' gathering space cannot meet the functional needs of people, and the original stage is also demolished in the development of the village. The surrounding space of the ancestral hall can be orderly organized, with additional recreational facilities. The internal furnishings of the ancestral hall can be echoed with the outside, and the range of ritual space around the ancestral hall can be improved. There are some irregular corner spaces in the village that can provide activity areas for women and children. There are a large number of abandoned

wooden piles in the village that can be used as small space public facilities, forming a unique village scene.

From the perspective of landscape space, the local area has the reputation of “hometown of herbal medicine”. Although there are many seemingly wild weeds, villagers will use these “weeds” to make herbal soup. As long as the boundaries of weeds are orderly planned, weeds can also become a scene in the village and a unique local landscape. In addition, the fields of some residents are located in front of the houses. The color matching of the crops planted and the seasons can enable the villagers to play their own initiative, so that space and nature can display different colors in the space. Crops are food and a unique landscape.

4.3. Continuity and transmission of cultural space gene

Culture is an important driving force for the development of traditional villages. It is an important part of cultural space reconstruction to restore the ancient buildings of the Ming and Qing Dynasties in the village, repair and rebuild the ancestral temples in the village, and respect the relationship between people and mountains and waters. The culture needs to be continued and also needs to be recognized and spread. Qianfenxi Village has beautiful scenery and profound cultural heritage, and should show its own unique culture to the outside world. It can develop the village research and learning path, attract foreign tourists and students to participate in sketching or art exhibitions, experience local folk festival celebrations, taste local medicinal food, develop cultural and creative design, promote cultural exchanges and other contents of the research and learning development path, attract academic and creative talents to the village to add vitality to the village development, so that the indigenous people are deeply rooted in their growing hometown, so as to realize the continuity and dissemination of the cultural space gene of Qianfenxi Village.

5. Conclusions

From the perspective of space gene, this paper studies the inheritance and protection of traditional village space gene from three aspects: space pattern gene, road network architecture gene and cultural space gene. The spatial genes at different levels are identified, and the spatial morphological characteristics of the site are analyzed according to the analysis of the location of the site, and the village development strategy is proposed according to the extracted genes. In the process of the replacement of the old and new space, the development trend of space has always maintained its morphological characteristics and evolution laws, bearing the unique cultural and regional information, forming the unique village development model of Qianfenxi Village. Spatial gene plays a positive role in promoting the characteristic development and revitalization of traditional villages. It is of great significance for the protection and cultural inheritance of local villages. It is a beneficial exploration for the inheritance and protection of traditional villages under the current rural revitalization.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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