

Fire Protection in Qiang's Stockaded Villages Planning

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Qiang nationality is one of the most ancient ethnic groups in China. Qiang people respect for nature, especially have fear of fire. In the process of the development of their fire culture, the challenge and inspiration to the fire are also produced. The article summarizes Qiang's traditional fire protection methods from five aspects, including Site Selection, Spatial Distribution Form, Road System, Water System in the Countryside and Qiang Architecture, to provide a reference for Qiang villages' protection and the fire plan of historical areas.

Keywords : *Qiang's stockaded villages, Fire culture, fire protection, planning,*

1. Qiang's Fire Culture

(1) The Fire Worship

There is a long history of fire worship in China. According to the historical sources, as early as in ancient times, the ancients revered for the fire greatly. Qiang people also worship fire, they regard fire as an undefeatable power, which brings to light and civilization. Because of national customs, Qiang put it in sacrificial rites and called 'Fire Worship'(fig.1). Fire let people feel the warm and hope, at the same time, it also makes people feel the horror of the extremely hot, drought and natural fire. All of these lead to the awareness of respecting and fearing fire gradually.

(2) Challenge and Enlightenment of Fire Worship

From the Qiang's fire worship, we can draw such a conclusion that Fire God is ingrained in Qiang nation, they adore fire and revere fire. They also believe people can't go against fire. The reason of fire is that people offend Evil, so they would be punished by fire-fiend. They think every conflagration is fire-fiend's will. So they tend to think that there wouldn't occur the fire only they don't offend fire-fiend and drive the ghost of fire away, instead of caring about the fire in daily life. Driven by the divinity idea, people's awareness of fire prevention is very weak.

Fireplace is one of the forms of Qiang nation's fire worship, which is still retained up to now(fig.2). Almost every family has a fireplace which is a symbol of family patron. The fireplace, in the main chamber center, is the center of inner space. The fire in fireplace will not extinguished all the year round, which is called 'million years of fire'. Except fireplace, the residents use fire for cooking, heating and festival activities in the high frequency in daily life would increase incidence of fire drastically and also brings a challenge for

Qiang's firefighting. However, Qiang ancients built their villages according to local condition and they accumulated the rich experience in development, which makes the Qiang village could be well preserved in the environment of higher fire rate. And it also brings us some inspiration for the fire prevention planning.



Fig.1 Fire Worship

(Source: <http://www.scta.gov.cn>)



Fig.2 Fireplace

(Source:photo by author)

2. Fire Ideology in Qiang's Stockaded Villages Plan

Chinese city Planning has a long history and high artistic achievements. As far back as the 11th century BC, the Western Zhou Dynasty, in the beginning of the founding of our country, which has initially formed the earliest Chinese city planning system including planning concept, theory, planning system and method. In this system, fire planning as an important part of which also enrich with the development of city planning in China. In the Qiang culture, fire system of traditional methods is not perfect, but guided the villages construction actually.

(1) Site Selection

On site selection, the priority is given to production and living resources, together with site safety. As long as to satisfied the above conditions, there will be there will be Qiang village exist. A variety of location characteristics therefore take on, giving rise to three distribution characteristics including valley, mountainside and mountain(fig.3). The settlements and villages also spread out upon these three topography. Among them, site selection at the mountain and mountainside represent the most ancient Qiang's characteristics. The settlements and villages are divided into the following types:

- (i) Those built around the residences of the chieftains or headmen so as to protect them (fig.4-a) ;
- (ii) The large-scaled upper ones which for the elder or influential families and the small-scaled lower ones, for the divided families or people with other family name (fig.4-b) ;
- (iii) The independent settlement far away from others (fig.4-c) ;
- (iv) Those built on high mountains or half way up the mountains with uneven ground. On their tops people can keep in contact with each other (fig.4-d) ;
- (v) Those built at almost the same altitude (fig.4-e) ;
- (vi) Those built on each side of the gorge, and there is a river between them. (fig.4-f) .

In general, the major rule is that the residential building must be: 1) safe; 2) close to water; 3) near a farmland or grassland; 4) near a mountain. Provided that these conditions are satisfied, there will be the existence of the Qiang's residential, there will be Qiang people. Water is the main fire extinguishing tools at the time under the conditions of technology and civilization, it is location near the water meets the need of water for Qiang's village life and production, also taking into account the fire water demand.

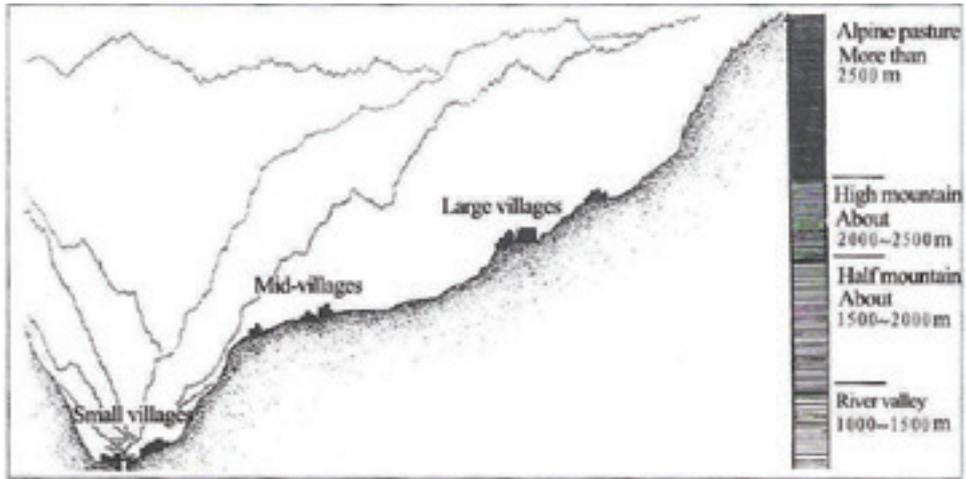


Fig.3 Generalized Section of Qiang's Stockaded Village

(Source: Study on the architectural features of Beichuan Qiang Autonomous County)

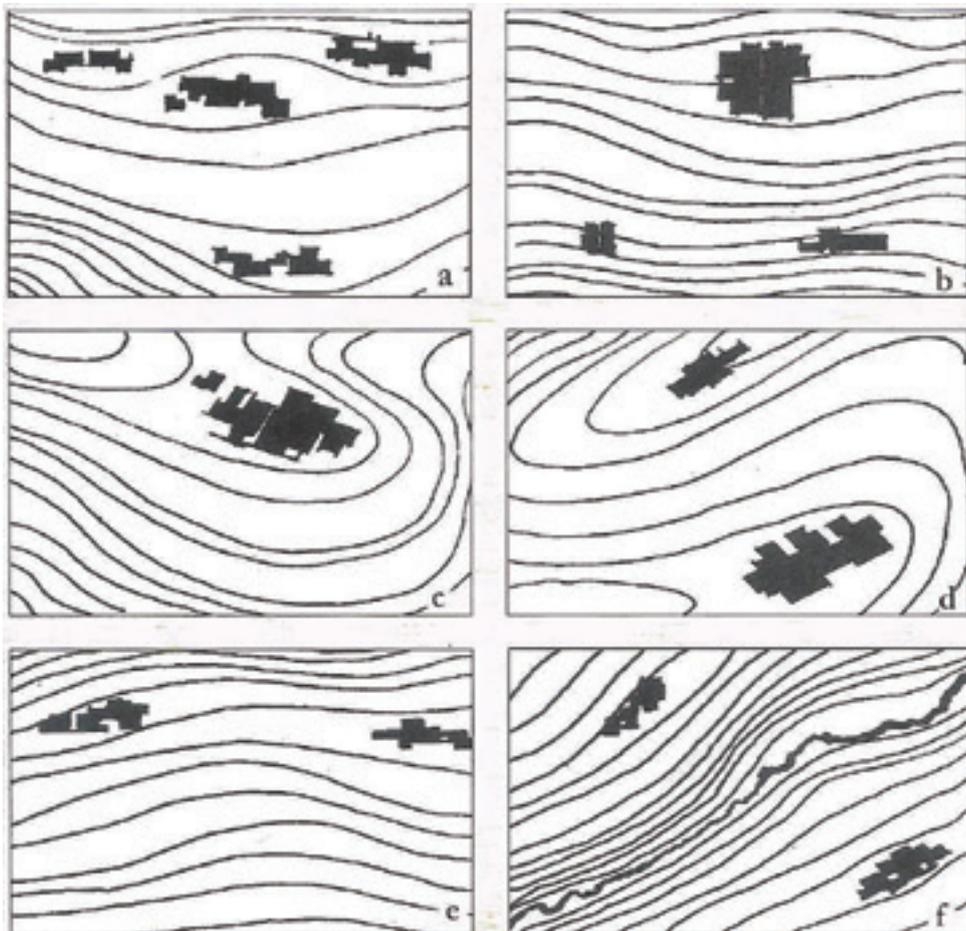


Fig.4 Distribution of settlements

(Source: Study on the architectural features of Beichuan Qiang Autonomous County)

(2) Spatial Distribution Form

The distribution of Qiang's village is influenced by the two kinds of special natural environment, mountain and valley. So the layout forms of Qiang's village are flexible and mostly to the watchtower and the channel as the center of the space combination form.

The watchtower-based type is characterized in a common watchtower for the whole countryside(fig.5).

Because the watchtower is tall and located in the center of the village, which has the functions of defense and fire protection, it ensure the safety of the villagers in psychological and physical. Generally the watchtower is the commanding heights of the village, it is used to watch, defense, pass information. It is guarded day and night. So, Villagers can detect fire and organize fire fighting timely.

Channel-based spatial combination form mostly located in the valley of the river or the village with canal, which characterised by making water flow into the village, into the house or residential construction near the water(fig.6).



Fig.5 Watchtower-based spatial combination form

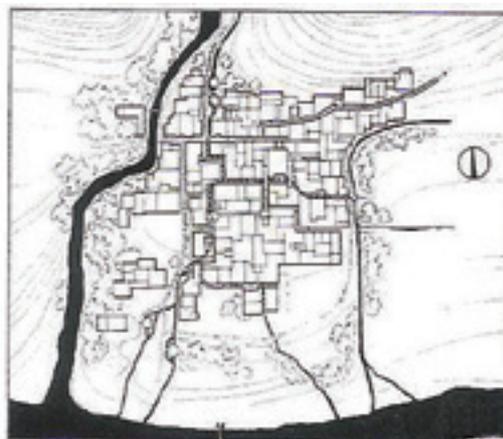


Fig.6 Channel-based spatial combination form

(Source: Study on the architectural features of Beichuan Qiang Autonomous County)

(3) Road System

Many Qiang villages' road planning combine with the rivers, defense measures, production and daily life. The roads interweaved with achitectures, which undertake daily traffic and daily activities. This form also act on partition and firefighting, which could come into being firepath and escape route. Such sense of road as may be deposited over years is the function of the survival and safety considerations of human.

(4) Water System in the Countryside

Water as a valuable resource, not only to provide domestic water for the villagers, but also determines the development of the village, and adjust the local ecological environment, even more, it is the key to fire protection systems. The sources of production and living water respectively come from rivers, streams, spring and wells. This situation results in significant difference in organization of waters of various stockaded villages. It can be divided into two types, valley and mountain.

Valley Qiang's stockaded village has excellent water resources conditions, it's planning and water system are supplementary to each other. Taoping village in Sichuan as an example, water flows past the mill and roller from the stream, and then divided into two ways,flows around the residential buildings or flows through the buildings under the ground, finally flows out of the village in four ways(fig.7). Qiang's stockaded villages on high mountains general use stream water or well water. In general, no matter what type of water system planning, it is combined with the road system or the buildings to connect to every houses.On the one hand,once there comes a fire, it could be quick to get water, on the other hand, each functional area of the village can be separated, or let the same functional area divided into smaller fire district, which could prevent the fire spreading severly.



Fig.7 Water system planning in Taoping village
(Source:by Huang Hongbo, Wu Xiaoxuan)

(5) Qiang Architecture

As the signs and historical proof, Qiang architecture's value lies not only in the function, art and other aspects, but also reflected in the layout, fire protection, drinking water. The building materials are usually choose for the stones and earth. According to the different material and structure, the Qiang local-style house can be divided into Stone residential building, Earthen houses and Houses with pitched roof(fig.8, fig.9, fig.10). The stone residential building is recognized as the Qiang Folk House, which is the primary type of Qiang architecture and predomination in number. It generally consists of 3 stories, seldom 4 or 5 stories. The first floor is used to keeping poultry, the fireplace is usually placed on the second floor in ordinary circumstances. And there has no floor above fireplace because of enshrining God. which could prevent the flame rising up to burn the floor to causes the fire. Due to tilting, the wall boby is relatively thick. The thickness of the wall body from bottom story is noemally 0.2-0.7m. The thick wall boby could reduce the risk of fire and effectively isolate the fire. The small window could also avoid the spread of fire. Earthen houses are constructed mainly with ramed earth. With similar construction principle to residential building, the wall body is also subject to tilting. The building generally consists of about 3 stories. Plank houses are often distributed in the mountains.They are significantly characterized in that, the area above the facade of stone wall are completely or partly covered by the pitched roof.

No matter what kind of architectural form is, The building materials of Qiang architecture are strong stone or clay refractory, which could be beneficial to prevent the fire and control the spread of the fire.



Fig.8 Stone residential building

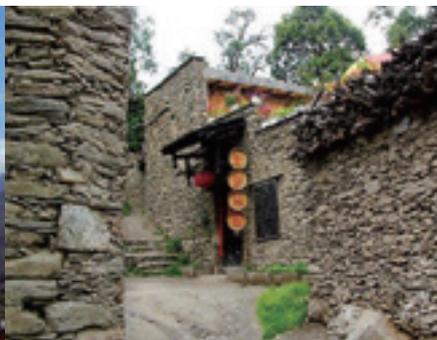


Fig.9 Earthen houses



Fig.10 Houses with pitched roof

(Source:<http://image.baidu.com>)

In addition, as one of the main components of the entablature, eaves undertake a partial prevention function in Qiang architecture. In the past, due to frequent fight and sand storm, if the building was burnt and damaged by fire or had fissure, it would become unsafe. So it was seldom seen that beam and crossbeam projected beyond the stone wall. Meanwhile, in order to protect the wall not washed by the rain, wall house has short eaves, which could prevent the fire spreading from outside to inside or inside to outside.

3. Conclusion

Qiang people revere the fire, their fire worship and daily life style bring a quite challenge to the fire protection. However in the process of its development, there has formed a valuable fire protection idea, especially on the site selection, water system and architecture. Because of these useful ideology, the Qiang villages could be better preserved. Further more these ideology and technology adjust to local conditions and the effect is remarkable. Which could also provide a reference for the fire protection planning of Qiang villages and other historical areas.

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