

A Research on the Evolutionary Mechanism of Chinese Rural Traditional Building under the Influence of Urban Modern Building

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Abstract

In the process of high-speed urbanization in China, the long-standing isolation between urban and rural areas has been broken. As the urban-rural relationship is getting closer, traditional rural buildings are undergoing changes and evolving under the impacts of urban modern buildings. Through a large number of field investigations, this article aims to explore the types of these changes, their internal mechanism, and the deeper thinking mode and value system of rural buildings behind this mechanism. This article believes that Chinese rural traditional buildings are currently moving towards a mixture with modern buildings. In this hybrid, the way and order how the changes of traditional buildings happen are directly related to their symbolic meanings, and deeply determined by the pragmatic values and thinking mode rooted in Chinese rural buildings.

1. Research background

Traditional Chinese villages belong to the typical "peasant society"¹. Their basic characteristics are closure and homogenization. However, this social form is increasingly being impacted by the process of rapid urbanization. In China, even remote villages can receive satellite TV and connect to the Internet, and global information can directly interact with the most distant areas. At the same time, new highways extend in all directions to many remote places, especially those having been included in tourism development, where the serpentine wide viaducts form a huge contrast with the traditional rural landscape around. All

these draw a vivid illustration of the relationship between modernity and tradition.

Through the connection between the countryside and the city, with the large number of people going back and forth between them, the structural technologies and materials of modern buildings, together with the ideas of modern cities, continue to flow from the city into the countryside. Urban modern buildings were regarded as so "advanced" and economical as to be introduced to and accepted by the countryside, which has caused a great change in rural buildings.

2. Two basic modes of the evolution of rural buildings

Modern structural technologies and materials have entered the countryside in large numbers, traditional rural buildings, originally homogeneous, confront new challenges, and have evolved into new diverse and complex types. These evolutions are not the complete replacement of traditional buildings with modern buildings, but rather the coexistence and hybridization of the two.

The reason for this hybridization is mainly that modern buildings and traditional rural buildings contain different advantages respectively. For example, with the shortage and rising price of timbers vastly used in traditional buildings, comparatively the cost of modern buildings is lower and their construction period is shorter. As a result, modern buildings have gained a lot of development due to their fast construction and relatively economical cost.

Even so, not everyone can agree with modern buildings, and traditional houses still have many advantages of their own. In our field investigations, for example, the most of modern

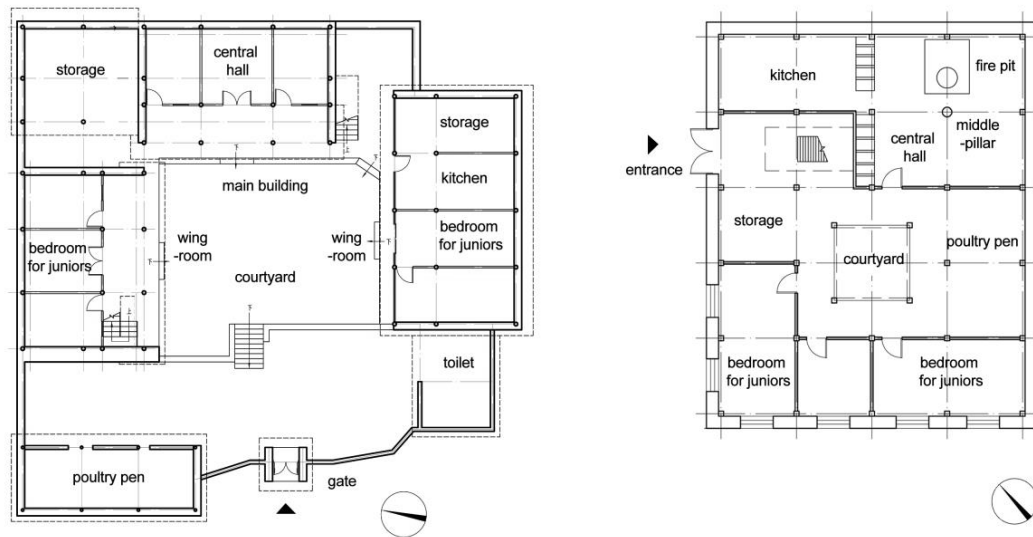


Figure 1. The Plans of Typical Traditional Rural Buildings (Left, a Dwelling of Bai in Yunnan; Right, a Tibetan Dwelling) Drawing by Author.

brick-concrete houses collapsed in an earthquake in Yunnan province, which made local people think that traditional houses have better anti-seismic property and safety. Moreover, traditional buildings are more comfortable to live in. Many interviewed villagers think that brick-concrete houses are humid and cold in winter, and poorly ventilated. On the contrary, traditional houses are warmer in winter and cooler in summer. However, at a deeper level, traditional buildings have a dual role: one is that for traditional Chinese villagers with ancestor worship, traditional houses can emotionally connect themselves with their ancestors through traditional forms of buildings, and make them gain psychological identity to their family; the other is that as a kind of "boundary"² and symbol, traditional houses can identify villagers' ethnic and local characteristics (Figure 1).

Because of these above, a dilemma has been formed: the contradiction between comfort, safety, ethnic self-identity and economical cost. The resolution to it is the hybridization of the two types of buildings, which also gave birth to two ways of the evolution of rural buildings. One is the mix between primary and secondary buildings in the same courtyard, the main buildings remain the traditional forms, and the secondary ones take the modern ways. The other is that inside the same building, modern and

traditional elements coexist. The former can be called juxtaposition type, and the latter can be called hybrid type (Figure 2).

Juxtaposition type: The so-called "juxtaposition" refers to the coexistence of modern and traditional buildings in the same courtyard. It is a compromising solution based on both traditional buildings and modern buildings. Generally, the main building remains traditional, while the auxiliary buildings employ modern brick or concrete structure. This has become a most popular mode for newly built houses in Chinese countryside. The traditional form of the main house not only has the physical advantages mentioned above, but also meets the needs to maintain the psychological communication with family's ancestors and ethnic self-identity. On the other hand, the auxiliary houses, with few symbolic meanings and more practical functions, adopt modern structures based on cost.

Hybrid type: This type mainly refers to the mixture of modern and traditional elements in the same one building. There are basically two ways to combine. One is that at the basis of traditional structural system, parts of building elements are replaced with modern structural materials and components; The other is the opposite, the main parts employ modern structural system, while the elements of



Figure 2. Juxtaposed Type (left) and Mixed Type (right). Photograph by Author

traditional buildings are partially retained. Generally, the first way is more popular. For instance, the houses seemingly traditional in the rural areas around Lhasa are actually not completely traditional, many modern constructional materials and elements have been embedded in. Although, the main structure still adopts traditional wooden frames, of which the beams, columns, and rafters are all traditionally made of wood. While for those auxiliary rooms, wooden beams have been replaced with steel ones, and the purlins still painted with a strong Tibetan color overlap on the steel beam so directly that a strong contrast arises between them (Figure 3).

The hybrid type is based on one of the modern or traditional structural system, and then, under this system, parts of components and materials replaced with the elements from the other. the mixture of different structural systems needs to solve the connection of different material components, such as the connections between concrete, steel and wood, stone, rammed earth, etc., to some extent, these increase the technical difficulty and uncertainty. Therefore, the replacement of building components and materials usually occurs where it is easier to solve this problem. For example, in the case of rural buildings in the suburbs of Lhasa above, the feasibility for the replacement of wooden beams with steel ones is because there are not any difficulties on the connections between load-bearing wall, beams and purlins, which could be achieved just through overlapping without any problems of stability. If the steel beam is placed on a separate wooden pillar, there is an issue of connection between them caused by stability. Therefore, in the traditional wooden beam-column structure, there are

almost no cases that steel beams are used to replace wooden ones.

3. Intrinsic mechanism of the evolution of rural buildings

The internal mechanism of the evolution of Chinese rural buildings is mainly reflected in the correlation between building's changes and its symbolic meanings. The more symbolic and sacred the building or its element is, the more insistent on tradition and the more difficult to change it will be. On the contrary, the less symbolic and the more practical the building or its element is, the easier it will be to change and accept the structural systems and materials of modern buildings. This is mainly reflected in the three levels with different scale from the village to the building component:

1) Changes in different types of buildings in the same village

In the same village, the more functional the building type is, the more easily it accepts modern building, and the more symbolic the type is, the more it inherits the tradition. Compared to religious temples being more culturally symbolic, residential buildings tend to be more functional. Take Lhasa and Xigaze in Tibet as examples. Although residential buildings have been strongly influenced by modern buildings, their religious temples still completely adopt the traditional structural systems and constructional methods that have been used for hundreds of years. This may be due to the fact that the temple's strong religious symbol makes the building's type, decoration, color, and even the size of the components to be under strict religious regulations³. Once a building is associated with an abstract religious belief, its change will be much slower than the



Figure 3. A Tibetans Shrine Traditionally Constructed and a Steel Beam in an Auxiliary Room. Photograph by Author

more practical dwellings. But after all, residential buildings still have personal emotions and symbolic meanings, compared to those public buildings just like schools, government offices, post offices, hospitals and banks, which are not related to any personal emotions or symbols, the changes of residential buildings are relatively slower. In rural China, these public buildings were usually the first to be completely constructed by modern ways.

2) Changes in different buildings within the same courtyard

Within the same courtyard of a family, taking the most typical courtyard house⁴ in the countryside as an example, practical buildings and functional spaces such as storage, kitchen, and toilet are often the first to adopt modern structural systems and styles, and secondarily are those such as wing-bedrooms for the juniors. The most difficult to change is the main building where the traditional structure and form has been considered as a symbol of the family and spiritual sustenance, and in which the most sacred space is arranged: the central hall for worship of ancestors. In Chinese Tibetan rural buildings, these spaces with strong symbolic meanings, such as Buddhist hall and central living room containing these most sacred things just like fire pond, middle pillar and shrine, are always built in accordance with the traditional structural system strictly (Figure 1), while these auxiliary spaces more functional and practical, such as secondary bedrooms, storage rooms and

barns, are the first to employ modern structural system and materials.

3) Changes of different components in the same building

From the perspective of the same building on a smaller scale, the changes of its elements still follow the same order. In Chinese Han villages, the sloped roof has a strong spiritual meaning and is one of the important signs of ethnic and local identification. Therefore, Even though the building frame and walls are made of modern concrete structure, the roof still maintains the traditional wooden frame, and on which the traditional pottery tiles are still paved; The gate of the courtyard of the Bai people in Dali, Yunnan, has significant meanings, which is not only a sign of its own ethnic identity and boundary, but also a symbol of family identity and wealth. Therefore, its style is more difficult to change. In the rural buildings around Lhasa, Tibet, the most sacred middle-pillar and the beam on it are traditionally made of wood and exquisitely hand-carved. While, because of its less symbolism, the auxiliary room next door uses steel beam and replaces traditional rammed earth walls with concrete blocks (Figure 3).

4. Deep thinking mode behind the evolution of rural buildings

The above discussion of rural buildings also confirms Amos Rapoport's views to some extent: culture determines the shape of the house⁵. The more practical and technical systems are easier to change, while, the



Figure 4. A Collage of Diverse Materials. Photograph by Author

ideological systems with more cultural meanings and symbolic values are relatively difficult to change, and all these determine the order of change process of rural buildings. The reason for this hierarchical structure of change is that behind it there is a deeper cultural thought pattern and value system, that is, the pragmatism in rural buildings.

Chinese rural thinking, as Levi Strauss said, is a primitive and concrete science, which determines the differences and similarities of things according to their surface and use value, and builds classification system and knowledge based on them. Claude Levi-Strauss likened this primitive thought to tinkerers' repair. Tremendously different from designers and architects, tinkerers don't obtain the appropriate materials and mechanical tools based on the pre-planned design scheme to complete his work. What he does is improvisation in a relatively closed and limited tools world with what is available at hand. The materials at hand of the tinkerer are not determined according to the plan, but are collected according to their practical value, improvised and used creatively in the field.

Chinese Traditional rural buildings were developed under this tinkerer's thinking mode⁶. Judging from the current variations of buildings, they still follow this thought pattern and pragmatic values. Like Strauss's "tinkerers' repair", the villagers' construction of houses is based on practicality and the use value of the materials available at hand, which decide how to

use them, it is most different from the way of architects who make a design first, and then determine the choice of materials by incorporating them into a form shaped by visual effects. Bricks replace adobes because they are more durable, economical, and easily available. If observing some temporary or renovated buildings in the countryside, these practical uses of materials are more typical. The kitchen wall of a house was constructed just by piling up the remaining materials such as stones, brick columns, adobe bricks, and concrete blocks of different sizes, just like a collage (Figure 4). The triangular part between the wall and the sloped roof is filled with perforated concrete blocks, and some of them are built sideways due to the needs of lighting and ventilation. All these contain a kind of ingenuity based on practicality and casualness, and an interest defamiliarization. Even the building elements with a strong symbolic meaning, their materials could still be replaced with more practical modern materials while retaining the traditional symbolic form. For example, in Tibetans buildings, the prayer flags, traditionally made of the fabric, have a strong religious and symbolic meaning, but because of poor durability, the fabric has been replaced with more durable and economical metal (Figure 5).

5. Conclusion

Under the influences of modern buildings and the shape of pragmatism, Chinese rural traditional buildings are undergoing evolution. This evolution is a hybrid of modernity and tradition, and follows the mechanism that the



Figure 5. The Tibetans Metal Prayer Flags on a Porch. Photograph by Author

more symbolic the building and its elements are, the more difficult they are to change, on the contrary, the more practical, the easier to change. What determines this mechanism is Chinese rural thinking mode and pragmatism of building behind it. In the current evolution, there are many contradictions. Only when tradition and modernity reach some kind of tuning is also the moment of the birth of a new type of building. At this time, the rural buildings could truly be considered to have undergone a complete transformation.

Endnotes

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