

Traditional Settlements Boundary Visualization

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Abstract—To control the space is an important task in preserving cultural heritage. For example, the edge design of traditional settlements in historical cities and blocks determines the basic size, space and shape of the space. However, unlike the space designed in paper, the formation of edges of traditional settlements are the presentation of residents' public consciousness in the settlements, value orientation and behaviour law under the long-term historical influence, rather than the expression of the designer's personal moment will. This topic cites some traditional cities and settlements of Fujian sea system in China as example and use the boundary as research subject in order to present non-objective historical documents hidden in this system in details by researching documents, field study and chart analysis. The article also comes up with a new angle of research into Cultural Heritage Knowledge Visualization.

Keywords: settlement space; boundary; culture; visualization expression

I. INTRODUCTION

Edge is a significant element of the space. 2500 years ago in China, a man named Li Er[1] who lived in Pre-Qing dynasty (BC,571), wrote in his book Tao Teh King from the building's availability point of view to argue that space relies on the interface to form. He also cited the example of tangible earthenware after burning to expound and prove that only when there is fixed interface can the storage space of inside be shaped (Figure 1). Kevin Lynch[2] researched edge space basing on human visual image. He advanced the knowledge of edge from physical form to visual image. Between the 2500 years, these two scholars discussed and defined edge space from the visual and the functional perspective.



Figure 1. Clay→interface of space→earthenware.(left)

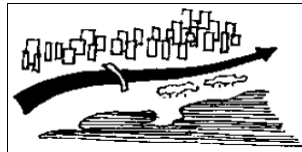


Figure 2. Visibility research, space edge(right) (Lynch ,1959:47)

However, it seems that there is another space boundary which transcends vision and function in some settlements. It is the reflection of residence's collective consciousness and it is expressed by coalescing the tangible medium and the intangible spiritual cognition. This paper aims to give a detailed presentation of the non-objective ideology which depends on edge space and then present the traditional cultural heritage through visualization.

Fujian province locates in the remote region and it was refugees' migration land in ancient China during the wars. Apart from this, these areas not only retain many aspects of Chinese traditional culture but also derive other cultures from their sea culture, such as belief and the strong awareness of family ethics. These cultural elements are all reflected in settlements, which is familiar to human life. In addition, the edge is more highlighted as it is provided with identifiability, impressiveness and functionality.

II. BELIEF CULTURE OF SPACE BOUNDARY

As the edges of space mentioned by Kevin Lynch, the space of Chinese settlement in ancient cities is also shaped to the neat interface with the "Lifang system". For this reason, the urban space is clear divided and the block which is enclosed with the roads has become the basic living element—Lifang, which formed a living space shared by inhabitants of a specific area and the streets function as boundaries.

The urban layout of Quanzhou city in Fujian province still retains the space texture of the Lifang system's layout in this period. It is clear from the blue area of Figure 3 that the space structure of settlement is shaped with the "Lifang system". In fact, citizens did not fully acknowledge and accept the planning which was the hierarchical reflection of government's power and will at that time. Due to various reasons like physical geography and societal factors, settlements of Fujian sea clan had strong worship toward belief culture and then they re-divided the space, using "Jing" as a unit, in accordance with their mental demands. The original idea of "Jing" is "peaceful space with the god's protection", which means a comfort from psychological cognition to the real life.

How do people make the psychological cognitive space come true in the real life space? The answer is the

extraordinary power from gods. To be specific, they need to shape the space by using the temple as the center of circle and the god's protection scope as the diameter. As Figure 4 - "Jing" of Quanzhou allocation structure chart shows, the chart is made after interviewing the local residents and consulting the literature and the jurisdiction scope of each Jing's temple in history. Therefore, this chart can be regarded as a mental map which combines urban space and belief culture.

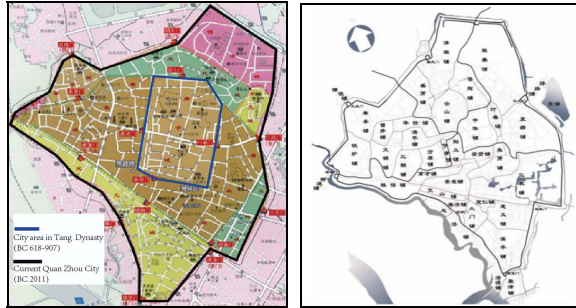


Figure 3. Space texture map of Quanzhou Old town(Left)

Figure 4. 36 "Jing": mental map by folk region (Right)

(LinZhishen[4], Study of the Traditional Settlement Pattern Based on the Community Structure)

III. CLAN CULTURE OF SPACE BOUNDARY

With the emphasis on family ethics in Chinese traditional society, the settlement's demarcation is also based on the conventional "housing allotment system". Literally, the so-called "the housing allotment system" means allocating house according to the hierarchical order of the status of a generation in the family. More specifically, hall is regarded as the centre, the open door direction as the ahead (as the arrowhead depicts); the left is more respected than right and forth is more respected than back. "Housing allotment" grades: supreme (left front of the hall) for grandparents → second (right front of the hall) for parents → third (left of the hall) for the eldest son → forth (right of the hall). (See Figure 5).

When we did the research about Qionglin settlement, the largest settlement of Taiwan Jinmen, an interesting phenomenon was found similar to the housing allotment system. The settlement is divided into four parts and each of them has different names. After consulting the Cai's family pedigree, we knew that the fifth Cai's ancestor of Qionglin settlement who owned this land had four sons. With ancestral hall as the core, the eldest son obtained left land, the second son received right area, the third son got front area and the forth son obtained the back area. Because the third son had no heirs and the forth son moved out, their properties are divided in accordance with such space structure. This division of boundaries reflects traditional clan culture.

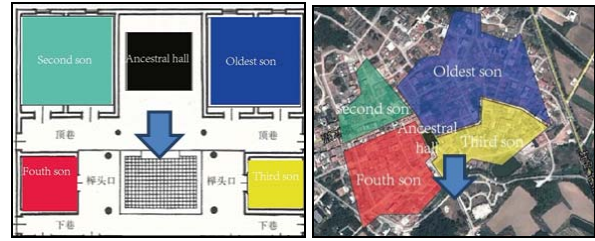


Figure 5. The chart of the housing allotment system(Left)

Figure 6. Qionglin settlement land allotment map(Right)(Wu Peihui[5], 1999:p27)

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IV. FOLK CULTURE OF SPACE BOUNDARY

Every 18th and 19th of Lunar January in Ningde (Founded in 933, Tang dynasty) of Fujian province, there is a grand parade for Chenghuang ye, the god who rules the jurisdiction of the hell city. God Parade is activities in which people bring out the figure of Buddha consecrated in the temple and travel a circle around the god's space of jurisdiction (Figure7). The function of God Parade is to protect local residents and dispel evilness. The trip route should be strictly confidential until the moment the trip starts. When the trip is about to begin, the management committee director hands out the route map to the guide and then the God Parade begins.



Figure 7. City God get around and route map

The author possesses a route map (Figure 7) from the management committee director of City God Temple and draws the outline of the route basing on the main land marks of the map. As shown in Figure 8, the route consists of two circles, which begins at the inner one and then the outside one. After searching lots of historic ancient books and interviewing seniors, the author found the space boundaries, core and streets, etc. To compare with the location of the ancient wall illustrated in the historic documents of Ningde

city diary (Qianlong Edition, 1762) and the route map, we can find that the first circle of God Parade is the location of the ancient wall, a location rebuilt in 1563, Ming dynasty. Although the wall has been destroyed during Japanese War in 1939, the heritage of traditional folklore enables the conception of space boundary to be retained till now and allows the visualization of settlement space from the angle of the folk customs. At the same time, God Parade divides boundaries through the god's activity and defines settlement's boundaries within the sacred space.



Figure 8. The relational graph of god parade and urban area

To demarcate the space through folk activities is a special way to define boundary.

Limitation of Space			
Illustration			
Type	Interface	Edge	Boundary
Form	Physical	Visual	Mental
Place	Location	Site	Territory

Table 1.Relationship among three limitations of space

V. CONCLUSION

Why does the concept of boundary exist (Table 1)and contain multicultural content? Tracing the history and geography (Figure 9), Fujian is an immigration province and from the warring state of Tang dynasty, lots of refugee families to settle in groups. In addition, the mutual help among neighbours made the family ethics stronger. From Ming dynasty, the residents of Fujian (most of them from the same village as a group) sailed across the sea to Taiwan in succession to make a living. In order to get through dangerous channel, people always carry Mazu (the sea goddess of China) or some other god idols of their hometown with them. After successful landing, they believed more in and depend more on these gods. At the same time, the temple has become a place to handle and settle the

conflicts or matters of the settlement. As society evolves, the growing population led to the shortage of land resources and drove people to scramble for land resources. The territorial consciousness of settlers became intense, and the fear of external disasters and diseases make it extremely essential to define their own territories.

As is shown by studies, the space boundary of Fujian sea system demonstrates many multicultural characteristics such as distinctive beliefs, folk customs, production, religions which are connected with sea immigrant culture which is pregnant with the special geographic location of Fujian sea system settlements. It seems that there exists a correlation of cultural layers (Figure 10). Maybe, Cultural Heritage Visualisation is not only a research method to express the abstract cultural heritage by means of informatization and imagination, but also an approach to explore basic cultural context and development.

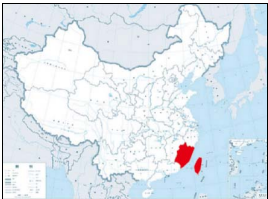


Figure 9. The location of Taiwan and Fujian

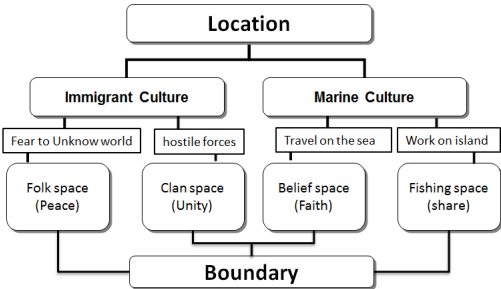


Figure 10. The location of Taiwan and Fujian

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