A Study on Closed Halls in Traditional Dwellings in the Jiangnan Area, China

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Abstract

Halls in the traditional dwellings in northern China are generally closed, whereas those in the south are open. However, in the dwellings in Zhejiang and Jiangsu, many closed halls have partition doors that separate the indoor space from the yard. Focusing on the relationship between the hall and the yard, this study investigated the space of halls in Jiangnan (southern Jiangsu and northern Zhejiang) and its surrounding areas. A total of 89 cases in and 175 cases around Jiangnan were analyzed. Results indicated that the halls in the Jiangnan area are mostly closed, whereas those in the middle and south of Zhejiang, southeastern Anhui, eastern Jiangxi, and northern Fujian are mainly open. The closed halls in Jiangnan are relatively more special compared with those in its adjacent areas. Aside from the climate of hot-summers and cold-winters, the regional culture of preferring the quality of material life to orthodox etiquette is an important factor in the distinction. A closed hall provides comfort and privacy, thereby reducing the inner openness of the dwelling. These halls also lead to the emergence of assistant alleys in large dwellings.

Keywords: Jiangnan; traditional dwelling; closed hall; regional culture

1. Introduction

A hall is the central space of a Chinese traditional dwelling where various family activities, such as etiquette, reception, gathering, dinner, and entertainment, take place. The spatial form of halls evidently varies between southern and northern China. It is generally considered that the halls in the north are huge, firm, closed, and brightly colored, whereas those in the south are delicate, transparent, open, and elegant. Although this description holds relatively true, variations in the openness of halls are evident in different areas of southern China. Closed halls with partition doors (槅扇門), which separate the indoor space from the yard, commonly exist in Jiangsu and Zhejiang (Fig.1.). This kind of setting is seemed special compared with the entirely open halls in nearby regions (e.g., Anhui) (Fig.2.). However, few studies have given serious attention to closed halls in the south, and much less into the reason behind such formation. As an essential place in Chinese traditional dwellings, the hall embodies the feature of local residence and reflects the subjective and objective factors closely related to regional culture. Thus, this central space needs further investigation. With the aim of filling such research gap, this study investigated the existence of closed halls in the Jiangnan area (southern Jiangsu and northern Zhejiang) by analyzing the reason behind it and by looking into its influence on the whole spatial setup from the perspective of the relationship between halls and courtyards.

Fig.1. Main Hall of Hu Xueyan’s House in Hangzhou, Zhejiang

Fig.2. Main hall of Chengzhi Tang in Yi County, Anhui
2. Literature Review

Previous works on Jiangnan traditional dwellings, such as "Zhejiang Vernacular Architecture," "Jiangsu Vernacular Dwellings," "Ancient Residences in Suzhou," and "The Chinese Architecture Culture of Jiangnan Watertown," generally described the overall features of halls in specific districts. Some researchers noticed the differences within the Jiangnan area. For instance, Hongchao Shi (2011) divided the generalized Jiangnan into five architectural culture circles according to the characteristics of building technology. "The Hall of Chinese Traditional Architecture" discussed the history and form of halls in different building types, including palaces and temples. "Chinese Hall (Jiangnan Volume)" examined the characteristics of halls in Jiangnan gardens and dwellings. This book specified that the form of halls is affected by numerous factors, such as etiquette, geographic environment, and climate. Shengfang Yu (1990) clarified that the halls on the central axis in Suzhou vernacular dwellings are usually closed, except during ceremonies.

Recent relevant studies on halls are mostly focused on climate adaptability and technological features. For example, Hongru Zhang (2010) analyzed the effectiveness of traditional techniques through an architectural environment survey. Li Bao (2008) studied a number of construction strategies from site layout, wind environment, to architectural details. Jianhua Wang (2008), Ying Zhang (2011), and others investigated the indoor thermal environment of dwellings during summer and winter.

Although numerous studies have looked into the dwellings in Jiangnan, few have discussed the openness and closeness of halls. The halls in Jiangnan dwellings are closed probably because of the combined effect of climate conditions and regional culture. Nonetheless, the working mechanism of these factors is yet to be clarified and needs further investigation.

3. Scope Definition and Research Method

3.1 Scope of the "Jiangnan Area"

"Jiangnan" is a common but indistinct geographic concept. This term literally implies the "south of the Yangtze River" but its referring scope has shifted notably in history. In fact, contemporary scholars have yet to reach a consensus. Shiji Liu (1987) considered that the Jiangnan area includes Nanjing, Zhenjiang, Changzhou, Suzhou, Songjiang, and Zhili Taicang (part of present Shanghai and Suzhou) in Jiangsu Province as well as Hangzhou, Jiaxing, Huzhou, and their subordinate counties in Zhejiang Province. By contrast, Yuelin Ying (1998) posited that the geographic region of contemporary Jiangnan is the area from the Yangtze River to the Qiantang River, including parts of Jiangsu, Zhejiang, and Shanghai, especially the Taihu Lake basin. Yisan Ruan and Zhen Li (2010) deemed that the general area of Jiangnan comprises Suzhou, Wuxi, Changzhou, Hangzhou, Jiaxing, Huzhou, Ningbo, and Shaoxing. Xueying Zhou and Xiao Ma (2006) used approximately the same area, which is composed of Taihu, Hangjiahu, and Ningshao plains, to describe the scope of Jiangnan. This area accords with the general Chinese concept of Jiangnan, with Suzhou and Hangzhou as the core. Hence, this study adopted the same concept of Jiangnan that covers the domain of Suzhou, Wuxi, and Changzhou in the south of Jiangsu and Huzhou, Jiaxing, Ningbo, and Shaoxing in the north of Zhejiang (Fig.3).

3.2 Research Method

This study investigated the closeness/openness of dwellings in Jiangnan and its adjacent areas. All selected cases have a central axis and traditional facade, and are generally made of traditional wooden frames with external brick walls. The chosen dwellings were mainly constructed during the Qing Dynasty and the Republican Period (before 1949). A total of 264 dwellings were included in the case studies. Of this total number, 89 are within the Jiangnan area, including 50 cases in southern Jiangsu and 39 cases in northern Zhejiang. The other 175 cases serving as a contrast are located near the Jiangnan area, including 30 in the middle of Jiangsu, 71 in central and southern Zhejiang, 37 in southeastern Anhui, 19 in eastern Jiangxi, and 18 in northern Fujian. The locations were counted according to the prefectural-level cities (higher than common cities, but lower than the provincial level) in statistics. The dwellings of all scales were included in the study, from the smallest of one unit ("進" in Chinese that indicates a yard with surrounding buildings on a central axis) to the largest of nine units.

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be discovered. Some of the selected cases located in Hangzhou, Shaoxing in Zhejiang, Suzhou in Jiangsu, and Huangshan in Anhui were investigated by field works, whereas the other cases were picked up from various publications. These cases were generally raised as the representative plans of specific districts in source publications. Some available "typical plans" were not included in the statistics because they are not specific dwelling cases. These "typical plans" were used as reference to verify the universality of the selected cases. Thus, although its amount was limited, the selected cases can be considered as representative and basically reflecting the general situation of local dwellings.

4. Typological Analysis

4.1 Types of Halls and their Regional Distribution in the Jiangnan Area

Halls in the selected cases were divided into three types, namely, closed, open, and mixed, according to whether the hall and the yard on the central axis are separated by doors.

(1) Closed type. In this type, the hall and the yard are clearly divided. Partition doors with thresholds are generally used to separate the indoor and outdoor spaces; hence, the hall is relatively closed and private.

In a small dwelling, partition doors are used only in the central span (upper Fig.4.). However, the hall in large dwellings has the same width as the yard, and the entire front wall consists of partition doors (lower Fig.4.).

(2) Open type. In this setting, the hall is completely open and forms a continuous space from the inside through the outside, serving as an entirely public space of the dwelling. In addition, this type of hall has a strong ceremonial vision in which the opposite of the yard can take in everything at a glance. Other than its general functions, an open hall also serves as a walk-through space, connecting the front unit with the rear. As such, an open hall strengthens the axis and order of the internal space (Fig.5.).

(3) Mixed type. This type mostly exists in multi-unit dwellings with both an open hall and a closed hall on the central axis. According to different compositions, the mixed type can be categorized into two patterns, namely, "closed hall in the front and open hall in the rear" (left, Fig.6.) and "open hall in the front and closed hall in the rear." The hall in the front is generally used for receptions, whereas the rear hall is used for daily living. Nevertheless, in some large dwellings there are...
also open front halls that are used only as a lobby or a sedan hall (轎廳) where the owner can alight from his/her sedan.

Among the 89 residential cases in the Jiangnan area, 65 (73%) are closed type, 15 (16.9%) are open type, and 9 (10.1%) are mixed type. From the geographical perspective, 42 of 50 cases in southern Jiangsu are closed type, and the rest are mixed type. The open type does not exist in Jiangsu Province according to the survey, but possibilities cannot be excluded. Of the 39 cases in northern Zhejiang Province, 23 are closed, 15 are open, and only 1 is mixed (Table 1.). Unlike in Jiangsu Province, almost every prefectural-level city in northern Zhejiang has both closed and open types of halls.

Overall, the halls in the traditional dwellings in Jiangnan are mostly closed. In southern Jiangsu, halls are either closed or mixed. In northern Zhejiang, most halls are closed as well, but the number of open ones has a tendency to increase.

### 4.2 Comparison with Adjacent Regions

To grasp the situation in the adjacent areas of Jiangnan, the scope of investigation was extended northward to the central part of Jiangsu, westward to southeast Anhui and eastern Jiangxi, and southward to the north of Fujian. A total of 175 dwelling cases were collected from this area. The cases were classified into the three types as above and were marked on the map together with the cases in Jiangnan. In this manner, the large distribution of different types in a large area became visible (Fig. 7.).

Yangzhou and Nantong in Jiangsu Province are on the north bank of the Yangtze River. Yangzhou is often considered part of the Jiangnan Cultural Circle. From this area, 30 cases were collected, with 22 cases in Yangzhou and 8 cases in Nantong. The halls of all dwellings in this area are closed. For example, the dwelling in Ding Jia Wan, Yangzhou (Fig. 8.A) is a typical ordinary house in which the halls are separated from yards by partition doors. The dwellings in this area are similar to those in southern Jiangsu.

The middle and south part of Zhejiang Province have five prefecture-level cities, namely, Jinhua, Quzhou, Taizhou, Lishui, and Wenzhou. A total of 71 cases were investigated in these regions, including 10- closed type, 57 open type, and 4 mixed type. Several closed-type cases exist in Quzhou and Wenzhou, but the open type is obviously the mainstream in this region. For example, Wuben Tang in Dongyang, Jinhua (Fig. 8.B), located in the middle of Zhejiang, is a typical medium-scale dwelling in which both the front main hall and the rear living hall are open to the yards.

Huangshan and Xuancheng in the southeast of Anhui Province are adjacent to Jiangsu and Zhejiang. Being the core of traditional Huizhou, this area is famous for the "Huizhou Style Dwellings". From this area, 37 local dwellings were analyzed. Of all these cases, 34 are open type at different scales, whereas 3 are mixed type with open front hall and closed back hall. For instance, Chengzhi Tang in Yi County (Fig. 8.C) is a representative local dwelling with two similar open halls. The hall, the yard, and corridors make up a public space with the shape of "凸", which is a typical spatial unit in local dwellings.

Shangrao and Jingdezhen are located in the east of Jiangxi Province. These prefecture-level cities are adjoined to Zhejiang in the east and Anhui in the north; both are deeply influenced by Huizhou-style architecture. All of the surveyed 19 dwellings in this area belong to the open type. For instance, a dwelling in Jiangjiaoshan Village, Boyang County of Shangrao (Fig. 8.D) is a representative one-unit dwelling. The small yard inside is called "Tianjingyuan" (天井院) in Jiangxi, and the hall is directly open to it.

Nanping and Ningde in Fujian Province are next to the south of Zhejiang, and they belong to the Fujian-Guangdong Cultural Circle. The architectural style and decoration of the dwellings in this area vary from those...
in the Jiangnan area. Of the 18 cases surveyed from this area, only 2 are the mixed type; the remaining 16 cases are all open. For example, Tiansun Yu's house (Fig. 8.E) in Guanqian Village, Nanping is a typical local small dwelling. The middle span is divided into two parts by a partition wall. The front part that serves as the main hall is open, whereas the rear hall serving as a family room is closed. However, this setup cannot be considered a closed or mixed type according to the definition in this paper.

Of the 175 cases around the Jiangnan area, 40 are closed type (30 in the north of Yangtze River), 9 are mixed type, and 126 are open type. In the south of Yangtze River, 69 cases in Anhui, Jiangxi, and Fujian are open, whereas only 5 are mixed. This condition completely contradicts the situation in the Jiangnan area. Closed halls are ordinary in the northern part of Zhejiang, whereas the main type is open in central and southern Zhejiang. This observation proves that Zhejiang experiences a transition from having closed halls to open ones.

The type of closed halls in the dwellings in the Jiangnan area vary from that of northern Chinese dwellings. Compared with the former, the latter is generally more closed, with a two-leaf door open to the yard (left and middle, Fig. 9.). By contrast, the partition doors of halls in the Jiangnan area can be opened completely (right, Fig. 9.). During festivals, the partition doors can be removed to transform the hall and the yard into a one conjoined space. Therefore, the closeness of halls in Jiangnan is relative and more flexible than that in northern China.

Only 18 cases of the mixed type were investigated, but a considerable amount of regularity was still deduced. Of nine mixed-type cases in the Jiangnan area, seven take the form of "closed hall in the front and open hall in the rear." The front halls used as the main hall to receive guests are mostly closed and in accordance with the mainstream type in the Jiangnan area. Of the nine cases in the adjacent areas of Jiangnan, six take the form of "open hall in the front and closed hall in the rear." The front halls in these regions are also mostly the same as the local mainstream type. Hence, mixed-type halls can be considered merely a slight variation of the mainstream type both in Jiangnan and its adjacent areas.

5. Discussion
5.1 Analysis of the Type Choice
Compared with the surrounding areas in the south of Yangtze River, the closed halls in the Jiangnan area are considered relatively special. To determine the
reason for the existence of this structure, the effect of climatic factors was considered. Based on historical meteorological data\(^2\), the relationship between local weather conditions (temperature and humidity as the main index) and the types of halls can be explored. In all the 264 cases selected, 105 are closed type, 141 are open type, and 18 are mixed type. Given that it only accounted for 6.8% of the entire sample, the mixed type was excluded in the analysis.

The climate data of each prefecture-level city were collected. The daily average minimum temperature in January, daily average maximum temperature in July, and annual precipitation (related to humidity) were chosen as the three main indexes. In general, all cities have a warm summer and cold winter. The variation in these cities' daily average minimum temperature in January (Fig.10.A) is approximately 8 °C. Areas with a temperature below 1 °C widely adopt the closed type of halls, whereas the areas with a temperature above 5 °C apply the open type instead. The areas with a daily average minimum temperature varying between 1 °C and 5 °C have both types. With regard to the daily average maximum temperature in July (Fig.10.B), the difference between cities is only 4 °C, and no obvious correlation between this index and hall type is observed. Although the areas with the three lowest amounts of rainfall have a closed type and the ones with the two highest have an open type, no apparent correlation between precipitation and hall type is evidently observed in the context of annual precipitation (Fig.10.C).

The analysis cited in the preceding paragraph entails that the areas with an average minimum temperature of less than 1 °C or above 5 °C in January primarily consider climate in selecting hall type. As such, the halls in northern Jiangsu are closed, whereas those in southern Zhejiang are open. However, in the areas with moderate climate (average minimum temperature in January varies between 1 °C and 5 °C), climate conditions are not the determining factor. Although the climate in eastern Anhui (Huizhou area) is similar to that in northern Zhejiang, their halls significantly vary. In particular, the halls in Huizhou are mostly open, whereas those in Zhejiang are closed. An open hall is conducive to ventilation during summer but is not beneficial in winter. Jianhua Wang (2008)\(^2\), Ying Zhang (2011)\(^2\), and others specified that the traditional dwellings in Anhui perform well in heat shielding during summer, making the hall a comfortable place; whereas in winter, their interior environment is greatly influenced by the cold weather. The halls of dwellings in Huizhou abandon comfort to a certain extent as an effect of cultural factors. The open hall has a strong ceremonial vision. Jianhong Chen (2006)\(^2\) and others analyzed the interior environment of dwellings in Huizhou from the cultural perspective. These researchers posited that traditional etiquette, ethics order, and ancestor worship rites create explicit symmetry and open interior space.

Different from Huizhou culture, Jiangnan culture pays more attention to practicality and the quality of daily life than to etiquette. Xueying Zhou (2006)\(^2\) and others said that a prominent feature of Jiangnan culture is its significant keenness on luxury rather than simplicity and its frequent negligence of etiquette. In terms of residence, dwellings highlight the requirements in comfort and luxury space. As such, partition doors are adopted to separate the hall from the yard. Nonetheless, these doors can be fully opened during summer for ventilation but closed during winter to keep indoor comfort. Hongru Zhang (2010)\(^2\) proved that partition doors with papers on both sides are thermos-technically effective. The air layer between the papers is divided into many small cells by a wooden lattice, playing an important role in retaining warmth.

Privacy is considered another functional factor that impels halls to be closed. In the north of Zhejiang Province, 23 cases are closed type and 15 are open type. This case indicates that people are subjective in their choices, and a certain correlation between hall
type and dwelling scale is evident in this area (Fig.11.). It is inferred to be related to the need for privacy.

Of 16 small dwellings with one unit, only 4 have closed halls, whereas the rest have open halls. Among the 13 dwellings of two units, 10 have closed halls and 3 have open halls. The remaining dwellings with more than two units all adopt the closed type. These numbers represent the need for privacy as well. In small dwellings with only a few inhabitants, the single hall is opened for multiple usages. By contrast, medium and large dwellings with several family members and servants have closed halls to maintain privacy.

In sum, the choice of hall type is the result of a complicated mechanism that involves climatic and cultural factors. In areas with a relatively extreme winter temperature, climate plays a crucial role. By contrast, different regional cultures are the determining factor in areas with moderate climate. For instance, dwellings in Huizhou, which pays attention to etiquette, prefer open halls, whereas the dwellings in Jiangnan that value comfort and privacy are inclined to have closed halls.

5.2 The Influence of Closed Halls on Spatial Pattern

The closed halls in the Jiangnan area remarkably affect spatial pattern, especially in large dwellings.

First, when the privacy of halls increases, the proportion of public space in the dwellings decreases. The partition doors strengthen the territoriality of halls, thereby limiting the access to the hall to some extent. As a result, the yards and the garden, in most cases, replace the halls as the inner public space in large dwellings.

Second, the traffic extending along the central axis is changed with the relative closeness of halls. Although a closed hall is beneficial to reception and entertainment, it is not convenient to connect the front and rear units. Therefore, alleys come forth at one side or both sides of the units (shaded part in the left of Fig.12.). This alley is called Bei Nong (備弄) in Suzhou dwellings and literally implies "assistant alley," which serves as the main path. Shengfang Yu (1990) asserted that the formal route on the central axis, from the entrance to the sedan hall and main hall, is seldom available except for distinguished guests or ceremonies. The main hall is usually closed, and the assistant alley connects the entire dwelling. In the studied cases, the assistant alley is quite common. A total of 56 cases with closed halls have more than two units, and 47 of them have assistant alleys, accounting for 83.9% of the total.

From a broad perspective, the increase of units does not necessarily cause the emergence of an assistant alley. For example, the units are still connected by the halls in the large dwellings in Huizhou (right, Fig.12.) although the number of units is more than three. Correspondingly, the closeness of halls is the main reason for the existence of assistant alleys in large dwellings of Jiangnan.

6. Conclusions

This study analyzed the spatial closeness of halls in traditional dwellings in the Jiangnan area (mainly southern Jiangsu and northern Zhejiang). The halls were classified into three types, namely, closed, open, and mixed. Based on the analysis of 89 cases in and 175 cases around the Jiangnan area, the distribution of different types was clarified. The halls in Jiangnan are mainly closed, whereas those in southeastern Anhui, eastern Jiangxi, and northern Fujian are mainly open. Within Zhejiang, the halls vary from closed type in the north to open type in the middle and south parts. Although limited by the number of cases in this study, the closed type in the Jiangnan area is a special phenomenon compared with the open type in nearby areas in the south of Yangtze River.

The analysis of local meteorological data shows that in the areas with a relatively extreme winter temperature, climate plays a decisive role in the selection of hall type. In this case, the halls in northern Jiangsu are closed, whereas those in southern Zhejiang and Fujian are open. However, in the temperate areas with similar climate, such as Huizhou and Jiangnan, regional culture has a decisive effect under the similar...
climate conditions. Dwellings in Huizhou, which attaches importance to ceremonies, adopt open halls. Contrarily, the dwellings in Jiangnan that pay attention to comfort and privacy widely adopt closed halls.

This study obtained further insights into the spatial feature of the dwellings in the Jiangnan area from the viewpoint of closed halls. Closed halls generally improve the indoor privacy and comfort of dwellings, thereby reducing orthodoxy and the proportion of public space. Owing to the emergence of closed halls, assistant alleys connecting the front and rear units have also been structured in large dwellings and became a main passageway.

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   - Zhejiang (110): Hangzhou*16, Huzhou*4, Shaoxing*6, Jiaxing 4, Ningbo 9, Jinhua 27, Lishui*3, Taizhou 4, Wenzhou 10, Quzhou 27
   - Anhui (37): Huangshang*31, Xuancheng 6
   - Jiangxi (19): Jingdezhen 4, Shangrao 15
   - Fujian (18): Nanping 5, Ningde 13

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