

# Identity and Reality: Synchronicity of the Grand Canal Culture and Huai'an Historical and Cultural Space

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**Abstract** In order to further explore the rich connotation of Huai'an historical and cultural space and the Grand Canal culture, the synchronicity of urban spatial pattern and historical buildings of Huai'an was studied under the guidance of synchronic theory and method. It is found that there are the identity and reality law of the development and change of Huai'an historical and cultural space and the Grand Canal cultural system, and it is deduced that there is a spiraling systematic structure chain between the historical and cultural space of Huai'an and the Grand Canal culture, which provides a theoretical reference for promoting the deepening construction of regional culture, the Grand Canal cultural belt and national cultural parks.

**Key words** Grand Canal culture; Historical and cultural space; Historic buildings; Synchronicity

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Huai'an is located alongside the Grand Canal, and with its superior geographical position, it becomes the important node city of the Grand Canal culture. The historical and cultural space of Huai'an has gradually formed and developed under the nourishment of the Grand Canal, while the Grand Canal culture runs through every historical period of the urban development of Huai'an, and the two have remarkable synchronic characteristics. Through studying the synchronicity of the historical and cultural space of Huai'an and the Grand Canal culture, the historical context of urban spatial development of Huai'an can be deeply understood, and the rich connotation of the Grand Canal culture can be further tapped to provide an important basis for promoting regional cultural development.

## 1 Overview of synchronic theory and methods

**1.1 Connotation of synchronic theory** Any building is the product of "specific time and space", and "synchronicity" aims to study the logical and psychological relations between the components that exist simultaneously and constitute a system, and these components are felt by the same collective consciousness. That is, the study of synchronicity means suspending the influence of time under "specific time and space", without considering time changes and the dynamic evolution process of consequences<sup>[1]</sup>, taking a specific research object as a static closed self-organizing system that is not affected by external factors, and conducting structural analysis of the system.

the synchronic theory and its methods are of great significance to the analysis of the relationship between various parts of

historical buildings, the relationship between parts and the whole and their cultural genes, and are an important path to carry out research on cultural observation and systematic protection and utilization of cultural heritage in a large spatio-temporal scope.

**1.2 Methods of synchronic research in the study of cultural spatial form** The study of spatial form is the foundation of the study of cultural space. In order to understand a cultural spatial form, the key is to determine the synchronic relationship of historical cultural space. Because only things that exist at the same time can have a direct relationship with each other, and they reflect different cultural relations. In the *Archaeological Collection of Luan Fengshi*<sup>[2]</sup>, Luan Fengshi wrote that the two traditional methods of stratigraphy and typology are still used to solve the problem of the synchronicity of the remnant in view of the current development level of the subject.

**1.2.1** Using archaeological stratigraphy to determine the synchronic relationship. In the course of human habitation and other long-term activities in a specific place, new soil layers will be formed on a large scale on the earth's surface, and there will be relics in these soil layers, which is called cultural accumulation. As the theoretical foundation and methodology to guide field archaeology, archaeological stratigraphy will determine its sequential or synchronic relationship through field investigation. Thus, the remains can be divided according to the difference of dominant factors, and the bottom-up level changes correspond to the passage of time from early to late, so that the synchronic relationship can be judged.

It is an effective way and an important path to truly restore cultural space to reveal each cultural accumulation level and its related human activities in order, and it has a leading role in refining its morphological characteristics. Cultural space is the activity place of cultural survival, development and exchange. To analyze the historical and cultural space of Huai'an from the perspec-

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tive of synchronic research, the first thing is to suspend the influence of time. Here, with the method of archaeological stratigraphy, it can be determined that the research level starts with the activity surface where people carry out various activities, and the synchronous relationship is determined with the Grand Canal culture as a clue.

**1.2.2 Using typology to further determine the synchronic relationship.** The similarities and differences of building types, combined layout or functions are analyzed by typology to further determine its synchronic and obtain its synchronic information model<sup>[3]</sup>. The historical and cultural space now preserved is not necessarily its original appearance, and in many cases it is the incomplete surface that has been transformed or destroyed or even the restored surface. The cultural space at this level must have suffered varying degrees of damage. In this case, it is needed to make a comprehensive analysis of the overall distribution and arrangement of cultural space. In general, through the typology analysis of buildings, excluding the influence of time, the synchronic characteristics of the historical and cultural space of Huai'an are further determined from the analysis of types to the analysis of prototypes.

## 2 Research status of synchronicity at home and abroad

**2.1 Domestic research status of synchronicity** In the 1990s, synchronicity, as an effective method to describe language systems, began to enter the field of domestic language research. With the deepening of research, synchronicity has been applied in architecture, landscape, art and other fields. In the field of art, synchronicity mostly appears in the static study of art form under static time and space. In recent years, relevant theories and methods have also been introduced into the study of historical and cultural space, and the focus of this research is to reveal the diversity of settlement forms, characteristics and expressions of regional architecture during the same period. For example, Wang Wei summarized the spatial diversity of settlements in this period by establishing the relationships between residential addresses and other relics from the aspects of settlement location, settlement scope, internal layout and function, social organization structure. Starting from the regional distribution and length range of the main "township rulers" such as Lushigong ruler, Wu Ruler, Zhe ruler, Min ruler, Huai ruler, Gan ruler and Yue ruler, Li Zhen *et al.*<sup>[4]</sup> deeply explored regional differences between northern and southern Chinese construction rulers in the same period of time in modern times, made a comparative analysis, discussed the regional characteristics of "construction rulers" in China's traditional construction practice, and analyzed the historical and cultural causes of the diversity of "township rulers" to open up a new perspective and path for the study of traditional construction culture.

**2.2 Foreign research status of synchronicity** In 1941, Sigfried Giedion introduced linguistics into the research field of design discipline, advocated the static analysis of architecture, pro-

posed the concept of "time-space", and summarized the synchronicity of design works as having temporal and spatial properties. In the Tree City, the competitive bidding scheme of Dansville Park in Canada planned and designed by Koolhaas, synchronic theory and practice are combined to deal with the relationship between the city and landscape, which is of great significance to the analysis of the direction and main forces of the stable state of park space. Aldo Rossi believes that the history, environment and place of a city are the main factors affect the existence of architecture, and proposes that a city has two dimensions of synchronicity and diachronism. He believes that it is time that connects things of different scales and locations in a city, and cities must be studied from the perspective of synchronicity. Art criticism once had two methods at the synchronic level. One was art geography, which Enrico Kostenovo and Carlo Ginzberg both explained in detail. This method aimed to pay attention to the dynamic communication between regional cultures, rather than explore a static feature. It mainly broke out of regional restrictions, finds out the cultural identity of the geographical area within a certain range, and has "dynamic nature". The second approach is to relate the social and economic context of design works and take into account the historical context of the time, including creation mechanism (the construction stage, the situation of design and construction team, the relationship between relevant processes, *etc.*) and reception situation.

In general, the study of synchronicity has been carried out in the field of design, and further research is needed. In terms of research methods, some studies use the synchronic research method to conduct comparative analysis of research objects from the perspective of synchronicity. However, it is believed that the research excluding the influence of time and not considering diachronism is synchronic research. In terms of research content, the concept definition, characteristics and application of synchronicity, and the process analysis and comparative analysis combined with regional cultural research are not deep enough, and the diversity observation of research objects is mainly focused on, but the unity observation is slightly neglected. In terms of research objects, emphasis is placed on the relationship between research objects and other objects in static time and space, while the dynamic nature and inherent commonality of research objects in static time and space are rarely mentioned, and the specific analytical path is not refined. In terms of research conclusions, it mainly focuses on the application and verification of methods, while it rarely explores the cultural genes of research objects through synchronic research, and mentions the protection and value inheritance under modern cultural ecology.

## 3 Synchronicity of the Grand Canal and Huai'an historical and cultural space

### 3.1 Identity: the macro unity of urban spatial pattern

**3.1.1 Relationship between spatial pattern and the development of the Grand Canal.** In the early stage, the Grand Canal was used

for political and military transportation of the imperial court. It arose in the the Spring and Autumn Period and the Warring States Period, developed in the Sui, Tang and Song Dynasty, and took shape in the Yuan, Ming and Qing Dynasty. During this period of time, with the construction, completion and expansion of the canal, cities and towns with prosperous commerce appeared along the canal, and the Grand Canal was closely related to the change of the urban pattern of Huai'an City. Huai'an City was brought to life by the Grand Canal. Historically, Huai'an City developed from the canal, which was mainly reflected in commerce, water transport and handicraft industry. It was a political, economic and cultural center, as well as one of the "four metropolises" along the canal.

The stage of emerging as The Times require: Huai'an City originated in the Spring and Autumn Period and the Warring States Period. In order to march north to attack Qi, transport troops and provisions and funds for troops, Hangou Canal was dug to communicate the Yangtze River and the Huai River, and then the merchants from the south to the north formed the earliest prototype of the Grand Canal<sup>[5]</sup>.

The shape of a strip city and the flourishing period of the canal: in the Ming and Qing Dynasty, the Grand Canal entered its heyday, and the urban pattern of Huai'an was basically finalized. Fucheng, Shanyang Old City, *etc.* took the canal as the axis, and stretched along the canal from the north to the south, forming a strip city. The Li Canal runs through the city, and the two sides of the river are distributed with wharves, warehouses, commercial areas and residential areas, presenting a prosperous scene.

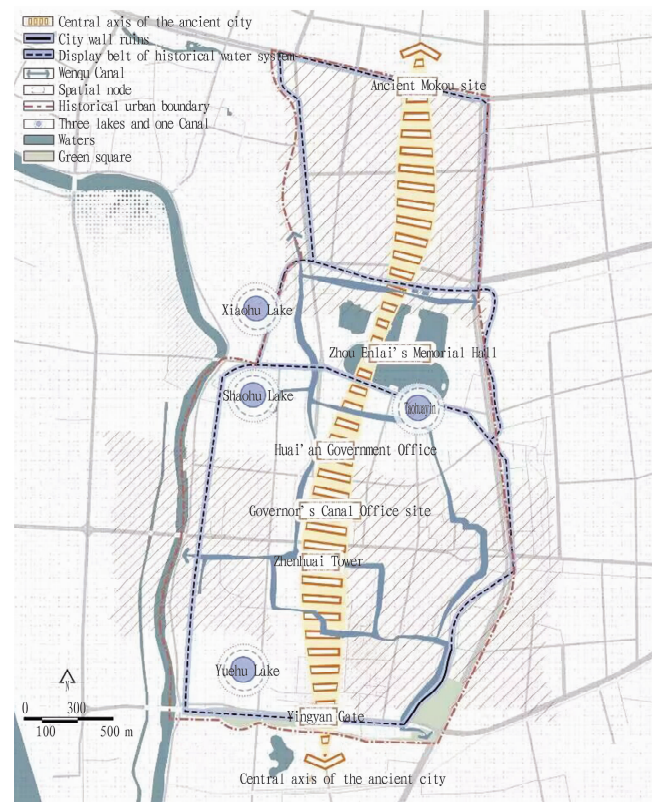
The transformation of urban development and the decline of the canal: since modern times, with the rise of sea transportation and the development of railway, the traffic status of the Grand Canal has declined, and the urban development of Huai'an is facing transformation. The commerce and handicraft industries that had traditionally depended on the canals declined, and the urban landscape changed with them. Some docks and commercial areas along the canal gradually declined, and the population shifted to railway and new industrial and commercial areas. The urban space began to expand along railway and highway, and new industrial areas and residential areas appeared. The urban pattern expanded to multiple directions from a single development along the canal.

Urban revitalization and canal culture activation and inheritance period: in recent years, due to the needs of the construction of the Grand Canal cultural belt, the historical and cultural relics along the canal have been protected and restored, such as a water-gate Qingkou Control Project, Hongze Lake levee, *etc.*, and historical and cultural spaces such as the Liyunhe Cultural Corridor, Hexia Ancient Town, Banzha Site Park have been created. At the same time, cultural tourism industry has been developed relying on canal resources to promote the development of urban economy, and also made the urban pattern continuously optimized in the protection and development, forming a new pattern of urban space characterized by canal culture.

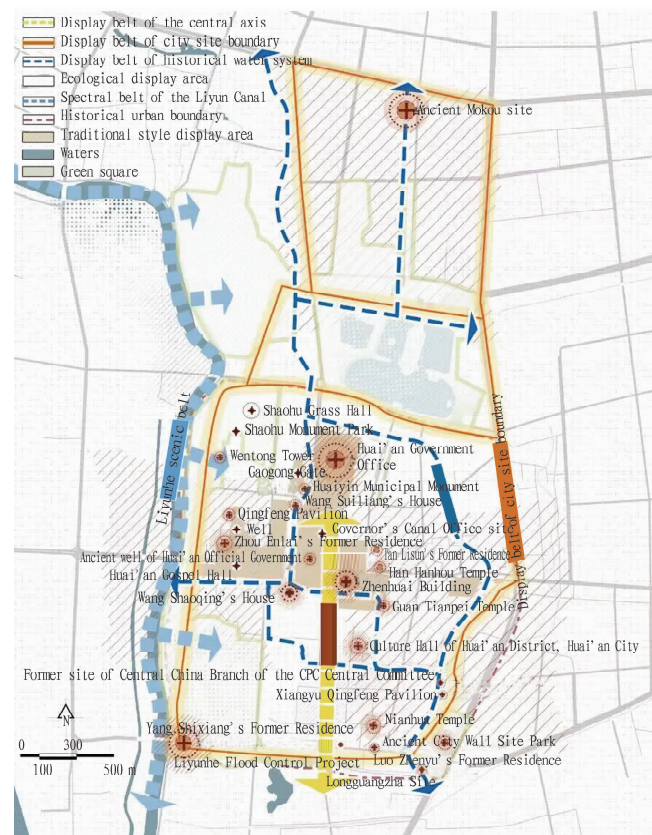
At present, the overall urban structure of Huai'an is the urban pattern of "three united cities", and then develops into the overall structure of "three cities and one axis, three lakes and one canal" (Fig. 1). "Three cities" are the old, united and new cities of Huai'an. "One axis" is the north – south axis of "Nanmen Street – Zhenhuai Building – Governor's Canal Office site – Huai'an Government Office – Taohuayin-ancient Mokou site" that runs through the three united cities. "Three lakes" refer to Yuehu Lake, Shaohu Lake, and Xiaohu Lake, and "one canal" is the Wenqu Canal. This pattern was first influenced by the digging of Hangou Canal (the prototype of the Grand Canal). Now, the Grand Canal culture has become a shining historical business card in the urban development of Huai'an. In the *Plan for the Protection of Huai'an Historical and Cultural City* (2020 – 2035), the space of ancient Mokou, Zhou Enlai's Memorial Hall, Wentong Tower, Caoyun Square, Zhenhuai Tower, Huai'an Government Office, City Wall Ruins Park, Longguang Pavilion and the Liyun Canal as business cards is mainly shaped, and the observation nodes in the open public space are selected to optimize the vision landscape, showing the architectural art and aesthetic taste with both northern and southern characteristics formed in the historical process of continuous evolution of the historic city.

**3.1.2 Relationship between the traffic flow line of urban cultural tourism and the Grand Canal.** Since Hangou Canal was dug, water transportation has become the most critical mode of transportation in Huai'an area. By means of the canal channel, ships from Huai'an can easily travel across China, up to the north as far as the capital and south to Suzhou and Hangzhou. A large number of water vessels, merchant ships, and passenger ships shuttle on the canal, thus building a very busy water traffic flow line system<sup>[3]</sup>. With the Grand Canal dock as the central hub, a traffic flow network that radiates extensively to the inner of Huai'an City and surrounding cities has been gradually derived. After loading and unloading at the dock, goods are transported to various warehouses or markets by roads in the city. At that time, Royal wharf and Stone Wharf were important water transport docks in Qing Dynasty, and the surrounding roads were connected to the canal dock, which facilitated the distribution of goods and the flow of personnel.

In modern times, although the status of the Grand Canal in the field of transportation has declined, the influence on the traffic layout of Huai'an cultural tourism is still significant. Based on the direction of the Grand Canal and the spatial distribution characteristics of scenic spots along the canal, the cultural travel route of ships over the Liyun Canal is carefully planned and designed. Relying on the Grand Canal, this route connects Huai'an Ancient City, Qingkou Control Project, Hexia Ancient Town and other representative scenic spots organically to build a complete and coherent tourist route system. In addition, after renovation and upgrading, the Huai'an section of the Grand Canal is still an important inland waterway, and is interconnected with the Huaihe River, Yanhe River and other water systems to form a more



**Fig.1 Overall structure of "three cities and one axis, three lakes and one canal"**



**Fig.2 Diagram of mainly created historical and cultural space**

perfect inland waterway network. In the planning and construction of the comprehensive transportation hub of Huai'an, full consideration has been given to the connection with the Grand Canal, and seamless connection between different transportation modes has been realized, forming a more convenient and efficient traffic flow pattern.

### 3.2 Reality: micro reality of historical architecture and the Grand Canal culture

**3.2.1 Regional distribution of historical and cultural space in Huai'an.** The historical and cultural space of Huai'an is the embodiment of Grand Canal culture, and its practical significance is reflected in the function of space. The Grand Canal culture is deposited and inherited in this space, and Huai'an historical and cultural space provides a realistic carrier for the development of the Grand Canal culture<sup>[6]</sup>. The dock area is concentrated in the west of the city, which facilitates the loading, unloading and storage of goods. Around the dock, a large number of warehouse buildings are densely distributed around the pier and surrounded by warehouses. For example, near Banzha and Qingjiang Gate, there were many warehouses used to store grain, salt and other materials, which were important places for cargo loading, unloading and distribution. The business district is closely adjacent to the wharf, and has become a hub of salt transport and a commercial center due to the promotion of canal transport. A large number of salt merchants' mansions, shops and guild halls gather here, and commercial shops are row upon row on both sides, forming a building layout of front street and back river, commercial and residential integration, which greatly facilitates merchants to carry out trading activities and goods transportation. The government office area is located in the center of the city, which makes it able to efficiently manage water transport and other affairs and ensure the orderly operation of the region. This spatial layout not only reflects the economic structure and social order at that time, but also provides valuable historical samples for later generations to study the Grand Canal culture.

Residential areas are built along the canal and commercial districts, creating a complex and dense network of streets and alleys. Urban construction is extended by the canal, showing a distinct urban texture. The Liyun Canal runs through the urban area, and the residential areas on both sides are constructed by the water. The buildings are arranged in a linear manner along the river, creating a unique pattern of water streets and alleys.

**3.2.2 Spatial characteristics of traditional dwellings.** Due to the influence of the canal, the traditional dwellings in Huai'an are mainly street-type and courtyard-type dwellings. Street-type dwellings usually have one to two floors, with brick and wood structure<sup>[7]</sup>. The first floor is used for trading, and the second floor is usually used for living or storage. They are mostly narrow and long in the plane form. The representative ones are Wang's textile shop in Guyi Lane and Xie's cotton shop in Flower Lane in Hexia

Ancient Town, which are narrow and long in the plane layout. Courtyard-type dwellings are mainly courtyard and semi-courtyard type, with multiple houses, more patios, and more square plane shape, such as Wang family compound of Wang Suiliang's house, Wang Weihua's house and so on. Many riverfront residential buildings back a street and face the river, and the front door of the house faces the street, which is convenient for residents to travel and communicate with the outside world<sup>[6]</sup>. The back door or side door is connected with the canal, so that residents can easily use the canal to transport resources, and have a panoramic view of the canal landscape, thus forming a unique waterfront residential landscape style, and showing the harmonious symbiosis between people and water, city and river.

Most traditional houses in Huai'an adopt the brick and wood structure, in which the wood structure is the main skeleton structure of the houses. In view of the high humidity of air in Huai'an and more rainfall in the four seasons, some houses appropriately reduce the height of the eaves and set up an outer corridor, so that although the main house is in a relatively dark environment, it can effectively shade the sun and prevent rain, which greatly improves the comfort and practicality of living, and highlights the architectural wisdom of adjusting to local conditions.

In addition, traditional houses built along the canal often take measures of raising the foundation and adding waterproof and moisture-proof layers. A dock is set on the riverbank, which can not only avoid the damage caused by the rising river to buildings, but also facilitate the docking of ships and cargo handling.

**3.2.3 Spatial decoration of traditional dwellings.** Elements related to the canal often appear in the decoration of traditional dwellings in Huai'an. For instance, the roof ridge of Dai family's old house is a stone slab ridge with Jianghuai characteristics, implying the water transportation culture of the Grand Canal. The two ends of the roof ridge are designed to resemble the shape of a bow, symbolizing the prosperity of water transportation at that time. The Grand Canal has brought the prosperity of commerce, and the mansions of rich merchants are often beautifully decorated. For example, Wang Suiliang's house, uses brick carving, wood carving, stone carving and other processes, of which wood carving is very distinctive, and a variety of exquisite patterns are carved out by line carving, mixed carving, hollow carving, picking carving, and sticking carving, such as Hui word pattern, wrapped branch pattern, flowers, figures, auspicious animals, *etc.*, showing its wealth and status<sup>[7]</sup>. The facade windows and eaves mostly adopt the form of "one door and three sets", that is, the window lintel is decorated with the combination of overlapping and brick carving, which is a significant feature of the decoration of traditional dwellings in Huai'an. The Grand Canal is an important channel for cultural exchanges between the North and the South, and the architectural decoration also integrates cultural elements from all over the North and the south. Both the delicate architecture of the

South and the majestic architecture of the North have formed a unique regional style.

## 4 Huai'an historical and cultural space and the Grand Canal culture have spiraling systematic structure chain

From the above analysis, the synchronicity of the Grand Canal and Huai'an historical and cultural space can be seen, and there is the same and realistic law of "space" and the Grand Canal, space and culture at a specific moment. The two have evolved through different historical events, and even belong to different stages of historical development, forming a unity. It is clear that they coexist in a "cultural" system, so their historical evolution is temporarily in the background status. That is, "diachronism" is in the background status, and can not be taken into account. What appears is the systematic relationship formed by the coexistence of various factors, and this combination produces the form of space.

The identity and reality of the development and change of Huai'an historical and cultural space and the Grand Canal cultural system reveal the future of the development and change of spatial form in the cultural field. As a whole, Huai'an historical and cultural space has a structural chain composed of low-level systems. As a part, it is an indispensable link in the structural chain of the Grand Canal cultural system. Looking at "space" apart from the time factor, the synchronic characteristics of space can be seen. The structural chain contains certain metabolites, and "urban spatial pattern", "historical and cultural building types", "historical and cultural building decoration" and "historical and cultural building structure" are the spatial dominant metabolites, and they are connected by "culture".

Therefore, from the exploration the synchronicity of Huai'an historical and cultural space and the Grand Canal culture, it can be found that the two form a spiraling systematic structure chain. To a certain extent, both of them meet the needs of both macro and micro levels, and there is an "isomorphism" attribute.

## 5 Conclusions

Under the guidance of synchronism theory and method, "space" is observed without time factor; at the macro level, it is found that there is an identity relationship between the Grand Canal culture and the historical and cultural space of Huai'an according to the relationship between the change in the urban pattern of Huai'an and the Grand Canal. At the micro level, from the analysis of the distribution of historical and cultural space, the spatial layout and decoration of traditional dwellings, it is seen that there is a realistic relationship between them and the Grand Canal culture. From the identity and reality law of the development and change of Huai'an historical and cultural space and the Grand Canal cultural system, it is deduced that there is a spiraling system-

atic structure chain between the historical and cultural space of Huai'an and the Grand Canal culture. The study hopes to provide a beneficial supplement for the research and practice of urban development of Huai'an and the protection of the human settlement environment of the Grand Canal.

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(From page 69)

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