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A Brief Analysis of Successful Experience of French Classical Gardens for the Construction of Chinese Gardens

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Abstract This paper reviews the course of the development of the French garden system, interprets the French gardening techniques and characteristics, and analyzes its features, as well as the classical garden works at that time. Through the analysis of the concept of French garden construction, the prospect of Chinese garden construction is finally foreseen.

Key words Landscape architecture, France, Garden, Construction concept

1 Introduction

The theme of present society is to achieve the harmonious coexistence of man and nature, and protect the ecological environment in the continuous development of human beings. It has become the common pursuit of people to strengthen garden construction, increase green coverage, and create a good and comfortable life, work and learning environment for us. Therefore, in the development of urban construction at the same time, to strengthen the protection of the natural ecological environment is now the direction of pursuit.

In the course of thousands of years of human development, people have been making use of the natural environment, and exploiting natural water, soil, stone, plants and other raw materials for the construction of gardens, for us to build a living and leisure environment. However, with the continuous development of urban construction and the continuous progress of industry, our living environment has been damaged, and the living environment is no longer so pleasant. At the same time, our demand on the garden is not only a simple recreation and leisure place, it must bear the comprehensive role of improving the living environment, maintaining ecological balance and alleviating the pressure of pollution. French garden is one of the three major gardens in Europe, and its long gardening technology has an important influence on European gardens. Through the in-depth analysis of the development of French classical gardens, this paper provides design methods and materials for the design of modern Chinese gardens.

2 The development of French gardens

In ancient Rome, France was the city of Rome, where the scale of urban development was not high, and the economic level was low. The early French gardens were dominated by monasteries and aristocratic estates. At that time, the method of gardening was relatively simple, and it was only to build walls, trenches and other

facilities around the courtyard, in which vegetables, melons and fruits were mainly planted. The early garden types were mainly practical courtyards.

At the beginning of the 16th century, with the spread of the Renaissance throughout Europe, French gardens were influenced by Italian gardens and there were styles appeared similar to Italian gardens. The main landscape elements included fountains, geometric patterns and platform types. At that time, the construction of French gardens had already paid attention to combining with the local conditions of France and adjusting measures to local conditions. France is flat, surrounded by the sea on three sides, one side of the mountain, and the climate makes it easy for planting and conservation. This provided a wealth of trees for the gardening at that time. In the treatment of water system landscape, French gardens used static and dynamic combination, and focus on canals and fountains. In the use of flower beds, it grows flowers of the same color around the same flower bed to take on an outline, which gradually developed into an embroidered flower bed.

With the rise of social and economic level, capitalism developed rapidly in the first half of the 17th century, and absolute monarchy began to sprout in France. At the same time, profound changes took place in the art of gardening in France. In 1683, the famous garden master Jacques Boyceau put forward the idea of gardening in his works, and he affirmed that the beauty of artificial form was better than natural beauty, while the basic principle of artificial beauty was the unity of changes. He believed that the garden should be designed as a whole, all kinds of landscape elements should be completely subject to human geometry, strictly abide by the proportional design, and that straight lines and geometric shapes were the basic forms of composition. At the same time, he stressed that the garden plane was not suitable for planting tall trees, in order to enable people to see the garden effect completely.

In the late 17th century, absolute monarchy developed in an all-round way in France, and the urban economy developed effectively. The upper class needed to express their desire for power

and status through classicism. This absolute monarchy affected the gardening in France, and it produced a large number of excellent gardening works and gardening masters under the influence of classical culture. Among them, the garden master Lenotre Andre is the representative of the French classical garden, who adapted to the needs of absolute monarchy, having gardening techniques in a variety of forms, and grand ideas. He was adept at using the central axis and various landscape nodes^[1]. Its advent makes the French garden become an independent school of European garden, and also forms the garden style of plane geometric pattern.

3 Construction techniques and main characteristics of French gardens

3.1 Construction techniques of French gardens

3.1.1 Regular geometric patterns that highlight monarchy. French garden is also known as plane geometry pattern garden, and its site selection is flexible and diverse. In the French garden, there are many excellent works choosing swamps and other unfavorable terrain, and finally transforming them into a beautiful garden landscape through artificial means. The construction techniques of French gardens are often good at using wide garden roads to form the landscape axis that dominates the whole garden. In addition, in the aspect of water system landscape construction, the landscape layout of the whole garden is formed by setting up canals. The turning point of the axis forms a landscape node through fountains and geometric flower beds, which plays a leading role in the central axis of the whole garden.

In the plane composition, a large number of axial symmetry techniques have been adopted in French gardens. The main axis extends from the core building along the central axis of the site. Flower beds and plants are grown in the form of plane geometry and symmetrical with the axis as the center. This form mainly expresses the core thought of monarchy supremacy.

3.1.2 Control of garden by central axis. In the whole garden, the mansion building is often located in the center, usually built on the commanding heights, playing the role of controlling the whole garden. The overall planning of the garden is subordinate to architecture. The layout of the garden also reflects the hierarchy, usually divided into several sections. The content of each section is different, spread along a central axis. Flower beds, sculptures and fountains are arranged on the central axis, and landscape nodes are formed at the intersection of the axes. The road class of the French garden is obvious, the whole garden road network is clear, and geometric grid of the road is distinct.

3.2 Main characteristics of French gardens French gardens give up the tedious construction techniques of Italian gardens, which are different from the decorative style of Baroque, forming a new feature. The emergence of French classicism not only had an important impact on Europe, but also brought a beautiful form for the design of gardens, its main characteristics are as follows:

3.2.1 Technique of using water systems. French gardens believe

that water is an indispensable element of gardening, and water landscape is an important means to show the vitality of the courtyard. The design techniques of fountains are various, and most of them are taken from ancient Greek and Roman mythology. Most of the design styles have specific implications, often at the intersection of the axes, as well as the core node of the axes. The main purpose of the application of large area water system is to create a wide field of vision and at the same time create a place for people to play. People can play and boat in the stream, the combination of dynamic and static water system enables the whole garden to be full of vitality. Through the use of the current terrain height difference, the flow of the water system creates a rich level of water system landscape through platform height difference.

3.2.2 Application of landscape flower beds. There are six types of flower beds in French classical gardens: "embroidered flower beds", "combined flower beds", "English flower beds", "zonal flower beds", "citrus flower beds" and "water flower beds". The "embroidered flower beds" are mainly based on yellow poplar and other trees^[2], which are planted in rows to form embroidery patterns. It is the most beautiful of all flower beds. At the same time, flowers are often planted in flower beds and lawns are planted in the center. The "combined flower beds" are a combination of flower beds formed by symmetrical patterns, lawns and flowers, and are a combination of various forms of flower beds. The "English flower beds" are to plant flowers around the lawn to form planting belt, and the shape is simple. It is a common type of flower bed. The "zonal flower beds" use an absolutely symmetrical shape of yellow poplar, without any lawn and other flowers. There are similarities between "citrus flower beds" and "English flower beds", but the difference is that the "citrus flower beds" are dominated by orange trees and shrubs.

3.2.3 Use of hedges. A hedge is the dividing line between a flower bed and a jungle. The form is simple, and the shape is regular and unified. The height ranges from 1 to 10 m. Hedges are often used as fences and are densely planted so that pedestrians on the outskirts of the gardens cannot cross at will. Tree species commonly used are yellow poplar, yew, *Fagus engleriana* and so on.

3.2.4 Sculpture. It is used prominently in French gardens, and the form can be divided into two categories: the first is the imitation of fairy tales in ancient times; the second is artificial creation with innovation, this type of sculpture mostly has distinct characteristics. Sculpture is often located in the core of the landscape axis, plays the role of dominating the whole garden, and sometimes appears as a core landscape. In the garden decoration, the existence of different sculptures and the surrounding environment play a perfect fusion effect^[3]. For example, the Apollo sculpture of Versailles has become a core landscape of the garden and plays the role of dominating the whole garden.

3.2.5 Application of latticed wall. In the design of French classical gardens, latticed wall has become an indispensable landscape design element, which has been presented in a large number of design works. Most of the building structures in the gardens are

basically completed with it. This element has the characteristics of high quality and low price, which is incomparable to all garden materials.

4 Main representatives of French gardens

4.1 Chateau de Vaux-le-Vicomte Chateau de Vaux-le-Vicomte is one of the masterpieces of French classical master André Le Nôtre. The garden is divided into three sections in the overall layout. The core of the garden is the mansion, located in the north of the manor. The architectural style is classical and centrally symmetrical. The building is surrounded by water, trenches and stone poles, using a general design technique for medieval castles. The main entrance to the building is located in the north of the manor, and a number of landscape axes are extended from the oval square at the core of the front yard to form a boulevard. The garden takes the building as the starting point, and develops the central axis, to play the role of leading the whole garden. It unfolds in the south of the central building, and extends gradually from north to south.

The core of the first section is the embroidered flower beds, using red sand and yellow poplar. Through the comparison of different material colors, it forms a strong contrast of visual effects. At the same time, the corner is decorated with different styles of trees to add the touch that brings a work of art to life. To the east of the central horizontal axis is a small hill^[4], and three levels of platforms are designed around the mountain. The upper platform is set up with fountains, and the effect of falling from the top is eye-catching. The second section ends with a square pool, and the architectural effect is reflected on the water surface, playing a connecting role. The third section is on the bottom platform of the garden, several steps are created from bottom to top, and the fountain pool on the central axis is simple and plain. Glittering and translucent water spray is crystal clear and dazzling against the green grass.

4.2 Palace of Versailles Palace of Versailles is a masterpiece of French classical garden and the largest royal palace in Europe. It has an important historical position in the history of world gardens. It covers an area of 2 473 ha. The three radial avenues at the entrance to the main palace make Versailles become the focus of the whole of Paris and even the whole of France. It embodied the absolute military power of France at that time. The palace faces west and sits on the highlands. The main line that dominates the whole garden is formed from the central building to the east-west direction. The composition has not merely the central axis, and the treatment of the horizontal axis, especially the north-south horizontal axis on the west side of the palace is full of ingenuity.

The large garden in front of the palace is the core of Versailles. Along the east-west landscape axis, garden trees and flowers are arranged with great originality. The plane of the Grand Canal like a jade belt is in the shape of a cross. The river is sparkling and dotted with boats. At the intersection, it is widened into a well-contoured pool. At the core of the axis, landscape sculptures are set up to dominate the garden.

5 Thoughts on the development of gardens in China

Plane geometric gardens have not only deeply influenced the historical style of European gardens but also formed similarities with the construction techniques of modern gardens. There are similarities in structural space, plane composition and landscape elements. At the same time, the sense of garden sequence, and the depth of the axis, has an important impact on modern landscape design^[5]. Through the in-depth study of the French garden landscape, the purpose is to absorb its core artistic essence, combine its gardening with the reality of our country, form an effective complement to the gardening of our country, increase the types of garden design, enriches the technique of gardening.

5.1 Highlighting regional characteristics The geographical environment and resource conditions of each city are different. For example, most of the cities in southeastern China are coastal cities and there are also inland cities to the west. Therefore, in landscape design, different cities should adjust measures to local conditions, reasonably use their own resources, and highlight regional characteristics. In the construction of garden, it is necessary to carry out full investigation and research on natural resources to avoid unnecessary waste.

5.2 Embodying the concept of ecological design Ecological ideas can be seen everywhere in French gardens, which is worth learning. When carrying out the garden ecological design, we need to learn from France. First of all, it is necessary to protect the existing forest and vegetation, and on this basis to carry out appropriate transformation, to integrate the original garden with the artificial landscape.

6 Conclusion

The development of French landscape architecture has given our country a very profound reference. The development of urban gardens works in concert with the sustainable development of the city, which is related to the long-term interests of the city and the vital interests of the residents. Therefore, we need to absorb the successful experience of French gardens, so as to promote the healthy and sustainable development of landscape architecture in our country.

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