

Study on the Color Aesthetics of Chinese Royal Gardens

Xiaoke Song, Yimin Su*

School of Art and Design, Beijing University of Technology, No.100 Pingleyuan, Chaoyang, Beijing, 100124, China

Abstract: Chinese royal garden architecture is considered as one of the most special types in the history of Chinese and world gardens. It is a very distinctive style in human architecture and also a valuable cultural heritage of the world architecture. As a space art complex infiltrated with Chinese traditional culture value, Chinese aesthetic implication and the special functioning role of Chinese feudal society, the royal garden demonstrates the national characteristics in many respects, especially in the field of the application of colors. The pattern and method of color allocation in royal garden, along with the relationship between color humanistic connotation and the application and aesthetics of color, could provide inspirations for contemporary landscape design. In light of this consideration, it has become important to research on how to inherit the traditional beauty of royal gardens and incorporate it aesthetics into modern aesthetic concepts for contemporary garden design.

Keywords Chinese Royal Gardens, color law, humanistic connotation.

INTRODUCTION

The royal garden of China is one of the unique types in Chinese garden history and even the history of the world. As the supreme ruler of China, imperial kings enjoyed not only political and economic privileges, but also a special aesthetics of architecture and horticulture that employ shocking visual elements to emphasize the superiority of the imperial family. The shocking visual elements came from the emperors' mentality of ruling the whole world and all China. (Wang, 2006) Chinese royal gardens are famous not only for their excellent and exquisite level of gardening, but also for combining Chinese traditional patterns such as dragon patterns and moiré patterns in traditional Chinese ornaments with aesthetic forms vividly.

While enjoying the visual feast of Chinese royal gardens, people can also taste the embodiment of the profound connotation of Confucianism, Buddhism and Taoism in the gardens. (Jin, 2005) The Confucian idea of revering imperial power and the concept of Taoist unity of nature and human are perfectly displayed in every pattern and layout of Chinese royal gardens.

Among the considerable amount of Chinese royal gardens, the Imperial Palace, the Summer Palace and the Temple of Heaven are regarded as the most characteristic representatives. (Liu, 2009) What these three royal gardens have in common is that they all inherit and integrate Chinese humanistic thought, elegant poetry and book atmosphere, as well as the conduct code of etiquette, music, politics and life established during thousands of years in Chinese history. Moreover, they all deliver the Chinese

people's yearning and pursuit for a better life and noble sentiment in the expression of virtual freehand brushwork and dream implication.

This paper studies the color application art of the Chinese royal gardens. This study applies the relevant color theory knowledge both Chinese and western, sorts out the color application way of Chinese royal gardens, and summarizes the law of color application. This paper focuses on the investigation and analysis of the law of color aesthetics in royal gardens, including all kinds of garden elements in royal gardens. For example, application law of static color (e.g. architecture, paving) and dynamic color (e.g. vegetation, water body, sky), the application law of cold and warm colors, and application law of similar colors and the contrast colors in royal gardens, etc. This paper also analyzes the generality and individuality of color application of royal gardens, and analyzes the reasons of its formation in terms of related geographical, cultural, political and economic factors. In addition, this paper also analyzes the cultural connotation of the royal garden color to provide a good reference for the color design of modern garden. (Lou, 2006)

At the end of the Ming Dynasty, Ji Cheng wrote the artistic laws of building, stone, ground, borrowed scenery, wall, floor tile and so on in a book named Garden Metallurgy. This paper is aimed at screening the color constitution of the royal garden and summarizing the law of color application. In the analysis of inheritance and development of royal gardens, we can understand the sublimation of the connotation of time, space, humanities, atmosphere, ceremony etc., and carry them forward into modern garden design. In addition, this paper will also analyze the application of color in garden design. The

Corresponding Author: Yimin Su, School of Art and Design, Beijing University of Technology, No.100 Pingleyuan, Chaoyang, Beijing, 100124, China, suyimin@yeah.net

research results will be beneficial to the inheritance of royal garden architecture culture and its application and development in tourism and environmental architectural design.

METHODS

The following research methods are used in the color analysis of the royal garden in China:

Comparative methods

On the basis of understanding the overall situation of Chinese royal gardens and combing the cultural context of color application, this paper makes a comparative study on the color characteristics of the three representative Chinese royal gardens, namely, the Imperial Palace, the Summer Palace and the Temple of Heaven. Their personality and commonness are analyzed.

Literature analysis method

On the basis of extensive reading and referring to the relevant literature of Chinese royal gardens, as well as the existing investigation results and theoretical research at home and abroad, this paper studies the color application of Chinese royal gardens through combing and comprehensive comparison, with the help of the scientific research results of color science related disciplines.

Data analysis method

By using the color investigation-Langlow method, the colors in Chinese royal gardens are recorded and investigated, and the colors are reflected in the form of numerical value according to the chromatographic analysis and comparison, and the analysis law is summarized from them.

Case analysis method.

This paper analyzes the actual cases of Chinese royal gardens, especially those with typical royal garden characteristics.

THEORY REVIEW

Chinese royal gardens have a long history and superb integration of architectural technology and art. Records of accurate literature can be found in the Book of Songs. The Poem, Daya, and Lingtai described the garden-making activities at the time of Zhou Wenwang. From the slavery society of Zhou Dynasty to the early Qin and Han dynasties, the main form of Chinese gardens was royal gardens, such as the A Fang Palace of Qin Dynasty, which was mentioned in the Book of Songs. During the Sui and Tang dynasties, the poetic and artistic conception of Chinese gardens was basically shaped, such as the famous Daming Palace in Tang Dynasty. The gardens of Song Dynasty and Ming Dynasty represented the model of humanistic thought in Chinese landscaping, such as Genyue and Suzhou gardens recorded in historical books. By Qing Dynasty, due to the similar

times, royal gardens were well preserved and became our best research example. Royal garden art reflects the characteristics of Chinese traditional culture, such as thought, concept, belief, mentality, system and so on.

Theory of color geography

The theory of color geography is a practical applied color theory founded by Jean-Philip Langlow, a famous modern French colorist and master of color design. Through the investigation and compilation of the total color expression mode of the local area, the purpose of this method is to confirm the "landscape color characteristics" of this area and the color aesthetic psychology of the residents in the corresponding area. The investigation of local color is divided into two stages: The first stage is landscape color analysis. All the factors affecting the color quality of landscape are included in the scope of investigation, and the color data of buildings and the surrounding environment are mastered by a series of means. The methods of color data investigation include the extraction of materials, the reproduction of color reproduction, the list of material brightness levels, on-site photo taking (taking the Temple of Heaven and the Forbidden City as an example), and so on. The second stage is the summary stage of color visual effect. The color data is analyzed, summarized and concluded. The color model loyal to the original color material is copied, and the over-copied color composition is properly simplified. Finally, the main tone, embellishment color, surrounding environment color and the quantitative relationship among the colors are presented by circular table chromatography. The colors have a strong regional nature. These regional colors lie not only in geographical distance, but also in psychological distance. The Forbidden City was the center of Beijing when it was set as the capital of the country. The royal temperament of the red wall and gold tile is magnificent. And the surrounding buildings such as Taimiao, Jingshan, Zhonghai, Nanhai and Beihai all belong to the Royal Private Court, which distinguishes the relationship with the common people in color. In the ancient, the use of taboos colors even reached the category of criminal law. The ruler used color to broaden the psychological gap between the royal family and the common people, and played the effect of consolidating the royal authority. Color trade-offs include external influences such as geographical environment, climate, etc., as well as inner reasons such as cultural traditions, customs, and so on. But the core of the color theory is that the color design is to suit the local conditions. (See Fig. 1,2,3)

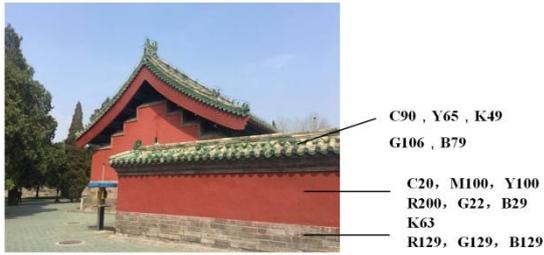


Fig. 1 Color value of Temple of Heaven Palace wall and tile top

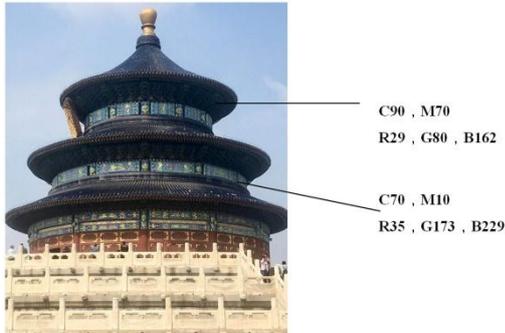


Fig. 2 The architectural color of the Temple of Heaven



Fig. 3 The architectural color of the roof of the Imperial Palace

Four seasons theory of color

The Chinese attach great importance to "the right time, geographical location, and harmony". In the theory of color geography, the theory of color "geographical location" is expounded. The four seasons theory of color, on the other hand, is the theory that conforms to the "time of the sky" in color. It was put forward by Ms. Carol Jackson, known as the first lady of color as an American. The main idea of this theory is that the color should be consistent with the seasonal changes of nature. The color characteristics are named Spring and Summer (warm color system), Autumn and Winter (cold color system) according to the weather season. The four seasons theory of color attaches importance to the change of weather season in color design. When the "time" is different, the color design is deducted, which shows the beauty of harmony between color and "time". Since the architectural color of royal garden is warm with bright red and gold, even in cold winter, the

visual feeling of color is still dominated by warm tone.(See Fig.4,5)



Fig. 4 Spring and Summer Warm tone in the Imperial Palace



Fig. 5 The Imperial Palace is still dominated by warm hue due to the influence of architectural color in winter.

ANALYSIS OF THE COLOR AESTHETICS LAW OF CHINESE ROYAL GARDENS

Analysis of Color characteristics of Royal Gardens in Northern China

Among the magnificent heritage of Chinese royal gardens, the Summer Palace, Temple of Heaven, and the garden of the Forbidden City can be regarded as the most distinctive representative of the royal garden in the northern China. What these three royal gardens have in common is that they are the essence of the inheritance and fusion of Chinese traditional culture for thousands of years. And with their virtual freehand expression, they combine lyre-playing, chess, calligraphy and painting, poetry, religious arts (such as the Summer Palace Buddha Pavilion and the four trade buildings, embody religious characteristics in distinctive colors, and used black, red, white and green to represent the colors of the four trades.), and other relevant forms. Through the analysis of the color of the three royal gardens, this study studies the

color characteristics of the northern royal gardens.(See Fig.6,7,8 and Table 1)

Table 1 Various color matching tables

Colors	Examples
Natural Color	Plants, Water, Stones, Sky
Artificial Color	Buildings, Doors, Windows, Pawns, Eaves, Small garden ornaments
Half Artificial Color	Garden pavement decorated with stones



Fig. 6 West Dyke of the Summer Palace(Virtual freehand brushwork garden form, with weeping willow as the main ornamental plant)

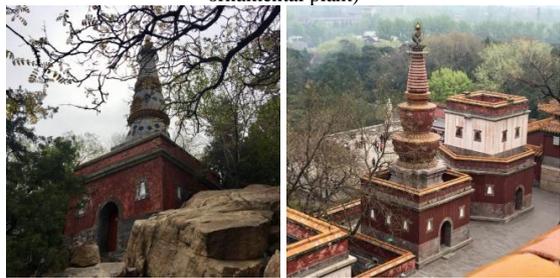


Fig. 7 Color of the pagoda of the "Four continents" in the Summer Palace



Fig. 8 Plaque made in the form of ancient books in the Imperial Palace, reflecting the characteristics of poetry books



Fig. 9 Examples of red and yellow be the main colors, and blue and green be the contrast embellishment in the colors of royal architecture.

The main shade of the royal garden is the warm color with high brilliance degree and high color degree, which highlights the majesty of the emperor and the noble of the royal family. Especially after the Tang and Song dynasties, the royal architecture began to become more exquisite and gorgeous, the color types of gardens also increased greatly, and gradually formed a set of coloring standards attached to the hierarchy. For example, a large amount of yellow glazed tile were used in the Forbidden City, and pavements and building decorations used a large amount of bright color and gold-attached dragon and phoenix. These royal colors, gradually formed a color hierarchy, symbolizing the supremacy of imperial power, as well as the powerful deterrence of the central imperial institutions. The architectural color system based on red and yellow, coupled with the contrast embellishment of blue and green, makes the royal garden a strong and distinct color appeal. All these forms of color collocation reveal the dignity, nobility and splendor of the royal family. It can be said that the design of the color phase greatly enhances the visual tension of the royal garden building form, so that the power of the imperial have been successfully embodied in the sense of the building.(See Fig.9)

Analysis of the Application of artificial Color in the static Color of Royal Gardens in Northern China

The basic purpose of color application of royal gardens in northern China is to highlight the effect of being beautiful and imposing. In fact, the builders of ancient Chinese royal gardens were extremely bold in the use of colors. On the whole, the gardens used bright yellow glazed tile and *mao* red stone wall to show the magnificence and momentum, with blue and green foil as contrast. The color application of the whole architectural complex gives people a strong visual tension. When we boarded the midday gate, the whole Forbidden City has a panoramic view. The golden yellow glazed tiles sparkle in the sun, present a brilliant golden tone. When walking through the palace building, from the perspective of people looking up from the ground, the red palace wall presents a noble and solemn warm tone. The color of these palace walls give people a sense of stability and psychological suppression. (See Fig.10,11)



Fig. 10 On the Dragon Gate, the tile top of the Forbidden City is golden yellow to unify the tone, to highlight the building undefined scale and momentum



Fig. 11 When walking through the palace wall, the color hint that red brings to our mental

The doors, windows, corridors and eaves in the royal garden also played a good embellishment. The red window frame is lined with the green window edges, some parts supplemented by golden auspicious patterns, coupled with the matching green porch columns. The roof is crossed by blue beams with golden patterns. The patterns of window edges vary widely, mainly with auspicious moral patterns, ten thousand characters, bat patterns, regiment patterns and so on.(See Fig.12)



Fig. 12 The embellishment of window edges in Royal Gardens

Color Application Analysis of Garden Stone pavement

In the royal garden, as the garden occupies a large area and the space is empty, the garden is generally cut into different spaces through the use of landscape stone. The study takes three royal gardens as the blue book, analyzes the garden stone pavement of the royal garden, and studies the color, the meaning, the feeling and the temperament in four directions.

Architects generally cut the garden into different spaces through the use of landscape stone. In the royal gardens, according to the cold and warm tones, the main tones of the landscape stones are cold gray, clear gray or white, while the auxiliary colors are mostly warm yellowish brown and reddish brown. The cold color garden stones in the royal garden are larger in volume, which can give people a kind of thick and simple feeling, and highlight the royal temperament. For example, the imperial garden of the Forbidden City, the floors are heavily bricked with gray stones, the side roads are covered with gravel of little color and pebbles to form all kinds of auspicious patterns, and the common patterns such as Mei Lan Zhu, Fu Lu Shou, characters, animals, and so on are widely used. In addition, in the landscape of the garden, the multi-purpose superposition art is decorated with the gray tone of Taihu Stone and the greenish stone shoots.(See Fig.13, 14, 15, 16)



Fig. 13 Grey Taihu Lake Stone in royal garden.



Fig. 14 The ground with similar colors of gravel, pebbles and auspicious patterns on the side of the road.



Fig. 15 The stone walks in Temple of Heaven. The stone on the main road mostly adopts a large area of natural strip stone, while the road is paved with semi-artificial gray stone brick by the side of the road.

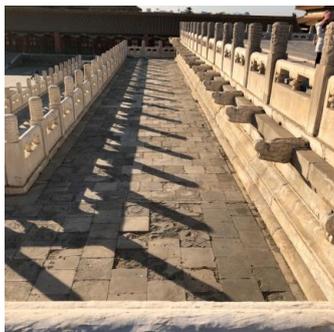


Fig. 16 The white jade railing equipped with green brick floor in the front three halls of the Imperial Palace.

Because of the large floor area of royal gardens, their paving stone emphasize the coordination and unity of the whole color in color and style. The large area of paving garden stones are neat in scale, harmonious in color, orderly and not disorderly. The color of the paving garden stone is mainly cold gray tone, the color feeling is thick and solemn. For example, the white jade handrails are matched with the large-area grey cold-color stones in the gardens. The paving materials are mainly natural or semi-artificial stone, such as granite, limestone, basalt, marble and other hard landscape surface stone. Colors are mainly composed of white, green and gray, gray and black. The form of pavement changes thousands and the arrangement are criss-cross. They show different color changes under the irradiation of light.

Analysis of plant color application

As the region is in the northern region, the royal gardens of China are not rich in the southern region of the plant selection, but the application of the plant colors is not inferior. Through the reasonable and ingenious use of plant colors, the northern royal gardens reflect with the landscape color elements of other buildings in order to achieve a wonderful realm. The trees are shaded and the flowers are everywhere. The appreciation of this natural beauty is not only a physical need, but also a psychological need. The ecological balance of human beings is the harmony of natural adjustment. Plant color is a common and active color factor, and green is the main body. Studies have shown that when the visual green accounts for 75% of the scenery, the physical and mental state of the person is the best. Take the Imperial Palace as an example, there are Magnolia, elm leaf plum, apricot tree, peach tree, rose, peony, purple vine, pear tree, begonia, wood fragrance in spring; lotus, and water lilies in summer; chrysanthemum, ginkgo, persimmon tree in autumn; plum blossom in winter. In addition, there are also evergreen plants such as pine, cypress, willow, *Sophora japonica* and so on. Many plants are planted with auspicious meanings, such as the excitement of begonia, the pride of chrysanthemum, the wealth of peony, the siltation of lotus flowers, the abundance of pomegranate, and the happiness of persimmon.

Application Analysis of Color in Landscape system

Mountains symbolize ancient, and waters symbolize veins. The landscape system is an indispensable part of the soul of the royal garden. With the arrangement of water, the garden will have aura in an instant, and it will be more reasonable in color collocation. Royal gardens rely on the landscape system in Chinese painting as the humanistic expression of garden design. The water body in the garden is colorless and transparent; the clear water quality ensures the good color of the water body itself. Because the climate in the north is dry and sunny, the main tone of the surface of the water body is generally more inclined to the high purity and high brightness blue of the northern sky. Secondly, due to the vividness of water, the reflection of water surface and the color of water body itself are variable, which enhances the effect of visual texture change. When it mutually contrasts with colorful, brilliant buildings in the royal gardens, the gorgeous and spectacular feeling of the royal gardens can be reflected even better. Depending on different seasons, different time light changes, the water surface and buildings will be attached to different light and shadow tones. Aquatic plants and aquatic animals such as lotus and all kinds of ornamental fish will add dexterity to the garden as a whole.(See Fig. 17, 18, 19)



Fig. 17 Plants of the royal gardens in four seasons



Fig. 18 The water body of royal gardens affected by the change of light and shadow.



Fig. 19. Before and after arriving at the Winter Solstice, the 17-hole bridge of the Summer Palace appears the unique light effect of Jinguang piercing.

CONCLUSION

This study has carried on the extensive reading and arrangement to the Chinese royal garden color related works, literatures, periodicals and so on, and carried on the related field investigation and photo collection works. In the study, color is regarded as an important visual expression element, and it is extracted separately from the whole royal garden landscape. Combined with the knowledge of modern color science, the color composition of Chinese royal gardens is described. Through the analysis of the color phase, brightness and purity characteristics of color, the application of cold and warm color and the comparison and harmony of color, the commonness and individuality of royal garden colors are analyzed.

The color law is analyzed from the traditional humanistic connotation, and the colors of the royal gardens in China are discussed and the cause of its formation is analyzed and summarized. The research results can provide a reference for modern garden color design. For example, the traditional royal garden colors could be applied to modern children products to stimulate children's understanding of color vision and enhance children's thinking mode.

Only when the landscape color design of contemporary China taking roots in the traditional culture, it can produce rich connotation and profound meaning and become immortal works. With today's material and technological progress, the use of new techniques to inherit and reflect the essence of traditional culture is what modern landscape designers should focus on.

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