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SYMBOLIC AND AESTHETIC ROLE OF POLYCHROMY IN TRADITIONAL ARCHITECTURE AND SACRED ART OF CHINA

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Abstract

An important role in forming the national image of traditional Chinese architecture was played by a specific polychromy, based on a combination of saturated contrasting colors, each of which was used on certain elements and could have a certain sacred meaning. The authors studied the colouristic solution of ancient architectural objects and works of art and identified the most typical examples of the use of colours. Differences in the use of colour in architecture and ancient fresco paintings of China in different periods were traced.

Keywords: *China; Polychromy; Architecture and sacred art; Symbolic and aesthetic role*

Introduction

An important place in traditional Chinese architecture and art is occupied by polychromy, which is one of the defining features of ancient Chinese architecture. Compared with the ancient architecture of Japan, which borrowed a lot from China in the early periods, traditional Chinese architecture is not perceived as ascetic; on the contrary, it is distinguished by the polychromy of objects, fine detailing and colors given a specific and sacred meaning.

Even though the objects of traditional Chinese architecture have been covered in sufficient detail by predecessors in China and other countries and in previous publications of the author team, many issues require generalization. Thus, the task was set to combine the results of research by each of the authors devoted to the polychromy of Chinese architecture, historical dominants – pagodas, the architecture of Shaanxi province, small architectural forms-pavilions and murals of the Buddhist complex of Dunhuang.

The following research tasks were defined:

– to isolate from each study information that relates exclusively to polychromy and to determine the most characteristic color solutions for a certain type of object and the basic list of colors;

– to highlight the symbolic meaning of colors and trace how it is embodied in architectural objects and in the Dunhuang mural, which covers a thousand years;

– to analyze whether the most common color solutions in architecture correspond to the color solutions in fresco murals and whether the basic colors in architecture are also such in murals;

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– to determine what is common and different in the polychromy of works of architecture and murals;

– to formulate the defining features of traditional Chinese architecture and murals from the point of view of polychromy.

Since such a study is multifaceted and covers cultural, historical, architectural and artistic issues, this has led to a correspondingly developed source base:

– historical temples and their features [1];

– research of small architectural forms-pavilions in different historical periods [2];

– the influence of the environment on the perception of an architectural object [3-4];

– morphology of forms and constructive schemes of pavilions [5-13];

– the art of ancient Chinese frescoes [14-25].

Materials and methods

The polychromy of traditional Chinese architecture and art cannot be considered separately from other components, which led to the choice of general scientific research methods. Methods of historical, cultural and religious analysis highlight the basis on which Chinese architecture and art were formed. This process continued with the combination of three religions – Taoism, Confucianism and Buddhism—and the beliefs of feng shui. The statistical analysis method made it possible to calculate the distribution of certain color combinations and determine their most characteristic. The method of comparative analysis made it possible to compare objects of different periods and different purposes to determine what is common and different in their color solution. Theoretical research was supplemented by a visual series, which constituted the evidentiary basis of the study.

Results and discussion

The peculiarity of Chinese architecture and art lies in the extraordinary stability of local beliefs and cultural and artistic traditions, which led to the modification of borrowings from outside. This happened in the case of Buddhism borrowed from India during the Liang and Wei dynasties, when gradually in the Tang era Buddhist art reached its maximum development but was based on national forms and artistic techniques. European modernism in the colonial cities on the territory of China at the beginning of the twentieth century transformed in the same way, acquiring clear signs of local decoration. In our opinion, it is precisely the fact that local traditions have always dominated over imported ones that explains both the gradual displacement of pagodas by pavilion temples of traditional religions and the gradual transformation of European Art Nouveau and neo styles into a symbiosis of European and Chinese architecture.

However, as already noted above, it is necessary to prove whether the dominance of certain colors in architecture and art coincided or whether there were certain differences in color while referring to the symbolism of certain colors.

Polychromy in architectural objects

As noted in previous studies by Chang Peng, one of the article's authors, the small architectural form most adaptable to changing functions and widespread throughout China was the pavilion. This form developed into many variations, but they were all based on traditional Chinese modularity and the dou-gong structural scheme.

Without touching on the issue of the morphology of the pavilions' forms, let us focus on the role of color in their decoration, where the dominant colors in the color scheme were red, gold, blue, green and white.

Just like a certain image of a building, its scale and forms, color in China was also not only a means of aesthetics but also had a certain social and symbolic meaning. In this, the

approach to the coloristic solution of an object in China was fundamentally different from that in European countries. In Chinese architecture, images of real and fantastic creatures were located in certain buildings and in designated places.

Status through color and decor was most vividly and pompously expressed in those buildings that belonged to the emperor and his family (Figs. 1 and 2). Thus, only the buildings of the Son of Heaven (Huang-di) could have elements of yellow and gold colors, as well as the image of the sacred dragon.

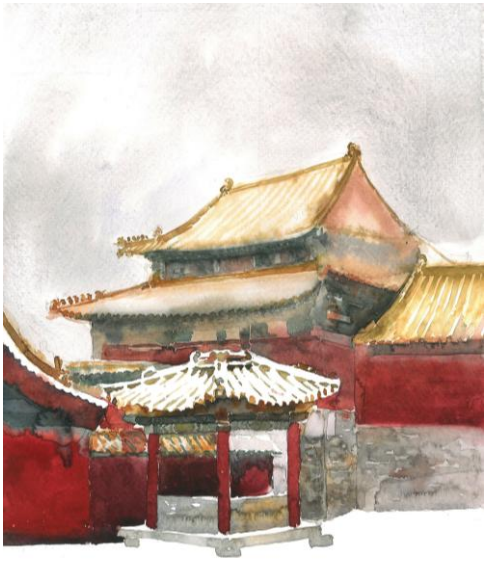

Fig. 1. Pavilion-gazebo near the Thai Hoa building of Gùgōng Palace in Beijing.
Watercolour by Chang Peng

Fig. 2. Qin Ang Dang Pavilion of the Gùgōng Ensemble in Beijing.
Watercolour by Chang Peng

In ancient China, there was a so-called palette of five sacred colors, each of which had a certain symbolic meaning. As already mentioned, purple as a symbol of the Polar Star Qiwei –

the abode of the Heavenly Emperor and gold (yellow) color (*Huángsè de*) had the highest rank as an indicator of belonging to the Son of Heaven; red (*Hóngsè de*) symbolized happiness and friendship and therefore was dominant in the decor of Chinese buildings; blue (*Lán sè de*) and green (*Lǜsè de*) were the colors of eternal peace and tranquility; and white (*Báisè de*) meant purity and light and at the same time was the color of mourning. Black as a symbol of devastation and grief was rarely used.

Color gave its name to both individual objects and entire complexes. Thus, the imperial Forbidden City of Gùgōng was simultaneously called the Purple Forbidden City (since the star Qiwei was the abode of the Heavenly Emperor and the Forbidden City was the abode of the Son of Heaven on Earth).

Analyzing the polychromy of traditional Chinese architecture, we note that it cannot be examined separately from the decor and design elements, which had a specific color palette of symbolic meaning. Another component was the poetic name of the pavilion, which also determined the color scheme.

The most common plot images were the image of the dragon as a symbol of the good element "yang," the Chinese nation, the element of water and the Son of Heaven himself; the lion as a symbol of just power; the turtle as a symbol of the creation of the universe; cranes as symbols of success; and unicorns as symbols of the wisdom of the world and endurance.

Accordingly, color in combination with decor emphasized status. If we talk about palaces, the roofs were yellow or gold in the most important objects and in others – green or rarely black; the eaves ornaments were painted blue and the pillars – red (Fig. 3).

Fig. 3. The Fo An Gong Pavilion of the Gùgōng Ensemble in Beijing.

In contrast, the color scheme of small architectural forms – pavilions were more modest, unless they were imperial objects or pavilions on the territory of major temples. In ordinary small pavilions, polychromy takes second place, as well as finely detailed decoration and the basis is a holistic image due to harmoniously selected parts of the building and a silhouette that is as close as possible to the surrounding environment.

Just as the color scheme of representative imperial buildings gradually developed, the color scheme of small architectural forms – pavilions developed. The poetic name of the pavilion could be the name of a color in a poem, such as the name of the Jade Pavilion (Bixian Pavilion at Beihai, Beijing), where the pillars are not of the traditional red color but green and above the entrance is written the name "Jade Green" from a famous poetic line. However, even if the name was not directly related to a specific color, it somehow corresponded to the color scheme and overall image.

The color of the roof was determined by the roofing material – reed or tile. Most pavilions had roofs of gray, gray-brown, gray-green and ochre-green colors.

Gray and gray-brown tile roofs dominate among them (28 analyzed famous pavilions): Nanlao Spring Pavilion of Jinci Temple, Taiyan, Shanxi Province; Shanhua Pavilion in Shexian County, Anhui Province; Stele Pavilion at the Tomb of Emperor Huangdi, Huangling County, Shaanxi Province; Kuoru Pavilion of Summer Palace, Beijing; Bridge Pavilion at West Dyke of Summer Palace; Bell and Drum Pavillions at Huayan Temple in Datong, Shanxi Province; Locust Tree Pavilion in Hongdong, Shanxi Province; Bixian Pavilion at Beihai, Beijing; Kaiwang Pavilion at Hangzhou West Lake, Zhejiang Province; Fan-Shaped Pavilions in Temple of Heaven, Beijing; Shuangfei Pavilion in Mount Emei, Sichuan Province; Mid-Lake Pavilion of West Garden in Suzhou, Jiangsu Province; The Square Pavilion of Zuibai Pond at Songjiang, Shanghai; Shuixin Pavilion of Jixiao Mountain Villa in Yangzhou, Jiangsu Province; Square Pavilion in Puzhao Temple in Southern Putuo of Xiamen, Fujian Province; World View Pavilion in West Lake, Hanzhou, Zhejiang Province; Watergate Pavilion at Tangmo Village in Shexian County, Anhui Province; Corner Pavilion of Yuguan Monastery in Mount Huashan, Shaanxi Province; Shuixin Pavilion of Puji Temple in Mount Putuo, Zhejiang Province; Small Yingzhou in West Lake, Hanzhou, Zhejiang Province; Fall View Pavilion by Cloud-step Bridge in Mount Taishan, Shandong Province; Qingyi Pavilion in Wuyou Temple in Mount Leshan, Sichuan Province; Nostalgia Pavilion at Dujiangyan in Guanxian County, Sichuan Province; Drunkard Pavilion in Chuzhou, Anhui Province; The Pavilion of Surging Waves in Suzhou, Jiangsu Province; Mohua Pavilion in Youjun Temple in Shaoxing, Zhejiang Province; The Water-Division Pavilion at Huoquan Spring in Hongdong County, Shanxi Province; The Arrival of Moon and Breeze Pavilion in Wangshi Garden, Suzhou, Jiangsu Province; Heart-Cleansing Pavilion in Mount Emei, Sichuan Province; Crowncloud Terrace Pavilion in Liu Yuan (Lingering) Garden in Suzhou, Jiangsu Province [2].

Much less common were gray-green tiled roofs (Bronze Pavilions of Summer Palace, Beijing; Taiyu Pavilion in Taiping County, Anhui Province; Seven-Star Cave Pavilion Group in Zhaoquing, Guangdong Province; The Second Spring under Heaven Pavilion at Mount Huishan in Wuxi, Jiangsu Province) [2].

Ochre-green tiled roofs have also not become widespread (Rafting Rock Pavilion Group in Mount Shizhong, Hukou, Jianxi Province; Sunset Glow Pavilion by Huaquig Pool in Lintong, Shaanxi Province; Paintings Pavilions in Summer Palace, Beijing; Honest Spring Pavilion of Baogong Memorial Temple in Hefei, Angui Province) [2].

Yellow and gold tiled roofs most often determined the status of the object, so their color was also rare. However, as can be seen from the examples, even though these were exclusively imperial sacred colors, such roofs could also be had by the public, not just imperial pavilions (Five Bridge Pavilion on the West Lake in Yangzhou, Jiangsu Province; Songxiu Pavilion in the Imperial Palace, Beijing; Mid-Water Pavilion in Chengde Mountain Resort, Hebei Province) [2]. In some cases, the roofs could be polychrome (blue-yellow roofs of Shuanghuan Pavilions in Temple of Heaven, Beijing) [2].

The pillars were most often wooden, of a rich red color, but they could also be green, yellow-ocher, white or light gray, brown (in the southern provinces) or gray, the color of stone, because they were stone (in the southeast in Fujian Province, where there are many mountains and natural stones). There are known examples of combining two colors of pillars in one object,

since the pillars were made of stone at the bottom and wood at the top (an example is the Watergate Pavilion at Tangmo Village in Shexian County, Anhui Province).

A study of 45 known pavilions proved the dominance of the red color of the supports (19 examples) and the brown color of the supports (14 pavilions); other variants of polychromy are atypical and not very common (7 pavilions have white and light gray supports, green and two-colored supports were recorded in four objects and one pavilion has yellow-ocher supports) [2].

The authors emphasize that the number of small architectural forms-pavilions was much greater than was analyzed; however, the selection of the most famous traditional pavilions in different provinces of China and in different natural and climatic zones allows us to conclude certain traditions in the polychromy of small architectural forms.

Compared to the representative imperial buildings, which emphasized polychrome, the polychromy of the pavilions was built on a combination of two basic colors, where, in the case of the open pavilion, it was the contrast of the dark roof and red pillars.

A separate aspect of the traditional polychromy of Chinese architecture is the polychromy of decoration when the surfaces of the structural elements of prominent objects – beams, brackets and rafters – were transformed into a work of design by painting and ornamentation. Usually, red, blue and green were used as the basic colors and yellow/gold, black and white were used as additional ones. Contrasting colors were combined with fine detailing of ornaments, gilded fragments and, in some cases, inserts made of natural stone. Gradually, a scheme of decorative paintings of dou-gong structures with the use of color and ornament in certain places was formed: chrysanthemum flowers were painted on the red background of dou-gong, figured inserts were decorated with images of pine branches and metopes between dou-gongs were decorated with chrysanthemum branches. Red, blue and green colors dominated in such paintings. The brackets, which served as column capitals, were decorated with polychrome twisted ornamentation with gilding on a red background. Smaller elements of the dou-gong structure were decorated with polychrome ornamentation following the main structural elements.

In small pavilions, the interior was also polychrome, where the coffered ceiling was painted in light colors to create the effect of greater height and was densely decorated with ornaments.

A separate aspect of the study concerned sacred buildings – temples of Taoism, Shintoism and Confucianism. Given their large number throughout China, the coloristic solution of sacred buildings within the Shaanxi province was analyzed, where a large number of objects from different periods makes it possible to identify certain trends in regional polychromy.

Unlike palace buildings and iconic pavilion temples, where polychromy was actively used, ancient high-rise dominants – pagodas – were monochrome, mostly gray-ocher or ocher and devoid of decoration (Fig. 4).

Instead, the pavilions of temples of the mainly local religions of Taoism and Buddhism were polychrome and decorated. In some cases, polychrome replaced the need for excessive decoration of the facades or supplemented it. Examples are Xiangji Temple of the Tang dynasty. Polychrome on the facades was used in temples such as Hu County Huayang Temple and Forest of Steles in the Ancestral Temple of Chongyang Palace of the Yuan dynasty, as well as Arhat Temple, Baxian Temple, Caotang Temple, Shuilu Temple, Louguantai, "Shujingtai," Xuandi Temple Jade Emperor Building of the Ming dynasty and Dongyue Temple of Hu County and Daxingshan Temple of the Qing dynasty.

Thus, from the periods of the early dynasties and the heyday of the Sui and Tang dynasties to the late Yuan, Ming and Qing dynasties, there was a shift from form-forming techniques to design approaches in decorating the form. In the early periods, much less attention was paid to coloristic solutions, but all the temples of the late dynasties are distinguished by the bright polychromy of facades and interiors, attention to small details and the transformation of structural elements into

elements of design and art using small sculptures and paintings. There is a combination of color, detailed ornamentation, design elements and sculpture: these can be symbolic sculptures on the ridges of roofs, reliefs, paired sculptures of lions in front of the main entrance etc. The dominant colors of imperial objects become sacred colours – yellow, red and blue.

Fig. 4. Giant Wild Goose Pagoda. Photo by Ding Yang

Polychromy of the Dunhuang Grottoes

The Dunhuang complex of 735 grottoes with 45,000m^2 of fresco murals from the 4th to the 11th centuries AD and more than 3,000 colored sculptures provides a first opportunity to characterize the grottoes of different periods in terms of the prevailing color scheme. The early murals include frescoes in 3 grottoes of the Northern Liang period, 12 grottoes of the Northern Wei period, 10 grottoes of the Western Wei period, 15 grottoes of the Northern Zhou period and 7 grottoes of the Southern and Northern Dynasties. Thus, the analysis was carried out on 47 grottoes of the early dynasties. The murals of the heyday period were analyzed using the examples of 77 grottoes of the Sui era, over 1,000 grottoes of the Tang period, 33 grottoes of the Five Dynasties and Ten Kingdoms era and 43 grottoes of the Song period. Thus, the polychromy of the middle

period is represented in 1,153 grottoes. The late Xi Xia and Yuan periods were marked by a decrease in the number of new grottoes: 82 in the Xi Xia era and 10 in the Yuan era, a total of 92. Thus, the genesis of the development of Dunhuang was a gradual increase in the number of new grottoes, reaching a peak in the Sui era (581–618) and especially the Tang (618–907) and gradual manifestations of decline, especially in the Xi Xia and Yuan periods.

We will limit the analysis of the murals exclusively to polychromy in different periods. Polychromy was analyzed in the early, high, transitional and late periods, where the correspondence to a certain period was determined primarily by the artistic level of the murals.

The early period (the Northern Liang (401–439), Northern Wei (439–534), Western Wei (535–556) and Northern Zhou (557–581) dynasties covers the period from 401 BC to 581 BC.

The highest period of maximum prosperity was during the Sui (581–618) and Tang (618–907) dynasties. However, during the period of prosperity, there were also periods of turmoil associated with a political crisis: in the last years of the reign of the Sui Emperor Yandi (569–618), Dunhuang changed hands several times and its prosperity was renewed only with the coming to power of the Tang dynasty. This is the period between 581 BC and 907 AD, the most fruitful in the history of Dunhuang.

The transitional period, although not a period of decline, was characterized by a decline in the artistic level of frescoes and the imitation of the artistic achievements of the Sui and Tang dynasties. This is the era of the Five Dynasties and Ten Kingdoms (907–960) and the Northern Song Dynasty (960–1127), between 907 AD and 1127 AD. The later period of the rule of foreign dynasties was marked by a gradual change in artistic concepts under the influence of Tibetan Buddhism. The reign of the Tangut Xi Xia Dynasty (1038–1227) and the Mongol Yuan Dynasty (1271–1368) is the period from 1038 AD to 1368 AD.

Before characterizing the polychromy of religious murals with Buddha in each of the periods and half-periods, let us give a general characteristic of the Dunhuang murals, which consists of the following:

– the symbolism of using certain colors in certain images;

– following the concept of Buddhism, a departure from the traditional Chinese polychromy of the five sacred colors and the traditional palette of ancient Chinese painting to the specific polychromy of Buddhist murals with a different symbol for each color, where white was associated not with mourning, but with good deeds and black became a symbol of evil;

– the murals of the early and late periods are characterized by greater conventionality and abstraction, while the murals of the high period are finely detailed, drawn to the last detail and have an expression of the spatiality of a planar image in both composition and color.

Early period (Northern Liang (401–439), Northern Wei (439–534), Western Wei (535–556) and Northern Zhou (557–581) dynasties).

Here are the main characteristics of polychromy in each of the dynastic periods.

In the early period, the technique of polychrome fresco was borrowed from India, where faces and bodies were painted with cinnabar and accents were made with white. In the Northern Liang period, ocher prevailed in the murals as the base color and the color palette was reduced to a combination of the base color of ocher with white, black and blue colors as complementary colors (Fig. 5).

The background of the fresco is painted with ocher, the bodies and faces of the figures are white and light gray and the halos above the heads are mainly blue and white, as are the stripes of primitive ornaments. Black is used to a limited extent to emphasize facial features, clothing etc.

Fig. 5. Wall painting of the Northern Liang period. Grotto 272

During the Northern Wei period, the color palette radically changed from warm to cold, dominated by a combination of different shades of blue, ultramarine, blue and black (Fig. 6). The background becomes dark – black, sometimes with interspersed blue and blue—the bodies of the figures and faces are light gray or dark brown, in contrast to the half-naked figures of the Northern Liang period, the figures are dressed and the clothes are white, blue and dark colors. There is almost no red in the frescoes. The images become more detailed, which requires the use of a more complex color palette with more shades.

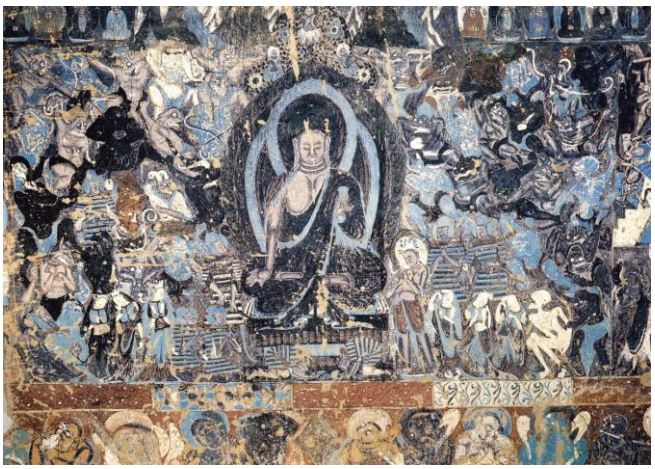

Fig. 6. Wall painting of the Northern Wei period. Grotto 254

The polychromy of the Western Wei Dynasty essentially combined the features of the warm color scheme of the Northern Liang period and the cold color scheme of the Northern Wei period (Fig. 7). Even greater detailing led to the enrichment and complication of the color palette. There is no single dominant color, as well as a single coloristic solution. There are finely detailed frescoes with an attempt to convey the three-dimensionality of space, where pastel colours dominate – white, light ochre and sea wave color—with a combination of a large number of finely colored spots. There are other attempts to convey the three-dimensionality of the image in form and color, where the elements are enlarged, the background and the bodies of the figures and the faces are white, blue, black and red and complementary colors. These are examples of frescoes where a more pastel color scheme is used. However, along with them, there are frescoes with bright polychromy of saturated colors. Such frescoes are more enlarged. There is no single basic color in them; red, ocher, white, black and blue colors are used in combination. The background is not a single-color plane and consists of multicolored spots and ornaments of various sizes. Background color: blue, white, red, black or ocher. Color of figures and faces: white, light gray, blue. Color of clothing: black, red, ocher, blue.

Fig. 7. Wall painting of the Western Wei period. Grotto 288

The same trends of simultaneous combination of warm and cold colors in the fresco are observed in the frescoes of the Northern Zhou period (Fig. 8). Color palette: ocher, white, blue and black, interspersed with green and yellow. The background is more solid and less detailed compared to the frescoes of the Western Wei; red and ocher were used for background coloring; ornamental inserts are simple, black, blue and yellow; the bodies of the figures and faces are dark brown, gray and blue and the clothes are red, white and black.

Thus, the generalizing data of studies of the polychromy of murals with Buddha in the early period prove that initially the frescoes had a warm color scheme with a limited number of colors and were large-scale without fine detailing; the figures were depicted conditionally. Over time, the warm color scheme was replaced by a cold one and at the same time, the list of colors

began to diversify and the complexity of the images required an expansion of the color palette. The next stage was the combination of warm and cold palettes and the movement continues towards finding means of conveying the three-dimensionality of space and detailing images.

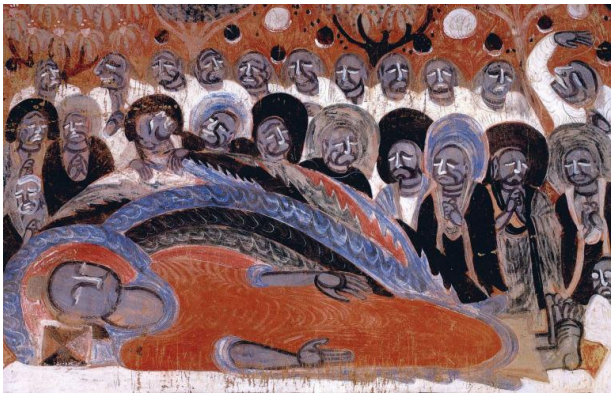

Fig. 8. Wall painting from the Northern Zhou period. Grotto 428

High period (Sui (581–618) and Tang (618–907) dynasties)

Dunhuang's mural reached its peak during the high periods of the Sui and Tang dynasties. In the following periods, such creative searches were no longer observed and the achievements of the high period continued to be applied.

Compared to the final stage of the early period, the composition of the Sui frescoes becomes more orderly, the principle of centrally symmetrical composition is maintained and the figures become more consistent with real images of people, proportional and detailed (Fig. 9). The color palette is as follows: a red or white background, on which realistically painted trees with a thick crown and flowers are located; the figures are depicted against the background of architecture – under canopies in the form of pavilions with a roof or canopies. The bodies and faces are white or dark brown and the clothes are red or blue.

Fig. 9. Wall painting of the Sui period. Grotto 420

In the Tang period, the maximum detailing of images occurs, including folds of clothing and ornaments, so the color palette is diversified (Fig. 10). Multi-figure, finely detailed compositions are widespread. The background becomes as detailed as possible, with a combination of a large number of multi-colored details. Pastel colors dominate; the most common are red, white, blue and black as an accent. In the figures, white prevails for the body and faces, red and ochre in clothing and ornaments and blue in halos and auras as an indicator of holiness.

Fig. 10. Tang period mural. Grotto 201

Thus, the high period was marked by the diversification and complication of the color palette and the transition from a limited color scheme with saturated colors to a pastel color scheme.

Transitional period – Five Dynasties and Ten Kingdoms era (907–960) and Northern Song Dynasty (960–1127)

Although this chronological period is most often defined as the middle period in the formation of Dunhuang, we will call it a transitional period, since it was not yet the final decline

of the artistic level, but the corresponding trends had already taken place. It was no longer a period of prosperity, since the traditions of the previous high period were inherited. The number of new grottoes decreases and the simplification of the artistic level begins.

During the Five Dynasties period, images are simplified and they have fewer drawn details. The color scheme becomes more uniform (Fig. 11). The background breaks up into separate color fragments and is perceived as a set of paintings. Black, white, blue and ocher colors are used for the background; white or ocher colors for bodies and faces; gray for clothes; and blue, black and white colors. The images are finely detailed but executed with less skill than in the Tang period.

Fig. 11. Wall painting from the Five Dynasties period. Grotto 220

During the Northern Song period, the mural painting again becomes more saturated in color and consists of a large number of figures and images (Fig. 12). The color scheme is diversified with the use of white, ultramarine, blue and shades of blue, green, red and black. In the transitional period, the colors no longer convey spaciousness and the mural painting with oversaturation of details is perceived as a continuous carpet. White and blue colors are dominant, the bodies and faces are painted white or light yellow and the clothing consists of a combination of several saturated color spots.

Fig. 12. Mural painting of the Northern Song period. Grotto 6

When characterizing this period, we should note that it still contained the inherited achievements of the high period, but the compositions gradually became simpler and the artistic level of the frescoes decreased.

Late period (Xi Xia (1038–1227) and Yuan (1271–1368) dynasties)

The late period of Dunhuang's development is associated with the rise to power of foreign ruling dynasties. This influenced the compositions of the frescoes, figurative means and colors when the frescoes became close to Tibetan Buddhism. As in the early period, the fresco compositions become planar, without transmitting spatiality and the colors become duller and darker. In the Xi Xia period, cold colors dominate and white, brown, ocher and red become less

common (Fig. 13). In contrast to the high period, colors without halftones and shades are used. Gray, black, blue and blue colors are used for the background; the background is decorated with simplified ornaments. Bodies and faces are painted in white, ocher and blue; clothes are white, red and dark blue, almost black. The figures become simplified without detailing of faces and clothes.

Fig. 13. Wall painting of the Xi Xia period. Grotto 308

The frescoes of the Mongol Yuan dynasty are even more distant from local techniques. In polychromy, dull muted colors are used, the frescoes do not have a pronounced spaciousness, as was the case in the Tang era. The colors of the background and background ornaments: brown, ocher, gray-blue, ultramarine (Fig. 14).

Fig. 14. Wall painting of the Yuan period. Grotto 465

The figures and faces are in white, yellow and blue colors and as in the early period, the figures are half-naked and the clothes are drawn without details. The faces are also drawn without details and halftones.

The Late Period was the final period of Dunhuang's development. It was marked by a gradual shift away from local artistic traditions towards foreign traditions. The frescoes of this period have a lower level of artistic execution than those of the High Period.

Conclusions

The study of the polychromy of pavilions, pagodas, temples and religious murals has proven the existence of certain differences in the use of colors.

In China, there were five colors with a certain sacred meaning and expression of status. The palaces and pavilions of the emperor, the most important temples, were polychrome, while pagodas and small architectural forms-pavilions had a more restrained polychromy. Pagodas were monochrome, gray-ocher and ocher without decoration.

Small pavilions, if they were not of high status, had mainly gray and gray-brown tiled roofs and red pillar supports. Pavilions, temples and pagodas were built based on the local constructive system of dou-gong. The constituent elements of this structure (beams, brackets and rafters) in the pavilions were also painted using red, green and blue as the base colors and the structural elements were also decorated with colored ornaments. Red was used for the background. The coffered ceiling inside the pavilions was painted in light colors and decorated with polychrome, finely detailed ornaments.

Traditionally, purple and gold were the property of the emperor and could only be used in his buildings. Red meant happiness and friendship, blue and green symbolized peace and tranquility and white at the same time meant purity and mourning. Black was rarely used in architectural objects.

A comparison of the color palette of traditional Chinese buildings and the Dunhuang fresco murals has shown that the symbolic meaning of certain colors has changed in the murals. It is worth comparing the Dunhuang polychromy with the traditional Chinese set of colors "Danqing" ("Red and Blue Pigments"), where lightness is expressed by white and darkness and evil by black. Even though traditionally in frescoes the bodies and faces of Buddha, bodhisattvas and the goddess of mercy Guanyin were painted white or light yellow, there are quite a few examples where they are painted dark brown, almost black or blue (Figs. 8, 9 and 14). Similarly, black is sometimes used in the clothes of bodhisattvas (Figs. 6-9).

If we characterize the polychromy of the early, high, transitional and late periods, it is marked by the following features:

– in the early period, the murals were in a warm color scheme, then in a cold one and this period ended with a combination of warm and cold color schemes;

In the high period, there was a shift from large-scale images to finely detailed frescoes and from an open color palette to pastel colors with halftones and detailing.

In the transitional period, the artistic achievements of the high period were used, but signs of a gradual decline in the artistic level of execution appeared.

At a later stage, under the influence of foreign art, the image of the fresco changes, the colors become dull and dark, color combinations are used that are not inherent in Chinese art and the frescoes become hereditary with the art of Tibetan Buddhism.

Over time, the frescoes changed their color and many of them became dull. This is explained by chemical reactions in paints based on mineral pigments. The composition of the paint determined the preservation of the brightness of a certain color. In total, in the Dunhuang grottoes, according to modern research, more than 30 types of pigments based on natural minerals and metals were used – azurite, malachite, cinnabar, vermilion, shell powder, gold, silver and mica. In the early frescoes of the Northern Liang period, pigments based on cinnabar were used for the background. In the frescoes of the Northern Wei and Western Wei periods, according to the so-called Siyu techniques of Western China, pigments based on malachite, ultramarine, laterite, cinnabar, lapis lazuli, azurite, copper ore and kaolin were used. The base was white powder with the color of the laterite rock and pigments based on azurite and malachite were widely used. As already mentioned, such murals are characterized by a combination of a limited number of saturated colors, which also correspond to Siyu techniques.

The high style of Dunhuang mural painting meant a departure from the Siyu style and techniques towards the Central Plains style with complicated polychromy, where artificial red color is used, the chemical composition of the paints changes, the palette of paints expands with the appearance of various shades of light green and the technique of gilding iconic images is actively used. Pigments of lead red, copper and carbon black are added to the known pigments. Greater attention to the selection of the paints' chemical composition contributed to the preservation of the original color of even light pastel colors and details. These principles were partly applied by inertia during the transitional period.

In the late period, due to the rise to power of foreign dynasties, the color scheme of the frescoes changed under the influence of Tibetan tantrism. If in the high period both detailed linear drawings and their color filling, including the detail, were equally important, then in the late period, the linear drawing became the main one, which led to a more restrained dark and dull color scheme.

Such paints based on mineral pigments formed a separate type of ancient Chinese painting 重彩 (Zhòngcǎi – saturated, densely colored, color paintings). They practically ceased to be used after the Yuan dynasty. It is precisely because they are created based on natural pigments that the brightness of the colors and their saturation, especially noticeable in the early period, are due.

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