



Analysis of Human Figures, Artistic Value and Enlightenment to Folk Photography in Dunhuang Murals

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Citation: Wen, D. (2024). Analysis of Human Figures, Artistic Value and Enlightenment to Folk Photography in Dunhuang Murals. *Mediterranean Archaeology and Archaeometry*, 24(3), 300–313. [10.5281/zenodo.13627512](https://doi.org/10.5281/zenodo.13627512)

ARTICLE INFO

Received: 06 Apr 2024

Accepted: 28 May 2024

ABSTRACT

In order to explore the value of the characters in the murals of the Tang Dynasty, this paper analyzes the value of the murals of the Tang Dynasty from the perspective of modeling and artistic value, and takes the Dunhuang murals as the research object, collecting the value of the figures in the Dunhuang murals, and analyze the costumes, physiognomy and lines to form preliminary data. Then, use a high-definition microscope to observe the contents of the mural, the shape of the figures, and the dye of the mural. At the same time, combined with Toshiba 3D scanner (China, Guangdong, 2003 model), HD microscope 36x, K2023 type (China, Shandong), get a modeled dot map and get a detailed look at the lines of the characters. The results show that the dyes in the murals of the Tang Dynasty are mainly cinnabar, iron oxide, copper sulfate, blue stone, white stone, lead oxide and charcoal powder, and the colors are mainly brown, red, white and cyan. The colors are intricate, and the frescoes are carved and then painted. In terms of modeling, the streamlined triangular position and spatial layout are biased normal compositions, which enhance the vividness of the characters. Therefore, the Dunhuang murals have an important enlightening effect on the framing position, color presentation, and center shift of folk photography, and enhance the cultural connotation of folk photography.

Keywords: Dunhuang Murals, Figure Modeling, Artistic Value, Folk Photography.

INTRODUCTION

Dunhuang murals peaked in the Tang Dynasty (618~907 AD) and Song Dynasty (960~1279 AD), and their artistic style and human figures were sublimated. For example, the Dunhuang murals of the Han Dynasty (202~220 AD) tend to have extremely concise character lines and simple costumes. During the Tang Dynasty (618~907 AD), mural art creation peaked, and the figures were plump and the costumes were more luxurious. During the Song Dynasty and Yuan Dynasty, the figures in Dunhuang murals paid more attention to realism and delicacy. Tang Dynasty murals were mainly religious and secular themes, including murals with religious themes such as Buddha and Bodhisattva, and the figures were often depicted as very solemn and sacred, with benevolent faces and expressions (Huang, Chen, H. Wang, & Wang, 2022; C. Jiang, Jiang, & Shi, 2022). The character's shape also highlights its status, identity, dress, etc. During the Tang Dynasty (618~907 AD), the trade between China and the West was frequent, and Dunhuang was the key place of the Silk Road, so it attracted the Western Regions and Persians, so that the Western Regions and Persian culture would influence the Dunhuang murals. In the middle of the Tang Dynasty (718~807 AD), there are clothing and facial features of the Western Regions and Persia such as India and Persia in the Dunhuang murals, which shows that there is a certain connection between the mural characteristics at that time and the Western Regions and Persian culture. Due to the exchange of Chinese and Western cultures (X. Li, Lu, & Pan, 2000; Liu, Lu & Shi, 2006), the techniques of Dunhuang murals have also improved and developed. In the early Tang Dynasty (618~718 AD), line drawing techniques were used to highlight the contours of the figures, but after the Tang Dynasty (718~802 AD), techniques such as smudging began to appear, so that the shapes of the figures became more vivid. Three-dimensional, the expression

technique has also become very smooth and natural. In different periods of the Tang Dynasty and different themes of the murals, the Dunhuang murals have different characteristics of their figures, and they show a mature development trend. This shows that the development of trade and culture in the Tang Dynasty positively impacted the Dunhuang murals, promoted the development of their colors and techniques, and integrated the Western Regions and Persian culture into the murals. The figures in the Dunhuang murals have many characteristics and forms of expression, including the cultural elements of the Tang Dynasty with artistic value and the content of the Western Regions and Persian styles, all of which display the Tang Dynasty's artistic charm fully. Based on this, this article shares the character modeling in Dunhuang murals from the perspectives of character modeling (X. Li, Wu, Wang, Qian, & Hong, 2019; Lu, Yang, L. Wang, & Wang, 2022), dyes, materials, and lines. Then, microscopes and infrared scanners were used to analyze the costumes, facial expressions and postures of the characters in the murals, so as to find out the characters in the Dunhuang murals, so as to provide reference for the archaeological research of the Dunhuang murals. Earlier studies exist on mural archaeometric analysis (Nassar, Al Muheisen, Seiseh, Al-Shorman, Abdelaziz, & Al Sekhaneh, 2024; Ali, Moussa, & El-Sayed, 2022). At the same time, this paper summarizes the characteristics of the expression techniques of murals, provides support for folk photography, helps them find inspiration, and applies the connotation of Tang Dynasty murals to photography.

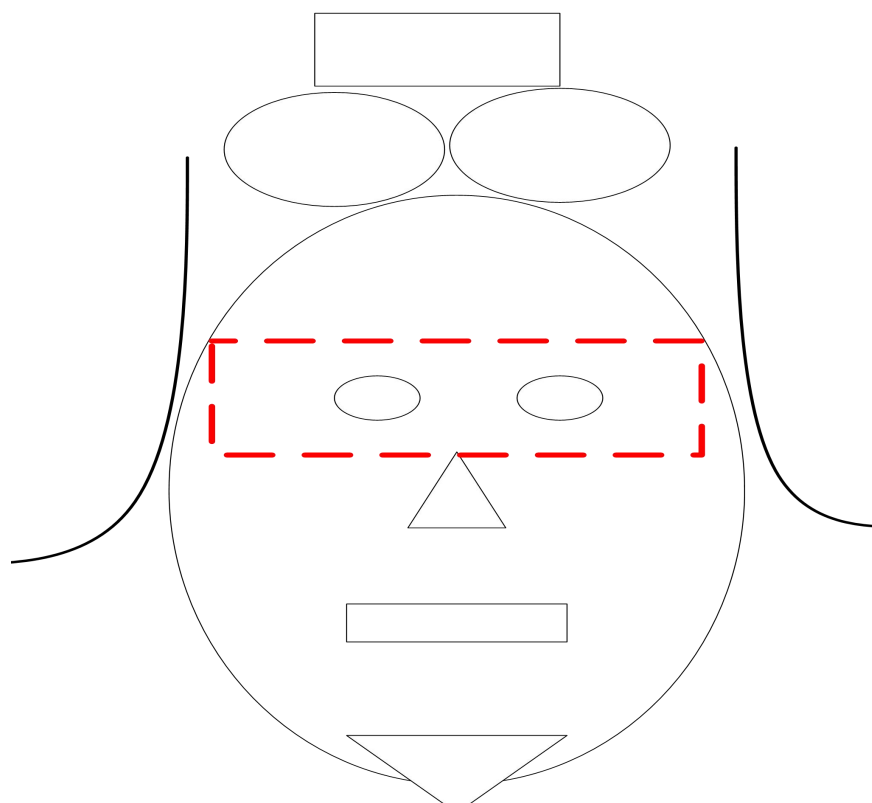
RESEARCH METHODS AND RESULTS

Research Methodology

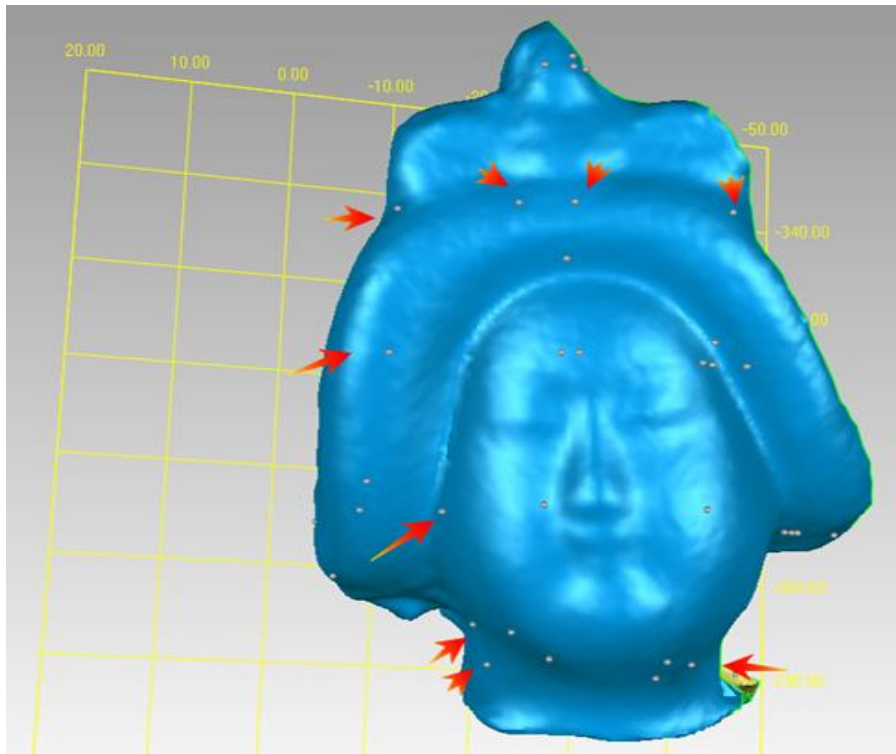
Collect the relevant documents and materials of Dunhuang murals in the Tang Dynasty and classify them. Then, a Toshiba 3D scanner (Guangdong, China, 2003) was used to observe the contents of the mural, the shape of the figures, and the dye of the mural. At the same time, combined with the high-definition microscope 36x, the K2023 model (Shandong, China) obtained the modeled point map, and the lines of the characters were observed in detail.

Character Modeling

In the Dunhuang murals of the Tang Dynasty, the figures are mainly streamlined, and the figures are constructed through triangles and ovals, and the 3D scanning results are shown in [Figure 1](#).



The Overall Outline of the Person's Face



Key Points of the Character's Face

Figure 1. Key Points of the Characters in the Dunhuang Murals

As can be seen from Figure 1, the Dunhuang murals contain different figures, and for the figures, the outlines and clothing lines of the characters are basically outlined through some smooth lines, which are full of strength and feminineness, which can show strong artistic skills. In addition, in the Dunhuang murals, the depiction of the details of the clothing is often another highlight of the use of lines, for example, through the exquisite lines, to express the characteristics of the characters, and the use of line outline methods to depict gorgeous, rich clothing patterns and patterns, and then show the characteristics and beauty of various clothing. For example, many court dresses, folk costumes, monk robes, etc., which appear in Dunhuang murals, have beautiful lines. The feature points of women in Dunhuang murals were summarized by comparison, and the characteristic results of the main points of the characters were obtained, as shown in Table 1.

Table 1. Female Characteristics

Project	Persona	Temperament	Characteristics of the Times	Connotation
Face	3.811	0.064	0.291	0.000
The position and size of the bun	2.000	0.295	0.768*	0.016
Nose bridge height	4.808	0.123	-0.688*	0.040
Expression	3.197	0.190	0.918**	0.447

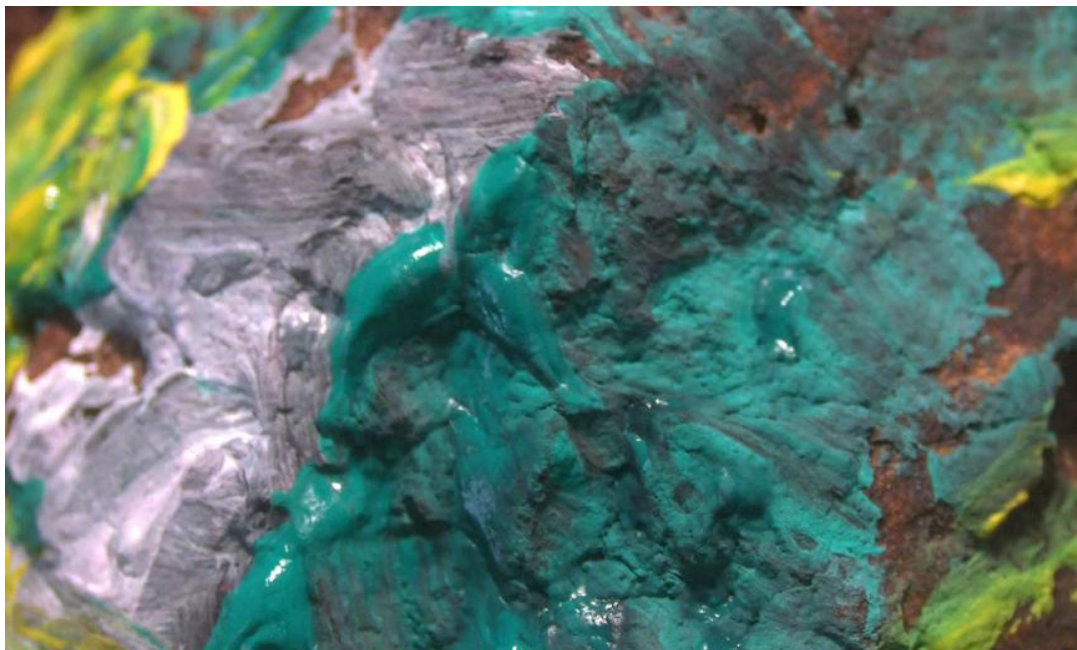
* $p < 0.05$ ** $p < 0.01$

From the analysis in Table 1, it can be seen that the height of the nose bridge, expression and face shape have a greater impact on the image of the characters, mainly intermarriage with the Xiongnu and Mongolia, and their hair buns, nose bridges and face shapes have obvious characteristics, showing high nose bridges, small eyes, and clothing also showing the style of the Han Dynasty. In addition, the expression is the expression of inner thoughts, so it can highlight the temperament and connotation of women. Among them, the position of the bun has obvious temperament, with a specificity of 0.295, which can better reflect the inspiration of the character, and the embodiment rate is 76.8, which is significantly different from other characteristics. Through the analysis of significant differences, the face shape, hair bun, nose bridge height and expression are all characteristic, which is a representative of the Han Dynasty characters. This exquisite use of lines can enhance the three-dimensional sense and realism of the figure's image, reflect the costume's luxury, and show the character's temperament. With the help of line sketching method, the Dunhuang murals can be made more realistic in the scenes of social life, so as to present a rich and colorful side; in the details of the characters in the Dunhuang murals, it can be found that the facial expressions of the characters are often depicted very vividly, wonderful and diverse. For example, there are

some images of the Buddha whose expressions are always very solemn, and the images of the offerings and the performers of the heavens are often very vivid, especially their expressions, which are also full of devotion, and can show the character traits of the characters. For example, some of the images of the Buddha that appear in the Dunhuang murals tend to have very serene and peaceful expressions, and their eyes are also very deep, always smiling implicitly. This expression of the Buddha in the Dunhuang mural can convey "detachment from the world, the heart goes to a quiet place", which can show the ideological realm of Buddhism. For example, there is a big Buddha statue in the 45th cave of the Mogao Grottoes in Dunhuang, whose face is very broad and peaceful, and the eyes are half-closed, and the corners of the mouth are lightly raised, which brings people a deep and intimate feeling; In the Dunhuang murals have appeared all kinds of characters, in the portrayal of characters, the Dunhuang murals attach great importance to the portrayal of the gesture language of the characters, and different characters will show different postures according to their roles and situations, such as prayer and kneeling, dancing, etc. In this way, it can show a sense of dynamism, showing the life and vitality of the characters. For example, the kneeling posture. In some Dunhuang murals, it can be seen that the figures are shown in a kneeling posture, which is a kind of action, but also conveys the Buddhist beliefs of the characters and their pious gestures. In the murals full of religious atmosphere, there are often such kneeling images, figures either praying to the Buddha or bowing to the gods, so as to show their religious beliefs and a certain degree of piety, or to show their inner awe and admiration for the gods and Buddhas. It can be seen that the Dunhuang murals attach great importance to the communication of the gesture and language of the figures. Based on the different postures of various figures and backgrounds, Dunhuang murals can show a strong sense of dynamism and show the life and vitality of the characters.

Mural Materials and Dyes

Tang Dynasty murals are characterized by bright colors and vividness, mainly because of their variety of dyes and the presence of protective films on the surface of the dyes, as shown in [Figure 2](#).



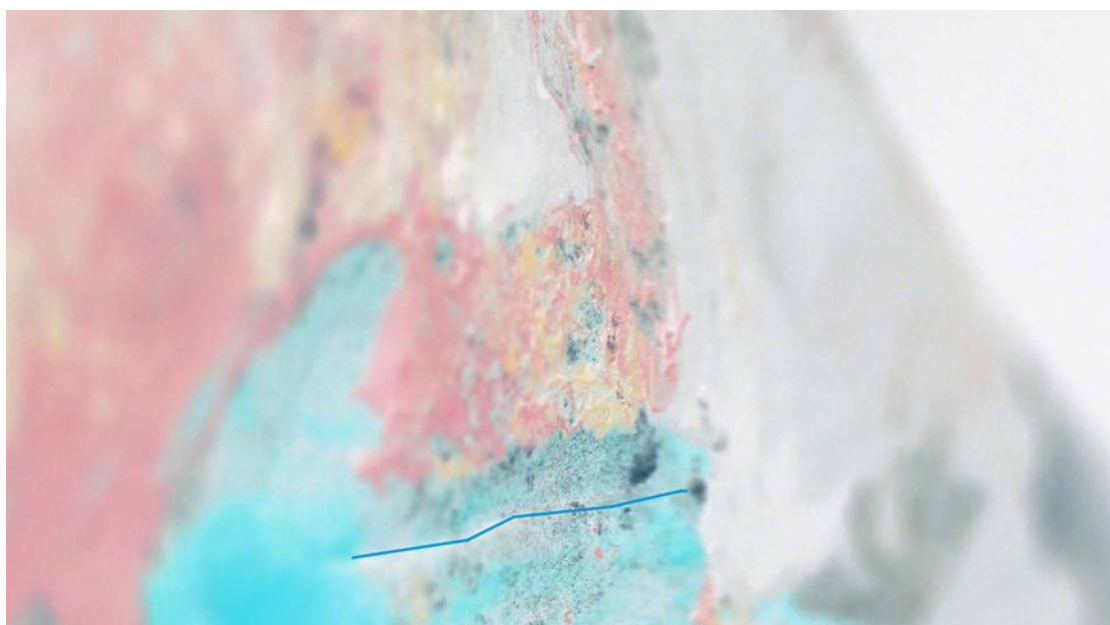
Blue, Yellow



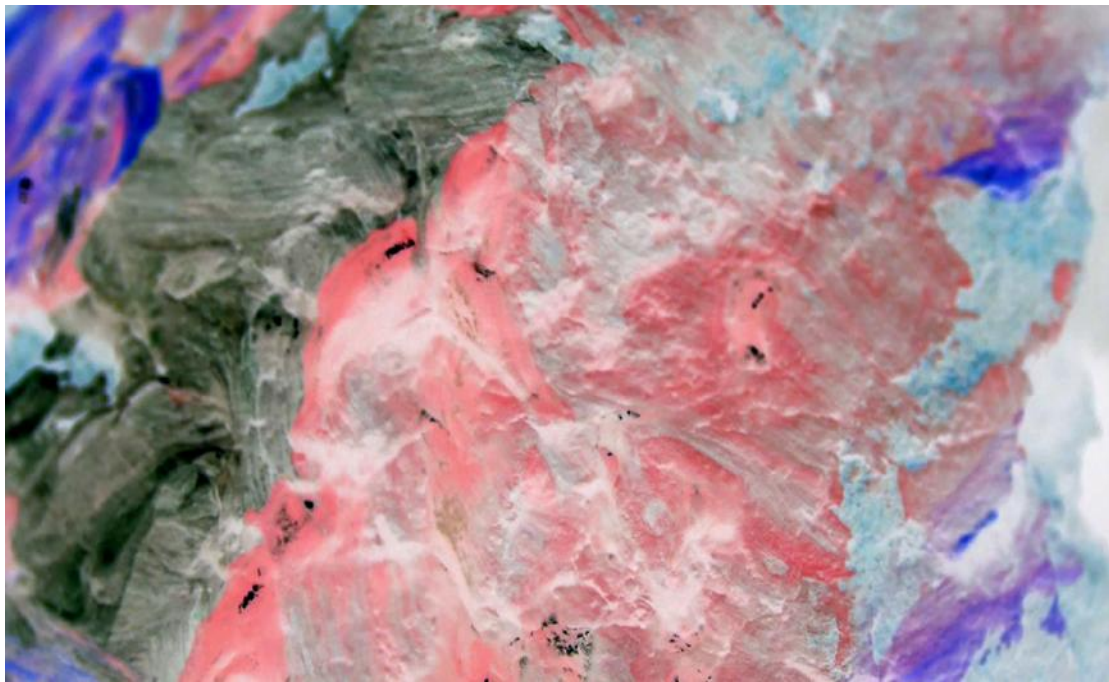
Red, Yellow

Figure 2. Observation of the Dye in the Mural

Through the observation of the dye of the mural in Figure 2, it is found that the mural has a variety of colors, such as brown, white, yellow, cyan, etc., which makes the mural more vivid. In the Dunhuang murals, there have been rich colours of characters, the characters are generally dressed in official or monk clothes, ordinary folk costumes, etc., and each costume has very rich details and bright colors, which can reflect the identity and status of the characters, social class, etc. For example, flying clothing. The Dunhuang murals often contain the theme of flying sky, and the flying murals generally depict the characters' clothing, such as the flowing long skirts, the flying skirts and different forms, showing a sense of beauty. Moreover, each flying costume will have different pattern decorations, such as moire and wave decorations. As for the colors, the costumes in the flying murals are generally bright in color, such as blue, green and red. During the Tang Dynasty (618~907 AD), Dunhuang murals showed the vividness of the characters through the flexible use of colors, realized the pursuit of the dynamic beauty of the figures, and grasped the subtlety of the details of the figures. In addition, the Dunhuang murals are carved first and then painted, and the color and brushwork will be adjusted according to the direction of the rock wall. The results are shown in Figure 3.



Traces of Seal Engraving underneath the Dye



The Fusion of Colour and Rock Face

Figure 3. The Fusion of the Dye with the Structure of the Mural

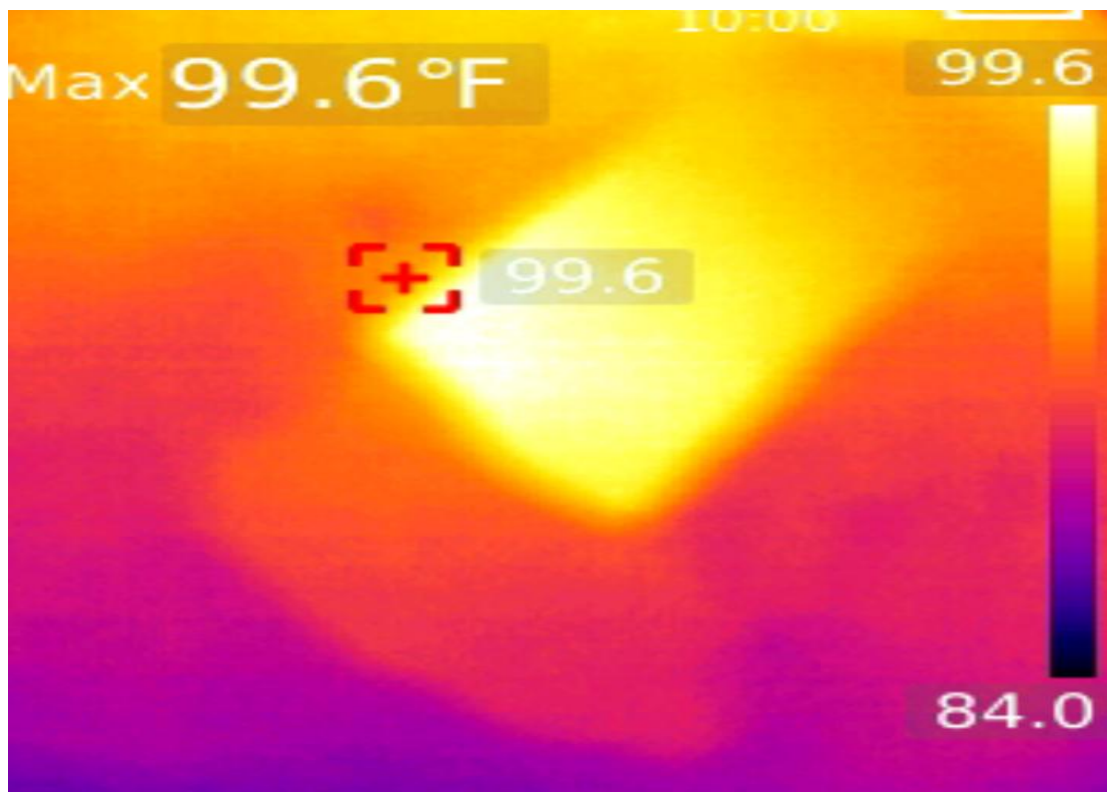
From the reverse analysis of the dye in Figure 3, it is found that the mural is painted with dye on the basis of seal carving, which makes the characters more vivid and forms the frame of the figures. At the same time, before the characters are drawn, the rock wall should be analyzed, and the color and direction should be adjusted according to the characteristics of the rock wall, so as to realize the integration of color and rock wall. Dunhuang murals are created using a variety of techniques. First, line drawing techniques. In the early Dunhuang murals, the Dunhuang murals can be found, and the line drawing technique is often used to complete the outline of the characters and the lines of clothes. This technique has the advantage of clearly representing the figure's structure and contour lines, and can provide a good basis for color filling. For example, in the flying content of the Dunhuang murals, fine lines will be used to outline the flowing ribbons and skirts on the flying clothes, so that the naturalness, flow, and lightness of the lines can be highlighted, and the dynamic beauty of the flying sky can also be displayed, and the soft material of the clothing can be highlighted. For example, in the process of depicting the image of a Buddha or a Bodhisattva, the line drawing technique can also be useful. Precise, forceful lines are often used to depict the solemn face of the Buddha and to depict the folds on the Buddha's robe. In this way, the sacredness and solemnity of the Buddha can be highlighted, and a solid foundation can be laid for the later coloring. It can be seen that Dunhuang murals like to construct the image characteristics and clothing details of the characters through line drawing techniques, which can ensure the smoothness, naturalness, clarity and accuracy of the figure's image structure and contour lines, and at the same time, bring more layers of expressiveness to the whole picture; in the Tang Dynasty (718~802 AD). After that, the smudging method and the blending technique were more widely used. The blending technique increases the fineness of the lines and recreates the folds of the garment, while the blending technique allows for natural shadows through the transition of colours. In short, the smudging and blending techniques can make the figure more three-dimensional and vivid, and can enhance the sense of space in the picture. For example, in some of the images of flying in the Dunhuang murals, they use smudging techniques to show some details on the flying costumes, such as creating real light and shadow effects. The use of this technique allows the clothing to show natural and vivid light and dark transitions under different lights, and based on this, it can improve the realism and dynamics of the clothing depiction (Luo, 2022; Shi, Lu, Liu & Pan, 2006). In addition, the technique of blending is also well applied when depicting the image of the Buddha. For example, by creating light and shadow effects around the Buddha, the Buddha statue can look more sacred and solemn, and can make people feel the beautiful atmosphere of detachment from the world and purification of the mind. Therefore, when creating works, Dunhuang murals often use the method of squeezing and rendering, and the use of techniques can give the mural a new vitality and improve its sense of hierarchy and expressiveness.

The observation results show that during the Tang Dynasty (618~907 AD), the dyes of Dunhuang murals were diverse, and dyes such as blue and cyan were added, as shown in Table 2.

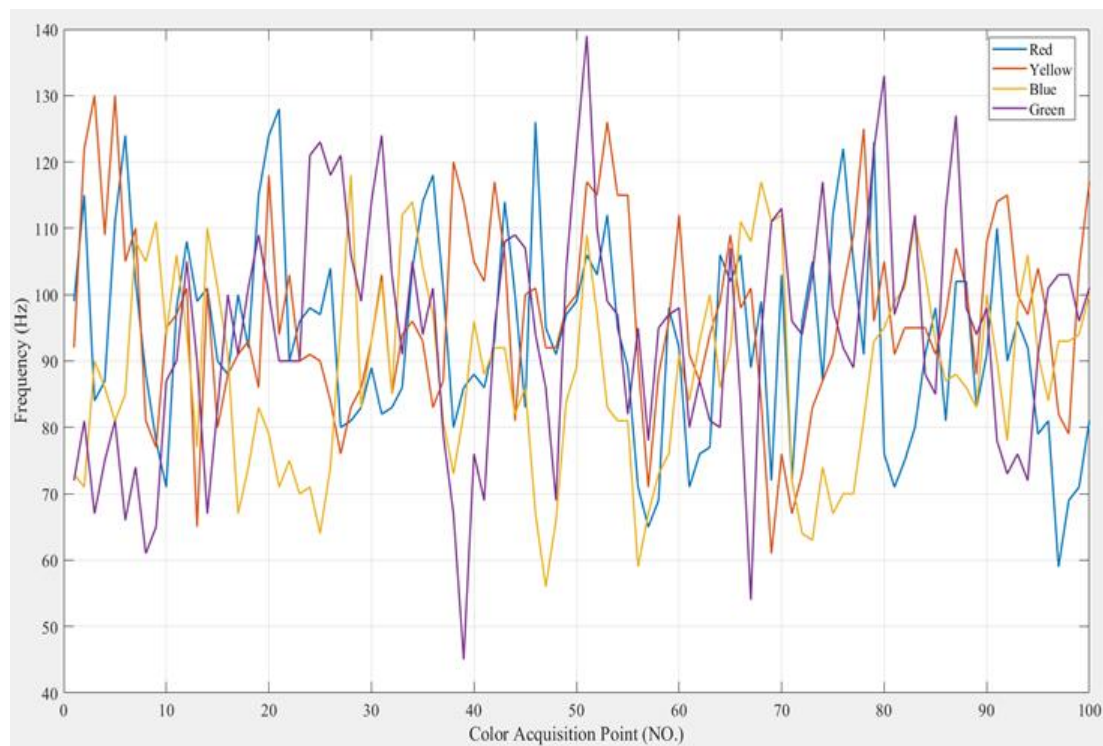
Table 2. Dye Composition

Use	Dye	Surface Oxide	Oxide Thickness
Figure	Cinnabar, iron oxide, copper sulfate, bluestone, lead oxide, and charcoal powder	Iron oxide, calcium oxide	0.1~0.5 mm
Background	Changbai stone powder, charcoal powder		0.2~0.6 mm

From the contents of Table 2, it can be seen that the Dunhuang murals of the Tang Dynasty contained inorganic dyes such as lead oxide, copper sulfate and bluestone, indicating that the Tang Dynasty had frequent trade with the Western Regions, which promoted the exchange of dyes. However, the background of the mural is mainly the common white stone powder and charcoal powder, the purpose of which is to prevent the weathering of the mural, regulate the surrounding humidity, and prolong the preservation time of the color. At the same time, the iron oxide and calcium carbonate in the dye will protect the dye and further extend the storage time. By testing the thickness of the oxide layer, it was found that the thickness of the surface layer of the dye was thinner, indicating that the particle size of the dye was smaller, which could increase the delicacy of the character. There are distinctive characters in the Dunhuang murals, and the Dunhuang murals basically render the costumes and backgrounds of the characters through limited color contrast, for example, the use of bright color matching to convey the various atmospheres of the scene and the emotions of the characters (J. Wang & Qiu, 2014; Song, 2019). For example, in the Dunhuang murals, many of the characters' costumes and backgrounds are shown through bright color contrasts, and bold color contrasts and collocations are used to give the picture more beauty, to show the visual effect and portray the characters' emotions. Through infrared scanning of the dye, it was found that the dye composite type was high, and the results are shown in Figure 4.



Infrared Display of the Dye



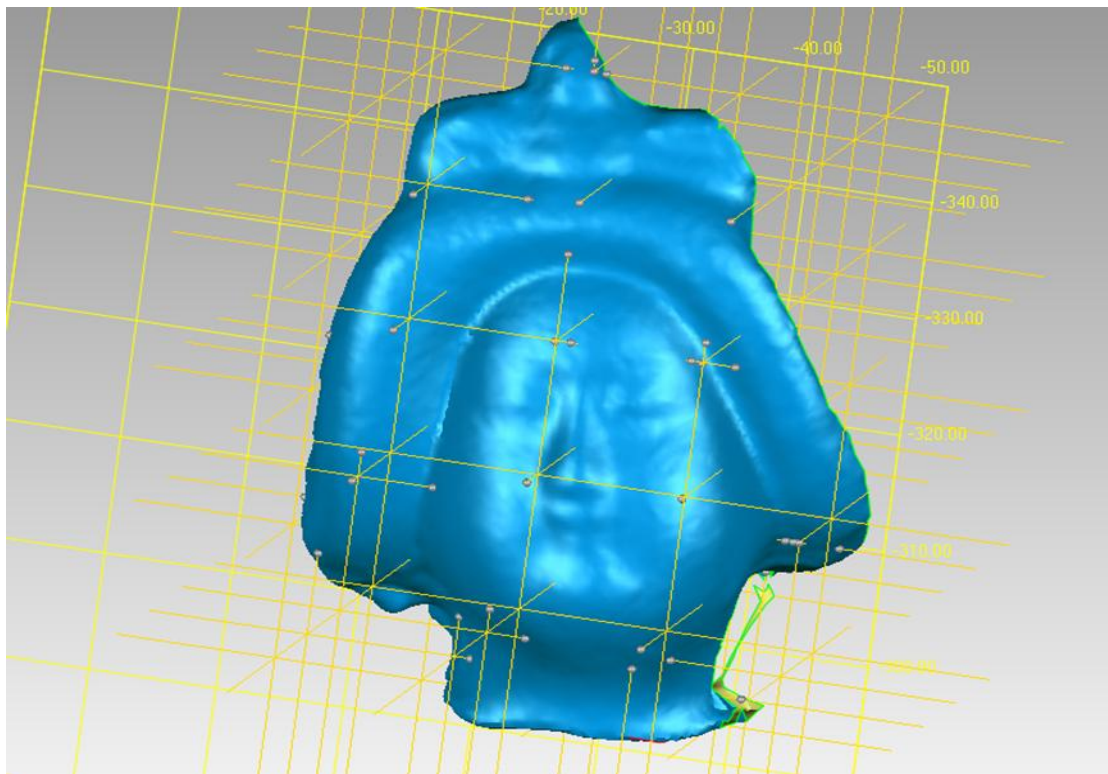
Characteristic Contrast of Dyes

Figure 4. Infrared Scan of the Dye

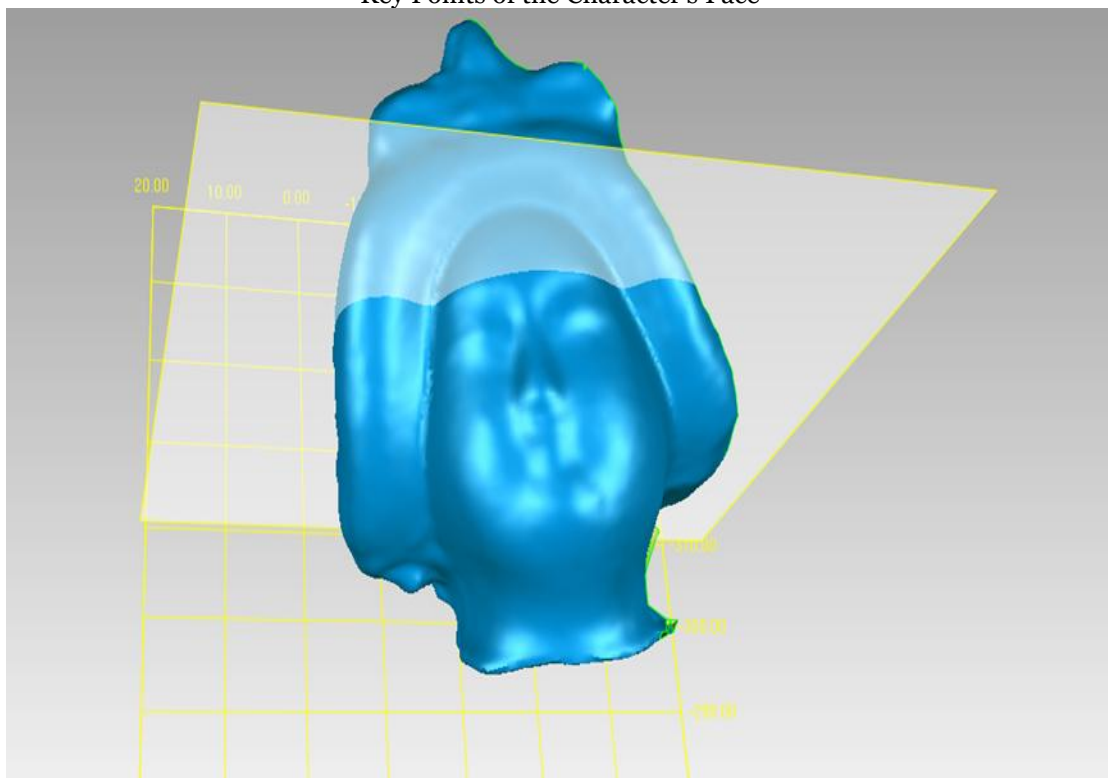
As can be seen from the contents of Figure 4, the infrared scanning dye found that the dye absorbs light waves to different degrees, indicating that the dye is mixed with multiple components, resulting in complex infrared imaging. In the Dunhuang murals, you can often see many figures wearing bright color clothing, such as blue, gold, red, green clothing, etc., and composite materials can produce more colors, such as orange, brown, etc. Moreover, through a variety of color contrasts for different scenes, a variety of scenes can be displayed. For example, when depicting the scene of the Heavenly Palace, the blue sky and the immortals dressed in green clothes can show the beauty and tranquility of the Heavenly Palace. At the same time, the golden Buddha statues and red dance scenes will show the vitality of the heavenly palace. In short, the careful design and ingenious color strategy make the visual appeal of the Dunhuang murals reach a peak, and at the same time, the depiction of the human characteristics in the Dunhuang murals can also convey a very deep emotion, and then show outstanding painting skills, and highlight the artistic connotation of the Dunhuang murals. In the Dunhuang murals, there are elements of traditional Chinese culture, and absorb the cultures of various Western Regions and Persian regions, such as India and Persian culture. This kind of diverse and integrated culture is reflected in the Dunhuang murals, mainly reflected in the characters' costumes, facial features, and pattern decoration. It can be seen that Dunhuang, as one of the strongholds of the Silk Road in ancient China (S. R. Wang & Sandu, 2023; Su & Zhou, 2019), is one of the places where Eastern and Western cultures blend and blend with each other. Specifically, the multicultural integration of colors in Dunhuang murals is mainly reflected in several points, first of all, clothing. In the Dunhuang mural works, you can see that the styles of traditional Chinese costumes and Western and Persian costumes have been effectively integrated. The colors of the characters' costumes are similar to those of Indian and Persian styles, such as those with silk culottes and wide belts. It can be seen that the Dunhuang area at that time has become an area of multicultural exchange.

Composition of Dunhuang Murals

Comparing the composition of the Dunhuang murals, it is found that the composition shows the characteristics of offset, and the results are shown in Figure 5.



Key Points of the Character's Face



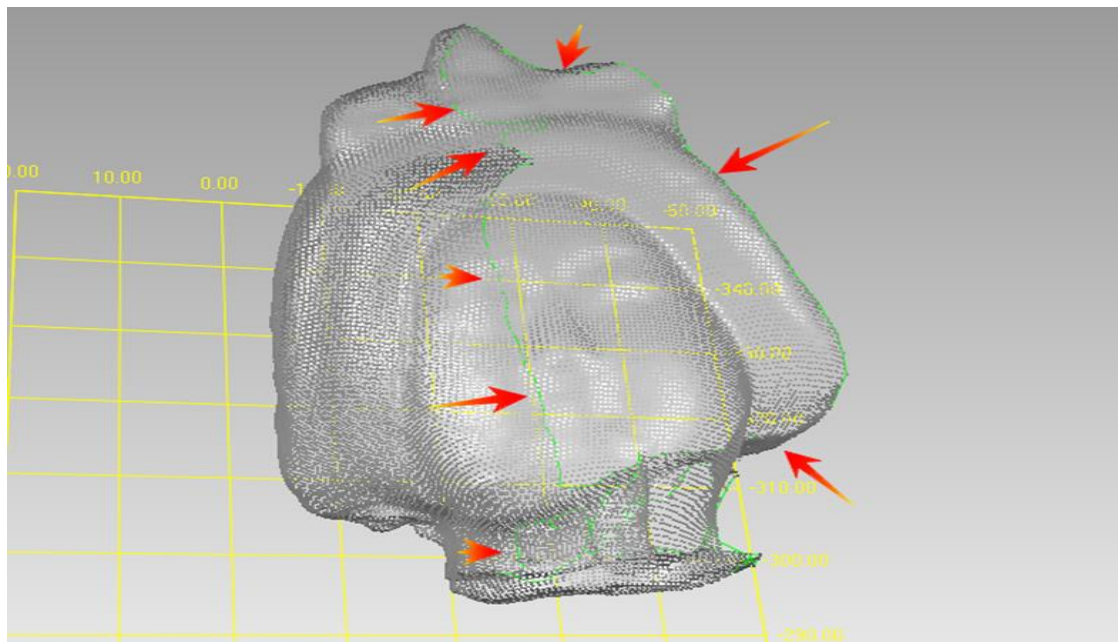
The Central Plane of the Person's Face

Figure 5. Measurement of the Position of the Figures in the Dunhuang Murals

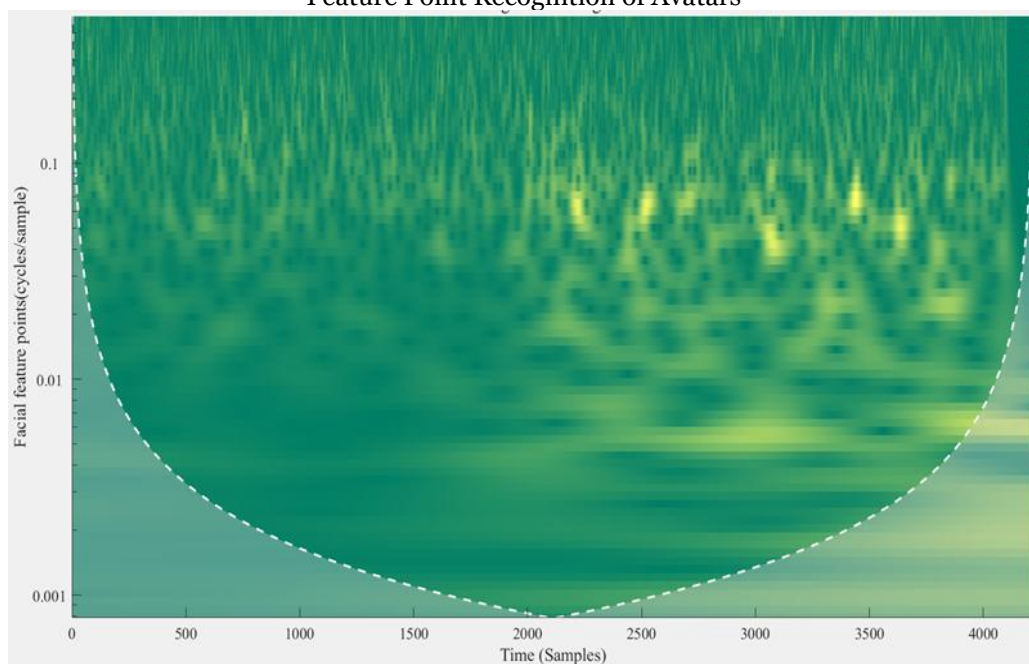
As can be seen from Figure 5, the center point and plane of the figures in the Dunhuang murals are offset, indicating that the task modeling is based on the aesthetic requirement of offset, breaking through the central and symmetrical characteristics of the Tang Dynasty murals, which is consistent with the composition of Western oil paintings, indicating that Western paintings obviously influenced the Dunhuang murals in the Tang Dynasty. Although the Dunhuang murals do not all follow the Western rules of perspective, a strong sense of space can be created on the plane through clever composition and layered design. Moreover, the depiction of some characters in the Dunhuang murals is often done through symbolic exaggeration to enhance the visual impact and express

deep meaning. It can be seen from the costumes of the characters and their deep eye sockets, thick beards, and high nose bridges, which are clearly different from traditional Chinese characters. In clear contrast, it is possible to recognize and understand the cultural exchange of the time, and finally the pattern decoration. In the Dunhuang murals, many different patterns are also used to decorate clothing, headdresses, backgrounds, etc. Moreover, the patterns include not only traditional Chinese patterns, but also flame patterns and bead patterns, which are more common in Indian Buddhism, as well as Persian art flowers and geometric patterns. Patterns from a variety of sources have been skillfully integrated into the Dunhuang murals to create a new and unique visual experience. Based on this, under the influence of long-term cultural exchanges between the East and the West, Dunhuang murals can retain the traditional Chinese art style and successfully absorb and integrate many cultural elements of the Western Regions and Persia. Based on this, Dunhuang murals have also become one of the precious legacies in the history of global art.

Comparing the overall outline of the Dunhuang murals, it is found that the outline is symmetrical, as shown in Figure 6.



Feature Point Recognition of Avatars



Scan of Avatar Landmarks

Figure 6. The Overall Outline of the Figure

Through the analysis of [Figure 6](#), it can be seen that the overall outline of the figure is symmetrical, but the bias of the plane can improve its spatiality. In addition, in order to highlight the sense of space, the Dunhuang murals will also set the whole picture in a clear layer. For example, in many Dunhuang murals, different characters or scenes from near and far will be displayed in different sizes. People and objects in the near distance are generally depicted in great size and detail, while people or objects in the distance are more minor and as brief as possible. In this way, the progression from largest to smallest can be highlighted, thus visually showing the changes in the object. It can be seen that the Dunhuang murals often show a distinct art world full of symbolic meaning and dynamic changes through their own works and highlight the sense of space. In addition, they will demonstrate their aesthetic principles and expressive skills through their own personal approach to express their creativity. Dunhuang murals have a variety of styles, including religious and sacred styles, secular life styles, cultural fusion styles, etc. First, the religious and sacred style. The Dunhuang murals have worked with Buddhist themes, so their artistic style is deeply influenced by Buddhist culture, focusing on creating a religious and sacred atmosphere (L. Xu, Zhang, & Nie, 2022). This type of style is collectively referred to as the Religious Sacred Style. In the Dunhuang murals of the religious sacred style, the Buddha and Bodhisattva are often profoundly depicted, and at the same time, their solemn and benevolent postures are expressed, which can reflect the transcendent spiritual outlook of religious gods to a certain extent, and show the characteristics of "purifying the soul". In this mural, the huge Buddha statue is the center of the entire mural, and many bodhisattvas, arhats, flying figures, etc surround it. The main Buddha statue of the cave is very tall and majestic, and it is a seated statue of Shakyamuni Buddha. The face of this Buddha statue is serene and kind, with eyes half-closed, solemn, as if in contemplation. According to the analysis of the characteristics of the figures in the Dunhuang murals, the statistical analysis was carried out from the aspects of character modeling, color, expression, costumes, etc., to find out their artistic value, and the specific results are shown in [Table 3](#).

Table 3. Analysis of the Artistic Value of the Figures in Dunhuang Murals

	Character Psychology	Topic	Overall Performance	Narrate
Character modeling	0.019	0.001	0.024	0.015
Color	0.037	0.000	0.013	0.017
Expression	0.001	0.042	0.000	0.014
Trappings	0.019	0.014	0.012	0.015
Artistic Value	1.000	0.946	0.875	0.940

It can be seen from [Table 3](#) that the color in the Dunhuang murals has obvious expression of the psychology of the characters, the expression and costume have a high degree of embodiment of the theme of the mural, and the comprehensive expressiveness of the figure modeling is high, indicating that the mural carries out color, costume and expression design according to the needs of the theme and narrative, so as to achieve the purpose of artistic creation. Among them, the expression of the psychology of the characters is the main aspect of the Dunhuang murals, and the theme is that the painters match the colors and expressions according to the requirements of the murals, so as to make a solid overall comprehensive performance. Theme and narrative are the main aspects of the artistic value of the murals, while the comprehensive performance, such as historical value and cultural exchange, is not the main aspect of the Dunhuang murals, but the focus of archaeological research. Therefore, the artistic value of Dunhuang murals is higher, but at the same time as the artistic display, it carries a certain archaeological value. The Buddha statue is draped in a robe, and the lines of the clothes can also show a transcendent temperament. On the whole, his entire body exposes only the right shoulder and the chest part, which is consistent with the ancient Indian monk's attire. The Buddha statue also has a slightly curly bun on its head, which can indicate the holiness and immaculate nature of the Buddha statue. In addition, there is a backlight (halo) behind the Buddha statue, and the surrounding decoration is full of complex and delicate patterns, which can represent the inner compassion and wisdom of the Buddha, and symbolize the inner light of the Buddha. Moreover, in the 45 caves of the Mogao Grottoes in Dunhuang, the internal space layout of the entire cave and the content of its murals are all arranged around this Buddha statue, so through the size and chiaroscuro and other techniques to highlight the sublime image of the main deity, representing its sacred light. This expression can highlight the solemnity and detachment of Buddhism. It can be seen that the Dunhuang murals have a deep connection with Buddhist culture, and they are able to create a religious mystical atmosphere in their own style, and express their spiritual pursuits with the help of depictions of the Buddha and the Dunhuang murals have also begun to contain many elements of secular life.

DISCUSSION

The Influence of Dunhuang Murals on Folklore Photography

Form a Photographic Form with the Style of the Tang Dynasty

The Dunhuang murals' ingenious composition, rich colours, and harmonious overall expression can inspire photographers. For example, photographers can learn from this and arrange various elements reasonably during the shooting process to improve the work's visual impact. In addition, photographers can also pay attention to the matching of tones and emotional expression when using color to improve the aesthetic and emotional transmission effect of the picture, and the inspiration brought by object expression and emotional capture. In the Dunhuang murals, all kinds of characters are extremely vivid, with rich expressions and emotional penetration. For example, when shooting works, photographers can pay attention to capturing the natural demeanor and emotional changes of the characters and show the inner world of the characters through the lens; Based on this, photographers can obtain inspiration in clothing styling, and use this to restore or innovate traditional clothing elements, such as showing some regional cultural characteristics in their own works, to enhance the cultural connotation of their works better. Fourth, the use of light and shadow and the inspiration brought by creating atmosphere. Although Dunhuang murals are a kind of graphic art, they still use good light and shadow effects to create a picture full of profound sense of space. In folklore photography, photographers should also learn to use natural light, artificial light sources, etc., to highlight the subject and create a good atmosphere, and at the same time, improve the expressiveness of the work through light changes. The Dunhuang murals of the Tang Dynasty depict the daily activities and festivals of various classes of ancient society, which can reflect the life of ancient society. For example, some of the "donors" that often appear in Dunhuang murals generally depict people from all walks of life in ancient society, such as officials and merchants, farmers, ordinary craftsmen, etc. In the mural works of Cave 220 of the Mogao Grottoes in Dunhuang, there are images of donors, all depicted vividly. The costumes of the donors are varied, which can reflect the fashion of the time and reflect the spiritual outlook of people from different classes. For example, some donors sit or stand upright, others reverently hold sutras in their hands, and others hold ritual vessels, regardless of their posture, to show their devotion to the Buddha and reflect the cultural aspects of their daily lives (H. Xu, Y. H. Zhang, & Zhang, 2024). Based on this, the Dunhuang murals can show the details of various offerings and lifelike religious scenes, thus reflecting the social life and secular culture of ancient society.

Sublimation of the Cultural Connotation of Folk Photography

Dunhuang murals are one of the treasures of traditional Chinese culture, and photographers can explore the value connotation of the elements by studying the cultural symbols such as costumes and, decorations and poses in the murals, and integrate them into their own photographic works. For example, photographers can make the audience feel the traditional historical and cultural atmosphere and feel the profound heritage of Dunhuang murals by comparing the clothing styles and colors of the characters in the Dunhuang murals. In this way, they can inherit and carry forward Dunhuang culture, stimulate a deep interest in traditional Chinese art, and deepen their knowledge and understanding of Dunhuang culture. Photographers should pay attention to capturing the characters' emotions and the scene's atmosphere during the shooting process, and tell various small stories through pictures. For example, when photographing a folk festival scene, the photographer should be able to show the state of life and reflect their inner emotions by depicting details. In this way, the work can have a strong appeal and arouse emotional identity, and at the same time, improve the sense of story and history, and be able to combine modern visual language to show their understanding of traditional culture. Photographers should be able to draw on a variety of artistic expressions in Dunhuang murals, respect the original cultural connotation, and at the same time, adopt a modern visual language based on this to carry out innovative expressions. For example, in light and shadow treatment, photographers can learn from the light treatment methods in Dunhuang murals, using clear layers or chiaroscuro, etc., to better show the art of light and shadow treatment. In terms of composition, photographers can also learn the spatial layout design in Dunhuang murals and show the fluidity of lines to improve their ability to better grasp their works' spatial layout. In post-production, photographers can use modern technology to enhance the sense of picture and improve artistic visual effects. Based on this, it is possible to show the aesthetic tradition of the work and integrate modern aesthetic tastes. In this way, folk photographers can well inherit the culture and history of Dunhuang, and at the same time, bring innovative vitality and profound expression to the further development of the field of folk photography. At the same time, the murals of the Mogao Grottoes in Dunhuang will also adopt a multi-layered composition, for example, through the orderly ordering of elements such as landscapes, buildings and figures in the picture to create a sense of visual hierarchy. For example, in the murals of some Buddhist scripture scenes, the main characters are generally in the center, while the other secondary characters are arranged in various areas and distributed according to certain levels, and some figures are even only used in the background. In this way, the audience can quickly identify the relationship between the

elements in the scene and the importance of the characters. In the depiction of the faces of the characters, the murals also show the integration of diverse cultures. For example, in addition to some of the more pronounced East Asian faces, you can also see faces that are characteristic of Persia and India.

Fusion of Tang Dynasty Art and Modern Art

In a sense, the traditional artistic characteristics of folk photography and Dunhuang murals are deeply related, and in the development of modern culture, they can play a role in promoting each other, which is embodied in: first, cultural inheritance and reproduction. Dunhuang murals are important to ancient Chinese culture, carrying rich historical information and cultural value. Folk photography will effectively protect and inherit traditional culture by capturing some traditional societal elements (festivals, traditional folk handicrafts and folk arts, etc.). Moreover, photographers can also find a lot of inspiration from the Dunhuang murals and show the symbols of ancient Chinese culture to the audience through modern visual techniques and methods, artistic style, and expressive techniques. The artistic style of Dunhuang murals is distinct, and the expression technique is very unique. For example, the smooth lines, vivid colors and exaggerated images are all characteristics that can inspire folkloric photographers and provide them with a rich and diverse visual language. In the actual shooting, the photographer may wish to imitate some unique styles and techniques in the Dunhuang murals to create photographic works with national characteristics and unique artistic appeal; third, emotional expression and character portrayal. There are many figures in the Dunhuang murals, and each figure is lifelike, with a very strong emotional expression. In this case, folk photographers can increase the excavation and expression of the characters' emotions when capturing portraits. For example, through the depiction of the characters and demeanours in the murals, the photographer can very well capture the inner world of the characters, the relationship between the characters and the surrounding environment, and fourthly, the storytelling and scene re-enactment. Dunhuang murals generally use grand scenes to depict scenes with great dramatic tension. For example, photographers should comprehensively control the elements, such as people, environment, and activities, and present wonderful stories through the comprehensive use of elements. In the process of shooting, photographers can also learn from the scene setting methods and narrative structure processing methods of Dunhuang murals to improve the cultural connotation and dramatic tension of the works and improve the depth of the works. With the continuous development of science and technology, new technologies have promoted the development of folklore photography. For example, the application and development of digital post-processing and VR technology can allow the audience to feel and experience traditional culture in a new way. Modern technologists, photographers, and artists can collaborate to present extraordinary visuals to audiences and interpret traditional cultural content in new ways. The complex scenes and three-dimensional artistic techniques of the Dunhuang murals are used to innovate and integrate them with modern VR technology so that folk photography works can present a more three-dimensional visual effect. All in all, appropriate innovation based on respect and accurate reproduction of the traditional artistic techniques of Dunhuang murals is the way to connect these two art forms, and at the same time, it is also the focus of promoting their further integration.

CONCLUSION

The Tang Dynasty was a critical period for the development of murals, and the figures in Dunhuang murals have high artistic value and are a hot spot in archaeology. With the help of high-definition microscopes and infrared scanners, this paper analyzes the various figures and artistic techniques used in Dunhuang murals, aiming to excavate their archaeological value and relevant enlightenment for modern folk photography. The results show that the figures in the Dunhuang murals show offset characteristics, but the contour lines are symmetrical and concentrated, and the distribution points of the shapes are average. The colours of the murals are mainly red, yellow, blue and brown, and the dye is highly complex, and an oxide film is formed on the surface. The human structure in the mural is hollowed out, showing a sense of space. The characters' costumes, faces, and postures in the murals have the characteristics of a fusion of Chinese and Western cultures. The depiction of characters and scenes in the Dunhuang murals is very artistic, providing a reference for folk photography. There are shortcomings in this study, which are mainly reflected in the difficulty of obtaining sample data, and more data will be collected for analysis in the future to improve the research value.

CONFLICT OF INTEREST

No potential conflict of interest was reported by the author.

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