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THE APPLICATION OF TRADITIONAL CHINESE PATTERNS IN UNDERWEAR DESIGN

Traditional Chinese patterns have become an important element for use and innovation in various design fields due to their strong intuitive and decorative qualities. Its great richness and inclusiveness provide designers with a constant source of creative inspiration. As intimate apparel, underwear combines functionality, aesthetics and culture. Underwear design is a complex and delicate process, which is not only about technical innovation, but also a kind of artistic creation, reflecting human's pursuit of beauty and the need for self-expression. This paper takes traditional Chinese patterns in underwear design as the research object, aiming at exploring the application of traditional Chinese patterns in underwear design, analysing the cultural significance, design ideas and practical effects behind them. The historical origin, aesthetic value and artistic characteristics of traditional patterns are analysed from various aspects of design, culture and art, pointing out that these patterns are not only decorative, but also carry rich cultural connotations, and discussing how to integrate traditional Chinese cultural elements into modern fashionable underwear.

This paper adopts the literature research method, case study method and design practice method to analyse the research status, artistic characteristics, application forms and design innovation of traditional Chinese patterns, and puts forward the application methods and forms of traditional patterns in underwear design to provide theoretical reference for modern underwear design. Through case study and design practice, this paper explores the main points of design innovation, searches for the balance point of the combination of traditional patterns and underwear design, verifies the feasibility and validity of the design method with example works, and provides a theoretical and practical basis for the integration of traditional patterns and underwear design. This can promote the inheritance and development of traditional culture, and push the underwear industry towards a more diversified, personalised and cultural direction.

Key words: *traditional pattern, underwear design, cultural connotation, artistic characteristics, design method, innovative design.*

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ЗАСТОСУВАННЯ ТРАДИЦІЙНИХ КИТАЙСЬКИХ ВІЗЕРУНКІВ В ДИЗАЙНІ СПІДНЬОЇ БІЛИЗНИ

Традиційні китайські візерунки стали важливим елементом для використання та інновацій у різних сферах дизайну завдяки своїм сильним інтуїтивним та декоративним якостям. Багатство та інклюзивність візерунків забезпечують дизайнерів постійним джерелом творчого натхнення. Як інтимний одяг, спідня білизна поєднує в собі функціональність, естетику та культуру. Дизайн нижньої білизни – це складний і делікатний процес,

який стосується не лише технічних інновацій, а й своєрідної художньої творчості, що відображає прагнення людини до краси та потребу в самовираженні. У цій статті об'єктом дослідження обрано традиційні китайські візерунки в дизайні нижньої білизни. Метою дослідження є вивчення застосування традиційних китайських візерунків у дизайні нижньої білизни, аналіз культурного значення, дизайнерських ідей та практичних аспектів. Історичне походження, естетичну цінність і художні характеристики традиційних візерунків проаналізовано з різних аспектів дизайну, культури і мистецтва, підкреслено, що ці візерунки є не лише декоративними, але й несуть багаті культурні конотації, а також обговорено, як інтегрувати традиційні китайські культурні елементи в сучасну модну білизну.

Ця стаття використовує метод дослідження літератури, метод тематичних досліджень та метод дизайнерської практики для аналізу стану досліджень, художніх характеристик, форм застосування та дизайнерських інновацій традиційних китайських візерунків. Також визначено методи та форми застосування традиційних візерунків у дизайні нижньої білизни, щоб забезпечити теоретичне посилення на сучасний дизайн нижньої білизни. На основі тематичного дослідження та практики дизайну ця стаття досліджує основні моменти дизайнерських інновацій, шукає точку рівноваги поєднання традиційних візерунків та дизайну нижньої білизни, перевіряє доцільність та обґрунтованість методу проектування на прикладах робіт, а також забезпечує теоретичну та практичну основу для інтеграції традиційних візерунків та дизайну нижньої білизни. Це може сприяти успадкуванню та розвитку традиційної культури, а також підштовхнути індустрію нижньої білизни до більш диверсифікованого, персоналізованого та культурного напрямку.

Ключові слова: традиційний візерунок, дизайн спідньої білизни, культурна конотація, художні характеристики, метод проектування, інноваційний дизайн.

Problem Statement. As an important part of traditional culture, traditional Chinese patterns have run through the whole process of China's historical development, reflecting the deep cultural heritage and aesthetic pursuit of the Chinese nation. As a kind of functional clothing, lingerie focuses on functionality and comfort in its design. Although modern underwear design has made significant progress in fabric technology, cutting technology and the use of fashion elements, providing consumers with more comfortable, beautiful and diversified choices, this rapid iteration of the innovation trend often leads to the design of the 'cultural fault', the traditional pattern has not been fully applied and displayed, making the design of underwear in the pursuit of fashion and function while lacking in unique cultural flavour and national characteristics.

This article combines traditional patterns with underwear design. Based on the summary of the development history and cultural connotations of traditional patterns, it studies the composition forms, artistic characteristics, application methods and innovative designs of traditional patterns in underwear design. It provides theoretical basis and practical guidance for further promoting the widespread application of traditional patterns in modern underwear design, and promotes the development and inheritance of traditional culture.

Analysis of research. Traditional Chinese patterns have received widespread attention in the academic world. Scholars have studied the origins, evolution, cultural connotations, artistic characteristics, and application practices of traditional patterns from the perspectives of many disciplines, including art, history, and culture.

British design theorist Owen Jones published *Chinese Patterns* in 1867, which caused a sensation

in the Western art world and became a classic study of Chinese patterns. The book illustrated 100 of the most representative Chinese patterns, mainly derived from Chinese royal Ming and Qing dynasty ceramics, demonstrating the exquisiteness and uniqueness of Chinese patterns. In 2016, Shanghai Ancient Books Publishing House published the Chinese version of the book for the first time (Owen J., 2016). Works such as *History of Chinese Pattern Art* (Tian, Z. B., Wu S. S. & Tian Q., 2003) and *Complete Collection of Chinese Patterns* (Wu S., Lu Y., 2009) introduced the main types of patterns and their evolution processes from the Neolithic Age to modern times, including geometric shapes, animal shapes, plant shapes, and character stories. Yin Xiaofei discussed the ideal appeal, survival space, cultural accumulation and visual presentation of Chinese folk traditional auspicious images from four aspects: auspiciousness, folk, tradition and image (Yin, X. F., 2009). Li, D., et al classified auspicious patterns into three categories: Chinese auspicious patterns, pictographic auspicious patterns, and comprehensive auspicious patterns (Li, D., Park, J., Kim, S. H., & Liu, S., 2022). Li Huabiao, Hou Xiaogang, Wang Tingting, and Zhao Haiying proposed a traditional pattern generation model and selected typical patterns from geometric patterns, animal patterns, and plant patterns to reconstruct using the unified generation model, verifying the effectiveness of the model (Li, H. B., Hou, X. G., Wang, T. T., & Zhao, H. Y., 2011).

In the field of fashion, some scholars are also actively exploring how to integrate these traditional patterns, which carry a deep cultural heritage, into modern fashion design. Zhu Xuejia analysed the methods of applying traditional cultural elements to modern textile pattern design: abstract simplicity method,

symbol collage method, transplantation and grafting method (Zhu, X. J., 2023). Chu Haifeng proposed that patterns are a pictorial language symbol of traditional culture, which can be combined with the unique morphological structure, symbolism, and emotional characteristics of traditional patterns in modern design for design expression (Chu, H. F., 2011). Jin Kui, Liu Chi, and Zhou Linna refined the artistic characteristics of Suzhou embroidery in terms of colour, pattern composition, and needle application techniques, and applied traditional Suzhou embroidery patterns to modern underwear design (Jin, K., Liu, C., & Zhou, L. N., 2023).

Digital representation of traditional patterns has changed the modelling thinking and corresponding methods of traditional pattern designers. Zhou Hongwei used the computer to design the traditional patterns from two-dimensional and three-dimensional perspectives, pointing out that the inheritance and innovation of the traditional patterns are not a direct copy, but based on retaining the characteristics of the traditional patterns combined with the elements of the times, cultural development trends area to innovate (Zhou, H. W., 2020). Yuan Shiyang explored the conceptual definition of digital pattern, artistic style, aesthetic characteristics and its development and application trends in clothing, and summarised the computer automatic pattern generation methods: algorithmic principle generating pattern, fractal art software generating pattern, visual programming generating pattern and manual self-energetic automatic pattern generation (Zhou, H. W., 2020).

Through the organization and summary of domestic and foreign literature, it can be seen that scholars mainly focus on the «historical culture» of traditional patterns, «intelligent generation», and «application in textiles and clothing» research, and rarely combine them with underwear design.

Purpose of the article. The purpose is to promote the innovative application of traditional Chinese patterns in lingerie design, break the boundaries of traditional design, and promote the integration of traditional culture and modern design; to promote the development of lingerie design in the direction of more diversified and personalised, and to expand and open up new paths for the inheritance and development of traditional culture.

Presentation of the main material

1. About Chinese Traditional Patterns

Chinese traditional patterns are rich in content and diverse in form. In different historical periods, their expression styles and applications have shown distinctive characteristics of the times and profound cultural connotations.

The primitive patterns of coloured pottery such as fish and bird patterns in the Neolithic were simple and rustic, reflecting the ancient people's reverence and worship of the natural world, and were a direct reflection of early human social life and beliefs. During the Shang and Zhou Dynasties, complex and mysterious taotie (饕餮), kui dragons (夔龙), and cloud and thunder motifs appeared on bronzes, which demonstrated the superb casting skills of the society at that time, contained deep religious and philosophical meanings, and became symbols of power and majesty. During the Qin and Han Dynasties, with the establishment of the unified empire, patterns began to show diversified development, such as the clouds and air pattern, the four gods pattern (blue dragon, white tiger, vermilion bird, Xuanwu), etc., reflecting the «man is an integral part of nature» concept of the universe, but also integrated into the auspicious symbols, reflecting the people's aspirations for a better life. During the Wei, Jin, and Northern and Southern Dynasties, Buddhism was introduced to China, and religious patterns such as the lotus pattern and the Buddha pattern became popular, which glorified religious artefacts and promoted the exchange and integration of Eastern and Western cultures. During the Sui and Tang dynasties, pattern design reached a new peak. Tang Dynasty's precious patterns, rolled grass patterns, and clustered patterns were magnificent, with smooth lines and bright colours, showcasing the prosperous scene of the Tang Dynasty. The Song Dynasty was known for its elegance and vulgarity, and patterns such as the four gentlemen of plum, orchid, bamboo and chrysanthemum and the landscape pattern were loved by the literati, reflecting the aesthetic interests and moral pursuits of the scholarly class. In the Yuan Dynasty, with the rule of the Mongols, the influence of the steppe culture was reflected in the patterns, such as horse patterns, deer patterns and other animal patterns, as well as geometric patterns unique to the Mongols, showing the rough and bold artistic style. During the Ming and Qing dynasties, patterns reached their peak. Royal dragon and phoenix patterns, auspicious patterns, and other intricate and exquisite designs were widely used in porcelain, fabrics, and other handicrafts, becoming symbols of royal authority and folk prayer. The auspicious patterns contain five meanings: wealth, nobility, longevity, happiness, and good fortune. According to the different themes of styling, traditional Chinese patterns cover various aspects such as geometry, animals, flowers, birds, insects, auspiciousness, and characters in classification. Each pattern has its unique styling characteristics and rich cultural connotations.

2. The Artistic Characteristics of Chinese Traditional Patterns

Chinese traditional patterns come from the ancient people's careful observation of the objective world and the artistic combination of processing, is the embodiment and expression of the ancient people's psychological feelings, and sends people's aspirations for a better life. In traditional Chinese patterns, some are imagined in people's minds based on folk stories and myths, while others are artistically processed from real-life objects to express a happy and harmonious atmosphere (Dong, F., 2014).

Symbolic Features

Chinese traditional patterns transform complex information such as cosmic concepts, religious beliefs, moral ethics, and auspicious meanings into intuitive and perceptible artistic images through refined graphics, lines, and colour combinations. These patterns go beyond simple decorative functions and become symbols that convey emotions and culture. For example, the dragon and phoenix, as symbols of imperial power and honour, are important symbols of the totem worship and cultural identity of the Chinese nation; botanical motifs such as the lotus flower and peony convey people's aspirations for a pure, rich and happy life. The symbolic character of traditional patterns enhances their expressiveness and recognition.

Line and compositional characteristics

The lines of traditional patterns are smooth and rhythmic, such as cloud patterns and water ripples, which express the dynamic beauty and vitality of nature through continuous curves and folds; the changes in thickness, twists and turns and extensions of the lines convey delicate emotions and a rich sense of hierarchy.

Compositionally, the pattern design pays attention to symmetry and harmony, such as two-square continuous or four-square continuous patterns, forming a stable and vivid overall effect through the combination of repetition and variation. The contrast between white space and dense areas creates a visual sense of rhythm and space. The combination of lines and compositions highlights the formal beauty of traditional patterns, reflecting the Chinese people's observation and perception of the natural world, as well as the pursuit of harmony, balance and unity.

Colour characteristics

Traditional patterns are often dominated by red, yellow, blue, green, black and white, and the choice of these colours is inspired by the natural environment and ancient philosophical ideas. Red is very common in traditional patterns, symbolising auspiciousness, festivity and enthusiasm; yellow represents dignity and authority; blue and green are taken from natural

colours, giving a sense of freshness and tranquillity; black and white as contrasting colours can enhance the hierarchy of the patterns, and they also contain the philosophical ideas of the balance of yin and yang and the unity of opposites. These colour features not only beautify the appearance of the pattern, but also carry the Chinese people's observation of natural phenomena, their experience of social life and their hopes for a better future.

3. The application method and design practice of Chinese traditional patterns in underwear design

Cultural inheritance and innovation are the soul of underwear design and an important driving force for the differentiation and sustainable development of underwear brands. Underwear, as a close-fitting and intimate garment, should not only focus on functionality and comfort in its design, but also carry the emotional attachment of the wearer. The application of traditional patterns in underwear design can be achieved through various methods to achieve the effect of maintaining traditional charm without losing fashion sense.

Deconstruction and reconstruction of traditional patterns

Deconstruction and reconstruction thinking can be regarded as a product of deconstructionism and compositionism, which focuses on the analysis of the whole unit, extracting the representative elements, and then reconstructing them based on new structural ideas to give them new expressive power (Zhao, F. H., Li, M. Y., Wang, X., & Zhang, X., 2023).

Traditional patterns are often complex and intricate, and directly applied to underwear design would appear too heavy. Designers can break down patterns according to the requirements of underwear styling design, extract their typical local forms or microscopic features, and restructure elements in a completely new design way to obtain new patterns that meet design needs. In 2017, Victoria's Secret launched the «Blue and White Porcelain» lingerie series, with celadon prints hand drawn by artist Jeff Fender. He extracted the classic blue and white tones from blue and white porcelain, abstracted common patterns such as lotus patterns and entwined branches, and presented them simply and brightly on the lingerie fabric, giving these traditional patterns a new visual experience (Fig. 1).

The use of traditional pattern colours

Direct reference method: extract colour elements directly from traditional Chinese patterns and apply these colours to underwear design in their original form.

Colour fusion innovation method: Combine the traditional pattern colours with modern popular colours, use the changes of brightness and purity of colours to

enhance the sense of hierarchy and visual impact of the pattern, and achieve colour innovation through the collision and fusion of colours.

Traditional colours are part of the culture itself and can evoke emotional resonance. In lingerie design, the use of these colours can create a deeper connection with the consumer on an emotional level. For example, Chinese lingerie brand «Phililowland» launched lingerie with peacock feather motifs, in which the designers applied the natural curves and colours of the feathers to the lingerie decorations, combining modernity and ethnicity. Subsequently, it launched the Dunhuang series of underwear, using the Dunhuang murals of the lotus, flying sky, auspicious clouds, Baoxiang flowers and other patterns, through embroidery or digital printing technology, these patterns rich in oriental charm are vividly presented in the underwear, and the colours are borrowed from the murals of the blue, red, yellow, purple and so on, the colours of which show the magnificence of the art of Dunhuang, and also add the visual impact of the underwear (Fig. 2).

Forms of Process Technology

The realisation of patterns in lingerie is mainly accomplished through techniques such as embroidery and digital printing, each of which has its characteristics and can meet different design needs. Embroidery, as a time-honoured craft, gives lingerie a delicate feel and unique texture, especially for patterns that require a high level of detail and three-dimensional effects, and provides an unrivalled sense of texture and artistry. Digital printing technology is favoured by an increasing number of designers for its effi-

ciency and flexibility. It can quickly and accurately transfer complex patterns and colours onto lingerie fabrics, making it ideal for traditional patterns that are highly detailed and colourful. For example, designer Liu Yatong incorporated the most distinctive Chinese patterns such as dragons, phoenixes, flowers, and birds into underwear design through digital printing and embroidery, adding a unique Eastern aesthetic to modern underwear (Fig. 3).

Design Practice

With the increasing emphasis on cultural identity, it has become a trend to integrate traditional art elements into modern design. In the field of lingerie design, this integration can not only satisfy consumers' basic needs for aesthetics and comfort, but also give the product a deep cultural heritage and unique artistic charm. Through the re-creation of traditional patterns, this design transforms the historical cultural symbols into the highlights of modern underwear design, thus enhancing the connotation and value of the design.

The design work of «Qiyuan» aims to explore the modern transformation and innovative application of traditional patterns in underwear design, combining modern design concepts and craftsmanship techniques to improve, reconstruct, and integrate traditional patterns. The decorative pattern originated from the Taotie (饕餮) pattern on bronze vessels during the Shang and Zhou dynasties, which is a patterned animal face, also known as an animal face pattern. Based on the original pattern, the designers generalise and refine the pattern by breaking up, decomposing, restructuring, local selection, etc., and



Fig. 1. Victoria's Secret underwear



Fig. 2. Phililowland underwear

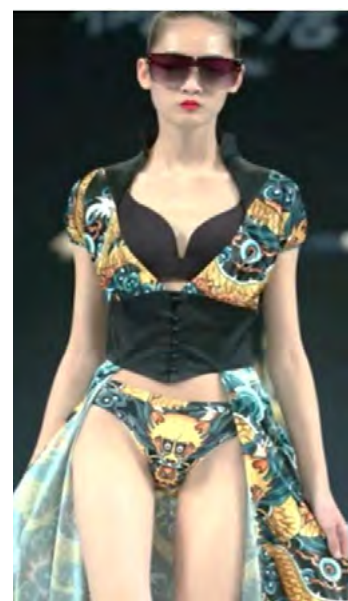


Fig. 3. Underwear designed by Liu Yatong

transform the original pattern into new decorative elements, such as adjusting the thickness of the lines, changing the direction or proportion of the pattern, to make it meet the needs of modern aesthetics and underwear styling design. The colours are black and white. In China, black symbolises solemnity, mystery and power, while white symbolises purity, peace and serenity. Black and white can form a sharp contrast,

which can enhance the visual effect of the pattern, and also implies the philosophical idea of opposition and unity. The fabric is made of Lycra air layer fabric and matte TPU fabric. The white pattern is collaged with reflective hot melt adhesive film. The split design and three-dimensional design of the style make the traditional pattern present a smooth and modern line beauty on the underwear (Fig. 4).



Fig. 4. «Qiyuan» underwear design, designed by Zhengjia Ma, directed by Yujuan Wang

Conclusions. Chinese traditional patterns provide rich design materials for modern underwear design, this paper makes a systematic analysis of its symbolic features, line and compositional features, and colour features based on the research on the development history of traditional patterns. The combination of graphics, lines and colours gives traditional patterns a symbolic meaning, which transforms complex information such as cosmic concepts, religious beliefs and auspicious symbols into intuitively perceivable artistic images. The application methods of traditional patterns in underwear design are proposed: decon-

struction and reconstruction design, combination of popular and traditional colours, interactive use of embroidery and digital printing, and case studies and lingerie innovation practice.

Underwear belongs to functional clothing, and its combination with traditional patterns makes the underwear design break through the single modern style and enhances the aesthetic and emotional value of underwear. At the same time, this combination enhances the artistry and cultural expression of underwear, making underwear a new carrier to show cultural heritage and innovation.

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