

Research on the Design of Cultural and Creative Derivatives of "Twenty-four Solar Terms"

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Abstract—The traditional culture of China has been greatly impacted with the development of science and technology and the continuous entry of peripheral culture. It is significantly necessary to think about how to inherit and develop the traditional culture of our nation. The twenty-four solar terms — the time knowledge system and its practice formed by the Chinese people through observing the annual motion of the sun declared by China on November 30, 2016 has been enlisted into Masterpieces of the Oral and Intangible Heritage of Humanity. Intangible cultural heritage has unique cultural genes and values as a typical representative of traditional culture. The design of cultural and creative derivatives based on it has good commercial value and can inherit and develop China's traditional culture.

Keywords—twenty-four solar terms; cultural and creative derivatives; application analysis

I. INTRODUCTION

The world has gradually become a whole, and cultural exchanges between countries are getting closer and closer under the background of globalization era. However, we should also pay attention to the inheritance of traditional culture while emphasizing the development of cultural diversity. The twenty-four solar terms are the accumulation of long-term experience of our ancient working people and the crystallization of human intelligence and wisdom as well as our excellent traditional culture. By applying the twenty-four solar terms to the design of practical articles, we can not only increase the connotative meaning and cultural added value of the products, but also further inherit and develop the national traditional culture.

II. ANALYSIS ON TWENTY-FOUR SOLAR TERMS

The twenty-four solar terms, which refer to the 24 seasons and the climate, are a supplementary calendar established in ancient China. They not only reflect the seasonal changes, but also guide the farming activities. Twenty-four solar terms are a knowledge system formed by observing the annual motion of the sun and summarizing the changing laws of seasons, climate, phenology of the year, which contain cultural accumulation such as solar terms' customs, stories and legends and poems and songs. The cultural knowledge contained in the twenty-four solar terms is systematic, comprehensive and diverse, so it can provide

both enough design elements for the design of cultural and creative derivatives and strong support for the dissemination of culture. The presentation of the elements of the twenty-four solar terms on articles can not only inherit and carry forward the traditional Chinese culture, but also attract consumers' interest in the understanding of the twenty-four solar terms culture, having a sense of identity and pride in their own national culture.

A. Formation of Twenty-four Solar Terms

Ancient Chinese civilization belongs to farming culture and China is one of the origins of a few farming civilizations in the world. The growth of crops must depend on the sun. The ancient Chinese people began to attach importance to the role of the sun very early. We all know the famous story of the two children arguing about the sun. In fact, before that, our ancient people had a certain understanding of the knowledge system of the sun. The people in The Western Zhou Dynasty started off with farming and inherited the achievements of businessmen in observing the sun. Therefore, there was the concepts of "Summer Solstice and Winter Solstice" and "The Spring Equinox and the autumnal Equinox" in the Western Zhou Dynasty, then the concept of "Four Beginnings of Spring, Summer, Autumn and Winter" came into being in the middle Spring and Autumn Period. With good social factors, we still need to change our thoughts. It is known to all that the grand contention schools of thought took place in the Spring and Autumn Period and Warring States Period. Among them, the agronomy school, as one of the important schools of thought, formed the ideological system of harmony between man and nature in the process of contention among various schools of thought, which advocated reverence for nature and making full use of the nature. This agronomy thought promoted the formation of the "twenty-four solar terms" concept, which was basically formed in the Warring States period.

B. Contemporary Artistic Characteristics of the Twenty-four Solar Terms Culture

With the development of the times, "twenty-four solar terms" was not only used in agricultural production but also in people's lives. People began to explore the cultural details of the "twenty-four solar terms" and their artistic value. People celebrated a special solar term as a festival and a series of customs appeared. As a result, the "twenty-four

solar terms" began to slowly penetrate people's lives besides the lives of farming people, and then they were inherited with their constant increase of artistic value. As an excellent traditional culture in China, the "twenty-four solar terms" have gradually been paid attention to by those people engaged in artistic research and design. Culture and art complement each other. Art works without cultural details have no soul and cannot develop for a long time. The "twenty-four solar terms" are the crystallization of the wisdom of the ancient working people in our country, and have developed in different times. Each generation of culture and art is different from the previous generation. At the same time, culture also needs society to provide it with new artistic concepts to improve its continuous development. Social progress can also bring more advanced technologies, innovative forms and display media, thus better combining culture and art, and enabling them to inherit and develop better.

C. Content Preservation and Selective Presentation of Twenty-four Solar Terms Culture

As a traditional culture of our country, there has already been fixed content of the "twenty-four solar terms" in our minds. With the development of society, it is a problem for us how to make the "twenty-four solar terms" culture keep pace with the times and exist in a new form at present. So we must do further research on their cultural connotation and artistic value of the "twenty-four solar terms" and conclude and select their elements, so as to carry out selective application in the design of cultural and creative derivatives and better inherit and carry forward traditional Chinese culture. Things are not static and will be eliminated if they do not keep pace with the times. So is culture. Traditional culture needs to be inherited. The spread, continuation, inheritance and promotion of any culture must have new vitality and new methods. While adapting to the society, culture must transcend itself and keep pace with the times. When interpreting the content of culture in combination with contemporary humanistic environment and technology, we will naturally integrate cultural elements with material hardware and environment. We analyze the cultural composition of the "twenty-four solar terms" mainly from the two levels of "type" and "meaning". The "type" of the twenty-four solar terms culture refers to the origin of the names of various solar terms, as well as the characteristics of the natural environment under the solar terms and the way to celebrate the festival. The "meaning" of the solar term culture refers to people's subjective impression of the solar term, including their feelings about the natural environment and customs of the solar term. We must keep and create the meaningful contents of "type" and "meaning" and discard the meaningless aspects.

III. CULTURAL AND CREATIVE DERIVATIVES

A. The Concept of Cultural and Creative Derivatives

Cultural and creative derivatives refer to the products of a new cultural form derived from culture, which are created with innovative means, and finally made to meet the needs of

modern aesthetics according to the corresponding culture and integration of new ways of thinking. Cultural and creative derivatives have the most prominent feature of their cultural added value, not just ordinary products. Because of their cultural attributes and connotation, cultural and creative derivatives can be better developed. Due to their own cultural uniqueness in different regions, the cultural and creative derivatives have different regional styles and the characteristics of local symbols, so we often see many representative cultural and creative derivatives in various tourist attractions, as shown in "Fig. 1" and "Fig. 2".



Fig. 1. Terracotta Army in Xi'an.



Fig. 2. The Great Wall.

B. The Emergence and Development of Cultural and Creative Derivatives

In the 1980s, in order to better develop their own economies, developed countries such as Europe and the United States began their economic transformation one after another, transferring the production of domestic heavy industry and rough processing industry to developing countries, and focusing on the development of industries with high added value. In this environment, culture also became diversified, and individuals paid more attention to creativity and personality development, which caused the rise of cultural and creative industries in developed countries. As far as the United States is concerned, people highly praised the cartoon characters such as Spider-Man, Iron Man and Captain America when animation and movies came out one after another. As a result, there were various cultural and creative derivatives with cartoon characters as design elements.

There were Chinese cultural and creative derivatives for a long time, but people did not have the concept of them at that time. Now, we know the development of ancient Chinese ceramics, silk and other handicrafts took the lead of the world, and some decorative handicrafts were designed

and decorated according to the cultural and social background at that time. From the design, we can see the patterns or other elements of the culture at that time, which were typical cultural and creative derivatives. With the development of society, people gradually knew the concept of cultural and creative derivatives which could be developed. For example, the cultural and creative derivatives in the Beijing Palace Museum ranked in the top three among the top ten cultural and creative derivatives of the year. China's cultural and creative derivatives industry is below the level of developed countries, but it is still on the trend of development, and the development of cultural industry is also on the rise.

IV. THE PRESENT SITUATION OF CULTURAL AND CREATIVE DERIVATIVES OF THE TWENTY-FOUR SOLAR TERMS

A. Current Situation in China

Since they were enlisted in Masterpieces of the Oral and Intangible Heritage of Humanity, the twenty-four solar terms have become a topic of concern to all circles of society. There are also different forms and types of cultural and creative derivatives for the twenty-four solar terms. For example, the "twenty-four solar terms" series of cultural and creative derivatives, which were launched in Beijing's Beihai Park in 2018, combines the characteristics of the Chinese traditional twenty-four solar terms with scenic spots in Beihai Park to form unique patterns, which are applied to mobile phone shells, postcards, Rubik's Cube and other carriers to create a series of cultural and creative derivatives on twenty-four solar terms. The twenty-four solar terms is not only related to agricultural production, but also are deeply rooted in the spiritual and cultural context of landscape gardens. They are vividly expressed through gardens, a profound cultural carrier, which has also created a world of cultural creativity in Chinese gardens. Beihai Park, a royal classical garden with 852 years of history, embodies the idea of harmony between man and nature in the philosophy of Confucianism, Buddhism and Taoism in China in terms of gardening and techniques. The gardening concept is highly consistent with the Chinese nation's unique understanding of the regularity of natural weather. A unique aesthetic feeling is formed by integrating the cultural elements of the twenty-four solar terms and the geographical features of Beihai Park into the product and the most traditional cultural connotation is conveyed and carried forward in fashionable and novel forms of expression, thus forming the story of the product itself, as shown in "Fig. 3" and "Fig. 4".

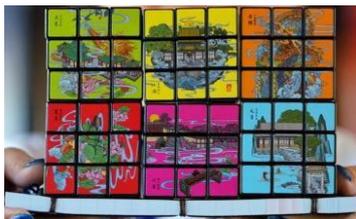


Fig. 3. Twenty-four solar terms derivatives-Rubik's Cube.



Fig. 4. Twenty-four solar terms derivatives-mobile phone shell.

B. Current Situation Abroad

The twenty-four solar terms have a far-reaching influence in China, even having been spread to Japan and are still used there today. At the same time, cultural and creative derivatives of the twenty-four solar terms have also developed well in Japan. For example, "twenty-four solar terms signs" are designed according to the climate characteristics of each solar term and their own culture. For example, they have Slight Heat and fans. History of Zhou says that "On the day of Slight Heat, the wind is warm, crickets live in the wall for the next five days, and eagles soar in the air for the next five days." It is hot on Slight Heat and the wind is hot, which can't bring people a little bit of coolness. Currently, cicadas also begin to sing. In such hot and dry weather, are very upset. At this time, they lie on the bed and fan, feeling very comfortable. Therefore, the design of the fan incorporates the characteristics of Slight Heat. Another example is Frost's Descent and paper. When the weather is cool, we stroll through the forests on the mountains and feel the changes of nature in the four seasons. We have all heard of "Frost leaves bloom in February". The scenery in late autumn is a beautiful scenery line. Japan has always been a nation that loves and respects nature, which is not embodied only in the protection of the environment now. The birth of washi (Japanese paper) represents the living customs coexisting with nature and enables Japanese culture to be inherited and poems and songs to be spread through the paper media, depicting the changes of the four seasons, dense forests and rich vegetation, clear streams, etc. Elegant use of beautiful washi shows the joyful inner world, so the image of Frost's Descent is integrated into the design of washi, as shown in "Fig. 5" and "Fig. 6".



Fig. 5. Slight Heat — Fan.



Fig. 6. Frost's Descent — Paper.

V. APPLICATION ANALYSIS ON THE DESIGN OF CULTURAL AND CREATIVE DERIVATIVES OF THE TWENTY-FOUR SOLAR TERMS

A. Design Principles of Cultural and Creative Derivatives of the Twenty-four Solar Terms

1) *Cultural principle*: Cultural principle is not only the first principle in the design of cultural and creative derivatives but also the basis in the design of cultural and creative derivatives of the twenty-four solar terms. Cultural elements are the soul of cultural and creative derivatives. Products without culture are the same as other products and cannot reflect the characteristics of products, let alone be called cultural and creative derivatives. Twenty-four solar terms are the traditional culture of our country, which contains profound cultural details. Only by extracting and innovating the cultural elements in the twenty-four solar terms and applying them to the design of products can the products have more characteristics and better inherit and carry forward the traditional culture of our country.

2) *Principle of innovation*: The design of cultural and creative derivative is not to simply copy and paste the existing culture, but to carry out innovative design on the basis of the original culture according to the development of the times. However, innovation is not to return to zero, but to redesign on the basis of preserving the original culture. The principle of innovation is the important design principle of cultural and creative derivative for the twenty-four solar terms. We must innovate and keep culture, but not rigidly copy culture. It is necessary to keep the organic unity of culture and innovation so as to design cultural and creative derivative that meets the aesthetic and use needs of contemporary people.

3) *Functional principle*: Twenty-four solar terms comes from life, so we cannot discard functionality of cultural and creative derivatives designed with their design elements and cannot only care about ornamental and artistry of the designed products instead of their practical functions. The products should be more in line with the public's aesthetic and public needs. Only in this way can such products be more easily accepted by the public and better inherited and developed in each family.

B. Designing Methods of Cultural and Creative Derivatives for Twenty-four Solar Terms

1) *Extraction of typical elements*: Twenty-four solar terms have been handed down from ancient times to now, and their contents have been continuously deepened and developed. Each solar term has its own different natural characteristics and customs. The typical element symbols, which are extracted either from the natural environment of solar terms or from customs and habits, are representative, which can make people intuitively understand the rhyme and meaning to be expressed and improve the cultural connotation of products. There are two main forms of element extraction-direct induction and indirect induction. Direct induction is the direct imitation of typical elements, which is also one of the most widely-used forms in current cultural and creative derivatives, and indirect induction is the change and innovation of extracted elements, thus making products more innovative.

2) *Skillful Grafting of means*: Grafting is to establish subtle connection between two unrelated things, design new elements and design symbols through a series of deformation redesign and other means, and apply them to product design. Such design gives people endless imagination, but it does not lack expression of cultural significance and connect unrelated things, behaviors and concepts through skillful means.

C. Designing Proposals for Cultural and Creative Derivatives of Twenty-four Solar Terms

Design of every creative derivative should be made by extracting and creating the elements in the twenty-four solar terms after careful consideration and keeping pace with the times in combination with the background of the times. We should really combine the cultural connotation of the twenty-four solar terms with modern science and technology to create cultural derivatives that conform to public aesthetics and attract people. Carriers play a vital role in cultural and creative derivatives. The choice of carriers should be various, such as ceramics, wood, fabric. Innovative cultural and creative derivatives give people different visual feelings and use experience with its cultural connotation. In addition, at present, the stores of cultural and creative derivatives are mostly located in tourist attractions and other places, but their price there is higher than that in ordinary shops in the market, and their quality is deficient. Therefore, I think that the cultural and creative derivatives of the twenty-four solar terms should not only have good creative design, but also establish brand effect, specialty shops should be set up in tourist attraction, special counters should be set up in shopping malls to establish a unified sale price in order to ensure that consumers can purchase good commodities anywhere. In addition, we should also better grasp the consumption objectives and consumption positioning of consumer groups. The grade of products should be differentiated to provide different products for consumers with different purposes. Only in this way can cultural derivatives satisfying different consumer groups be made, thus cultural and creative derivatives of the twenty-four solar

terms can be accepted by people at different levels and their scope of dissemination can be expanded.

D. The Prospects for the Development of Cultural and Creative Derivatives in the Twenty-Four Solar Terms

"Twenty-four solar terms" is a unique cultural phenomenon and the traditional culture in China. As for the design of cultural and creative derivatives of twenty-four solar terms, we should design more cultural and creative derivatives which have the characteristics of the nation and are easy to be loved by the people. Secondly, as the world's intangible cultural heritage, the twenty-four solar terms should also be well known by the world. Cultural and creative derivatives designed with traditional culture as the element can best show the traditional culture with Chinese characteristics. A good combination of cultural creative derivatives and traditional culture can not only reflect certain humanistic feelings, but also stimulate emotional sublimation and better enable foreign friends to understand China's unique traditional culture. For example, on June 25, 2018, the "Seasonal Life, Four Seasons Suzhou" Chinese twenty-four solar terms Cultural and Creative Derivatives Exhibition took place at the Chinese Cultural Center in Tel Aviv, Israel. Cai Weiming, the representative of the Chinese Embassy in Israel, introduced the origin of twenty-four solar terms and the history of Suzhou, a watery region in the south of the Yangtze River, telling that twenty-four solar terms is ancient with modern significance. In Suzhou, it is a unique way of life for the city's residents with the solar terms. The success of this event is more conducive to the Chinese traditional culture going abroad and is well known by other countries.

VI. CONCLUSION

People have paid more attention to the combination and development of cultural and creative derivatives and traditional culture. As the crystallization of the wisdom of the ancient Chinese people, the twenty-four solar terms have also been focused on as the world intangible cultural heritage. Through the analysis of the twenty-four solar terms, this paper discusses their formation and artistic features, and then tells us how to better apply the twenty-four solar terms culture into the design of cultural and creative derivatives, and further gives a brief description of the derivatives. Then it analyzes the current development situation of the cultural and creative derivatives of the twenty-four solar terms at home and abroad, gives the design principles and methods and design suggestions of the derivatives. Finally, it analyzes future development prospects of the derivatives and improves their value and connotation. Under the background of globalization, many cultures are developing together. So national traditional culture will be inherited and developed better by better development of cultural and creative derivatives of the twenty-four solar terms.

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