

Study on “Intuitive Semantics” of Orient Traditional Creation Wisdom Contained in the Design of Modern Mechanical Products

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Abstract. The traditional mechanical products have been considered to be structured products all the time. The concept of “priority to function” dominates the design philosophy in the long term, but it unilaterally stresses “technique” and “performance” of the “product” but overlooks “emotion” and “care” of “human”, thus making the relationship between “human” and “product” “disharmonious” and violating the original intention of human for creation. Then this requires us to think deeply. In the aspect of things perception in China, starting from characters invention by Cang Jie, there were cultural heritages being good at abstraction including “intuitive realization”, “sudden enlightenment” and “empathizing and understanding” since ancient times. The six methods of character creation reflect the “intuitive semantics” or the information referred to as “intuitive semiology” formed very early in Chinese culture. The theoretical achievements of domestic and overseas mechanical product design are presented and analyzed firstly in this essay; and then starting with the study on Chinese traditional creation culture and practical activities, the orient traditional creation wisdom that contains substantial thinking and elements related to “intuitive semantics” will be researched; finally, the “intuitive semantics” will be infused into design of modern mechanical products to think and study and survey the relationship between human emotion and technical principles, thus perfecting the innovation theory of modern mechanical product design.

Keywords: product design, emotional experience, intuitive semantics.

1 Introduction

The traditional mechanical products have been considered to be structured products all the time. The concept of “priority to function” dominates the design philosophy in the long term, but it unilaterally stresses “technique” and “performance” of the “product” and overlooks “emotion” and “care” of “human”, resulting in fatigue and boredom of laborers working for long time and “disharmony” of relationship of “human” and “product” as well as violation of initial intention of human for creation. Then this requires us to think deeply and the orient traditional creation wisdom will be a bright lamp to indicate the right directions.

2 Analysis on Research Status of Modern Mechanical Product Design

With rapid development of research on “technical character of product” made by human, the natural science researches with subjects of engineering and science progress significantly and the researches achievements about modern mechanical product design throughout the world are too numerous to mention one by one. For example, Lu Yongxiang, the academician of CAS and CAE, pointed out in his essay-Guide of Development of Chinese Mechanical Engineering Technology and Industry Innovation that “Technology Roadmap of China Mechanical Engineering has been published and made prediction and outlook about development of mechanical engineering technology in the next 20 years” (Lu, 2011).

The researches on “product spirituality” are significantly less than those on “technical character of product” in the aspect of modern mechanical product design around the world. The reasons contain various aspects. Profess Cheng Jianxin, a Chinese scholar pointed out in his keynote speech-Oriental Culture and Modern Design Ethics that “the technical development of western developed countries is so rapid that human social ethics may not follow, thus causing serious ‘negative control of technology’”. Some other scholars also conducted the researches from different aspects, for instance, Aesthetics and Modern Mechanical Product Design (Yang, Jin, Wu, 2000), Study on Industrial Design of Mechanical Product Based on Using Philosophy (Jiang, Xu, 2011), Mechanical Product Design Based on Ergonomics (He, Zhang, 2010), Study on Affective Component in Appearance Design of Mechanical Product (Wei, Zhong, 2011), the Application of Color Perception on the Humanization Design of Mechanical Products (Cao, Cheng, 2007) etc.

3 “Intuitive Semantics” of Orient Traditional Creation Wisdom

Five thousand-year Chinese culture runs a long history and is extensive and profound. No matter the Book of Changes, Book of Diverse Crafts, Exploitation of the Works of Nature, Ying-tsaofah-shih, Shan Hai Ching or armillary sphere, Houfeng Seismograph, southward pointing cart, mileage drum wagon and gold and silver sachet, they are all sparkling with orient traditional creation wisdom and show the great creation thinking in the early stage of China as well as deliver the information about “intuitive semantics” of Chinese creation.

In the aspect of things perception in China, starting from character creation by Cang Jie, there were cultural heritages being good at abstraction including “intuitive realization”, “sudden enlightenment” and “empathizing and understanding” since ancient times. As for six methods of character creation that include self-explanatory characters, pictographic characters, echoism characters, associative characters, synonymous characters and loan characters, “self-explanatory character” stands in the breach. The other methods such as “pictographic characters”, “echoism characters” and “associative characters” reflect the “intuitive semantics” which is also referred to as “intuitive semiology” formed early. For pictographic character formation, Xu Shen explicated as: “the pictographic character is created through drawing the outline or features of certain objects.” (Xu, 1963)

Zhang Heng, a Chinese scientist in the Eastern Han Dynasty, created the Houfeng Seismograph in A.D.132—the first seismoscope in the world but failed to be handed down between A.D.132~418. Fan Ye used 196 characters to record in his Book of the Later Han • Zhang Heng to keep it handed down (Feng, Wu, 2003). Upon studies, we found out that the decorations on the seismograph applied by Zhang Heng are mainly pictorial symbols and symbol marks, both of which contain the implications about “intuitive realization” including: superficial functional significance, inner symbolic meaning and deep concept of natural law. These contents visually enrich the connotations of creation, strengthen the poetic imagery beauty of ware and show the understanding and application of “intuitive symbol” of our ancestors (Figure 1).

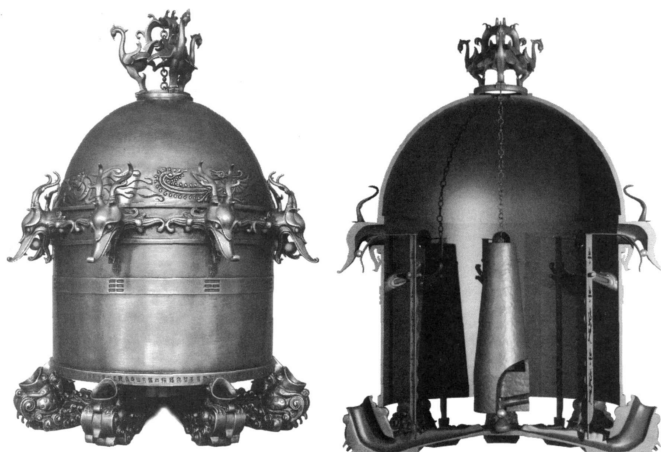


Fig. 1. Restoration model of new bronze seismograph

According to the archaeological materials open to public currently, 13 gold and silver sachets of Tang Dynasty have been excavated so far (Duan, 2011). The artistic modeling of gold and silver wares of Tang Dynasty are distinctive. The close attention are not only paid to the change of external contour but also paid to the delicacy and smooth (Zhu, 2010). After reading Six Code in Tang Dynasty and other classical documents, we found out that gold and silver sachets of Tang Dynasty not only are integrated with functionality, aesthetic character, decorative nature, interestingness and emotionality but also possess the “universality” or “general character” that enables the user to know the function and usage at a glance. It is solid evidence that the appreciation and understanding of “intuitive realization” are contained in Chinese traditional creation ideology.

4 Oriented and Western Division History

The first industrial revolution of UK starting in the 1860s brought human society into the industrial age, resulting in separation of technology and art and split between substance function and moral function which are shown in Modern Times of Chaplin or

reflected in the current society where the technology are highly developed, but the human is more lonely, doleful and despondent.

Among Chinese traditional creation ideology, the sages in the ancient times advocated adaption to the law of natural development and to be kind to all things on earth, such as the ecological philosophical view put forward by Lao Tse and design idea of “making methods of human to meet natural law” proposed by Chuang Tse. However, the development of China was also limited. Firstly, mystique was excessive, “capability of comprehension” was highly praised and the feudal thoughts toward heritage of creation culture and technique, resulting in failure in handing some heritages down to next generation. Secondly, thousands of years development of civilization in China led to the emperors and officials unconsciously cultivating a kind of superiority feeling toward the historic culture, great power psychology and self-seclusion, giving rise to lag in modern science and technology, thus making Chinese excellent traditional creation thought to be deserted and forming division history of Chinese creation ideology.

5 Research on “Intuitive Semantics” of Modern Mechanical Product Design

Although almost 100 years has passed since appearance of Moder Times, the mechanical products in all plants around the world are still running in cycles and they are simply equipped with more advanced technology and higher level of automation and informatization. People had tried to change the “relationship between mechanical products and human” from the status of “human being enslaved by product” formed in the industrial age, but looking around, the mechanical products that “uphold technology” and “give priority to function” but ignore human “emotions” and “care” can be seen everywhere. Thousands of years of Chinese traditional creation activities have been taking family production system as the structure and self-sufficient cottage craft and workshops formed by specialized households for the purpose of making a living as the form for long time. The creators virtually stressed the emotionalization during product creation and a kind of imperceptible harmonious atmosphere that was naturally revealed was embodied in the works.

It is not hard to find out that infuse Chinese traditional creation ideology into design of modern mechanical products and apply “intuitive semantics” as the theoretical guidance for design and practice so as to inherit the inner thoughts including “experience design”, “interactive design”, “emotional design” and “general design” contained in Chinese traditional creation activities and effectively find out a solution to the inharmony of “mechanical products” and “human” caused by mechanized mass production dominated by high technology.

6 Conclusion

The unilateral development of modern design philosophy taking western design concepts as subject in today’s world cannot properly solve the harmonious relationship between “human” and “product” as well as “human” and “nature”, especially in the

field of mechanical product design. Therefore we have reasons to search the advanced creation ideology made by our ancestors and gain the theory of “intuitive semantics” for guiding modern design practice through conducting scientific summary about information about “intuitive realization” or elements of “intuitive conformity” and learning western science ideology and technology so as to form unique orient design ideology, enabling China to catch up with or even lead the global design current.

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