Study on the design evolution of longeval lock since the Ming Dynasty

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Abstract. This paper explores the connotation of longeval lock design since the Ming Dynasty, and shows people's the core value of longeval lock. Firstly, by comparing the difference between Ming, Qing longeval locks and modern longeval locks, the paper analyzes the evolution law of longeval lock, and learns that the form of longeval lock is from complex to visual, material from single advance to diversification, process from natural advance to industrialization, and meaning is also from single advance to diversified evolution conclusion, from which it embodies the core value of longeval lock.

1. Introduction
Longeval lock alias has "five-color rope", "100 locks", "longeval wisp" and so on. The form style of longeval lock draws on the traditional wide lock form, which is a kind of mascot used by folk to pray for the healthy growth of children. Influenced by the history, environment, ecology, culture, ethical guidelines, society, economy and humanities of the Dynasty, the form, process, material and meaning of the longeval lock products also evolved with the change with times.

2. Morphological evolution analysis of Longeval lock

2.1. Evolution of morphological style: from complex to simple
The early morphological pattern of the longeval lock is similar to the shape of the ancient lock, which is usually a chain made of iron rings[1]. The style of the old longeval lock is more anthropomorphic, such as the "Kirin sends son" longeval lock, whose form is a unicorn stepping on a cloud, riding a child on his back, a hand-held lotus and one-handed reedpipe; The morphological features of modern longeval locks include both the style of the modern and the ancient simple style, such as the form of the cloud head, the form of Yuanbao and so on. The shape of modern longeval lock products mostly combines materials, colors, functions and other design elements. Just as the Agricultural Bank of China designed the longeval lock products - "Doraemon Baby Lock", the Doraemon animation form and the shape of the cloud are merged, the overall not only retains the beautiful residence of life, but also integrated into the modern elements.
Figure 1. Two or more references.

Most of the ancient longeval lock product forms are complex forms, which are full of folk mythical meanings, so the form has realistic and cumbersome characteristics[3]. Modern longeval lock product form is more refined, and the aesthetic trend is full of modern elements.

Figure 2. Two or more references.

2.2. Longeval lock product morphological curve: from tedious to concise

The curve of the ancient longeval lock product is roughly divided into three categories: the pseudomorphic curve, the plant morphology curve and the animal morphology curve[4]. The pseudomorphic curves of imitations are as follows: such as the cloud head curve, the meta-treasure curve, the ding-shaped curve, etc. the imitation plant morphology curve is mainly: lotus form, gourd shape, bamboo knot pattern, etc. animal morphological curve is mainly: butterfly curve, kirin curve and fish-shaped curve. The evolution of the longeval lock manufacturing tools has not changed its cumbersome morphological curve characteristics.

The morphological curve of modern longeval lock products has the characteristics of simplicity and smoothness. The product form of modern longeval lock is divided into two parts: main form and sub-form, in order to clearly divide the product style, and adopt a scientific and effective modeling method to reduce the complexity of the longeval lock product morphology curve[5].
3. Analysis of longeval lock material evolution

3.1. Longeval Lock product material from single to one
The product material of the ancient longeval lock is mostly silver material, ivory, jade material longeval lock in the folk is rare[6]. The reason for this phenomenon is: the used of silver high material frequency, can be used twice into; Because the silver material has natural sterilization, disinfection function and it can be recycled. In the ancient, the traditional longeval product material is single, with the company's social, economic, special adaptation.

The development of the times drives the advancement of science and technology, the market has 3D printing of resin materials, new ceramic materials, carbon fiber and other advanced new materials. Longeval lock product material sit in the new era background of favorable environment, towards a diversified material situation.

3.2. People accept that the type of longeval lock material from tradition to old and new co-existence
In ancient times, people usually only accepted longeval locks in silver[7]. Firstly, limited to the level of skill, and the other is the influence of Confucianism on social consciousness. With the advent of reform and opening up, people's thoughts have been liberated and they tend to be more inclined to new things[8]. People in the new era admire the new material of the longeval lock, the traditional material coexists with the new material, creating the old and new co-existence pattern of the longeval lock product material kind.
4. Analysis of Longeval lock product process evolution

4.1. Longeval lock product process from natural to mechanized production

Longeval lock products spread the traditional crafts are mainly: carving skills, silk-pinching skills, blue-burning skills. Ancient tools are underdeveloped, so only use the jade sand, animal skin wheel, hemp and other materials tools to polish products. Until the Neolithic period, the use of sand-grain polishing techniques, improve the polishing effect. Continuity to the Qing Dynasty, the product polishing technology has been relatively mature.

Modern science and technology for the longeval lock manufacturing into a large number of scientific and technological content. Product production process technology is mainly - gas protection fusion skills, nano-processing skills and 3D printing skills. The contemporary longeval lock products have both the rational spirit of modern machinery manufacturing process and the artistic style of traditional handicrafts, so that the longeval lock products keep up with the pace of development of the times.

4.2. Longeval lock product process inheritance is transferred from the teacher to the industrial production

The traditional longeval lock product technology is mainly in two forms: the first is family as a group, inheritance is mostly between father and son and brother, and the second is to master and apprentice as a group, but the master's real core technology is not to teach others.

The change of dynasties and the new demands of the people of the new era have forced the emergence of a large-scale machine production mode in the market. Contemporary longeval lock product skills and industrialized production, its industrial reproduction to improve efficiency and quality, the new production of longeval lock products than the ancient life lock products more times competitiveness.
5. Analysis of Longeval lock products contain the significance evolution

5.1. Longeval lock meaning from single to diversified
The meaning of the word "lock" in the longeval lock is the meaning of imprisonment and guardianship, and the longeval lock becomes the invisible protective shield of newborns against unknown ghosts. Due to the many customs of China's geographical differences, the customs and habits of giving longeval locks are naturally different, but the most primitive meaning is to protect children from disease.

The constant change of dynasties, the meaning of longeval lock is constantly enriched. From the initial blessing of life to the pursuit of power, the integration of religion, the spirit of the times and so on. For example, the longeval lock of "Kirin Sends Child" is full of ordinary people's strong metaphors and hints about wealth and the upper class. The diversification of meaning given by the longeval lock just shows the situation that the meaning of the longeval lock shifts from the original singularity to diversification, which is the epitome of the spiritual outlook of the social state.

5.2. The significance of longeval lock inheritance shifts from tradition to advancing with the times
The significance of the ancient longeval lock is mainly for several parts, one is the respect for the reproductive culture, the other is the belief in the culture of blessing. The third is the worship of auspicious culture.

The inheritance significance of modern longeval lock should not only inherit the longeval lock culture, but also integrate the characteristics of the times and open up the new inheritance system of longeval lock. In the new era, how longeval lock and design combined to obtain people's acceptance, and longeval lock to what type of meaning to impress people, it is worth exploring by our designers.

6. Longeval lock "new" attempt
With the ever-changing products, the cultural heritage of longeval lock has been forgotten. Longeval lock inheritance, but also need to gather the joint efforts of domestic designers. The following are some suggestions of the author's attempt to "new" Longeval Lock, hoping to make an inference, and let more domestic designers with ideas participate in the exploration of Longeval Lock.

6.1. The Art Of Longeval Lock
Longeval lock can change the old style, with the fashion jewelry culture integration, the longeval lock into a combination of Taiwan with, trend, future and direction of the product, the creative meaning is more intense. Figure 1 lock-shaped transport beads will lock as a transport beads, wearing on the hand rope or bracelet, meaning to bring good luck.
6.2. Longeval lock life
The previous longeval lock is limited to childhood, modern longeval lock can be designed to change its structure, shape, so that the longeval lock is a child's childhood amulet, but also children grow up jewelry, increase the role of longeval lock. This requires designers to modern aesthetic and design concepts to continue the longeval lock culture, so that longeval lock keep up with the pace of the times.

7. Conclusion
The development history of material and spiritual civilization of human society is complementary, and in order to achieve the basic living conditions, people gather wisdom and hands to create rich material resources, and further promote the wheel of spiritual civilization development. Such as the development of longeval lock also from a certain sub-measurement confirmed the development of the product form, process, material, spiritual significance of the dynasties. How to develop longeval lock in the new era, is through the evolution of the design of longeval lock analysis to re-awaken the contemporary people to the traditional longeval lock contains the rich spiritual civilization of the respect, compared with foreign culture, but also to respect China's respect, is the Chinese traditional longeval lock culture, craft, spirit, thought. Designers should not only base on tradition, but also dare to innovate, in order to longeval locks to mark.

References
[1] Han Zhang, The late Qing Dynasty people's early long life lock pattern analysis, J. Northwest Fine Arts, 2019-01-10.
[2] WeiXuan Shi, On the relationship between the theme of long-life lock and the spirit of the times, M. Beijing Fashion Institute, 2018-12-01.
[3] Yongqiang Zhao, The aesthetic and cultural features of the Yongde County Museum's collection of long-lived lock silver ornaments are explored, J. Art Education Research, 2018-03-25.
[4] Qianya Zhang, The study of the artistic characteristics and cultural connotations of silver-encrusted long-lived locks in the late Qing Dynasty, M. Jiangnan University, 2016-06-30.
[5] Yi Wang, Richard Wilfred Yelle; Hu Gang; Wang Jiamin. The method of extracting the morphological features of the product by the deformation of curve surface is studied, J. Mechanical Science and Technology, 2015-01-15.
[6] TingTing Wu, The finishing and research of the long-lived lock in the Foshan City Museum, J. Hunan University, 2015-05-20.
[7] Guoling Chen, The traditional long-life lock folk origin is a preliminary exploration of the origin of the new, J. Art Technology, 2015-01-15.
[8] Ting Gong, Long Life Lock - Chinese amulets, J. Art Market, 2013-06-25.