

The Historical Origins and Modern Development Prospects of Cloisonné

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ABSTRACT

Cloisonné, also known as copper wire inlay enamel, is a handmade craft that combines metal and enamel techniques. As a special handicraft in traditional Chinese craftsmanship that integrates excellent traditions in form, color, and decoration, it has become one of the art treasures of China's world-renowned cultural treasure trove with its ever-changing forms, exquisite and rigorous patterns, magnificent colors, diverse charm, and unique national cultural style. It continues to emit its charm today. In order to clarify the complete development process of cloisonné as a handicraft, fundamentally understand its production process and inheritance, this article first sorts out the historical origins of cloisonné, extracts the characteristics of cloisonné works in different periods through text analysis, and combines data and parameterization to construct a model to obtain systematic results. It analyzes the current development status and future development prospects of cloisonné from multiple aspects.

Keywords: Cloisonné, Enamel craftsmanship, Traditional handicrafts, Parameterization, Model building.

1. INTRODUCTION

Cloisonné, also known as "copper wire inlay enamel", is a precious treasure in traditional Chinese arts and crafts. It originated during the Jingtai period of the Ming Dynasty and has been passed down for hundreds of years due to its unique craftsmanship and magnificent colors. As a metal craft that combines artistry and practicality, cloisonné has undergone a development process from aristocratic palaces to folk inheritance. It is known for its exquisite production techniques and vivid color effects, often requiring multiple processes such as copper body making, wire inlay, blue dots, blue firing, polishing, etc., expressing rich ethnic cultural connotations and artistic aesthetics.

Since modern times, cloisonné art has continuously innovated and gradually integrated modern design elements. It not only maintains the essence of traditional craftsmanship, but also achieves innovation in color, shape, and usage, adapting to the needs of diversified markets. At the same time, with the development of technology and

the increase of international cultural exchanges, the production process of cloisonné has gradually modernized, and the product range has gradually expanded to multiple fields such as home decoration and personalized gifts. However, cloisonné still faces challenges such as insufficient talent for inheritance and declining market awareness. In the future, how to innovate while maintaining tradition and enhance its international influence will become an important direction for the development of cloisonné art.

2. OVERVIEW OF THE HISTORICAL ORIGINS OF CLOISONNÉ

2.1 Title and Origin

The term "cloisonné" first appeared in the sixth year of the Yongzheng reign of the Qing Dynasty (1728), as recorded in the "Clear Records of Various Works": "Enamel gourd style horse coat bottles with patterns of immortals wishing birthday, flower baskets in spring are also vulgar. This year,

the enamel crabapple style pot is even smaller and the peacock feather is not good. Let's make another one. Its imitation of cloisonné enamel vase flowers is not good. That's all." Although it is not sufficient to prove that "cloisonné" was already a proprietary term at this time, it can be seen that cloisonné must have gradually become synonymous with metal core wire inlay ware during a long-term evolution process.

The origin period of cloisonné is highly controversial. There are claims that it originated from the Shang Dynasty, Tang Dynasty, Yuan Dynasty, etc., but it is not widely recognized due to a lack of sufficient evidence. The Ming Dynasty produced abundant and diverse varieties of cloisonné and had a large amount of historical documents to support it. Therefore, it is now widely believed that the Ming Dynasty was the birthplace of cloisonné in China.

Cloisonné is essentially a metal wire inlay enamel ware, which originated in the Eastern Roman region (Byzantine Empire). At that time, the general term for this region in China was "fulin", and the enamel inlay crafts that flowed into China from this region were called "fulin inlay" or "fulin machine". In the 13th century, Kublai Khan of the Yuan Dynasty launched an expedition to the Eurasian continent and issued a decree stating that "only craftsmen are exempt", allowing any skilled craftsman to avoid death. After these craftsmen were brought back to China, the craftsmen who made enamelware brought enamelware into China. These magnificent metal products were deeply loved by Mongolian nobles and became an important demand. Several years later, enamelware had already incorporated a strong Chinese flavor and ethnic characteristics, and the firing process was gradually mastered by Chinese craftsmen, which began to be collectively referred to as "enamel".

2.2 Maturity and Peak

Cloisonné gradually developed during the Ming Dynasty and reached its peak during the Jingtai period. In the early Ming Dynasty, cloisonné was influenced by the Yuan Dynasty, with a strong ethnic style, bright glaze color, preference for using primary colors, bright colors, strong contrast, and uniform color tone. It is made of brass as the metal tire, gold-plated by fire. However, the quality of glazes during this period was poor, and the types were monotonous. During the firing process, phenomena such as "sand holes" and dull glaze

colors were prone to occur. The production of metal tires is also relatively rough, with a heavy and sturdy shape, yet still retaining the beauty of simplicity and thickness.

During the Jingtai period, the production of cloisonné reached its peak. Thanks to the strong praise of Emperor Xuande of the previous dynasty for bronze ware, the smelting technology of copper products has risen to a higher level. Emperor Jingtai personally highly praised the elegant and luxurious luxury of cloisonné so at that time, the imperial goods manufacturing agency - the Imperial Household Supervision - produced a large number of metal titanium wire inlay enamel utensils. At that time, warm colors had already been invented for glazes, but Emperor Jingtai insisted on using the traditional blue as the main color tone for production. The use of fresh and elegant blue alleviated the aesthetic fatigue of cloisonné which was mainly based on strong contrast and strong impact at that time. At the same time, the blue, which symbolizes peace and harmony in the world, also has blessings for the political stability of the Ming Dynasty, which had just experienced the "Tumu Fortress Incident", and the happiness of the people.

There are many copper wire inlay enamel wares with Ming Dynasty Jingtai model printed on them that have been passed down through generations. In the book "Tianfu Guangji" by Sun Chengze, a person from the late Ming and early Qing dynasties, it is written that the enamel used in front of the Jingtai imperial court can be compared to the cherry picking in the orchard factory of the Yongle dynasty, the copper furnace of the Xuande dynasty, and the colorful porcelain of the Chenghua dynasty.

During the Wanli period, there were new developments in the manufacturing of cloisonné. At this point, the tire body gradually becomes thinner and the shape begins to become regular. Many new glaze colors have emerged, and the quality of the glaze has also been significantly improved. After firing, it is smooth and even, with small sand holes. In terms of subject matter, many themes that were previously open and closed were abandoned. For example, in the early Ming Dynasty, the theme of large intertwined flowers outlined with a single line was significantly reduced, while small themes such as landscapes, mascots, and even everyday objects were significantly increased, reflecting the development and progress of enamel firing technology during the Wanli period.

2.3 *Development and Decline*

The craft of cloisonné continued to develop in the Qing Dynasty on the basis of the previous dynasty.

Emperor Kangxi attached great importance to the development of handicrafts. In the 19th year of the Kangxi reign (1680), the Qing court established enamel production, specializing in the production of enamelware. By the 30th year of the Kangxi reign (1691), there were as many as a hundred craftsmen dedicated to enamel production. While manufacturing traditional wire inlay enamel, they also innovated and created copper body painted enamel. During this period, cloisonné copper tires gradually became standardized, easy to produce, and diverse in variety. Enamel glaze is also constantly improving, with a smooth and even color, bright and transparent, changing the previous phenomenon of dull and dull glaze color. For the filling process, technology is constantly improving, solving the common problem of loose coatings and reducing sand holes. In terms of wire inlay, the original single wire has been changed to double wire, resulting in a more uniform and smooth thickness of copper wire.

During the Qianlong period, Emperor Qianlong's love for cloisonné reached an unparalleled level. Daily utensils in the palace, such as bowls, plates, basins, bottles, stoves, screens, furniture, and stationery, were all made of cloisonné. At that time, the Palace Manufacturing Office gathered the best craftsmen in the country to cater to the emperor's preferences, and also established imperial workshops in Guangzhou, Yangzhou and other places to produce cloisonné. The scale of manufacturing, the quantity, and the intricacy of objects are unprecedented. Cloisonné reached its peak.

"One piece of cloisonné, ten boxes of official kiln ware", at this time, cloisonné, with the full support of the rulers and a good social environment, became a leader in handicrafts at that time. During this period, cloisonné evolved from its original copper base to being divided into "upper, middle, and lower levels, with the upper level being gold base wire, the middle level being silver base wire, and the lower level being copper base wire". The patterns on the objects are richer and more beautiful, the techniques of wire inlay and tying are more skilled and meticulous, the lines are flexible and free, and there are many changes. The glaze color has also been innovated, with numerous new glaze

colors appearing. Gold powder and silver powder are also added to the glaze powder, making the finished product look magnificent. The improvement of glaze grinding technology has made glazes more delicate. In addition to glazes produced independently in the palace, high-quality glazes imported from Guangzhou and Europe are also used. At that time, in order to highlight the nobility of the royal family, the decorations on cloisonné were meticulously crafted. The elegant and luxurious gilded decorations are particularly prominent, attracting enough attention and emphasizing the wealth and prosperity of the royal family. In terms of vessel types, ancient vessel types are highly praised, especially ceremonial vessel types such as tripods and zuns, which are generally calm, solemn, and majestic. Emperor Qianlong was not only satisfied with the conventional cloisonné design, but also required the presence of cloisonné in furniture and daily necessities. Therefore, enamel works at that time combined cloisonné with large screens, pagodas, beds, tables and chairs, and even created objects in which cloisonné was embedded in valuable decorations such as ivory, lacquerware, and wood carvings. The creation of enamel painting solved the problem of some images being unable to be presented on objects due to the limitations of the wire inlay process. From then on, vivid and human images such as characters, birds, animals, plants, etc. began to appear on cloisonné.

Prosperity inevitably leads to decline, and cloisonné began to decline during the Jiaqing period. Without strong official support and with the increasing decline of national strength, the time-consuming and costly cloisonné naturally went from prosperity to decline. At this time, cloisonné had a clumsy design, uneven wire inlay, monotonous colors, and few high-quality products appeared. The beloved cloisonné during the prosperous Kangxi and Qianlong periods never returned on the road of decline.

After the Opium War in 1840, foreign invaders favored metal wire inlay enamel ware, which was originally an imported item, and purchased it extensively in China, gradually making cloisonné an export product and repeatedly winning awards at numerous international expos. In the first year of the Xuantong reign of the Qing Dynasty (1909), the "Jing Hua Bai Er Zhu Zhi Ci" edited by Lanling Youhuan Sheng wrote: "The craftsmanship is luxurious and beautiful, and all kinds of manufacturing are only for exploration. The ultimate skill is unparalleled, surpassing the five

continents of cloisonné." Afterwards, a note was added stating, "The Craft Bureau has established the Liuli Factory, which has been in operation for many years." The production of various items, with a strong desire for improvement, has become the first product of cloisonné which is truly a unique skill in China. It has a high rate of success in both Eastern and Western competitions. During this period, private businesses or workshops such as Dexingcheng, Quanxingcheng, Tiantianli, and Baohuasheng gradually developed, and the cloisonné industry experienced a prosperous scene.

Affected by years of war, there has been a large-scale loss of employees in the cloisonné industry. The combination of factors such as conscription, complex craftsmanship, and low wages has led to a sharp decline in the number of workers from over 2,000 at its peak to over 60.

The strict control of precious metals by the wartime economic system made the raw materials for making cloisonné exceptionally rare and expensive, resulting in a significant increase in costs. However, the market was sluggish and unable to raise prices, leading to the closure of many cloisonné workshops. Cloisonné was originally a palace item, but after it spread to the public, its audience varied greatly. Some workshops, in order to cater to buyers' vulgar tastes and reduce costs, produced cloisonné patterns that were intricate, trivial, vulgar, and of even lower quality. Merchants spare no effort to reduce costs, and the paper-thin copper tire allows cloisonné to float in water, earning it the nickname "river float". In terms of glaze, the grinding is careless, "ten blue and nine sand" refers to the finished glaze surface covered with sand holes. The cloisonné industry is in imminent danger.

3. CURRENT SITUATION OF CONTEMPORARY CLOISONNÉ

After the establishment of the People's Republic of China, the state urgently rescued, excavated, supported, and protected traditional handicrafts such as cloisonné and organized experts to carry out sorting and research work.

While accelerating the establishment of the Beijing Enamel Factory, the country also actively gathered outstanding craftsmen to train and further their education, inheriting their exquisite memories while enhancing their artistic cultivation and attainments.

The introduction of modern technology has made the production of cloisonné more standardized. The glaze has evolved from natural mineral grinding to the current chemical configuration, with over 60 different colors and transparent materials. With the help of mechanization, processes such as tire making and wire inlay have also been greatly improved, and the quality of cloisonné during this period is higher than any other period in history.

During this period, cloisonné produced many excellent works, such as the "Goldfish and Lotus Fish Tank" made to celebrate the 10th anniversary of the founding of the People's Republic of China, the "Universal Celebration" bottle made to celebrate the return of Hong Kong and presented to the Hong Kong Special Administrative Region, and the "Cloisonné Silver Star Bottle" created for the 2001 Asia Pacific APEC meeting. These excellent works not only made people realize the beauty of cloisonné again, but also won a lot of praise internationally. The inheritance and development of cloisonné in contemporary times are thriving.

4. DILEMMAS OF CONTEMPORARY CLOISONNÉ

Contemporary cloisonné has gradually turned danger into safety after being protected and inherited. However, in the context of today's market economy, cloisonné as a cultural treasure passed down for thousands of years, seems somewhat out of place.

4.1 Complicated Process

Behind the magnificent brilliance of cloisonné lies countless complex processes, including design, tire making, wire inlay, blue dots.

Burning blue, polishing, and gilding are the seven main processes that require an unknown amount of energy, let alone some seemingly insignificant small processes that can actually have a critical impact on the finished product. Even with the improvement of mechanization, these traditional processes still clearly cannot meet the huge demand in today's market.

4.2 High Cost

The high production cost of cloisonné is mainly reflected in three aspects: raw materials, time, and manpower. Firstly, there is the raw materials. As a metal product, the raw materials for cloisonné are

all precious metals, such as gold plating on the surface of the metal body metal wire inlay. In addition, the difficulty of glaze production makes the raw materials for cloisonné exceptionally expensive. Secondly, there is the cost of time. Every process of cloisonné requires meticulous attention to detail. Slow work produces fine work, and the slow and meticulous production process allows for the production of a cloisonné product to be as low as one or two months, and as high as one or two years. Finally, there is manpower. The production process of cloisonné is complex and requires professional craftsmen to make it. However, the long time spent learning the craft has made many young people unwilling to engage in the cloisonné manufacturing industry. The traditional model of mentorship has left many experienced masters with no one to teach them, resulting in a serious talent shortage.

4.3 Outdated Style

For a long time, the impression of cloisonné has been limited to bottles and jars, or small and delicate patterns. The thousands of years of similarity have brought serious aesthetic fatigue to people. Many contemporary works are simply copied without any sense of design or artistry. The demand for ornamental products is gradually decreasing, while the practical demand is increasing day by day. This trend has made cloisonné, which has always been positioned as a decorative item, extremely awkward. Against the backdrop of rapidly changing contemporary demands, these "fine traditions" prevent cloisonné from standing out among the dazzling array of choices.

5. THE DEVELOPMENT PROSPECTS OF CLOISONNÉ

Solving the problems faced by contemporary cloisonné can be approached from the following aspects.

5.1 Diversified Types of Shapes

The first thing that catches the eye when observing a cloisonné piece is its shape. Having an elegant and harmonious shape provides a solid foundation. The long-term fixed style of cloisonné makes it appear rigid and outdated, and the highly similar shape to porcelain makes it difficult for cloisonné to highlight its distinct characteristics, greatly reducing its attention. In terms of styling, traditional thinking patterns can be broken to create

"special-shaped" shapes, such as birds, animals, plants, asymmetry, etc. For example, Qian Meihua, a master craftsman of cloisonné, created the "Dancing Horse Carrying Cup Pot" in 1972, which broke through convention by adding a handle and a spout to the spherical body of the pot. The handle has a rounded shape, exquisite and interesting curvature, and combines ergonomics. The handle is connected to the pot body by three gold rings, forming a complete and beautiful curve with the pot body. The addition of a spout balances the instability caused by a single object on the handle. The whole piece has a novel shape, exquisite patterns, excellent ornamental value, and practicality, which is a good improvement of the traditional cloisonné design.

5.2 Innovation in Color Application

Although the word "blue" in the title "cloisonné" refers to glaze, it still indicates that the recognition of blue tones as the main color in the work has deeply penetrated people's hearts. The production of contemporary glazes has made a qualitative leap compared to the Ming and Qing dynasties. At that time, mineral grinding could only produce six to seven traditional colors, but now it relies on chemical blending to obtain rich and colorful glazes. New colors such as milky white, pink, light purple, and pure black can be boldly used in cloisonné products. Like the work "Heart Language" produced by Li Peiqing. Two swans lean against each other's foreheads, and the large area of white color sets a pure and noble tone for the entire piece. The body is filled with a large number of pink hearts, and the pink and white complement each other. The small hearts in red and blue form a large heart shape, and the striking contrasting colors do not conflict, but instead add a strong and powerful touch to the entire piece. Using color to add color to a work not only makes it appear novel and unique, but also reflects the ingenuity of traditional handmade cloisonné.

5.3 Pattern Modernization

The wire inlay pattern on cloisonné ware is a very important part of a work. Not only

the shape it presents and the quality of the wire inlay used during production also determine the quality of a piece of work. Whether the thickness of the copper wire is uniform, whether it matches when connected, whether the glaze fits the copper wire when turning blue, and so on, all reflect the

importance of the wire inlay pattern. Traditional cloisonné decorations are mostly based on auspicious symbols such as peonies, dragons, and phoenixes. Although they represent the longing and wishes for beauty, wealth, and prosperity in Chinese culture for thousands of years, the long-term similarity and repetition of themes make cloisonné lack vitality and unable to keep up with the pace of the times. Contemporary cloisonné should be carefully designed for its decorative patterns, while preserving its inherent artistic value, keeping pace with the times, incorporating modern elements, and creating new and innovative works. Like Li Peiqing's "Butterfly Dance", which combines cloisonné craftsmanship with portrait products, the smooth curves of the human body are gently wrapped in clothes made of cloisonné. The butterfly, a graceful and dancing creature, is presented in blue on clothing, surrounded by flowers and plants, with dotted patterns forming a wave shape, making the entire piece look incredibly elegant. The unique decoration adds modern and fresh vitality to this millennium old object, cloisonné allowing it to still shine with its former glory in the ever-changing market.

5.4 New Media Promotion

As a royal item, unlike other porcelain that can also be used by civilians, cloisonné has always been exclusively used by the royal family, with very little circulation to the outside world, and can be said to be "kept in seclusion without recognition". And although this peculiar item is incredibly beautiful and can be called a rare treasure, its circulation is limited to the capital city. "Cloisonné is a product of the capital city." This consensus among old Beijingers proves that the circulation range of cloisonné is quite closed. Therefore, modern information technology should be utilized to promote cloisonné from all angles and perspectives, in order to expand its popularity. For example, a website with detailed information about cloisonné can be set up on the Internet for people to consult. Or by utilizing VR technology, people can observe cloisonné up close, even the production process of cloisonné and experience the charm of cloisonné firsthand.

5.5 Collection Market Activation

Cloisonné has always been in a lukewarm and awkward position in the collection industry, not because its own value is not high, but due to the complex production and high cost of cloisonné it

has been passed down very rarely. Even during the peak production of the Jiaping period, only about 70 pieces were left. However, most of the cloisonné artifacts are collected in major museums, and there are very few high-quality cloisonné works circulating in the market. It is common to spend a lot of money to buy a cloisonné work only to find that it is a fake. Contemporary cloisonné production factories should produce a batch of high-quality and high-level cloisonné works for the high-end collection market, gradually increasing the circulation of cloisonné in the collection market. This not only allows more people to see high-quality cloisonné works, but also revitalizes the collection market and increases the attention of cloisonné.

6. CONCLUSION

"Swallows which skimmed by painted ever in bygone days are now dipping among common people's doorways." Cloisonné is no longer a luxury item exclusively enjoyed by the aristocrats of the imperial palace in the old society. With the support and promotion of the country, the value of cloisonné has undergone a fundamental qualitative change. Its unique production process, beautiful patterns, and elegant glaze colors emit the dazzling crystallization of Chinese national wisdom in every place. Contemporary cloisonné still needs to be continuously inherited in the future. While exploring a more reasonable development method, it should also unify its spirit and connotation, promote the inheritance of national treasure art under the continuous promotion of the times, and also serve as a model for the innovation of traditional Chinese objects, constantly injecting new vitality.

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