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EXPLORE CHINESE LACQUER ART CULTURE- EGGSHELL INLAY TECHNIQUE

Rao DongYu^{1*}, Azahar Harun² & Li YiXuan³

*^{1,2,3} Faculty of Art and Design, Universiti Teknologi MARA (UiTM),
Alor Gajah, Melaka Campus, Melaka, Malaysia*

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Corresponding Author:
2022776743@student.uitm.edu.my

ABSTRACT

Chinese lacquer art is one of the treasures of Chinese traditional art. In China's 5000 years of profound history, eggshell inlay is an exquisite and complex conventional skill. This paper analyses the eggshell inlay technique, introduces technical elements from material selection and special tools to practical application, and describes its creative process, highlighting this traditional process's wisdom and unique artistic expression. This paper emphasises the application and artistic attraction in diversified application scenarios through comprehensive analysis and research on the conventional function and deep-rooted cultural value of eggshell inlay. It aims to deepen the detailed analysis of Chinese lacquer eggshell inlay technique, to clearly understand its cultural connotation and the quality of its artworks, and intuitively express its prominent position and far-reaching significance in Chinese and global cultural heritage. By doing so, more people can realise Chinese lacquer art's charm and unique value.

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1. Introduction

1.1 Background of Eggshell Inlay Technique

The eggshell inlay technique of Chinese lacquer art is deeply rooted in the fertile soil of Chinese cultural heritage and artistic tradition. Since ancient times, with its exquisite craft skills and complex artistic ingenuity, Chinese lacquer art has won the world's attention and exploration. Eggshell inlay is a unique and complex artistic innovation, which after centuries of technical exploration and development has enriched the aesthetic dimension of Chinese lacquer art

(Zheng, 2019) as well as enhanced its functionality and durability. The eggshell inlay technique accurately embeds fragile eggshells that are commonly found in life into the paint layer, using its pure natural environmental protection properties, according to different eggshell types and different eggshell colours, through the artistic ingenuity of Chinese artisans (Li, 2023). These unique, delicate, and complex designs reflect the extraordinary levels of skills of ancient craftsmen and their boundless innovative inspiration.

Chinese lacquer art symbolises luxury, elegance, and honour because of its sophisticated craftsmanship and precious raw materials. Therefore, it often appears in the court, noble residences, and religious holy places, which not only highlights the extreme pursuit of aesthetics in the past dynasties but also serves as a symbol of social class and cultural identity (Wang, 2022). The eggshell inlay technique was also used as a symbol of social class and cultural identity. Among them, the technique of eggshell inlay has gone far beyond the purely decorative role, and its application in the field of lacquer art, through patterns, colours, shapes, material innovation, etc., makes the eggshell inlay technique have a rich and profound cultural meaning and symbolic significance.

In studying eggshell inlay, most scholars have focused on one or more explorations of its historical changes, technological processes, material characteristics, and cultural connotations, aiming to unveil the wisdom of the ancient craftsmen and technical mysteries. To this day, eggshell inlay is still alive and well in contemporary Chinese and foreign art, upholding the core spirit of the ancient technique on the one hand and absorbing new materials and modern design concepts on the other, thus realising the perfect fusion of tradition and modernity (Zhou, 2023). At the same time, studying eggshell inlay can deepen understanding of Chinese craftsmanship, provide a vital reference perspective for studying ancient trade and cultural exchanges, and significantly impact the compilation of a complete Chinese traditional craft culture.

1.2 Significance of Eggshell Inlay Technique

Originating from ancient civilisation, eggshell inlay has engraved deep traces on the map of Chinese and world traditional arts with the development and change of time. Across time and space, this unique technique has demonstrated its extraordinary appeal on the vast stage of diverse cultures, from solemn ceremonial instruments to daily necessities, mapping out the common pursuit of aesthetics and technological refinement in societies of all periods.

Under the diversified artistic environment, from ancient craftsmen to modern artists in their persistent pursuit of eggshell inlay techniques, they have continuously explored new artistic expression materials and special tools, breaking through the limitations of traditional art (Zong, 2023) and giving eggshell inlay more aesthetic and artistic value from different perspectives and diversified levels of creative thinking. The rebirth of an eggshell often represents the birth of a new life and holds a hopeful and beautiful symbolism (Wang, 2011). In some works of art, these deep-rooted images are skillfully incorporated into the art, making Chinese lacquer art go far beyond its superficial visual enjoyment and become a medium for emotional and spiritual communication, giving life to the art.

In today's art world, the eggshell inlay technique is no longer a single lacquer decorative technique but has explored more artistic possibilities. Lacquer artists continue to explore the diversity and artistry of eggshell materials and apply eggshell inlay techniques in Chinese lacquer painting (Figure 1), breaking the limitations of craftsmanship and materials and enriching artistic expressions (Chen, 2021). Instead of losing its elegance, this traditional technique has been revitalised in many fields, such as fine arts and interior design, because of its aesthetic uniqueness, durability, and wide range of applications (Li, 2018). Eggshell inlay is still being passed down to

the present day and is still a source of artistic innovation. Whether it is for private space decoration or public art display, it shows excellent adaptability and aesthetic expression, injecting more fresh inspiration and vitality into lacquer art, and ensuring the relevance and practicality of this ancient technique in contemporary society.



Figure 1 Qiao Shiguang 《Jiangnan Water Town》

Eggshell inlay is an example of the combination of artistic aesthetics, exquisite skills, and a vivid display of deep cultural heritage and historical memory. Its dynamic evolution across cultures and generations inspires innovative thinking, powerfully demonstrating the enduring vitality of human creativity and the continued vitality and value of traditional crafts in the current social context.

1.3 Purpose and scope of the study

Eggshell inlay technique combined with the ancient Chinese traditional skills of comprehensive and detailed exploration, efforts through multi-dimensional, diversified, multi-perspective analysis and exploration, can reveal the mystery of eggshell inlay technique, an ancient Chinese traditional skills, from the process of completing the technology to the selection of materials to the application of technology, and seek to explore the inner nature and outer symbolism through multi-dimensional, broad perspective of the in-depth analysis. The study objectives cover various perspectives, from technical details to aesthetic values, cultural analysis, and innovative progress.

The study focuses on the background of eggshell inlay, understands its historical influence and development, analyses the factors of its enduring development and social aspects, and understands the unique properties and applicability of its materials from the background of its techniques so that the exploration of the materials becomes clearer. At the same time, the materials and tools that are required for the eggshell inlay technique are comprehensively explored and analysed. The technology's unique details and artistic characteristics are deeply excavated, specifically from the selection of lacquer to the mixing and processing, the selection and classification of eggshell materials, the use of special tools, and the subtle application of inlay technology. The process of this intangible cultural heritage is documented more comprehensively to recover the complete picture of its craftsmanship so that more people can recognise this complicated technique's exquisite and precious features.

The study discusses in detail the unique aesthetic qualities of the eggshell inlay technique in the field of lacquer art; because of the fragile nature of the eggshell itself, it can be better through

the natural edge of the line and size, to carry out a second deliberate creation, in the form of artistic expression with the fusion of nature and creation. Eggshells come in many varieties, showing diverse types in nature, such as duck eggshells in cold and warm tones. The natural colours of different eggshells contribute unique resources to Chinese lacquer art (Zong, 2023). In ancient Chinese lacquer art red and black are the traditional primary colours, but other colours and even pure white are difficult to artificially mix (Alexander, 2014), which makes them even more precious. For this reason, artists often follow nature and take materials from nature, as in the case of Chinese paintings where artists would take colours from natural ores or extract white from mussel shells, a clever use of natural materials from nature, fully reflecting the symbiotic creative wisdom of man and nature. Due to its natural texture and the unique interaction with the paint surface, the eggshell surface creates an extraordinary visual effect and artistic features of the eggshell's surface are created. Vietnamese lacquer artists have developed innovations in lacquer art using layering combined with mixed media and sanding processes that can be used to create a spectacular array of textures and finishes (Thomson, 2023).

In the cultural and sociological inquiry dimension, the study carries out in-depth excavation and analysis from the perspective of applying eggshell inlay. It carefully analyses the functions and values of these works in the diversified social structures, religious concepts, and historical backgrounds to map out the ancient society's ideological framework and value orientation. The comprehensive analysis of these two levels can reveal the eggshell inlay art's exquisite skills and mysterious charm and highlight its rich connotation and social influence as a cultural heritage, laying a theoretical foundation for eggshell inlay art. Correspondingly, the study aims to show in more detail the artistic aesthetic value and symbolic connotation of the Chinese lacquer eggshell inlay technique, not only devoting itself to its preservation and inheritance but also contributing to the preservation of the world cultural heritage and academic research and emphasising the continued relevance and innovative potential of traditional crafts in the modern society.

2. Literature Review

The history of Chinese lacquer art can be traced back to the Neolithic period when people began to utilise lacquer's decorative and protective properties. This initiative laid the foundation stone for the subsequent development of eggshell inlay art. In the development of eggshell inlay art, from the simple, functional application in the early stage to the prosperity of the Tang and Song dynasties, and then to the peak of the art in the Ming and Qing dynasties, from ancient times to the present day, through the inheritance and development of modern times, eggshell inlay art has significantly demonstrated the inherent continuity and innovative vitality of Chinese culture.

In exploring the Chinese lacquer technique of eggshell inlay, the preparation and selection of the lacquer species are the cornerstones that lay the foundation for both the artistic and technical value of the work. This section aims to analyse this complex process in depth, revealing the selection of materials, tools, and the craftsmanship to show more comprehensively how traditional wisdom and natural resources work together to shape the ancient art of eggshell inlay.

2.1 Selection of materials

2.1.1 Selection of paint types

Lacquer is a deciduous tree of the family *Lacertaceae* (Figure 2); it prefers a warm and humid climate, avoids the wind, grows at an altitude of 800-3000 meters, and thrives in sunny and moist mountain slopes within the forest. It was distributed in China, India, Japan, and Korea. The

best part of the trunk can be cut to extract the milky white sap rich in lacquer phenol. Raw lacquer has an adhesive force, is decorative, protective, etcetera. The integration of primitive means of subsistence, and then integrated into the utility of appliances, injected into the human aesthetic experience and emotion, the birth of lacquer, constituting a unique Chinese lacquer civilisation, unique Oriental charm, creating a lacquer culture development of the first river (Ma, 2021). However, it is essential to note that raw lacquer contains lacquer phenols, which may cause allergic or even toxic reactions for some people (Liu, 2024). Therefore, it is necessary to take precautionary measures during the harvesting of raw lacquer and the production of lacquerware, depending on the situation.



Figure 2 Lacquer tree

The eggshell inlay technique uses a large lacquer surface as the substrate on which the layout and inlay of eggshells are performed, in which the inlay of eggshells is also laminated to the lacquer surface using the lacquer as the natural adhesive (Cheng & Duan, 2015). After the inlaying of the eggshells is completed, the lacquer will be used to paint the surface several times, and the process of polishing and colouring will be carried out to ensure that the eggshells will not be fragile or fall off and that the integrity of the work will be ensured. Because of the importance of lacquer in the production process, the choice of raw lacquer is critical; you need to choose genuine natural lacquer, lacquer is non-toxic, but avoid selecting those products whose composition is unknown or contains unsafe chemical additives to avoid affecting the health and lacquerware artwork long-term preservation and production. Genuine, high-quality lacquer is usually characterised by high luminosity, rich and translucent colours, and a slightly subtle bumpy surface that feels smooth. In terms of odour, because lacquer is a natural substance, it has a unique and long-lasting natural fragrance. You can dip some paper into the lacquer and light it on fire. Good lacquer is easy to burn and does not make any sound when it burns, but if it contains chemicals, the sound may be different. If the lacquer contains chemicals, the burning sound may be different (Liu, 1980). There are many ways to test the authenticity and quality of lacquer. Still, the most important thing is to use pure natural lacquer to ensure the unique quality of the lacquerware.

2.1.2 Refinement and maturation of lacquer

Lacquer freshly collected from the lacquer tree is called raw lacquer, and the lacquer that has been processed in a specific way is called matured lacquer. Lacquer is usually collected in the summer, and the best quality is obtained on the day of three volts; when the temperature is high, the water evaporates quickly, and the sunlight is abundant, so the quality is the best (Tang, 2023). Lacquer farmers collect lacquer before sunrise by making a small cut in the trunk of the

lacquer tree and letting the milky-white raw lacquer sap to slowly flow out (Figure 3), a process known as "lacquer cutting". The raw lacquer begins to oxidise when it comes into contact with the air, changing from milky white to brown (Figure 4) and eventually hardening to black (Jin & Li, 2023). The process is called "cutting". As the old saying goes, "A hundred miles and a thousand knives yield one catty of lacquer". This is an excellent example of how difficult and expensive it is to collect lacquer (Chen & Yang, 2021). Therefore, in ancient times, only princes and generals were qualified to use lacquer, establishing the width and breadth of lacquer application.



Figure 3 White Lacquer Liquid



Figure 4 Brown Lacquer Liquid

The newly collected raw lacquer is mixed with oil impurities, thus a fine gauze or screen is also needed for the initial sieving to remove the large impurities (Cheng et al., 2022). The filtered lacquer is then placed in a cool, ventilated, and dry place for some time so that the heavy impurities will settle at the bottom, and the cleaner lacquer will appear on the upper layer to ensure the lacquer's purity and lustre. Subsequently, the purified lacquer will be heated and boiled; this time, the temperature will generally be controlled at (60-80 °C); the temperature is too high or too low to make the quality of the lacquer decrease. In constant stirring, the evaporated part of the water powder and solvent is the lacquer in the unstable components for polymerisation and purification. At the same time, this process can also remove the odour of the lacquer, making the lacquer purer and more transparent. Some lacquers also need to add an appropriate amount of oil auxiliaries to improve the performance of the lacquer, such as enhancing the gloss, increasing flexibility, accelerating the drying, and so on. Subsequently, the boiled lacquer liquid in natural conditions gradually matures through the role of air and sunlight

thickening; this slow transformation usually takes several months; this process is called "maturity" or "wake-up lacquer". Thus, the lacquer is more stable, the colour is more vibrant, and the viscosity is greater. This delicate and long-lasting process is also a testament to the quality of the lacquer that has been sculpted over time. Although the refined lacquer is already very stable, it is filtered several times before it is used by the craftsmen to ensure that the lacquer is smooth and free of particles to achieve the best painting effect (Chen, 2019). Lacquer refining is not only a test of the lacquer maker's mastery of traditional techniques but also requires scientific analysis and continuous innovation to meet the complex challenges of refining.

Formulating and selecting lacquer materials is not only a technical preparation for the Chinese lacquer eggshell inlay technique but also a profound conversation about history, culture, and the natural environment. While respecting and passing on the ancient techniques, the artisans continue to explore and innovate to ensure this craft's continued prosperity and cultural significance in the modern world, demonstrating the perfect fusion of human creativity and the gifts of nature.

2.2 Preparation and handling of eggshell inlays

2.2.1 Selection and Purification

Different eggshells have different sizes, colours, and textures. For example, in the creative process, you can choose duck eggshells when you are looking for a unique textural effect (Li, 2023), while quail eggs can be used for different colour choices. At the same time, because natural eggshells come in a wide range of colours, from white to dark brown, from cool to warm (Figure 5), different eggshells need to be selected and matched according to different creative requirements. The process of choosing and purifying the eggshells is crucial. It is directly related to the aesthetic quality of the final work, so it is necessary to ensure that the selected material has a uniform thickness, a complete structure, and is free from any defects to be fully prepared for the subsequent inlay.

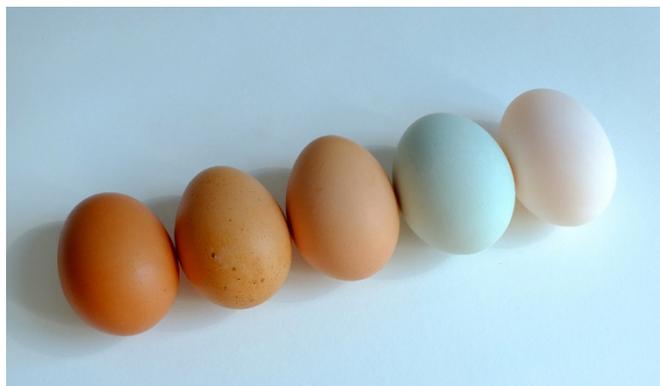


Figure 5 Eggshell Tone Chart

After careful selection, the eggshells must be cleaned and sterilised to remove all residual dirt, bacteria, etcetera, to ensure solid adhesion and lasting stability when creating inlays. In this process, it is necessary to use warm water and mild detergent to thoroughly clean the outer layer of the eggshell, for stubborn dirt can be soaked for some time, and then gently scrub with a soft brush to avoid excessive force to avoid destroying the eggshell. After cleaning, diluted alcohol can be used to sterilise the eggshells to prevent the growth of bacteria. After the cleaning process is completed, lay the eggshells flat to dry naturally or with low-temperature drying to

ensure that the inside and outside of the eggshells are completely dry to avoid subsequent use because of the lack of dryness, mould, and other conditions.

2.2.2 De-filming and crushing

After the selection and purification process, the inner membrane of the eggshells is removed by soaking, which is a delicate and time-consuming process. Still, it is a crucial step in ensuring the artistic quality and durability of the eggshell inlay (Tian, 2011). Removing the inner membrane allows the eggshells to be used for their artistic quality and durability. Removal of the inner film allows better contact between the eggshell fragments and the substrate material, which significantly improves the bonding strength between the eggshells and the substrate; if the film is not cleanly removed, it may directly affect the transparency and gloss of the eggshells, and it may also form tiny gaps or uneven protrusions between the eggshell fragments, which mainly affects the smoothness and fineness of the details of the works in the later stages of the production. In some of the works, colour paint is also used to colour the eggshells, and colour paint is also used to create multiple creations. Still, the film will affect the absorption and even distribution of the colour, ultimately affecting the artistic effect of the work. A seemingly small step in the process directly impacts the entire work of art, which also illustrates the preciousness and delicacy of lacquer art.

After removal, specialised tools such as carving knives, tweezers, etcetera, are used to cut or break the eggshells into desired shapes and sizes, depending on the creative needs (Yang, 2023). This process requires a high degree of precision on the part of the artisan, both to avoid damaging the delicate structure of the eggshell and to ensure that complete pieces are obtained that can be used for inlay. The separated pieces are carefully sorted and graded according to size, form, and colour to ensure the final piece is perfect.

2.2.3 Crafted Inlay and Artistic Layout

Before the formal inlay operation, the less experienced may plan the layout and design of the eggshells. At the same time, they need to carefully consider the colour contrasts, the direction of the texture, and the overall composition. However, skilled artists often use tweezers, paintbrushes, sharp tools, or fingertips to gently place the eggshells on the lacquer surface with a steady grip, keen visual judgment, and fine attention to detail to arrange and position the pieces of eggshell precisely.

More minor, more delicate tools may be required for particularly small or intricate parts. Although the eggshell pieces are small, the placement of each piece is calculated by the artists to ensure that the pattern is accurately aligned with the appropriate gaps so that it not only reveals the underlying colour of the lacquer but also adds a sense of hierarchy and rhythm to the artwork from the different gaps, thus, realising the pre-designed concept. After the eggshell is pasted, it is also necessary to lightly press the eggshell to ensure a close fit with the lacquer surface because the eggshell is fragile, so it is necessary to avoid applying too much strength, resulting in cracking or deformation of the eggshell, which will affect the effect of the artwork. However, the transparent lacquer can be partially dotted in some specific cases to fix the position further. After the inlay is completely dry, it is sanded to remove any unevenness or excess edges and then polished several times to reveal the eggshell's natural lustre and the lacquer's richness. Finally, an overcoat of lacquer can be applied to enhance the adhesion and gloss (Wang, 2023). The properties of lacquer protect the eggshells from environmental influences and to collect and preserve the artwork better.

Eggshell inlay is the crystallisation of the patience and exquisite skills of the artists, which requires their complete dedication. This attitude of excellence allows the intricate craftsmanship and profound aesthetic value to be fully realised. In this process, the artists are not only the guardians of the wisdom of ancient techniques and nature (Maatta, 2000) but the inheritors of a high level of skill that has been passed down from generation to generation, which also gives new life to the Chinese cultural heritage in their creations, giving birth to a piece of exquisite art treasures, which is not only a tribute to the tradition, but also a manifestation of the spirit of innovation.

2.3 Special tools required for the process

The uniqueness of the eggshell inlay technique in Chinese lacquer lies in the special tools that are used to make the process of handling, manipulating, and placing the eggshell inlay technique on the lacquer surface more delicate and efficient, helping the artist to fully utilise the finely crushed eggshells to create better-expressed works of art. Exploring the range of specialised tools employed in the eggshell inlay technique, with particular emphasis on their functional uniqueness, the necessity of their existence, and the value of their contribution to the overall quality of the lacquer art.

2.3.1 Polymorphic fine-cutting tools

In the creation of eggshell inlay artwork, the shape of the eggshell fragments has this diversity of needs, while the eggshell has thin and fragile characteristics; given these aspects, artists have developed many fine-cutting tools (Figure 6). These include miniature carving knives, scrapers, fine scissors, miniature scissors, and other tools, which are sharp and small enough to allow for precise cutting and fine adjustments on the eggshell. This requires the sharp edges and compact size of the tools, which can be used to adjust the position of the eggshells in the picture or to remove the excess better, creating complex geometric patterns and smooth curves and enriching the art form of the work with efficient cutting tools (Zhou, 2023). The cutting tools efficiently enrich the art form of the work, ensuring that the eggshells appear in the form required for the job.



Figure 6 Cuts

2.3.2 Micro-manipulated precision tweezers

In artistic creation, because eggshells are delicate and small, tweezers play a crucial role in controlling the fragments of eggshells. With their long and sharp jaws, the special tweezers can easily pick up and precisely place the tiny pieces of eggshells (Figure 7), especially when dealing

with patterns and details. In modern practice, the toothpick is also used as a sharp tool with tweezers. The selection of special tweezers is also very particular, often using stainless steel or corrosion-resistant materials to ensure long-term operation stability and durability. Precision tweezers require the artist to have extraordinary patience and excellent hand-eye coordination to ensure that each piece of eggshell is accurately embedded, achieving the fineness of the pattern and the smooth effect of the edge, highlighting the exquisite micro-technology.



Figure 7 Tweezer

2.3.3 Soft brushes for satisfactory bonding

Once the eggshells are prepared, it is time to create the picture. In the process of bonding the eggshells to the lacquer, different types and sizes of soft brushes can be used for various sizes of eggshells (Figure 8). In the process of inlaying eggshells, a layer of lacquer will be applied to the substrate (e.g. wooden boards, lacquer trays, or other material surfaces). After the lacquer is half-dried or suitably dried, the pieces of eggshells will be processed, and the lacquer will be brushed evenly onto the pasted surface of the eggshells with soft brushes to minimise the wastage of materials to ensure the flatness and fit of the eggshells. Subsequently, after several painting, grinding, and polishing processes, the eggshell and lacquer can be perfectly integrated, presenting a rich and delicate visual and tactile experience.



Figure 8 Soft brushes

The integration of these special tools in the eggshell inlay technique is not only about the artistic expression of the work and the realisation of modern technology, but they are also a witness to

the wisdom and extension of the skills and creativity of the artists. The relentless efforts of the eggshell inlay technique in the pursuit of perfection and continuous innovation support the vitality of this ancient art form and its innovative development. In the hands of the artists, they turn the ordinary into magic, showing the aesthetic value, craft complexity, and profound cultural connotations of eggshell inlay techniques to the fullest.

2.4 Application of Eggshell Inlay Technique

As a treasure of traditional lacquer art, Chinese eggshell inlay lacquer art maps out the technique's deep cultural roots, extensive social functions, and rich symbolic connotations. By applying natural materials, it showcases the harmony and beauty of man and nature.

2.4.1 Religious ceremonies

Natural elements are regarded as sacred symbols in certain religious or spiritual practices. Eggshells symbolise new life, and the beautiful allegorical symbols make eggshell inlay lacquer art an iconic item for ceremonial activities. It reflects the reverence for traditional rituals and conveys a more profound sense of cultural belonging and spirituality. Offering vessels, incense burners, and various decorative plaques decorated with intricate eggshell patterns convey the connotation of purification and rebirth.

2.4.2 Daily necessities

Eggshell inlay paint is used daily in storage containers, holding utensils, etcetera, showing its durability and practical value. The waterproof and anti-corrosion properties of lacquer make it an ideal choice for protecting precious items, such as spices, medicine, and even valuable jewellery (Zhang, 2022). Lacquerware was used to store eggshell inlay pendants, decorative plates, and vases, reflecting the director's attitude towards life and aesthetic pursuits. The penetration of eggshell inlay lacquer in daily life shows the perfect combination of art and utility, adding beauty and cultural flavour to daily life.

In its traditional application, eggshell inlay lacquer art has crossed the boundaries of ceremonial, decorative, practical, and symbolic. It has also been integrated into people's lives, becoming an essential carrier for transmitting culture and beautifying life. This demonstrates the depth and breadth of Chinese culture and reflects the close interaction between art and social life.

3. Methodology

This study adopts a multi-dimensional research strategy, and aims to analyse the craft details comprehensively and deeply, the aesthetic value of the eggshell inlay technique, and its role in cultural inheritance and artistic innovation.

Integration of Literature: Literature integration is a complex and meticulous work; in this work, it is necessary to comprehensively collect and sort out the historical documents that are related to eggshell Mosaic technology, archaeological excavation reports of different periods and detailed catalogues of precious collections in major museums and conduct in-depth analysis to determine whether these contents are in line with the corresponding research. The integration of literature is not only limited to the direct objective description of the traditional techniques of eggshell Mosaic technology but also includes the analysis of the historical, social, economic and other related factors that indirectly reflect the development of eggshell Mosaic technology.

The exploration and analysis of historical documents provide many written records about eggshell inlay techniques. These related materials are mostly official historical books, literati notes, or folk

manuscripts, which often record the cultural customs, skill inheritance, and process of information about the society at that time. This information plays a vital role in exploring the development of eggshell Mosaic techniques. Among them, archaeological excavation reports are the results of modern archaeology, which records the eggshell Mosaic crafts found in different sites and their critically unearthed environments in other periods. The distribution characteristics and technical evolution of eggshell Mosaic technology in different historical periods can be inferred through the study and analysis of these sites.

When the collections of major museums are sorted, a lot of physical evidence is provided. These collections are not only art treasures but also historical witnesses; they retain the essence of eggshell Mosaic technology in the form of physical objects. By comparing eggshell mosaic art in the different regions and periods, the changes in the technique over time and how it develops and evolves in different periods can be understood. Significantly, the core of the eggshell mosaic technique can be analysed more objectively.

The whole literature integration work also includes a detailed analysis of the technical details of the eggshell inlay technology, such as the lacquer production method, the eggshell selection and treatment, and the various special tools that are used in the production process. Discussing these details helps reveal how the ancient people have mastered and applied this technology because the tool is the medium of these exquisite skills. Only a good understanding of the form and function of the tool can develop the possibility of developing the eggshell Mosaic technology and a more diversified exploration. The applicative range of the eggshell Mosaic technology in ancient society is also one of the focuses of research. By analysing its use in different historical periods, how this technique served the social life of the time, such as religious ceremonies, daily decoration, or luxury goods of the aristocratic class can be revealed. Through this series of meticulous research and records, the literature integration work has accumulated valuable data for the study of eggshell Mosaic technology and laid a solid foundation for subsequent in-depth research.

Craftsmanship and tool analysis: Analysing craft and tools is a delicate process. By delving into the various aspects of the eggshell Mosaic technique, we can reveal the essence of its tradition and explore the possibilities of modern innovations.

In ancient times, artisans carefully selected eggshells based on various factors, such as colour, thickness and transparency, to ensure the quality and beauty of the final product. In the creation of modern society, the characteristics of different types of eggshells are analysed to select the most suitable materials for inlaying. In addition, the pretreatment of the eggshell is also essential, including cleaning, disinfection, and necessary strengthening measures to ensure that the eggshell will not crack easily during subsequent processing. Ancient craftsmen would use special knives or sharp cutting tools to cut the eggshells to achieve the desired shape and size of the design. In modern processes, although more sophisticated tools or mechanical AIDS may be used, the traditional beauty of manual skills must still be maintained. For the research of cutting tools, in addition to paying attention to their physical characteristics, it is also necessary to understand their use, the skills to reproduce the ancients' skills better.

From the initial sketch to the final product, ancient craftsmen would create according to different themes and patterns, and every step was carefully planned. Ancient craftsmen would use natural paint or other types of adhesives to secure the eggshell pieces to adhere firmly to the surface of the lacquer. In modern technology, chemical adhesives or improved fixation methods may be introduced. However, the ultimate goal is to ensure that the eggshell is tightly bound to the substrate and is durable. Through a detailed analysis of each step of the eggshell inlay

technique, a better understanding of the complexity and unique charm of this traditional craft is acquired.

Application significance: The applicative significance of the eggshell Mosaic art extends from religious rituals to daily life, transcends the boundaries of time and space and plays a vital role in promoting the protection and development of cultural diversity. This art form enhances the identity of the national cultural heritage and provides solid support for the inheritance and promotion of local culture. Notably, in the context of globalisation, eggshell Mosaic is one of the representative arts of traditional Chinese culture that has become an essential platform for displaying Chinese culture with its unique artistic charm and profound cultural value. It enriches the global cultural landscape and contributes positively to maintaining the world's cultural diversity.

4. The cultural significance of Chinese lacquerware eggshell inlay craftsmanship

The cultural significance of Chinese eggshell inlay lacquer art goes far beyond its visual beauty; it is deeply rooted in deep cultural connotations, rich symbolic associations, and a historical lineage that has endured in Chinese society.

Eggshell inlay lacquer art displays cultural heritage that unites the essence and innovation of thousands of years of arts and crafts. The diverse and complex patterns and designs not only reflect the traditional flavour, artistic development characteristics, and regional features of Chinese decorative arts but also convey a deep cultural meaning and aesthetic sentiment through elements such as auspicious motifs, myths and legends, nature, and flowers (Li, 2024).

In the long tradition of Chinese art and culture, eggshell Mosaic art contains rich symbolic significance. It expresses the people's desire for good luck and reflects the yearning for noble morality and spiritual pursuit. This art form uses natural materials such as lacquer and eggshells to show the harmonious coexistence between man and nature. It reflects the Chinese people's philosophy of advocating nature and pursuing the unity of nature and man. Eggshell inlay is a very high level of skill; it requires not only the craftsmen to have extraordinary patience and meticulous work attitude but also superb craftsmanship. From selecting and treating eggshells to inlaying and polishing, each step requires excellent effort and deliberation by the craftsmen. The exquisite final works reflect this rigorous control of details and the spirit of constant pursuit of perfection, which become the core value of eggshell Mosaic art. This pursuit of the perfect craft spirit makes eggshell inlay art maintain its unique charm in the long river of history, and even after the test of time, it is still brilliant. Not only that, this spirit has also inspired the inheritance and innovation of the future generations of craftsmen on the traditional craft so that the eggshell Mosaic art can also be revitalised in modern society, continue to bring people the enjoyment of beauty, and play a positive role in international cultural exchanges. Therefore, eggshell inlay art is not only a treasure in traditional Chinese culture but also a bridge connecting the past and the future, and its existence proves the eternal value of ancient Chinese crafts.

Eggshell inlay art is not only the embodiment of exquisite craftsmanship but also a symbol of social status and cultural accomplishment. Throughout its long history, this ornate lacquerware was mainly owned by the aristocracy and upper class, reflecting the wealth, taste and refined lifestyle of the society at that time. These exquisite works are often placed in prominent palaces, temples and ancestral halls, becoming visual displays of power, privilege and cultural capital. They not only highlight the noble identity of the owner but also reflect the high importance of art and aesthetics in society of that era. Through this elaborate lacquerware, people can glimpse the cultural atmosphere and aesthetic standards of the society at that time. They are a symbol of material wealth and a kind of inheritance and expression of spiritual culture. Therefore, eggshell

inlaid lacquerware is a work of art and a witness of history, recording the fashion and cultural features of an era.

The eggshell setting, an invaluable art form of ancient skills, is still highly respected in modern society. With the application of new materials and technologies and the clever combination of traditional craftsmanship and contemporary design, this ancient skill has been given new vitality. Through publications, cultural events and various exhibitions, eggshell Mosaic art has been widely displayed and inspired the public's pride and interest in their traditional art. In contemporary times, many artists and designers actively explore integrating traditional skills with modern aesthetics, creating works that retain the essence of tradition yet conform to modern aesthetics. These innovations enrich the expression of eggshell Mosaic art and open up a new path for the inheritance and development of this ancient skill. Through various cultural exchange activities and exhibitions, eggshell Mosaic art can be put out of museums and private collections and into the public vision so that more people can appreciate the charm of this unique art. Related books and magazines, as well as the publication and exposure of some social platforms, not only record the history and development of this art but also introduce production methods and innovative examples to help those who are interested to understand and learn more about this traditional art.

Chinese eggshell inlay art is culturally significant because it combines creativity, symbolism, and artistic skill to link the past, the present, and the individual with the community. By delving further into its historical roots and cultural meanings, a better appreciation of the cultural significance and enduring influence of this antiquated art form on Chinese culture can be fostered.

5. Conclusion

Upon conducting a thorough analysis of the eggshell inlay technique, it is evident that this art form possesses a wealth of historical and cultural significance and exhibits significant life and inventive potential in the contemporary era. This understanding is not only based on the microscopic analysis of the details of the technique, such as the acceptable requirements for the treatment of eggshells, the rigorous procedures for the preparation of the lacquer surface, and the artistic consideration of the layout of the inlay, but also embodied in the innovative use of special tools, such as those designed for cutting, inlaying and decorating eggshells, which guarantee the accuracy of the process at the same time, but also significantly improve the efficiency of the work, showing a clever fusion of the traditional skills and modern technology. This is a skilful fusion of traditional techniques and modern technology. The unique position of eggshell inlay lacquerware in art is due to the harmony between nature and artifice and the intertwining of traditional and modern design concepts in its works. Eggshell inlay is a physical presentation of material culture and a symbol of spiritual culture, which carries the reverence for nature, the pursuit of harmony, and a deep understanding of the cycle of life regeneration.

As a precious cultural heritage of the Chinese nation, the eggshell inlay technique builds a bridge between the past and the future. In the face of modern society's rapid development, it is of great significance to continue to excavate and inherit this technique and innovate it with contemporary aesthetics and market demand in order to promote the protection of cultural diversity and enhance cultural confidence. Only from the design point of view, for the modern design of the graphic elements, colour matching, design composition, etc., the works of traditional Chinese art are fully worthy of artists to explore in detail if the new design can be combined with the conventional art, the art itself will be more closely integrated with the inheritance and innovation, and at the same time. It can also inspire the younger generation's interest in the traditional culture and identity. Therefore, Chinese lacquer art should further strengthen the study, protection, and promotion of eggshell inlay art, which is of great practical

significance for maintaining cultural diversity and promoting the development of the cultural industry.

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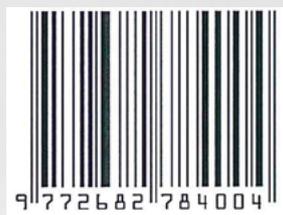
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There is no conflict of interest associated with this publication.

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