

Research on Inheritance and Innovation of Landscape Pottery Production-Taking the Craftsmanship of Pottery Made by Traditional Wood Fired Dragon Kilns as an Example

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Abstract:

The pottery craftsmanship of traditional wood fired dragon kilns in Ningguo is an intangible cultural heritage of Anhui Province. The craftsmanship for garden landscape pottery fired in the kilns is inherited orderly and is unique, and is an important representative of living dragon kiln culture in China. By starting with the origin of the garden landscape pottery craftsmanship of traditional wood fired dragon kiln in Anhui Province and by fanning out from point to area, this paper makes an attempt to find the cultural spirit, craft language and context in the craftsmanship of pottery made by wood fired dragon kilns in Ningguo, Anhui Province, which has been inherited up to now, and explores the path and method of inheritance and innovation, in order to provide a reference for sustainable development of the ancient traditional pottery craftsmanship and traditional folk kiln resources.

Keywords:

Pottery Craftsmanship, Garden Landscape, Traditional Dragon Kiln

1. Introduction

China is an ancient pottery country, and pottery occupies an irreplaceable position in the ancient civilization of China. Pottery is a form of Chinese traditional culture. The folk pottery kilns in different historical periods have different styles and different craftsmanship. Among them, the firewood firing technique of dragon kilns in traditional garden landscape pottery craftsmanship in Anhui, as an artificial form of folk art, has strong folk regional characteristics. It reflects the living conditions of the broad working people, embodies people's social life, customs and habits as well as cultural values, and also directly affects the pottery concept and industry development in a region.

Anhui Province spans the Yangtze River and the Huaihe River. It has rich cultural deposits, abundant natural resources, a long history of pottery production and high-quality pottery clay resources, as well as dragon kiln firewood firing technique and landscape pottery tradition with well protected inheritance. Especially, for the traditional wood fired dragon kiln pottery craftsmanship, Ningguo, which is located in southern part of Anhui Province, is the production base of traditional landscape pottery with the largest scale and distinct local characteristics. According to the analysis on production and fabrication of traditional landscape pottery in Anhui, this paper discusses the application and significance of the landscape pottery of traditional folk kilns in the design and production, and expands the way for the development and utilization of traditional landscape pottery, in order to provide a reference for the sustainable development of the ancient traditional pottery technique and folk kiln resources.

2. Origin of Garden Landscape Pottery Made By the Wood Fired Dragon Kilns in Ningguo

All the kilns that use pine wood and miscellaneous wood as the fuel to fire pottery products, including the kilns that fire bricks and tiles for houses can be called wood fired kilns. This is the most traditional way of pottery firing in China. In the traditional folk kilns in the southern area of Anhui Province, the dragon kiln, the bun-shaped kiln, the gourd-shaped kiln and kilns of other shapes all fall in the category of wood fired kiln. The main form of the wood fired kilns is the dragon kiln. The wood fired kilns in Anhui are mainly distributed in the following two areas: one is Fanchang County of Wuhu City, where the “Fanchang Kilns” have a long history[3], now there are only the well preserved historical remains of dragon kilns. The other area is Ningguo County of Xuancheng City, where the wood fired dragon kilns are large in scale, the kilns are well preserved, and the landscape pottery making process of wood fired kilns continues to today. The garden landscape pottery made by traditional wood fired dragon kilns has formed different technological characteristics due to the different technology and materials.

The dragon kiln, as its name suggests, is named after the long shape like a dragon lying on a slant slope, also known as long kiln, which is a continuous pottery firing kiln. The living wood fired dragon kiln clusters in the existing folk kilns in Anhui Province are located in the famous ancient city Ningguo area in the southern part of Anhui Province at northern foot of Tianmu Mountain in southeast of Anhui Province. Ningguo has many hilly mountains. Within its territory, it is not only rich in clay, but also the clay is diverse in variety and rich in color, and also it has a large amount of plant fuel such as pine, so it is abound with pottery in history. The firewood firing technique of dragon kilns in the existing folk kiln types is inherited orderly, it is the only representative of the living dragon kiln culture in China, and is also the largest garden landscape pottery production base in the whole country. The existing living wood fired dragon kiln is a type of kiln that primitively fires pottery in the south of the Yangtze River, and can be traced back to the Shang Dynasty[4]. Take the “Millennium Dragon Kiln Town” -- Gangkou Town of Ningguo City as an example, there are 9 ancient dragon kiln ruins, 8 living dragon kilns, and there are 20 pottery production enterprises with more than 2,000 employees. The longest dragon kiln among them is as long as about 150m, more than 2m wide and more than 1m high. It uses pine branches and miscellaneous wood as its main fuel. The dragon kiln is mainly constructed on natural hillsides. It mainly takes the trapezoidal and slope-

shaped structures. It adopts the natural ventilation structure in combination with the principle of natural rising of flame, and uses the slope to generate natural draft. The flame in the kiln flows parallel to the bottom of the kiln, which is suitable for firing large and medium sized crude pottery, fine pottery, painted pottery, etc. [2]. The wood fired kiln mainly fires celadon and black glazed pottery initially, and can also fire low-temperature and pressure-resistant daily-use pottery. The wood fired kiln has the characteristics of rapid temperature rise, full utilization of waste heat, etc., and has the advantages of low construction cost and good firing effect. It is a common firing method for local folk kilns. The dragon kiln can produce both hard pottery with printed decorative patterns and original celadon pottery with lime and grass ash as decorative cover glaze. Therefore, “Dragon kiln is said to be the cradle of Chinese celadon pottery”.



Figure 1. Exterior view of wood-fired dragon kiln.

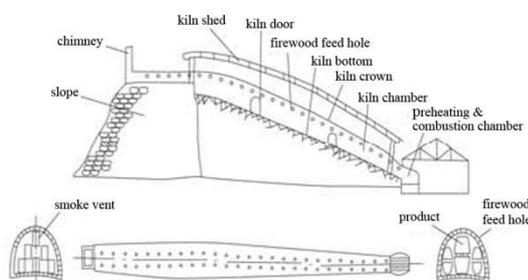


Figure 2. Schematic diagram of wood-fired dragon kiln structure.

Why the Ningguo dragon kiln wood firing technique can be inherited to the present is directly related to the local resources and environment to a great extent. First, there are many mountains; hence there are abundant raw materials. For example, the plant fuel - pine branches, the flame is long when the pine branches are burnt, the temperature is high, the highest temperature can reach above 1250°C. The clay is taken locally. So the production and firing costs are very low. The Ningguo clay is obviously different from that in other place of pottery production. The clay is coarse and not fine, has a high sand content and strong shaping plasticity. It is suitable for manual mud-bar disc building formation of large-sized pottery products. Since the Ming and Qing Dynasties, the Ningguo dragon kilns have been firing large-sized pottery ceaselessly. For example, the height of the large jar among the large pottery articles can be more than 1.6m. Second, the technique is mainly based on the master-

apprentice inheritance. They are familiar with the molding process and the law of firing, which is conducive to the generation and evolution of pottery forms. The natural colors red, yellow, white, black, purple, shallow gray, etc. of Ningguo clay are combined with the traditional glazing process. After the high temperature firing of the pottery, the gloss is good, the texture is hard, the pottery emits metal sound when it is knocked, and the pottery is rich in color. Third, it is the hometown of Huizhou merchants in the west of it, which has the market conditions for firing household utensils such as large-sized jars, jugs, flowerpots, urns and small pottery [1]. The large-sized pottery jars and urns used for the storage of Huizhou merchants' houses are essential household items in the rainy and humid mountainous areas, and the Huizhou merchants pay attention to the fire prevention of residential dwellings and the decoration of private garden landscapes, so they all choose large-sized jars, which promoted the long-term prosperity of the wood firing technique inheritance of Ningguo dragon kilns without decline. The landscape pottery products fired by Ningguo traditional wood fired dragon kilns are rough in appearance but exquisite in craftsmanship, reflecting the people's living customs, aesthetic measure, and practical style and craftsmanship conditions from one side. The precious thing of it lies in the primitive pottery making process by wood firing which has ever been lasting for thousands of years, conveying the original human life wisdom and aesthetic taste.

3. The Characteristics of landscape Pottery Made by the Ningguo Traditional Wood Fired Dragon Kilns

The garden landscape pottery made by Ningguo traditional wood fired dragon kilns is simple and natural, which cannot be achieved by modern gas-fired kiln firing. Due to the particularity of dragon kiln wood firing, it has formed its own process features in terms of shape and decoration.

I. The pursuit of simplicity. The landscape pottery made by the wood fired dragon kiln is a masterpiece of natural earth and fire. It undergoes such processes as material collection, material selection, stone roller crushing, ageing, hammer beating, soaking, treading according to the muddy nature of the soil and the plasticity of the clay when it is kneaded with water. The formation of large-sized pottery undergoes such traditional processes as fine kneading of mud, pulling into pieces, piece hammering, kneading the clay into mud bar, putting round mud bar on shoulder, mud bar disc building, drying in the air after several times of shaping and glazing, after it becomes a semi-finished product, the formation procedure is finished. The traditional big pottery articles pursue simplicity and beauty in shape, and pay attention to the organic combination of modeling and glazed decoration at the same time. The shape of the whole landscape pottery made by the wood fired dragon kiln is rigorous and rational, but it is full of romance and enthusiasm for supreme handwork from folk clay.

II. The glazed decoration pursues letting nature take its course. The glaze material is processed by the method of slurry precipitation and stirring impact, the limestone and the firewood ash are used as the solvent, and the glaze application is mainly the "waterfall" process. Because the glaze layers overlap and accumulate when glaze is applied on the surface of the pottery article, excess glaze is formed with different forms and different shades of color after oxidation-reduction firing, showing an effect of natural flowing "tears texture". Whereas in the modern gas firing and electric firing process, the bubble sizes are uniform and dense. The temperature difference of the garden landscape pottery fired by the wood fired kiln is large, the glaze color is not easy to control, the color shade of the fired pottery surface is different, and the glaze

colors on the left and right sides are different. Through the testing and analysis of the chemical composition of the garden landscape pottery made by traditional wood fired dragon kilns, the firing temperature of the landscape pottery body made by wood fired dragon kilns falls within the range of 1180~1220°C, and the water absorption rate of the pottery body is between 1.2 and 1.8, at which it is easy to form different glaze decoration. Such kind of glaze decoration is full of simple and lively vitality in the pursuit of natural performance. Its glazed rheological decoration and natural environment can be effectively integrated into one, which is also the ideal state pursued by “harmony between man and nature” in oriental culture.

Table 1. Chemical composition of material of pottery body made by wood fired dragon kiln.

LOSS	SiO ₂	AL ₂ O ₃	Fe ₂ O ₃	CaO	MgO	SO ₃	K ₂ O	Na ₂ O	R ₂ O	Insoluble Substance
1.19	76.23	15.44	2.68	1.31	1.18	0.16	1.85	0.60	1.82	12.63



Figure 3. Products made by wood fired dragon kiln .

III. The compatibility of traditional techniques. In the process of formation and evolution of the garden landscape pottery made by the traditional wood fired dragon kiln in Ningguo, it absorbed and incorporated some successful elements and factors of the same type of manual craftsmanship resources in Anhui. For example, Huizhou brick carving techniques in the Ming and Qing Dynasties were not only popular in local residential buildings, but also were reflected somewhat in landscape pottery production of traditional wood fired dragon kilns. The decoration of the circular ring held on tiger face on the knock-holder on both sides of a large landscape ceramic pot as well as the traditional decorative pattern carving, etc., some incorporate “poke dot pattern” and “mat pattern” decoration made by knife jumping process to enhance the sense of beauty of the order of the pottery craftsmanship traces.

4. Exploration on Innovation of Landscape Pottery Made by The Wood Fired Dragon Kilns

The inheritance and innovation of the garden landscape pottery made by wood firing process is the improvement and evolution based on the original production process, as well as the expansion and optimization of modeling, decoration and variety, it is specifically summarized as in the following aspects.

4.1. Concept Updating

The garden landscape pottery fired by Ningguo traditional wood fired dragon kilns is characterized by long history, clear context and orderly inheritance, because the different backgrounds of main craftsmanship inheritors in experience and knowledge, etc. result in the difference between the production status and market development, the concept updating is particularly important.

Ideas determine way of thinking and way of thinking determines the way out. The updating of ideas is to produce products and benefit, making them more competitive. In today of advocating the harmonious development of man, nature and society, the original traditional kilns began to abandon the use of wood fired kilns and use coal or oil fired kilns in the 1950s. Under the grand environment of change to use natural gas fired kilns in the 1980s, the firing cost of modern traditional wood fired kilns is relatively higher than before. The kiln temperature control fully depends on the skilled craftsmanship of the workers and the experience-based judgment and skills accumulated in the long-term operation practice. Whereas the dragon kilns in Ningguo always adhere to the traditional wood firing technique and inherit the tradition, such spirit is commendable. Except for one thing, it is required to update ideas and broaden aesthetic values. How does the garden landscape pottery made by traditional wood fired dragon kilns renew their vitality with the development of science and technology and aesthetic culture, and absorb, digest, innovate and develop while maintaining traditional craftsmanship? This has become one of the effective methods to enter the combination of the old and new cycles of “traditional process + content innovation”. Under the guidance of modern concepts, we should realize production of the traditional wood fired garden landscape pottery by the wood fired dragon kilns, which has material beauty, texture beauty and artistic beauty and is favored by the contemporary people in the collision of “heart” with “hand” and in the magical blending and creation of mud, fire and glaze so as to make them become the products of organic fusion that the utensil and environment complement each other in the new era. This is also the foundation for achieving openness, inclusiveness, and innovativeness, and promoting the healthy development of the garden landscape pottery of wood fired dragon kilns.

4.2. Modeling Innovation

Garden landscape pottery art is one of the public art forms that people seek visual aesthetics, environmental construction and balance of nature, and is a harmonious and balanced bridge between people, nature and society. Modeling is the most intuitive form of vision, and innovation is the soul of modeling. The traditional modeling of garden landscape pottery of Ningguo wood fired dragon kilns is mainly based on the rule-centered symmetrical visual balance. From the perspective of modeling, every traditional product pays attention to the rational rules of creation, as well as the principle of suiting the local conditions and practicality first. The modeling innovation based on this is to re-explore the potential of various morphological spaces, such as morphological reconstruction, function increase and decrease. Innovation is not limited to improvement and evolution of modeling, but a modeling innovation process that originates from nature, blends with nature, and is higher than nature. On the basis of adhering to the tradition, we should absorb and learn from the modeling style of domestic and foreign garden landscape pottery, and intentionally reflect the combination of its incompleteness and variation in the norm, use straight lines, arcs and curves to express the stiffness, flexibility and undulation of lines and surface profiles to make them form a combination relationship of planar and solid shapes, and express the idea and purpose of the producer through material muddiness, texture, ornamentation and glaze. Also we should reveal the individuality of traditional dragon kiln wood firing in order to meet the requirements of modern people for returning to nature and reflecting their personality.



Figure 4. Modeling effect of large-sized landscape pottery made by the wood fired dragon kiln.

4.3. Decoration Innovation

The garden landscape pottery decoration of wood fired dragon kiln has many forms of expression with focus on the glazed decoration, as well as the simple traditional plastic lamination and knife jumping decoration of combination of different shapes. The composition of the whole decorative pattern is programmed. We should explore decorative forms, innovate decorative techniques, and enrich the decorative content on the basis of adhering to the traditional craftsmanship in order to actively cater to the visual needs of the people in the new era for the garden landscape pottery of traditional wood fired dragon kilns. Therefore, in the innovation of modern garden landscape pottery, we should not only use the tradition flexibly, but also make full use of modern science and technology in the inheritance of the traditional techniques. For example, the chemical formulation innovation of the glaze in the glazed decoration is to conduct optimization research based on the garden landscape pottery craftsmanship of traditional wood fired dragon kilns in Ningguo. The glaze decoration covering of the garden landscape pottery of traditional wood fired dragon kilns has a certain sense of heaviness and thickness, the color is yellow green glaze and soy sauce color. By formulating the new ratio of the body material and glaze on the basis of tradition, the effect after firing in the dragon kilns is obvious, and superior to the traditional formula. The specific chemical composition is as follows:

Table 2. Chemical composition of new material of body.

SN	LOSS	SiO ₂	AL ₂ O ₃	Fe ₂ O ₃	CaO	MgO	SO ₃	K ₂ O	Na ₂ O	R ₂ O	Insoluble Substance
1#	8.41	65.00	20.05	3.41	0.83	0.36	0.10	2.98	0.45	2.41	11.45
2#	8.51	65.28	20.40	2.58	0.66	0.47	0.14	3.38	0.49	2.71	11.57

Table 3. Chemical composition of new glaze.

1#	LOSS	SiO ₂	AL ₂ O ₃	Fe ₂ O ₃	CaO	MgO	SO ₃	K ₂ O	Na ₂ O	R ₂ O	Insoluble Substance
	20.05	49.18	14.08	2.30	11.28	1.19	0.04	4.08	0.53	3.22	8.17

From the analysis of wood fired pottery body and glazed decoration, there are also significant differences in the composition and process effect of the body glaze. The glaze has the characteristics of relatively small viscosity at high temperature, easy glaze flow and high transparency. When applying thick glaze on common body, the glaze is not easy to flow, and has a big viscosity at high temperature, the characteristic of wood fired glaze is obvious when the lime alkali glaze is used as the main component to assist melting of calcium oxide [5], and is easy to present a sense of heaviness. “Kiln transformation” is the most fundamental procedure of wood fired

pottery. The final glazed decoration is born under the action of accident and inevitability. It incorporates the traditional glaze, but does not lose classic style. The shape and glazed decoration couple hardness with softness, the concretization and abstraction coexist, and the practicality and art are integrated.



Figure 5. Decorative effect of glazed surface of wood fired dragon pottery.

The decoration method of garden landscape pottery of wood fired dragon kilns has enriched the knife jumping and embossed patterns through process innovation, and added the relief pattern, individual pattern and continuous pattern. At the same time, it enriched the product content and artistic levels in combination with decorative painting techniques, making the decoration combine with modeling and tradition compatible with modernity. The smooth lines and the shape of the utensil are applied appropriately, and the creativity and arrangement of the patterns complement each other.

4.4. Variety Innovation

Variety innovation is the necessary choice to promote the transformation and upgrading of the garden landscape pottery of wood fired dragon kilns. Through continuous improvement and optimization of the traditional varieties by the handicrafts of the past generations, the product varieties are mainly concentrated in big pottery articles in the traditional garden landscapes. Due to the large market sales volume, traditional products promoted the development of fabrication of large articles to a larger size, but there is a slight lag behind in the aspect of variety innovation. For variety innovation, first we should have a comprehensive development strategy to realize the live inheritance and development of the garden landscape pottery of the wood fired dragon kilns under the premise of fully considering the commercial interests. While extending and expanding the same type of products in depth, it is the first choice for innovation to strengthen vertical penetration and expand lateral fusion paths, such as the decomposition of product forms, the reorganization of single functions, the refinement of Chinese and Western style products in order to be conducive to enriching product categories.

Variety innovation centers around the needs of people for products, and is based on the wood fired garden landscape pottery craftsmanship and keeps pace with the times. We should bestow the product with new form and new quality through the comprehensive application of modeling, color and decoration innovation in order to make them be more suitable for the needs of relationships between people and products, products and environment, and between products and market, and gain wide recognition, and achieve harmony and unity between innovation and aesthetic art of garden landscape pottery varieties of wood fired dragon kilns.

5. Conclusion

As an intangible cultural heritage of Anhui Province, the pottery craftsmanship of traditional wood fired dragon kilns in Ningguo is not only a regional culture, but also an art of earth and fire. The ancient traditional pottery craftsmanship of wood fired dragon kilns captures and reveals the plasticity beauty, flexibility beauty and muddiness and vitality of the earth in shaping of garden landscapes, making it reflect the property power of the environmental space, harmony and tension.

At the moment of focusing on production cost and efficiency, gas fired kilns and electric kilns are the main methods of firing in the pottery industry. As the most primitive garden landscape pottery of wood fired dragon kilns, it can adhere to the craftsmanship of “handwork supreme”, and also show its unique charm and artistic charm. The predecessors were able to create a unique craftsmanship language based on their aesthetic concept, and amazing large pottery works for garden landscapes. Its traditional pottery craftsmanship of wood fired dragon kilns lies in simplicity, focuses on inheritance and innovation, and aims at return to nature. The author attempted to find the cultural spirit and craftsmanship context of the pottery craftsmanship of the wood fired dragon kilns inherited to now in Ningguo, Anhui in combination with the pottery craftsmanship of the traditional wood fired dragon kilns from the ancient times to the present and by fanning out from point to area; analyzed the characteristics of pottery craftsmanship of the traditional wood fired dragon kilns in Ningguo as well as modeling and application of glazed decoration, which is conducive to understanding the origin and product characteristics in the inheritance, and discovering the craftsmanship beauty, shape beauty and style beauty of the pottery made by the wood fired dragon kilns. These analyses give more enlightenment and thinking about the organic integration of modern garden landscape modeling and the ancient pottery skills in the hope of creating a new road for the ancient traditional pottery skills, and push it to a new height so as to promote comprehensive development in the inheritance and innovation of the pottery craftsmanship of the wood fired dragon kilns.

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Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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