

A Comparative Study of Chinese and British Ceramic Medicine Pots in the 17th and 18th Centuries

Chuying Liu

Jingdezhen Ceramic University, Jingdezhen Jiangxi, 333000, China

Abstract: A large quantity of Chinese ceramics was imported to Britain in the 17th to the 18th centuries, which inspired the local production of medicine pots. Through physical comparisons, literature review, and image analysis, the author explored the similarities and differences between the ceramic medicine pots of China and Britain in shape, decoration, and craftsmanship, as well as the medical traditions, production conditions, and cultural contexts behind them. Despite visual convergence the shape and craftsmanship of the medicine pots of two countries differed, reflecting asynchronous style borrowing and technological diffusion, as well as the recipient's trade-off and re-creation based on local demands.

Keywords: 17th-18th Centuries; China; Britain; Ceramic Medicine Pots; Comparison.

1. Introduction

"Pot," called qi or kanghu in ancient times, is a vessel used to hold liquid with thin neck or store grains with thick neck. A ceramic medicine pot is a ceramic container used to store liquid medicines, composed of four parts: lid, body, spout, and handle. Due to its chemical inertness, moisture resistance, airtightness, durability, heat resistance, and cost advantage, ceramics became an ideal material for ancient medicine container. Scientific studies have suggested that Jingdezhen kaolin, after being fired at 1300°C, forms a crystalline structure of mullite, which makes its water absorption rate less than 0.05% and has acid and alkali corrosion resistance, the lead-cadmium dissolution amount of Qing Dynasty blue-and-white medicine pots from the Forbidden City is only 1/20th that of modern glass containers, this confirms its safety. Historically, the export of ceramics has gone together with the spread of medicine. The residue of myrrh found in ceramic medicine pots from Quanzhou port during the Song Dynasty is strong evidence. In the 17th and 18th centuries, the exchange of ceramics and medicine between China and Britain gave rise to ceramic medicine pots with regional cultural characteristics, becoming an important carrier of material and cultural exchange between the two countries. However, current studies on ceramic medicine pots are still very limited. For instance, Zou Minru and Zhan Jia's *Analysis of Ancient Chinese Medicine Ceramic Decoction Apparatus* suggests that ceramic medicine pots in the Ming and Qing Dynasties evolved from ewer, their functions shifted from decocting medicine to dispensing it[1]. Hudson, Briony's *English Delftware Drug Jars: the Collection of the Pharmaceutical Society of Great Britain* systematically reviews the evolution of the shape of Delftware drug pots in the 17th and 18th centuries in Britain [2]. It is thus clear that existing studies mostly focuses on the evolution of shape and function in a single cultural region, lacking a systematic comparison across time and civilizations. Considering this, this paper takes the ceramic medicine pots of China and Britain in the 17th and 18th centuries as the research objects, aiming to respond to "the Belt and Road" Initiative from an academic level. Based on the view that the shape of the vessel serves the use function and the shape evolution responds to practical needs, this paper intends to conduct a comparison

from three dimensions: functional regulations, shape characteristics, and decorative techniques, using the collection of physical objects and relevant literature as the basis, to explore the causes of the shape and decorative features of the ceramic medicine pots of the two countries.

2. Physical and Chemical Properties of Decoctions and Syrups

The 17th and 18th centuries were the late Ming Dynasty to the early Jiaqing period of Qing Dynasty in China (approximately 1601-1800), meanwhile which were also an important period for the development of British medical culture. In the Chinese medicine system, ceramic medicine pots were mainly used to hold decoctions. The decoction is the liquid dosage form made by boiling Chinese herbal slices or coarse particles in water, taking the juice by filtering out the residue, its core feature lies in the internal link of "process-medicinal qualities-curative effect", under the guidance of traditional Chinese medicine theory, it is prepared based on traditional boiling methods and compound experience. Such preparations have high absorption and utilization rates, strong pertinence, and can be adjusted according to the condition, so the efficacy highly depends on the precise control of the decocting process, which was highly valued by medical experts throughout history. For instance, ancient medical books such as "Treatise on Febrile Diseases" and "A Supplement to the Compendium of Materia Medica" all describe the boiling methods when recording prescriptions in detail, standardizing key parameters such as the amount of water, boiling time, and choice of utensils. Li Shizhen warned in "Compendium of Materia Medica" that "people who boil medicine carelessly, with improper water and fire, and incorrect timing, the medicine will be ineffective." Xu Lingtai also pointed out in "On the Evolution of Medicine" that "medicines are specifically used to treat diseases", and the decocting methods "are variously recorded at the end of ancient prescriptions", all revealing the decisive role of precise process in the efficacy[1]. However, decoctions also have inherent limitations, such as a bitter and astringent taste, high water content, complex composition, and frequent use of compound prescriptions, they are prone to mold, fermentation, or spoilage during storage and difficult to preserve for a long

time, therefore, they are usually freshly decocted and not prepared in large quantities. In contrast, the ceramic medicine pots in Britain during the 17th and 18th centuries were mostly used for storing syrup or oil solution. According to the European pharmacopoeia of the 17th century, syrups originated from the improvement of sweet medicine preparation (juleps). Sweet medicine preparation were prone to spoilage due to their high-water content, the pharmacist then boiled and concentrated the syrup to make a thick and long-lasting syrup. Syrups were usually made by water, fruit juice, infusions or decoctions with sugar or honey until they became slightly thick, sugar and honey combine preservative and taste correcting properties, extending shelf life and improving taste. The pharmacutists aimed to concentrate one or more medicinal components into a single preparation, develop various syrups with different functions to meet different therapeutic needs in response to the diverse diseases and complex symptoms. By comparing the two, it can be seen that Chinese decoctions used water as the solvent, emphasizing individualization and immediacy, the efficacy depends on the decoction process, however, they were prone to spoilage and could not be stored for long time, European syrups had a higher sugar content, pursuing storability and standardization, they were prepared in batches through concentration and preservation techniques, and the sweetness improved patient compliance. The former was a concentrated embodiment of the idea of syndrome differentiation and treatment, while the latter reflected the institutionalized pursuit of stability and convenience in modern European pharmacy. The two were rooted in different medical traditions and technical logics, and they together formed a typical

microcosm of Chinese and Western medical cultures. The intrinsic properties of medicinal liquids not only determined their preparation and storage methods but also put forward corresponding functional requirements for the shape of the holding containers. Due to the fundamental differences in physical and chemical properties and usage logic between decoctions and syrups, the ceramic medicine pots used as their material carriers also showed distinct differences in shape.

3. Comparative Analysis of Shape Features

The porcelain medicine pots in China during the Ming and Qing Dynasties had a stable shape, with a trumpet-shaped or funnel-shaped from mouth to neck, a constricted neck, a broad shoulder, a bulging belly, low ring foot with exposed body at the base, a long or short curved spout on one side of the belly, there was no handle, and the grip point is at the constricted neck (see Figure 1). The shape of the British ceramic medicine pots presented phasic variation in the 17th and 18th centuries changed, in the early stage, they had an open mouth, a short straight neck, a spherical belly, a high foot with an empty bottom, a band or ring handle is on one side of the belly, and a short straight spout on the other side with a flange-shaped spout, later, the spout gradually changed from flange-shaped to open, by the mid-18th century, the spout had evolved into a wide trumpet shape, meanwhile the medicine pots removed the handle and raised the high foot bottom, and the grip point shifted from the handle to the high foot (see Figure 2).

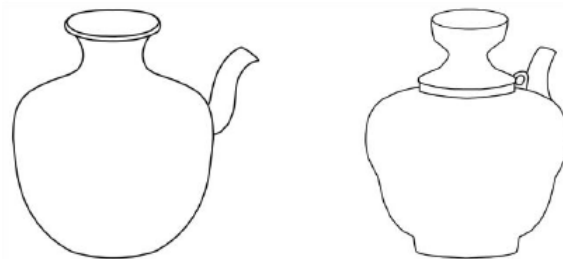


Figure 1. Main shapes of Chinese ceramic medicine pots (drawn by the author)



Figure 2. Main shapes of European ceramic medicine pots (drawn by the author)

The difference between the two is mainly reflected in three aspects. First, the holding methods are different: Chinese pots are held by the neck, while British pots are held by the handle or high foot. Second, the spout shapes are different, Chinese pots have a tubular long or short curve spout, while British pots have always been a short straight spout, the spout gradually changes from a flange to an open mouth and then to a trumpet mouth. Third, the handle configurations are different: Chinese pots have no handles, whereas early British pots had handles, which were later removed in some cases. To

facilitate comparative analysis, this paper will focus on handle-less ceramic medicine pots as case for exploration.

On the left side of Figure 3, it is a Qing Dynasty blue-and-white ceramic medicine pot with a landscape pattern, now at the Yangtze River Civilization Museum in Wuhan, Hubei Province. The pot has a flared spout in a trumpet shape, the spout to the neck forms a short neck bundle. The body of the pot has broad shoulders, a round and bulging belly, and gradually tapers below the belly, low ring foot with exposed body at the base.



Figure 3. Comparison of Chinese and British ceramic medicine pots

The upper middle part of the body is a long, slender, tubular, double-curved spout, the spout is roughly flush with the spout, the pot has no handle. The pot is 12 cm tall, with a caliber of 4.5 cm and a base diameter of 5 cm. The neck is decorated with a blue-and-white double-string patterns and combed patterns, while simple brushstrokes is used to depict mountains and waters, the patterns are rough and expressive, leaving a sparse and clear blank space. The trumpet-shaped spout can play a drainage role and prevent spillage when pouring, the constricted neck structure reduces the exposure of the liquid medicine to the external environment, providing some insulation. Additionally, the narrowed neck serves as a gripping point, concentrating the force at the pot's center of gravity, which causes more stable grip and enhances control during use. The double-curved spout design combines flow control and cut-out effect. Compared to the straight spout, its longer internal path and greater fluid resistance slow the flow rate, preventing spills caused by pouring too quickly, moreover, the two bending structures also ensure that once the liquid has been poured, it stops flowing quickly, preventing residual liquid from dripping down the outside wall and ensuring clean and precise use. In contrast, the right side of Figure 3 is an 18th-century British Delftware tin-glazed syrup pot (from *English Delftware Drug Jars: The Collection of the Museum of the Pharmaceutical Society of Great Britain*, edited by Briony Hudson). The shape of this pot is characterized by wide open spout, short neck, sloping shoulders, and spherical, bulging belly, on one side of the shoulder, one side of the shoulder has a thick and short tubular direct spout, the spout is slightly open upwards and the spout end has a rounded lip. The pot sits on a trumpet-shaped high foot, a narrow neck-like stem that tapers into a broad, outward-flaring flat base, providing a stable support. The pot has no handle and are 19.7 cm tall. Its surface is light beige, with a smooth glaze, decorated in blue. The pot's decoration is centered on the body, where motifs of winged angels (in the form of Cupid), shells, and intertwined floral patterns surround a scroll-shaped frame, the inscription is "S: CROCI." Given that syrups are thick and sticky, with a slow flow rate and prone to clogging when pouring, this pot has been optimized for liquid discharge. Its short and tubular spout has a larger opening, is slightly open upwards at an oblique angle, can increase the liquid discharge cross-section during pouring, reducing flow resistance and ensuring smooth flow of viscous liquids, and avoid accumulation of drips due to slow flow rate or narrow flow opening. Due to the lack of a handle on the body, and the need for continuous and stable force control

when pouring syrup, the slender and constricted foot handles are used as gripping points. Its shape fits the gripping of the hand, and the narrowed neck facilitates applying force, while the flared foot ensures the stability of the center of gravity during pouring, allowing the user to control the tilt angle and liquid discharge rate smoothly. As we can see, the short straight spout and trumpet-shaped high foot base effectively solve the challenge of draining viscous liquids and provide a stable point for applying force for handle-less pots. The shapes of the Chinese porcelain medicine pot and the British ceramic syrup pot are not merely the presentation of craft but functional responses to the physicochemical properties and usage scenarios of the liquid medications, every detail of their design serves the needs of precise, safe, and convenient storage and pouring.

4. Exchange and Mutual Learning of Decorative Techniques

Despite the aforementioned differences, ceramic medicine pots of two countries show significant traces of exchange and mutual learning in their decorative techniques, both show a distinctive "white ground with blue decoration" style. The formation of this style could be traced back to the spread of Chinese blue and white porcelain in Europe and were sought after. The earliest Chinese porcelain encountered in Europe dates back to 1295, when Marco Polo brought back porcelain from his travels to Venice. Before the 16th century, only a small number of Chinese porcelains were introduced into Europe via Persia, Egypt, and other regions. These porcelains were highly prized and often set with gold or silver bases to highlight their value, they were commonly found in the inventories of the aristocracy and frequently appeared in contemporary artworks. During the diffusion process, Chinese porcelain was imbued with mystical color, and people believed that it had the power to resist poison, strengthen the body, and even "crack when in contact with poison." In the 16th century, the French writer **Pansido** wrote: "Porcelain is made from eggshells and crushed seashells, its greatest virtue is that if poison is placed inside, it will explode into pieces." Such romantic notions continued to circulate widely into the 18th century, as a result, In Europe, a cultural understanding has gradually emerged that "white ground blue color" ceramics are synonymous with rarity and efficacy. The author speculate that the prevalence of white-ground blue ceramic medicine pots in British apothecaries may be linked to this cultural recognition. Against this backdrop, British

Delftware potters, using tin glaze techniques, visually imitated Chinese blue-and-white porcelain. The invention of tin-glazing was tied to Chinese white porcelain. In the 8th to 9th centuries, the Arab world, through trade, came into contact with Northern Chinese white porcelain like the Xing white porcelain and Gongxian white porcelain, they developed the technique of tin-white glazing during the process of imitation. This technique spread through North Africa, the Iberian Peninsula, and Italy, eventually reaching the Netherlands, France, and Britain, leading to the rise of Delftware in the late 16th and early 17th centuries. This diffusion route suggests that the technical origin of Delftware's "white-ground" visual effect can be traced back to the Arab world's imitation of Tang dynasty Chinese white porcelain. However, despite both sharing the visual feature of "white ground and blue decoration," their technique systems and decorative logics are quite different.

Chinese blue-and-white porcelain is a high-temperature, hard ceramic, which is made from a dual kaolin and stoneware, its body is dense, highly vitrified, and has an extremely low absorption rate. Decorations are painted on the dry biscuit body, and the brushwork follows traditional Chinese calligraphy and painting techniques, focus on control, pauses, and transitions, stress rhythm and expressiveness in the patterns, seek the freehand spirit of literati painting and the interest of brush and ink, after applying transparent glaze, the piece is fired once at around reducing flame with 1300°C. It belongs to the underglaze color process, and the image is protected by the glaze layer, resulting in pure and rich colors. In contrast, British Delftware belongs to a low-temperature tin-glazed porcelain, the glazing process is more complicated. The body is made from locally mixed clays, which are loose and porous, the piece is first fired at around 900°C to form an unglazed body, its surface is loose and porous, facilitating the absorption of the glaze layer. Subsequently, the unglazed body is fully immersed in the tin glaze liquid to ensure an even coating of the white tin glaze; after drying, the craftsman applies high-temperature cobalt pigments to the glaze surface to create lines; before firing, a transparent lead glaze containing feldspar (mainly composed of silicon dioxide) is applied, small amounts of copper and cobalt are often added to the glaze to help the surface of the object achieve a luster similar to that of porcelain. After firing at approximately 1040°C in an oxidizing flame, the cobalt pigments present a stable blue tone, often with a slight grayish-green tint. This technique belongs to overglaze or midglaze decoration, and the picture are relatively prone to wear. In decorative techniques, Delft blue porcelain often uses the method of transferring outlines and then filling them in, this technique derived from the European tradition of decorative painting, emphasizing meticulous realism and the pursuit of the true sense of light and shadow, volume of planes, and accuracy of perspective. In decorative motifs, Chinese blue and white porcelain adheres to the cultural logic of "every line has a meaning, and every meaning is auspicious", using landscapes, figures, and auspicious patterns symbolizing health and longevity to carry the aesthetic of scholars and the traditional medical concept of "theory that man is an integral part of nature". Delftware, on the other hand, tends towards realistic and religious mythological themes, with often dense compositions, and the abdomen is frequently covered with patterns, leaving little blank space. This layout is influenced by the European tradition of ceramic decoration and is also related to the technique need to cover the flaws of the body

with patterns. A particularly typical feature is the use of inscription frames. This form may have originated from the inscriptions or Kai Guang on Chinese porcelain, but in British medicine pots, it was given a clear identification function, the names of the medicines were written inside the frames (such as "O" represents oils and "S" represents syrups, etc.), serving the increasingly mature retail system of pharmacies in the 18th century. Medicine pots, as storage containers, were often displayed on shelves, and their decoration needed to help pharmacists quickly identify the contents, the widespread use of inscription frames is a reflection of this need; the complexity of the patterns and the brightness of the colors aim to enhance the visual appeal of the objects, conforming to the market logic in a competitive business environment. This feature contrasts sharply with the decoration tradition of Chinese medicine pots, which rarely have inscriptions and mainly use patterns to convey meanings, demonstrating a deep integration of form borrowing and functional localization. Although British Delftware medicine pots were visually influenced by Chinese blue and white porcelain, the limitations of their technical conditions and the differences in functional requirements determined the limited nature of the exchange. On the one hand, Britain failed to master the technique of hard porcelain, thus cannot replicate the texture of the porcelain body and the luster of the glaze of Chinese blue and white porcelain, and the presentation of the decorative effect was always constrained by the material characteristics of tin-glazed earthenware. On the other hand, the differences in the shapes of medicine pots between China and Britain did not narrow due to the exchange, and British medicine pots maintained their own development logic in structures such as the spout, handle, and base, it suggests that the shape mainly followed usage habits and the characteristics of the liquid, rather than being guided by aesthetic trends. The similarities and differences in decoration between Chinese and British medicine pots reflect the technical constraints and aesthetic choices in the spread of ceramic technique, as well as the differences in medical practice, commercial environment, and cultural concepts between the two countries. The exchange of decorative techniques is essentially a microcosm of the spread, acceptance, and re-creation of material culture in different regions.

5. Conclusion

The Chinese and British ceramic medicine pots in the 17th to 18th centuries are significant material witnesses to the cross-civilizational exchange of medical tools. While both countries' medicine pots share the visual feature of "white ground with blue decoration," they differ in shape and decoration due to differences in medical traditions, craft systems, and cultural contexts. The shape of the pots is subject to the respective medical practices and ceramic production conditions; in decoration, Chinese blue-and-white medicine pots are made of high-temperature hard porcelain, with underglaze painting reflecting the literati's aesthetic and freehand brushwork; British Delftware medicine pots, on the other hand, the blue and white British Delft earthenware medicine is decorated with glaze and painted in a meticulous and realistic style, the design of the inscription frames and label-like patterns precisely meets the practical needs of modern pharmacies for the identification of drug information and the construction of the identity of pharmacists. The visual convergence and technological divergence in the decorative styles suggest that style borrowing and technique diffusion

were asynchronous, and the recipient always chooses and recreates foreign elements based on local needs. Civilizations develop through exchange, and the cross-cultural practices of Chinese and British ceramic medicine pots suggest that exchange does not lead to cultural homogenization but, instead, fosters new creativity through mutual reference, increase vitality into the shape evolution and functional expansion of medical devices. This paper provides typological references and historical context for the identification, interpretation, and exhibition of similar medicinal artifacts. In the current context of "the Belt and Road" initiative, retracing this history of exchange also provides empirical support for cross-national cooperation research and joint exhibition in the field of cultural heritage.

Acknowledgments

Provincial Graduate Innovation Special Fund Project of Jingdezhen Ceramic University in 2024, "A Comparative Study of Ceramic Medical Apparatus in China and Europe in

the 16th to 19th Centuries" (Project number: YC2024-S788).

References

- [1] Zou Minru, Zhan Jia. Analysis of Ancient Chinese Medicine Ceramic Decoction Apparatus [J]. Chinese Ceramic Industry, 2024, 31 (06): 117-123.
- [2] Hudson, Briony, ed. English Delftware Drug Jars: The Collection of the Museum of the Pharmaceutical Society of Great Britain. London: Pharmaceutical Press, 2006.
- [3] Zhang Yutian, Wu Zhenfeng, Yu Huicheng, Yu Huanhuan, Zhang Na, Sun Dongyan, Zhang Jiaying, Luo Weiliang, Yang Ming, Zhang Guolong, Zhang Qun. Development Strategy for Digitalization and Intelligence of Traditional Chinese Herbal Decoction Methods Guided by Pharmacological Properties [J]. Chinese Traditional and Herbal Drugs, 2025, 56 (24): 8869-8880.
- [4] Charas M. Pharmacopée royale galénique et chymique [M]. Paris, 1676: 162.
- [5] Yang Yongshan, Yang Jingrong. Chinese Ceramics [M]. Taipei: Shu Shin Publishing Company, 1988: 175.