

東西方歷史中的金星玻璃：起源、製造與藝術性

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金星玻璃(*aventurine glass*)據傳大約在十七世紀上半葉由威尼斯慕拉諾的玻璃工人無意間製造出來，主要的特徵是在不透明的紅棕色玻璃中分佈著無數金黃色澤的金屬顆粒。與灑金玻璃(*gold-flecked glass*)在玻璃製造過程中灑入金粉之作法不同，金星玻璃中肉眼可見的金屬顆粒是在緩慢冷卻過程中，於一還原氣氛下所形成的銅晶體顆粒。由於生產過程中必須掌握的變數甚多，不易成功，需要機運，因此就像奇遇(*aventure*)一樣，此亦是其名稱由來之故。也因為金星玻璃不易製造成功，因此並未成為十七世紀以後西方玻璃發展史上的主要類型之一，但在一些歷史文獻中，我們仍可發現使用金星玻璃所作成的器物之記載。

在另一方面，從清宮檔案及西方傳教士書信與紀錄中，也可知中國在康熙時期(1662-1722)便有包含金星玻璃在內的許多西方玻璃傳入，並且受到皇帝的喜愛。康熙三十五年(1696)，更在皇帝的意旨下，於蠶池口的法國傳教士天主堂旁成立了玻璃廠，由紀里安神父(Kilian Stumpf, 1655-1720)負責管理。根據德里格(Teodorico Pedrini, 1671-1746)的記載及其他傳教士的書信，康熙時期清宮裡便已開始試驗製造金星玻璃。不過由於至今並無確認無疑的康熙朝所留傳下來的金星玻璃，也沒有相關的技術和配方紀錄，因此，甚難知曉康熙朝清宮裡所製造的金星玻璃模樣。現今所看到的清代金星玻璃，主要製造於乾隆時期(1736-1795)。從湯執中((Pierre d'Incarville, 1706-1757)的記載中，我們知道在1741年金星玻璃燒製成功之前，御用玻璃廠也努力嘗試了許多方式試圖製造這種帶有金色星點光澤的紅棕色玻璃，但由於少了一些關鍵的因素，一直沒有成功。至於最後燒製成功的關鍵，也因為文獻無確切記載，我們並無法掌握其燒造技術層面的細節。不過可以確認的是，在湯執中和紀文(Gabriel-Leonard de Brossard, S. J., 1703-1758)擔任玻璃廠的技術專家期間，是乾隆朝玻璃製造的高峰期(1740-1759)，這些金星玻璃塊料被製造出來後，再依清宮既有的藝術形制和品味，進行冷加工的雕刻處理，成為許多類似玉雕造型的新藝術品項。

本論文主要有兩個目的，一是基於前人相關的研究基礎上，重新梳理東西方相關文獻，探討在東西方不同時空背景中金星玻璃起源背後的文化、藝術與技術因素，同時也將結合實際對幾件清代金星玻璃的科學分析，進一步探究其配方與燒造技術。另一方面，作為一種新型式的藝術品項，其在東西方玻璃藝術的發展過程中，所扮演的角色並不相同，我們也將從材料、技術與東西方審美的角度，討論這些差異。

Aventurine Glass in Western and Eastern History: Occurrence, Fabrication and Artistry

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It is reported that aventurine glass was accidentally invented by glass artisans of Murano in Venice in the first half of the seventeenth century. Presenting numerous golden metal particles, which are actually minute copper crystals, within its mass, it is produced with a slow cooling process in a reducing atmosphere after firing at a higher temperature. Unlike gold-flecked glass in which the gold powder is added into molten glass for forming the glass speckled with gold, the copper crystals of aventurine grow gradually inside the glass during cooling procedure. As it was not easy to successfully make aventurine glass, it received its name “aventurine” implying that it was made by chance rather than science. Besides, probably because of its rarity, aventurine never became the major glass works in Western history, though some small articles can still be found in different museums.

On the other hand, on the basis of the ancient Chinese documents and a series of letters and notes written by the Jesuit missionaries employed by the Qing court, aventurine and other glass objects have been imported from Europe to China in the reign of Kangxi (1662-1722) and highly appreciated by the emperor. In 1696, under the direction of Kilian Stumpf, SJ (1655-1720), the imperial glass workshop was established in the French Jesuit complex known as the Beitang. According to Teodorico Pedrini (1671-1746), aventurine glass was fabricated domestically in Kangxi’s reign. However, due to lack of ascertained aventurine objects of this period, it is hard to know their exact type and modeling. The aventurine articles passed down from the Qing dynasty were principally produced during the Qianlong era (1736-1795). Two Jesuit missionaries, Gabriel-Leonard de Brossard (1703-1758) and Pierre d’Incarville (1706-1757), were formally employed by the Qing court to take part in imperial glassmaking in this period. The letters of d’Incarville reveal that many efforts have been made to produce aventurine glass before obtaining successful block in 1741. Nevertheless, the technical details and key factors of making such a rare type of glass at the Qing court are still unclear and require further study. It is worth noting that once an aventurine block was produced, it was then carved and treated with cold process like jade and became a new type of artifact in the Qing dynasty.

This study will focus on some points: discussing the cultural and technical factors of the occurrence and development of aventurine glass both in Western and Eastern history basing on literature review and previous study; investigating the materials and

firing techniques for producing aventurine glass by analyzing some articles housed in NPM with different analytical methods; exploring the artistry of this new type of aventurine artifacts both in Western and Eastern cultures from the points of view of technique and aesthetics .