Recovering archaeological context from dispersed Underwater Cultural Heritage: Chinese Batavia ware ceramics from Indonesian waters

By

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ABSTRACT

This thesis focuses on the examination of the historical and archaeological context of Batavia ware within the Southeast Asia Ceramic Archaeology Lab (hereinafter referred to as SEACAL). The SEACAL collection comprises a set of Batavia ware items lacking proper archaeological contexts, having been subjected to permissive salvage and subsequently dispersed worldwide through middlemen.

The first phase involves a detailed analysis of Batavia ware items in the SEACAL collection. The analysis progresses from physical variables to element compositions, involving techniques such as visual inspection, physical measurements, and scientific analysis of portable X-ray fluorescence (hereinafter referred to as pXRF) for element compositions. This phase aims to understand the characteristics and composition of the Batavia ware within the collection. The second phase includes a cross-comparison of Batavia ware from both maritime and terrestrial sites. The comparison was used to construct a chronological sequence (seriation) for Batavia ware, allowing an exploration of the production and decorative variations over time. Additionally, comparisons were made between Batavia ware in the SEACAL collection and other archaeological discoveries to illuminate their archaeological contexts.

Based on the methodology and results, this thesis suggests that the Batavia ware in the SEACAL collection indicates a similarity in production region and the source of Chinese domestic blue pigment. The possible date period for the Batavia ware was suggested to be in the Qing dynasty, with the Kangxi period having the potential. The thesis underscores the need for further investigation with larger sample sizes and the utilisation of appropriate instruments to refine and expand upon the findings. This involves more extensive analyses and perhaps collaboration with other institutions or researchers. This study also points out that investigations of the so-called Kangxi Cargoes would be helpful for further exploration. This suggests the significance of examining cargoes associated with the Kangxi period for a deeper understanding of Batavia ware.

In summary, the thesis provides a systematic approach to understanding the historical and archaeological context of Batavia ware, trying to address challenges related to permissive salvage, looting, and dispersed artefacts. It establishes potential connections between the SEACAL collection and potential historical periods, emphasising the need for continued research and collaboration to enhance the depth of knowledge in this area.

DECLARATION

I certify that this thesis:

1. does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university

2. and the research within will not be submitted for any other future degree or diploma without the permission of Flinders University; and

3. to the best of my knowledge and belief, does not contain any material previously published or written by another person except where due reference is made in the text.

Signed....  .....

Date.....04/03/2024.....

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CHAPTER ONE
INTRODUCTION

1.1 Introduction

The Maritime Silk made an outstanding contribution to global trade in the past. Indonesia is located at an important geographical hub that connects the Eastern and Western hemispheres through commercial and cultural dimensions (Miksic 2022:179–214). The islands of the Indonesian archipelago witnessed trade across the Maritime Silk Route from as early as the turn of the first millennium. In the last fifty years, more and more underwater cultural heritage has been discovered with the development of underwater archaeology and scientific diving internationally. Indonesia shared the spotlight in underwater archaeology study because of the tremendous number of shipwrecks uncovered in its area.

The Southeast Asia Ceramic Archaeology Lab (hereinafter referred to as SEACAL) at Flinders University is undertaking a project about the underwater cultural heritage of the Maritime Silk Route. It is based on one of the most significant trade ware ceramic collections in Australia from barrister and collector Mr Michael Abbott AO KC. This collection had a wide variety of trade ware dispersed across Southeast Asia, such as Chinese ceramics, Indonesian ceramics, Thai ceramics, and Vietnamese ceramics. They were mainly salvaged from the shipwrecks in Southeast Asia and dispersed by middlemen worldwide without archaeological context, especially the findspots, so it is extremely hard to ascertain the original finds spots or supplementary social, economic, or political contexts of the artefacts. This thesis examines a group of Batavia ware from the collection as samples to reveal the stories behind and study the cultural significance embedded in their ceramic fabric.

1.2 Research Background

1.2.1 Chinese Export Porcelain Production

Chinese porcelain, made with kaolin and petuntse and coated with a clear glaze extracted from the petuntse, created a hard and waterproof surface (Staniforth and Nash 1998). It had been regarded as a durable household utensil since its invention. It was first introduced to the Western world through the ancient Silk Road across Central Asia (Zhu et al. 2016:798–808). With the development of sailing and ship construction techniques, the Maritime Silk Route became more and more famous and convenient for the international trade of Chinese export porcelain. Chinese porcelain became one of the most popular commodities in the ancient Maritime Silk Route trade between China and other countries on the Route. Jingdezhen in Jiangxi province was one of the major manufacturing places of Chinese porcelain for overseas markets (Zhu et al. 2016:798–808).

1.2.2 Chinese Export Porcelain in Southeast Asia/Indonesia

The Chinese ceramics trade between China and Southeast Asia had a long history (Peronnet and Srikanlaya 2017:391–422; Miksic 2022:179–214). The trade-in Chinese ceramics began during the late Tang dynasty (AD 618–907), saw a significant surge during the Song dynasty (AD 960–1279) and Yuan dynasty (AD 1279–1367), experienced a decline in the early Ming dynasty (AD 1368–1643) due to changes in imperial trade policies, and nearly came to a halt between 1430 and 1488. After 1488, China gradually reopened its ports to foreign trade, eventually removing most restrictions by 1567 in the Ming dynasty (Miksic 2022:179–214). In the early Qing dynasty (AD 1644–1912), the export trade suffered from the shifting of the dynasty and restrictions on foreign trade made by the new Empire. After the new Qing dynasty was firmly established in China, the maritime ban was lifted in 1684 and the Dutch East India Company (VOC) and other European countries began importing vast amounts of Chinese porcelain again (Fang 2002:103–118).

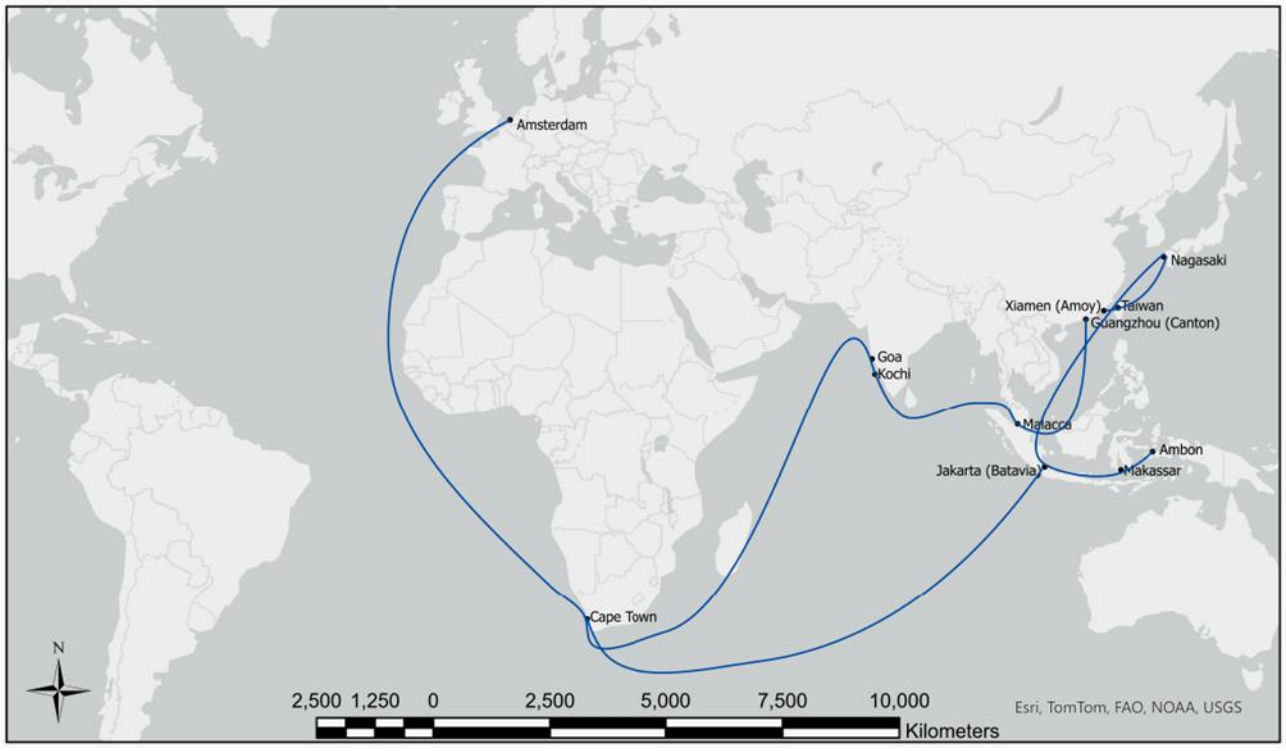


Figure 1 The main trade route of VOC between Asia and Europe (Courtesy of the author)

Batavia, now known as Jakarta, served as the capital of Indonesia. From archival resources, it is evident that Batavia played a pivotal role in the maritime trade history of Indonesia, functioning as a vital trade center with convenient access to sea routes. Its origins trace back to Sunda Kelapa, a crucial port of the Sunda Kingdom prior to Dutch colonization in 1619. The historical context of Batavia is multifaceted, encompassing both its pre-colonial status and its transformation into a colonial outpost following the arrival of European powers such as the Dutch East India Company (VOC) in the 17th century. It is essential to recognize that during the 17th and 18th centuries, the

Dutch East India Company did not control the entire Indonesian archipelago. Despite this, Batavia emerged as a significant trade hub upon VOC establishment, capitalizing on its strategic location (Knörr 2014:41–73). The journey of Batavia towards becoming an international trade center was intricate and rich, fostering connections between Asia and Europe during that era (Figure 1).

From the documentary record of the Dutch East India Company (VOC), around three million Chinese export ceramics were distributed to Europe from Batavia annually (Volker 1971). Batavia ware was named after the most prominent Chinese export porcelain trade centre because it was the trade ware initially produced in China as Chinese export porcelain, then transferred to Batavia and distributed from Batavia to Europe by the Dutch merchants (Wang 2021:88–89).

1.2.3 SEACAL (Southeast Asia Ceramic Archaeology Lab) Ceramic Collection

Michael Abbott AO KC is a collector who amassed the most extensive collection of trade ceramics in Australia. Mr Abbott gifted Flinders University more than 2300 pieces of the ceramic collection for the research study of the ancient Maritime Silk Route. All the objects were salvaged from shipwrecks and dispersed without formal archaeological recordings of their finding spots, so the history behind them was left unknown. Flinders University archaeologist Dr Martin Polkinghorne led an international consortium of archaeologists and heritage specialists from Australia, Indonesia, and Southeast Asia to value these ancient cultural heritages and record them correctly for future generations. This research will focus on the Chinese export porcelain of Batavia ware in this collection and explore the historical context of their origins and their cultural significance.

1.3 Research Problems and Questions

My research will focus on the Batavia ware within this collection, characterised by its brown glaze exterior and blue-and-white interior patterns. These artefacts were linked to the Batavia ware trade, which possibly involved the role of Sunda Kelapa, the Dutch East India Company (VOC), and China along the Maritime Silk Route based on previous research. However, a significant challenge in studying these artefacts was the lack of archaeological contexts, as all objects from this collection were recovered and distributed without proper investigations and recording protocols.

The SEACAL collection houses a substantial number of Batavia wares, although many of them exhibit repetitive styles and lack identifiable marks on the bottom of the ware. To address these issues, extensive literature reviews and archaeological comparisons with similar artefacts were required. This will help us determine their origins and the routes through which they made their way to Batavia and the destined market.

Considering these challenges, my primary research question will be: “What implications can

archaeological techniques provide regarding the historical and archaeological context of the Batavia ware from the SEACAL collection?" Additionally, my secondary question will explore the consistency of these wares and their potential common spot of origin: "How consistent are these artefacts, and is it likely that they all originated from the same source?"

A number of known shipwrecks have yielded Batavia ware, as documented in archaeological investigations and reports. These shipwrecks include the *Wanjiao No. 1* (c.1690–1700) (*Wanjiao No. 1* underwater archaeology team:2006), the *Oosterland* (1697) (Werz 1992), the *Bennebroek* (1713), the *Schoonenberg* (1720), the *Ca Mau* (c.1723–1735) ((Nguyen 2002a, 2002b; Nguyen and Pham 2008:38), the *Zeewijk* (1727), the *Hollandia* (1743), the *Gotheborg* (1745), the *Amsterdam* (1749), the *Geldermalsen* (1752) (Hatcher and Thorncroft 1987:117), the *Machault* (1760) (Sullivan 1986:68), the *Sadana Island* (c.1764–1775) (Ward 1994:4–9, 1996:83–94; 2000:186), the *Middleburg* (1781) (Grobbelaar 1994:15; Staniforth and Nash 1998:11–12) and the *Brederode* (1785) (Madsen and White 2011:123–128). There is a possibility that the Batavia ware in the SEACAL collection may have originated from one of these shipwrecks, and it is crucial to conduct further research to identify their specific source.

1.4 Research Aims and Objectives

Batavia was the link between the Chinese export of porcelain and the Europe trade market in the Maritime Silk Route trade. At the same time, Batavia ware was part of the cultural exchange evident in this trade. Uncovering the histories of the Batavia ware will better understand the ancient Maritime Silk Road trade and record them archaeologically for present and future generations. This research aims to build the archaeological background for this group of Batavia ware and picture the part of the Chinese export porcelain trade in the corresponding period.

1.5 Significance

To begin with, this research aims to consolidate archival resources concerning Batavia ware and Chinese export porcelain from the relevant period. These documents will be meticulously organised to enhance their utility for ongoing or future research endeavours. Furthermore, this effort will facilitate the contextual understanding and exploration of the cultural significance of Batavia ware through archaeological methods, thereby establishing a valuable database for future Batavia ware studies and broader investigations into the ancient Maritime Silk Route trade. Additionally, the archaeological investigations of Batavia ware would yield a rich source of knowledge, unveiling previously untold narratives of the ancient Maritime Silk Route trade. By delving into the cultural significance of Batavia ware, this research seeks to enhance public awareness of maritime trade

porcelain's profound influence on past societies and economies. Lastly, a portion of these potential maritime trade wares had come into the possession of private collectors and is now part of a research project aimed at studying the trade wares along the ancient Maritime Silk Road. This highlights the possibilities of transforming privately held artefacts into public goods, thereby ensuring their preservation and enduring cultural value and significance. The challenges posed by this endeavour also prompt contemplation on how to effectively manage and preserve underwater heritage in contemporary times.

1.6 Limitations

The Batavia wares were an understudied category of Chinese export porcelain. There were several reasons for this limited attention. Firstly, very few artefacts were found in Chinese terrestrial archaeological sites due to their being preferred by the European market. This type of porcelain earns less preference in the Chinese domestic market, while Blue-and-white porcelain and other porcelain with a desired aesthetic appearance have been coveted by collectors and collecting institutions for a long time. Batavia ware stayed in the shadow of the massive and elaborate blue-and-white porcelains as export goods in the international market, despite their popularity in blue-and-white or enamel interior decorations, so archival resources related to Batavia ware were scarce.

Therefore, one of the key difficulties in dating these objects was the absence of easily diagnostic or datable features, particularly the 'reign mark,' which is typically a prominent feature on many identifiable porcelain products. Reign marks were inscriptions that typically indicate the period of a particular Emperor's rule during which the porcelain was produced. From the samples of the Batavia ware in the SEACAL collection, the underside mark is a motif and not a reign mark. Moreover, the potential shipwreck site that yielded this group of Batavia ware might still be unidentified and unstudied by archaeologists. Consequently, dating the objects to a specific time of their production might be difficult and needs further research involving a larger sample of artefacts that share similar material, technique, and stylistic characteristics. Finally, there were limitations in our research methodology which will be discussed in the following section.

1.7 Research Methods

1.7.1 Observing and Recording Physical Variables

For this thesis, SEACAL provided a selection of specimens, and I conducted frequent visits to observe these target items to commence this research. These objects were carefully labelled using non-destructive conservation techniques. The presence of physical objects enables the recording of various physical variables, forming a foundation for comparisons with comparable items. Variables such as glaze colour, decorations, measurements, marks, and other characteristics convey distinct

cultural elements.

The cups and saucers share similar shapes and sizes in three major varieties of designs, lotus, plum blossoms, and landscape patterns, which were the major features with decades of repeated objects each. This research will construct a pattern database and take comparisons with identified comparable products from other archaeological investigations. The style of the objects had the same prominent motifs with minor variations. Photography was applied in this study as a recording method that can create a visual profile for each object with geometrical detail and various motifs. Ceramic artisans always extracted characters from nature and embedded spiritual and auspicious meanings into the products (Zhang and Lu 2017:259–262). This method might help better understand the spiritual and cultural meaning the producers might want to express from their elaborate handicrafts.

1.7.2 Literature Review and Online Searching

The literature review draws upon diverse sources, including ancient documents, archaeological reports, shipwreck catalogues, and research papers, to contribute valuable insights into the history and significance of Batavia ware within the broader context of Chinese export porcelain. It offers a comprehensive overview of research focused on Batavia ware within the SEACAL collection. The exploration encompasses key areas, initiating with the evolution of Chinese export porcelain production and its pivotal role in the development of material culture. From the stages of production to consumption, the review delves into the history and significance of Chinese export porcelain trade along the Maritime Silk Road. The examination of Chinese ancient documents and contemporary research papers plays a crucial role in providing insights into porcelain production and trade dynamics. Batavia ware, a distinct category tailored to foreign tastes, had been recovered globally from shipwrecks and archaeological sites. By comparing Batavia ware across contexts, insights from shipwreck catalogues and archaeological reports were explored. The study also interprets the evolution of cobalt pigment and glaze in Batavia ware, shedding light on changes in decorative elements and material origins.

Online searches will be conducted using keywords and photographs. In the current era of advanced information technology, the internet has become a primary source for conducting research. Leveraging both physical variables and photographs, I can identify and extract the most pertinent information that will help in the study of Batavia ware. This information will also serve as valuable comparative data for subsequent analyses.

1.7.3 Portable X-ray Fluorescence Analysis

The portable X-ray fluorescence (pXRF) analysis method is a convenient and inexpensive way to

identify some elements present in artefacts at a moderate quality level. It is ideal for many archaeological investigations due to its non-destructive character, with the concern of the conservation of the materials and the minimal sample preparation requirement (Niziolek 2018:679–701). PXRF was the primary practical method to analyse the Batavia wares collection in this research. It had the potential to differentiate compositional groups within the collection and examine relevant questions of material source of origin and production. This collection contains one hundred and seven Batavian style cups and saucers which were separated into three groups with visually similar motifs and a single saucer with a different motif from the majority.

A group of Batavia wares were selected from this collection with suitable testing surfaces as samples to analyse the compositional elements by the pXRF method. The element components on the underglaze blue motifs will be targeted to test through the pXRF equipment because the element compositions can provide implications on the primary material source and production regions (Arnold 1978:39–59, 2000:333–375; Niziolek 2018:679–701). In the history of porcelain making, cobalt pigment material used on Chinese porcelains varied through time. There were imported and domestic cobalt materials from previous studies.

In contrast, the glaze might have implications for the cultural exchange between regions and even nations. The geochemical makeup of kaolin paste used in porcelain production varies from one kiln to another, so the pastes of the final products show this variability (Niziolek 2018:679–701; Weigand et al. 1977:15–34; Wilson and Pollard 2001:507–517). In developing porcelain-making methods, the glaze is the most changeable element enriched by potters from generation to generation. The glaze exhibited a range of color variability, spanning from dark brown to light brown across all samples. The author hypothesized that these differences could potentially be statistically interpreted using portable X-ray fluorescence (pXRF) analysis. However, it was discovered that this approach exceeded the capabilities of the methodology employed in this study, primarily due to limitations associated with pXRF analysis and the exterior curved brown glaze surfaces. As a result, the current stage of the study enables the establishment of a database on elemental compositions of the interior blue pigment area. This database will facilitate a deeper understanding of the blue pigment materials utilized in the samples and their origins in ancient times.

The portability of pXRF makes it highly suitable for fieldwork, although it does come with operational limitations that could potentially impact the results. Achieving the highest accuracy with pXRF necessitates minimizing the distance between the testing area and the lens. This method was used to analyse the elemental composition of the porcelain body by testing it through the blue

underglaze motif. Given the curved shape of the Batavia ware we examined, maintaining an exact gap-free space between the testing area and the lens can be challenging. As a result, there were limitations associated with the equipment we use, which might introduce variations in the pXRF results. While we try to minimise this gap as possible as we can, it is important to bear in mind that results may differ when tested using equipment with better conditions and higher accuracy. pXRF method will present the results of the material of pastes and glaze in these Batavia wares. It might give some clues to narrow down the production region to a more minor area so that it will be easier to figure out the context for them. Due to the lack of datable features and enough identified similarities with other datable artefacts, we might determine a period when these were produced and traded after conducting various archaeological investigations with the methods mentioned above.

1.8 Chapter Outline

This thesis was structured into several chapters, each aligning with the main questions posed in this introductory chapter. In Chapter One, readers are introduced to the research's background, objectives, and methods. This chapter also delves into the significance of the study and outlines its limitations.

Chapter Two offers a comprehensive review of the relevant literature, encompassing ancient documents, archaeological investigations, reports, and research papers. This section emphasises the knowledge and insights that can be derived from the archaeological examination of shipwrecks and terrestrial archaeological sites.

Chapter Three provides a detailed account of the methodologies employed in this thesis, specifically focusing on the archaeological examination and systematic recording of the sample group.

Chapter Four presents the outcomes obtained through these methodologies and offers a comparative analysis with similar objects from identifiable locations. Additionally, it explores the consistency of the cobalt pigment and glaze material applied to the Batavia ware.

Chapter Five engages in a discussion built upon the methodologies and results, shedding light on the research's aims and significance. It was within this section that the research's conclusion was reached and conveyed in Chapter Six.

CHAPTER TWO
LITERATURE REVIEW

2.1. Introduction

This literature review serves as a comprehensive overview of research related to Batavia ware found in the SEACAL collection. It encompasses several key areas of interest. Firstly, the literature related to the evolution of Chinese export porcelain examines Chinese export porcelain's role in the development of material culture. It delves into various aspects, starting from its production and decorative elements to its consumption. Secondly, by considering the literature that explores the history and significance of Chinese export porcelain trade along the ancient Maritime Silk Road, which served as a crucial trade route for Chinese porcelain in the past, it seeks to understand the trade dynamics and the impact of Chinese export porcelain on a global scale. Therefore, the literature regarding the trade centres in China and Indonesia, where Chinese export porcelain played a significant role, will be presented and provide insights into the possible locations for Chinese export porcelain production and trade. Batavia ware, a specific category of Chinese export porcelain said to be tailored to foreign tastes, has been recovered from shipwreck sites and terrestrial archaeological sites all over the world. The study of the similarities between Batavia ware found in other archaeological contexts and the SEACAL collection can be enlightened by reviewing shipwreck catalogues and archaeological reports. In addition, the literature about the evolution of cobalt pigment and glaze used in Batavia ware over time will be interpreted. This analysis sheds light on the changes in decorative elements and material source of origin.

In conducting these reviews, three primary sources of literature were considered: ancient documents, archaeological reports/shipwreck catalogues, and research papers. These sources collectively contribute to the investigation of the main research question, offering valuable insights into the history and significance of Batavia ware and its place within the broader context of Chinese export porcelain.

2.2 Chinese Export Porcelain

2.2.1 The Production of Chinese Export Porcelain

On the one hand, ancient China's emphasis on literature and history over science and art had inevitably resulted in a scarcity of literature on Chinese ceramics. This is compounded by the loss of books over the centuries. What remains today is even rarer (Chen 2009:210). On the other hand, there were some classical Chinese documents that provided valuable information about the characteristics and evolution of porcelain-making development, including notable works such as *Jingdezhen Tao Lu* (the version of Jiaqing period (1815) (hereinafter referred to as *Tao Luo).*

Tao Lu was the first comprehensive summary of pottery production from Jingdezhen and provided invaluable information for the study of the history and techniques of ceramics in Jingdezhen with distinctive local characteristics and high academic value (Lu 1998:176–187). It was written by Lan Pu and supplemented by Zheng Tinggui in the Qing dynasty. More than a monograph on Jingdezhen ceramics, it reflected the political and economic aspects of porcelain production and was worth exploring for the cultural background of Chinese export porcelain. According to *Tao Lu*, Jingdezhen was originally known as Changnanzhen and started making porcelain in the year of Jingde in the Song dynasty (AD 1004), Emperor Zhenzong ordered porcelain with a four-character mark on the bottom of "*Jing de nian zhi*" which means made in the year of Jingde (Lan and Zheng 1815).

In its extended period of development, Chinese porcelain had experienced variations in several aspects. Distinct types of Chinese porcelain vary because of diverse glazes. Blue and white (Qinghua) refers to the most well-known Chinese porcelain using natural cobalt minerals as a pigment, painted underglaze motifs applied with a Chinese calligraphic brush and a transparent glaze added on top. Archaeological investigations suggested that this blue and white porcelain was invented in the Tang dynasty (AD 618–907) according to the archaeological investigation of the kiln sites in Gongyi district of Henan Province (Li et al. 2016). By the time of the Yuan dynasty (AD 1280–1367), blue and white porcelain had achieved an elevated level of aesthetic production, with refined colour and exhibiting sophisticated skills. Blue and white porcelain reached its peak in the Ming and Qing dynasties (AD 1368–1912), not only in the domestic market but also in the foreign market (Fang 2005:123–136; Fischell 1987; Kerr et al. 2011; Vainker 2005:139–240). The latest comprehensive publication on the history of ceramic production in Jingdezhen authored by Anne Gerritsen delves into the narrative of 'blue and white,' examining the connection between texts and objects, objects and natural resources, and the skilled hands responsible for creating the shapes and designs. (Gerritsen 2020). Jingdezhen is regarded as the porcelain capital of China because of its high standard of production of blue and white porcelain and for its contribution to the Chinese export porcelain trade.

Utilising these documents as a foundation, I analysed the historical context of the era and traced the process of development and change, aligning with my specific research focus. In addition, ancient ceramic documents possess a unique nature, primarily due to ceramics serving as a medium for conveying information. From the Neolithic era onward, pottery featured patterns and text, reflected the creative expressions of individuals and provided valuable insights into human cultural thought and aesthetic preferences. Porcelain shares this distinctive trait and can be categorised as a type of literary artefact, as highlighted by Chen (2010:3–4), conveying meaningful text through visual

designs crafted by the potters.

The earliest porcelain can be traced back to the end of the Eastern Han dynasty (AD 25–250) in Zhejiang Province. There, craftsmen created porcelain that could be engraved or painted for decoration by mixing high-quality glutinous clay and pottery stone. The production of porcelain not only signified the power of technology but also represented an aesthetic concept and cultural milestone (Fang 2005:123–136). The English term 'porcelain' is said to derive from the Portuguese word for the cowrie shell *porsolonna* (Staniforth and Nash 1998). It refers to the specific ceramic type that have a hard-paste body made from a refined petuntse kaolin clay and fired at a temperature of 1200℃ to 1400℃ (Madsen and White 2011:31–50; Vainker 2005:139–240).

There was a complex production line that involved a lot of workers with specialised tasks, from potting and painting to firing. Potters shaped every piece by hand using a turning wheel, except for some difficult items that required the use of a mould. Different artists painted patterns individually on the completely dry pottery body with pigments that were resistant to high temperatures. Covering the painted body with a translucent glaze was the last step before firing. A single piece of Chinese export porcelain represented the labour of many workers before reaching the hands of its overseas clients (Mudge 1981; Staniforth and Nash 1998; Fang 2005:123–136).

2.2.2 The Decoration of Chinese Export Porcelain

In the history of making porcelain, the decoration of Chinese porcelain was supposed to convey something meaningful through the paintings or characters. For example, the dragon decoration on Chinese porcelain represents imperial power, and the floral decoration of peonies, lotus, chrysanthemums and plum blossoms were commonly indicated as four seasons (Butler et al. 1990:11–20). The landscape (*shanshui* in Chinese) motif depicted on Chinese porcelain derives from traditional Chinese paints. It denotes mountain (*shan*) and water (*shui*), which represent the *yang* and the *yin*, the two poles of cosmic energy respectively (Guo and Min 2022:1–21). From archaeological research and shipwreck findings uncovered in various places, the floral decorations and landscape scenes were suggested as the most common decorations on Chinese export porcelain that subsequently influenced pottery manufacturers in foreign countries (Staniforth and Nash 1998). As time went by and the prosperity of the Chinese export porcelain trade increased, porcelain decoration experienced profound change with cross-cultural influence. Giehler (2019) had observed that

> Many different styles of porcelain were exported to Europe, the Spanish Philippines and the Americas: the ivory white and glazed *Blanc-de Chine*, overglaze enamelware (*Famille Verte* and *Famille Rose*, armorial porcelain, *Rose Medaillon*), Nanking, Canton, *Fitzhugh* blue and white ware, the outside brown glazed Batavia ware,

> Chinese *Imari* and Kakiemon as copies of Japanese export products and unglazed red and brown stoneware from the Yixing kilns in Jiangsu province.

It was suggested that Chinese export porcelain started to reflect not only the cultural traditions of the craftsmen but also the traditions of the client. More and more Chinese export porcelain shows a variation in decoration with various exotic influences. The *Tao Lu* states that

> Export wares were sold exclusively to foreigners in the form of slippery export wares and clay export wares. The merchants from Guangdong East peddlers and foreigners interchanged strange and ingenious styles for years without a fixed pattern (Lan and Zheng 1796–1820).

The number of wares of complexity and richness of decoration was unprecedented. The more exported porcelain was traded worldwide, the more cultural exchange traces can be seen through the decoration of the exported porcelain.

2.3 Chinese Export Porcelain Trade

Chinese porcelain was exported to countries in Asia, Africa and the Middle East as a popular trade item since the ninth century AD (Harrisson 1995:1–40). Chinese porcelain sustained its dominance in the global market for almost a millennium because foreign countries could not determine the techniques of porcelain production and started their porcelain-making much later than Chinese potters. It was suggested by Margaret Medley that the Chinese potters had an enormous advantage of rich accumulated experience from daily practice throughout the long centuries compared to their European counterparts (Medley 1976:263).

The advent of porcelain made a difference in the material world and increased demand in the foreign market both because of its durable characteristics and its aesthetic value. It was discovered as a result of archaeological investigation that Chinese porcelains were produced in various forms for different functions and therefore played distinct roles in various parts of Southeast Asia (Miksic 2022:179–214). Domestic use as tableware was the most common function of Chinese porcelain. On top of that, exotic interior decoration was coveted by the European upper social classes (Fang 2005:123–136).

Chinese porcelain became the major Chinese commodity traded in the global market due to its manufacturing techniques and materials mystery in Europe until the early decades of the eighteenth century (McKeown 2006:14–15). The great geographical discoveries made by European navigators in the 15th and 16th centuries created the opportunity for European countries to explore the distant and mysterious Far East. The Portuguese import of Chinese porcelain was documented from the first maritime expedition of Vasco da Gama in 1498, while the porcelain trade in Southeast Asia

was intensive at that time (Vigário 2015). In the sixteenth century, European merchants from Portugal, Britain, Spain, and the Netherlands implemented individual strategies and developed distinctive trade network in Asia, operating alongside other Asian traders in the global ceramic trade.

2.3.1 The Establishment of the VOC and the Dutch-China Porcelain Trade

As one of the competitive European merchants, the Dutch East India Company (VOC) was formed by uniting different competing Dutch trade companies in the 17th century and participated in the subsequent global ceramic trade. It was supported by leading Dutch politicians and merchants, obtained exclusive rights to trade in Asia (Jörg and Flecker 2001), and played a leading role in the Chinese export porcelain trade from its establishment in Indonesia in 1602. The Dutch East India Company (VOC) was suggested as not only an economic organisation but also an overseas ruling body with military, judicial and administrative powers to declare war, occupy colonial lands and build forts and fortresses on the land it occupied (Yang and Miao 2022:35–43). According to Volker (1971:25–26), on the 10th of November in 1614, the Dutch governor in East India wrote a letter to Dutch headquarters mentioning that around 350,000 pieces of porcelain were transported to the Netherlands. The Dutch imported massive quantities of porcelain into Europe, completely changing the position of porcelain in the Western European market.

The origin of Batavia can be traced back to Sunda Kelapa and was renamed to Jayakarta in 16$_{th}$ century (Abeyasekere 1989:286–314). Jan Pieterszoon Coen was appointed to be the governor of the Dutch East India Company (VOC) and he undertook the destruction of the old Jayakarta and its reconstruction as Batavia in 1619. The establishment of Batavia was a critical step for the development of the Dutch East India Company (VOC) due to its favourable location, even though the VOC did not exercise control over the entire Indonesian archipelago (Knörr 2014:41–73). Thus, the Dutch gained a strategic advantage on the route between Goa and Malacca and succeeded in blocking the long-distance trade between Portugal and India through Batavia as a base (Hyma 1953). Pieterszoon Coen adopted several measures, such as a loose tax policy to attract Chinese merchants to trade in Batavia. In addition, it was lucrative to tranship porcelains from Chinese merchant ships to the Netherlands because porcelain was in high demand on the Dutch market (Wen et al. 1985:85–86). Many Chinese vessels came to Batavia to trade with the Dutch with full loads of Chinese goods every year, and the porcelain that came from those vessels became one of the most essential commodities in the Dutch porcelain trade (Xu and Lin 2010:408–418).

Besides Batavia, Taiwan was the other core trade centre for Chinese export porcelain related to the VOC（Jörg 1982). A considerable number of trade wares found in Taiwan were suggested to be

one of the busiest ports in the Chinese export porcelain trade. In 1624 the Dutch East India Company (VOC) established a trading post in Formosa (Taiwan), initially named the city of Orange and was changed to Zeelandia in 1627. Taiwan was a transit port for the Dutch East India Company (VOC) and harbour traders and shipments from Eastern Asia to Southeast Asia under the control of the VOC (Cheng 2018:289–340). The Dutch East India Company (VOC) established Fort Zeelandia (also known as Fort Anping) on the southwestern coast of Taiwan, specifically in the Tainan area. The Dutch concentrated their presence in this region, using Taiwan as a base for East Asian trade, including various goods like porcelain.

Trade records and documents from the Dutch counterpart reveal a network of junk trade connecting Japan, Taiwan, and Indonesia during this period. It was evident that despite the challenges along the South Chinese coast, the Qing's trade prohibition was not consistently enforced, and the strong consumer demand for Chinese ceramics played a crucial role in revitalizing junk trade in the eastern part of Asia (Sakai 2012:13). Chinese merchants likely brought porcelain to Taiwan, selling it to the Dutch in areas like Zeelandia and its vicinity.

2.3.2 Chinese Export Porcelain Trade during Qing Dynasty

At the beginning of the Kangxi period, people suffered from an unstable society and politics because of the shift between dynasties. The porcelain industry was falling until the nineteenth year of Kangxi's reign when the court sent a bureaucrat to supervise the porcelain production in Jingdezhen. The significant surge in Chinese export porcelain production is proposed to have occurred after 1684 when maritime restrictions were lifted, allowing sea merchants from the southeast coast to actively engage in overseas trade (Fang 2002:103–118).

In China, Guangdong (Canton) was one of the biggest trading centres in history due to the advantage of its location. The Bureau of Trading Vessels was established during the Tang dynasty to regulate ocean commerce and collect taxes. Various kinds of trade goods flowed into Guangdong (Canton) transported by a substantial number of junks (Fischell 1987). Guangdong Customs was established in the twenty-fourth year of the Kangxi period, and four years later (AD 1685), the port of Guangdong (Canton) was opened to Western merchants. Various measures were undertaken during the Kangxi period, such as the abolition of the artisan's register which made the artisans legally free from their previous personal attachment and increased their enthusiasm for creativity, thus encouraging the development of porcelain production and other industries (Wan 2009:113–123). The establishment of the Guangdong (Canton) customs coincided with the establishment of the Min customs at Xiamen (Amoy). The Min customs was tasked with overseeing both incoming and outgoing merchant ships and collecting taxes. Xiamen (Amoy) was designated as the official

port for foreign trade during the Yongzheng period, around AD 1727. However, during the Qianlong period, Guangzhou in Guangdong province was granted exclusive rights as the sole port for foreign trade. Despite this, Xiamen (Amoy) continued to thrive in terms of trade and the collection of tariffs (Chen 1998:145–150).

While Taiwan held strategic importance as a trade centre, the early years of Qing government rule prioritized security management over developmental activities and infrastructure construction. Initially, only the port of Anping in Tainan was open for trade with Xiamen (Amoy), limiting access to Taiwan. Imported ceramic goods could only enter through this single port and were then distributed across the island (Lu 2014:1–14). According to Lu (2014), the Qing court's decision in 1684 during the Kangxi period to lift the maritime ban in the Taiwan Strait, facilitating unhindered transportation of goods. This easing of restrictions significantly simplified the import of Chinese trade ceramics into Taiwan, marking the onset of a new era in the island's ceramic consumption. During this period, the trade activities between the Dutch and Chinese merchants in Taiwan were indeed significant, solidifying Taiwan's role as a crucial hub for the exchange of goods, including porcelain, between China and the Dutch East India Company (VOC). In addition to Taiwan, Xiamen (Amoy) emerged as a pivotal hub for the Chinese export porcelain trade. Its strategic location along the coast of mainland China positioned it as a crucial gateway for maritime commerce, with its proximity to Taiwan further enhancing its significance. The convenient connection between Taiwan and Xiamen facilitated efficient trade routes, providing a distinct advantage for the Dutch East India Company (VOC) to access the primary Chinese porcelain production regions. This geographic advantage played a vital role in facilitating trade between China and European powers during this period.

During the Yongzheng period (1722–1735) and Qianlong (1735–1796), Emperor Yongzheng and Qianlong continued the maritime policies established by their predecessors. They maintained efforts to promote and regulate porcelain trade with foreign powers while also focused on the expansion and strengthening of the navy forces. These approaches which potentially contributed to the enhancement of regional and Chinese export porcelain trade during their respective reigns.

2.3.3 Chinese Export Porcelain for the Dutch Taste–Batavia Ware

The term "Batavia ware" has been and continues to be used by archaeologists to refer to a specific category of Chinese brown glazed porcelain with interior blue and white decoration. These porcelains were suggested to be produced primarily for overseas markets, especially for the Dutch taste because of the major presence in the VOC shipment and their peak production occurring during the 18th century, and they were widely associated with the export trade (Madsen and White

2011:123–128).

According to Ostkamp (2014), with the frequent transport of Chinese export porcelain to Europe, the original Chinese taste did not satisfy the preferences of the West anymore, it was suggested that Heren Zeventeen, the Directors of the VOC, attempted to shift the style of porcelain more towards Dutch tastes. The Dutch wanted to get involved in porcelain making by providing wooden models of silver objects to the merchants who had close contact with craftsmen in Jingdezhen so that they could have products with specific decorations suitable for the Dutch market (Ostkamp 2014:53–85).

Unlike general Chinese export porcelain, Batavia ware was made and sold in smaller quantities because of its particular target customers, and so was rarely described in written sources and depicted in artworks. Analysing the appearance of porcelain paintings was a method to make date suggestions that have found application in assessing ceramics collected from countries along the ancient Maritime Silk Road. (Cao 2017:223–274). Martin (1994) observed massive European artworks and noticed three paintings depicting Batavian style porcelain in different social societies. According to Martin (1994), there was evidence of Batavia ware being depicted in old paintings in the Netherlands, where it was used for domestic decoration and tableware in households of various social classes. Notable painters like Willem van Mieris (1662–1747) included Batavian-style cups and saucers in their works, such as the 1713 painting “A Woman and a Fish Pedlar” (Figure 2) reflecting the inclination of some people in the Netherlands to adorn their interiors with Batavia ware. Another artist, Jan Josef Horemans the Elder (1682–1759), offered further insight into the domestic use of Batavia ware through his artwork “Tea Party in a Netherlandish Garden: Springtime”(Figure 3) In addition, a painting titled “The Stenbock Family Taking Coffee in the Library at Ranas”(Figure 4) at Skoklosters Castle in Sweden, attributed to E.F. Fvan and dated 1745, features tableware that can be identified as Batavia ware, indicating its presence in domestic use by people possibly from higher social class (Martin 1994:90). Like ceramics, drawing itself was a form of artistic expression that was in tune with the corresponding times. Seeing the social life of the era through the artist’s depiction.

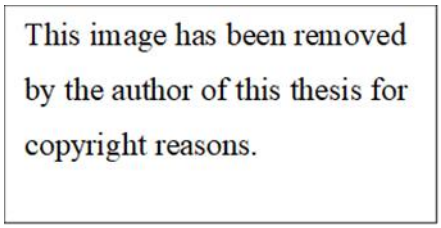


Figure 2 Dutch painter Willem van Mieris (1662-1747) “A Woman and a Fish Pedlar” (Source: National Gallery, London)

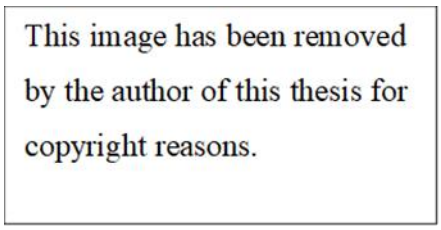


Figure 3 Jan Josef Horemans the Elder's (1682–1759) "Tea Party in a Netherlandish Garden: Springtime" (Source: China Heritage Quarterly, 2012:29, Australian National University)

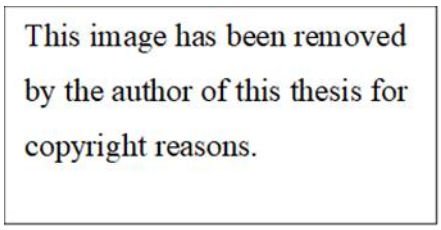


Figure 4 The Stenbock family in their library at Ranas, c. 1740. Artist: Svan, Carl Fredrik (1708-1766) (Source: Skokloster Castle, Sweden)

2.3.4 Studying the Glaze Applied on Batavia Ware

The Batavia ware featured specific exterior brown glazed with interior blue and white decoration. Batavia ware was suggested to be one particular type of Chinese export porcelain designed for the Dutch market (Li 2012:23–30; Ho 2003:81–85; Wang 2010:38–48). It was mostly used as tableware for tea or coffee and was rarely seen in the Chinese domestic market (Schuster and Wolseley 1974; Wang 2021:88-89; Vigário 2015). It was typical Chinese export porcelain with underglaze blue inside and brown glaze outside, named after the trading centre of Batavia. In addition to "Batavia ware," this type of porcelain was given Western names, such as "*Capuccine*" (Jörg 1982:125), "*Café au lait*" (Jörg 1982:125; Klose 1997), which highlights the predominant colour used in the exterior surface of these pieces. During the Kangxi period, a series of measures were taken to restore and develop porcelain production. After the pacification of the Rebellion of Three Feudatories (1673–1681) (Madsen and White 2011:13), the Kangxi Emperor personally selected and sent a pottery supervisor to Jingdezhen to supervise the kiln and management of Jingdezhen porcelain production. Mascarelli (2003) suggested that Kangxi's encouragement of the use of new forms and glazes produced an unsurpassed array of new styles, which possibly represented the finest quality of porcelain output produced in China to this day. A *café-au-lait* (coffee) coloured glaze was probably one of the innovations created under the directorship of Zang Yingxuan, the pottery workshop controller in the dates (1680–1688) (Mascarelli 2003:146–147).

François-Xavier D'Entrecolles, a French Jesuit missionary in China during the Kangxi reign, authored two significant letters from Beijing in the early 18th century. These letters provided in-depth insights into various aspects of ceramic production in China, including raw material sources,

preparation processes, product types, glazing techniques, and even details about local kiln gods in Jingdezhen. D'Entrecolles' accounts not only revealed the technical aspects of ceramics but also shed light on the cultural and religious dimensions associated with the process. His writings became an indispensable reference for Western scholars exploring the history of Chinese ceramics.

The *café-au-lait* or brown glaze was described in the second letter written by French Jesuit priest François-Xavier D'Entrecolles in 1722, translated by Robert Tichane:

> I have not spoken at all about a kind of glaze called tse-kin-yeou or burnished gold glaze. I would call it a bronze-colour glaze, or dead-leaf or coffee colour. This glaze is a recent invention. (François-Xavier D'Entrecolles 1722:6; Tichane 1983:117)

Tse-kin-yeou is the Chinese pronunciation of burnished gold glaze. This was suggested to be the first interpretation provided by a foreigner about this type of glaze. However, it is important to note that D'Entrecolles' depiction of tse-kin glaze as a novelty is challenged by historical evidence. Its presence can be traced back to the Xuande period of the Ming dynasty, indicating their earlier existence. There is a tse-kin glaze plate in the collection of the Palace Museum in Beijing which dated to the Xuande period of the Ming dynasty. Tang Ying's writings also categorise this glaze as an imitation of a pre-existing glaze rather than a completely new type. This suggests that this glaze probably had a longer history than D'Entrecolles' accounts imply (Yu 2017:123–168).

2.4 Reference Artefacts of Batavia Ware from Maritime and Terrestrial Sites

Staniforth and Nash's research in 1998, which involved a systematic comparison of Batavian ware discovered at shipwreck sites worldwide, offered valuable insights into the evolution of global trade and cultural exchange among diverse societies (Staniforth and Nash 1998:11–12). The book '*Chinese Export Porcelain'* written by Madsen and White (2011) also provides systematic data about the Chinese export porcelain findings featured with Batavia brown. including maritime and terrestrial sites. In addition, Li (Li 2012:23–30) provides some insights into the study of Batavia ware which centres on the findings from the *Ca Mau* shipwreck. Given the passage of time and the subsequent uncovering of more sites, this study aims to conduct a further investigation building upon the foundation laid by their earlier research. The Batavian style findings will be presented below (Figure 5 and Table 1), categorized into maritime and terrestrial sites.

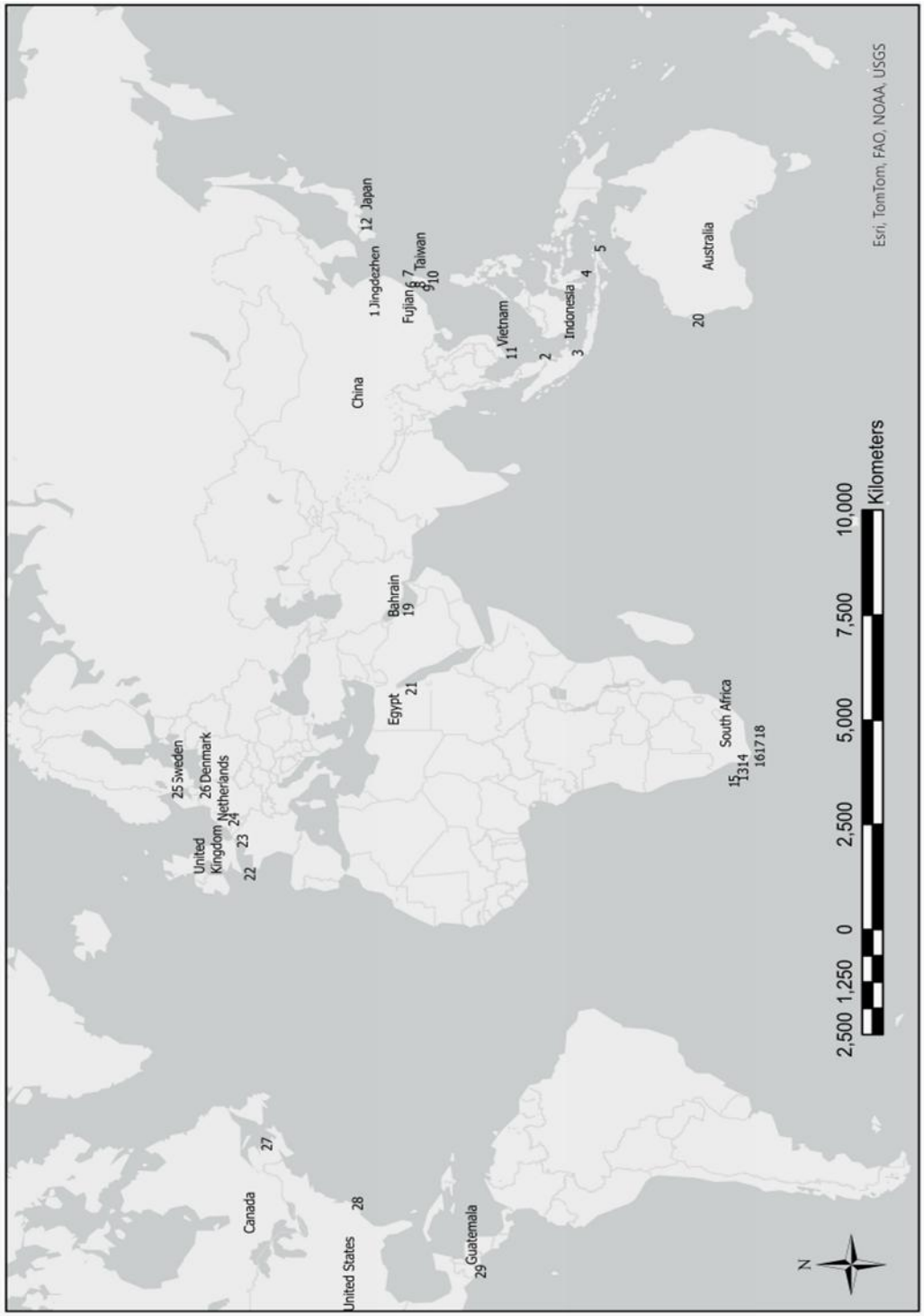


Figure 5 Map of Batavia ware maritime and terrestrial sites (Courtesy of the author)

Table 1 List of finding sites represented in the map

No.	Archaeological sites
1	Luomaqiao (Jingdezhen)
2	Geldermalsen (South China Sea)
3	Banten Lama (Indonesia)
4	Buton Wolio Fort (Indonesia)
5	Manatuto (Indonesia)
6	Wanjiao No.1 -Chinese junk(Fujian)
7	Qiwulan (Taiwan)
8	Zeelandia Fort (Taiwan)
9	Fongshan old city (Taiwan)
10	Magong Harbour (Taiwan)
11	Ca Mau-Chinese junk (Vietnam)
12	Nagasaki (Japan)
13	Oosterland-VOC (South Africa)
14	Cape Town (South Africa)
15	Middleburg-VOC (South Africa)
16	Schoonenberg-VOC (South Africa)
17	Brederode-VOC (South Africa)
18	Bennebroek-VOC (South Africa)
19	Qal' ta al Fort (Bahrain)
20	Zeewijk-VOC (Australia)
21	Sadana Island-Chinese cargo(Egypt)
22	Hollandia-VOC (UK)
23	Amsterdam-VOC (UK)
24	Rijksmuseum (Netherlands)
25	Gotheborg-Swedish EIC (Sweden)
26	Copenhagen (Denmark)
27	Le Machault -French frigate(North America)
28	Thomas Everard (USA)
29	Santo Domingo (Antigua Guatemala)

2.4.1 Archaeological Evidence from Maritime Sites

In this section, I will present a summary of the maritime archaeological settings related to Batavia ware, accompanied by a concise background and accompanying photographs.

Oosterland (1697)

The VOC ship *Oosterland* sank in Table Bay in 1697. Excavation of the *Oosterland* was overseen by archaeologist Bruno Werz. It was the first systematic maritime archaeological investigation in South Africa. Small quantities of Batavian style porcelain were uncovered at this shipwreck site (Werz 1992:85–89; Werz and Klose 1994:552–526). This was suggested to be the earliest identified maritime site containing Batavia ware to date.

Wanjiao No.1 (1690–1700)

At the shipwreck site of *Wanjiao No.1*, approximately 17,000 pieces of porcelain were excavated, predominantly consisting of blue and white porcelain. Through the examination of vessel types, patterns, and identifiable marks, this cargo was dated to the Kangxi period around 1690 to 1700. At the shipwreck site, Batavia cups (Figure 6) and gourd-shaped bottles were discovered. The cups typically feature landscape or floral patterns on the interior bottom, along with a double circle and a symbolic mark on the exterior bottom. A distinctive feature of these Batavia wares was a brocade band along the rim. The items were likely produced at folk kilns in Jingdezhen, as there were no identifiable marks associated with the imperial kilns during that period (*Wanjiao No.1* underwater archaeology team 2006:18).

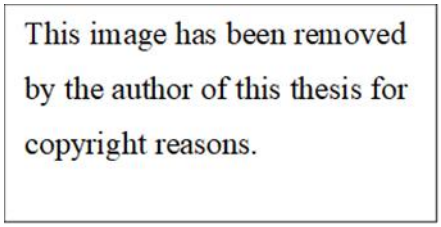


Figure 6 Batavian style cup found in Wanjiao No.1 shipwreck. (Courtesy of Underwater Archaeology Research Team of Wanjiao No.1 shipwreck 2006:209)

Ca Mau (1723–1735)

According to the archaeological excavation report, the *Ca Mau* shipwreck, measuring 24 metres in length and nearly 8 metres in width, was located over 35 metres deep. The excavation yielded over 60,000 objects, including 130,000 illegally traded artefacts, predominantly comprising Chinese blue and white ceramics from the Yongzheng reign in the Qing dynasty (1723–1735) (Nguyen 2002a, 2002b; Nguyen and Pham 2008:38). It also yielded some Batavia cups and saucers (Figure 7) during that period (Nguyen and Pham 2008:350–352). This Batavia ware features a brocade band along the rim with central lotus pattern on the interior bottom which shares some similarities with the type 1 sample in the SEACAL collection.

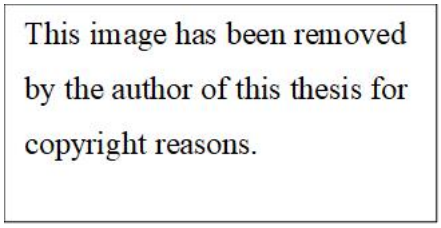


Figure 7 Batavia cup and saucer found in Ca Mau shipwreck (Courtesy of Nguyen and Pham 2008:350)

Sadana Island (1735–1760)

The shipwreck rests at depths ranging from 28 to 40 metres on the north side of the reef, approximately 500 metres off the shore of Sadana Island, Egypt. The *Sadana Island* Shipwreck was the subject of an investigation by the Institute of Nautical Archaeology—Egypt, in collaboration with Egyptian authorities and institutions (Ward 1994:4–9, 1996:83–94; 2000:186). Dr Cheryl Ward was the project director in three excavations that were conducted in 1995, 1996, and 1998, nearly 3000 artefacts were uncovered and documented by archaeologists. Among the finds were cup artefacts, some dating to the later eighteenth century, characterised by cobalt blue bodies with gold overlay, a brown glazed type featuring a quatrefoil medallion filled with an underglaze blue plum family blossom, and several others belonging to the Chinese *Imari* group (Figure 8) (Ward 2000:189; Staniforth and Nash 1998:11–12).

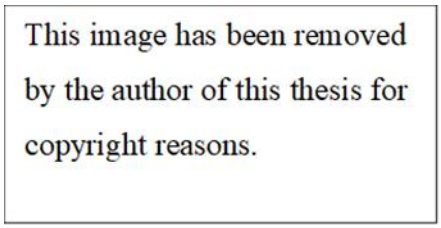


Figure 8 Batavia ware found in Chinese cargo of Sadana Island shipwreck (Courtesy of the Sadana Island shipwreck excavations project)

Gotheborg (1745)

The Swedish East India Company ship the *Gotheborg*, sank on the home-bounding journey in the Gothenburg inlet in 1745. It was 58.5 metres in length and 10.8 metres in width. Salvage efforts were initiated immediately after the accident, managing to rescue a third of the cargo by 1747. In 1984, a survey of the seafloor carried out by a group of recreational divers and maritime archaeologists yielded a lot of porcelain finds, including Batavian style porcelain (Figure 9) (Wastefelt et al 1991).

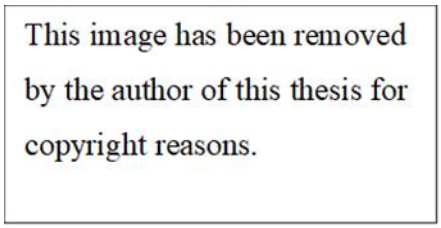


Figure 9 Batavia ware found in Gotheborg shipwreck (Courtesy of the Maritime Museum and Aquarium of Gothenburg)

Geldermalsen (Nanking Cargo) (1752)

The Dutch East India Company (VOC) ship *Geldermalsen*, which sank in 1752 near Java, Indonesia, was salvaged by Michael Hatcher in 1986. The recovered cargo, known as the 'Nanking cargo,' consisted of porcelain dating back to the 18th century. This cargo, particularly the Batavia ware (Figure 10), gained significant attention and success in Christie's auction (Christie's 1986; Hatcher and Thorncroft 1987:88–103; Staniforth and Nash 1998:11–12). Kilburn proposed a theory suggesting that the Chinese junk carrying the cargo might have travelled from Southern China to Batavia, where it was likely divided for various Asian markets, with only a small portion intended for the Dutch. The diverse range of items in the cargo implies careful selection from a distribution centre stocking products from different kilns.

There was a great deal of controversy surrounding the *Geldermasen* (see Pearson 2023). Others argue it brought attention to maritime archaeology and underwater cultural heritage conservation (Flecker 2002:12–24).

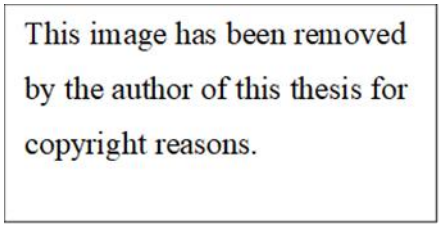


Figure 10 Batavian style cup and saucer found in the Geldermalsen shipwreck (the Nanking Cargo) (Courtesy of Hatcher and Thorncroft 1987:117)

Machault (1760)

The *Machault* was a French fleet that sank in 1760 during a battle with the British in Canada and followed with a British victory. It was excavated by Parks Canada two centuries after it sank and yielded a vast number of artefacts including Batavian style porcelain (Figure 11) (Sullivan 1986:7–8; Staniforth and Nash 1998:11–12).

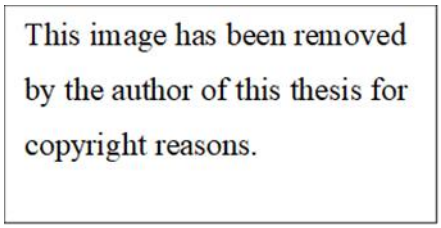


Figure 11 Batavian style cup and saucer with famille rose reserves found in the Machault shipwreck (Courtesy of Sullivan 1986:68)

Middleburg (1781)

In 1781, the ship *Middelburg* met its unfortunate fate when it wrecked in *Saldanha* Bay, near the

Cape. A portion of its cargo, including porcelain, was successfully salvaged in 1971 and subsequently sold the following year. Among the artefacts recovered from the *Middelburg*'s cargo, some tea bowls, and corresponding saucers, which featured blue and white patterns on the interior, while the exterior was adorned with a rich coffee-brown glaze (Grobbelaar 1994:15; Staniforth and Nash 1998:11–12).

Except for these aforementioned shipwrecks, Batavian style porcelains were also known from other several VOC shipwrecks including the *Bennebroek* (1713), the *Schoonenberg* (1720), the *Brederode* (1785) sunk in South Africa; the *Zeewijk* (1727) sunk in Australia; the *Hollandia* (1743), the *Amsterdam* (1749) sunk in the UK (Madsen and White 2011:123–128). This Thesis cannot access the relevant literature; hence, they will not be discussed here. Overall, the importance of shipwrecks housing Batavian style porcelain highlights the likelihood that the trade of Batavia ware commenced in the late 17th century, gaining increased popularity during the 18th century. This assertion was supported by the substantial findings from shipwrecks dating to the 18th century.

2.4.2 Archaeological Evidence from Terrestrial Sites

Besides the considerable number of archaeological findings of Batavia ware from maritime archaeological sites, some findings were identified from archaeological records at terrestrial sites all over the world through the efforts made by archaeologists from different countries.

Jingdezhen

The manufacturing capacity of porcelain in Jingdezhen relied on both official kilns, known as *Guan Yao*, reserved exclusively for imperial ware, and folk kilns, referred to as *Min Yao*, primarily used to produce export and locally consumed ceramics. It is important to note that while imperial production was traditionally associated with higher quality and refinement compared to the products of folk kilns, this distinction began to blur in late Ming Jingdezhen. This change was brought about by a significant decline in the quality of wares produced in official kilns due to financial constraints and administrative issues that affected the operation of the imperial factory, coinciding with the overall decline of the Ming dynasty (Fang 2005:123–136). After the unstable era at the beginning of the Kangxi period, porcelain production started to get on track and grew fast. Simultaneously, in some folk kilns, craftsmen from lower social classes, who faced less governmental pressure and control, pursued innovations and improvements in quality to such an extent that it began to influence the production of official kilns. These circumstances gave rise to the '*Guan Da Min Sao*' system, where folk kilns stepped in to substitute the official kilns when the latter was unable to meet the demands of the imperial court. This system allowed for a more flexible response to production needs (Bai, 1995; Wang, 2006; Huang, 2013; Fischer and Hsieh 2017:14–26).

Over the last few decades, various Chinese archaeological teams have researched the kiln sites in Jingdezhen, revealing a substantial number of archaeological artefacts. According to archaeological investigations, many folk kilns along the Chang River were densely distributed, stretching from north to south thirteen miles (Qin et al. 2020:4–39; Lan and Zheng 1815). Many ancient remains from porcelain production and daily life were distributed along the Chang River in Jingdezhen (Huo and Zhou 2021:53–76). Brown glazed porcelain fragments (Figure 13) with white reserved panels depicting blue floral patterns were also found in archaeological investigations on the east bank of Chang River in Jingdezhen (Huo and Zhou 2021:53–76). The artefacts found in the investigation suggested to be the remains not only derived from the ancient kiln sites and the residential discards but also from the damage and abandonment of the commercial trade.

Luomaqiao is in the southern part of the ancient town, west of the Chang River. It was an important kiln site in the core production area of the Jingdezhen porcelain industry (Qin et al. 2020:4–39). The Luomaqiao kiln site is the only one excavated so far where the kiln remains were piled up continuously from the early Ming dynasty to the late Qing dynasty. The development of folk kiln production in the town area and the core production area of porcelain in Fuliang can be seen from the characteristics of each period. There were a few Batavia wares uncovered in the 5th layer in the archaeological kiln site of Hongguang Porcelain Factory in Jingdezhen, Jiangxi province with some currency that dates to the Kangxi period (Qin et al. 2020:4–39).

Figure 12 displays a porcelain plate fragment characteristic of a Batavian style feature. The exterior of the flatware was covered with a coffee brown glaze, which was darker in colour, the interior of the vessel was decorated in a blue and white floral design with twiggy branches and a square seal mark on the bottom of the ware.

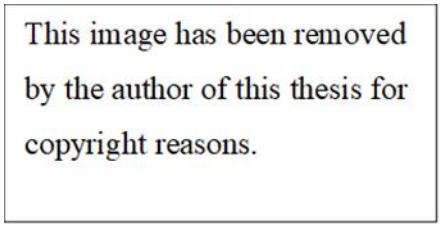


Figure 12 Batavia ware fragment found in Luomaqiao site, Jingdezhen (Courtesy of Qin et al. 2020:28)

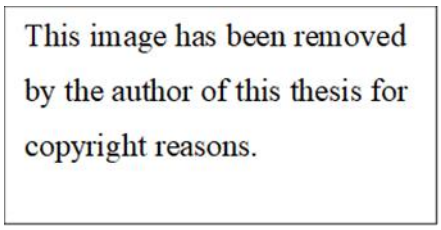


Figure 13 Brown glaze bowl fragments found along the Chang River in Jingdezhen (Courtesy of Huo and Zhou 2021:66)

Heilongjiang

Batavian style bowl with brown glaze exterior and blue and white underglaze interior found in a Qing dynasty burial in Heilongjiang province, China, and is preserved in Heilongjiang Institute of Cultural Relics and Archaeology. The interior blue and white depicts a big goldfish in the centre and four goldfish along the slope, hexagonal white reserve band pattern along the edge. A mark of "*Feng Lai Xuan Zhi*" on the bottom of the ware refers to it being made in a workshop named "*Feng Lai Xuan*" in Jingdezhen (Figure 14). It was suggested to be dated to the Guangxu period (1875-1908) according to the investigation of the burial site (Jin 2008:132).

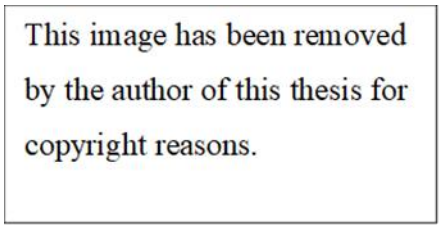


Figure 14 Batavia ware found in a burial site in Heilongjiang province, China (Courtesy of Wang, S., photographer of Jin 2008:132)

Indonesia

The research of Takashi Sakai and Ohashi Koji focused on porcelain discoveries within the archaeological findings of Royal Capital sites in Indonesia, there were Batavian style cups and bowls fragments found in the Buton Wolio Fort site (Figure 15) and the Banten Lama site (Figure 16).

Buton Wolio site

The Wolio fort ruins are situated in the southwestern part of Buton Island in Southeast Sulawesi. The fortress was believed to be constructed during the first half of the 17th century and exhibits significant Dutch influences in its historical remnants. This archaeological site yielded approximately 4,952 base shards that shed light on the diverse ceramic trade during the Dutch

colonial period (Sakai and Ohashi 2018). During the latter half of the 17th century, it was estimated that the Dutch East India Company (VOC) imported approximately 170,000 pieces of trade ceramics to Indonesia annually. In the context of the Wolio site, the Dutch likely utilised porcelain from Japan, specifically Hizen ware, along with some Chinese ceramics for private trade purposes and as diplomatic gifts to the Sultan of Buton to strengthen friendly relations (Ohashi 2018)

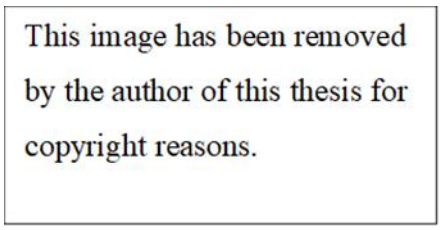


Figure 15 Batavia ware fragments found in Buton Wolio site, Indonesia (Courtesy of Ohashi 2018:78)

Banten Lama

Over the past few decades, archaeologists have identified some locations associated with the Dutch colonial period. Recent archaeological efforts across Asian regions, particularly at former Dutch trade posts, have unveiled ceramic artefacts, contributing significantly to our understanding of 17th-century VOC ceramic trade. The Banten Lama site was in the west of Java and evolved into a hub for the re-exportation of ceramics within the overseas Chinese trade networks by the mid-18th century. While no explicit evidence points to a specific political trajectory, it was believed that during Sultan Zainal Abiddin's reign (1690 to 1733), there was economic prosperity without significant political turmoil. The abundance of ceramic discoveries serves as a testament to Banten's status as a concurrent centre for the junk trade, complementing Batavia (Sakai 2012:22–23).

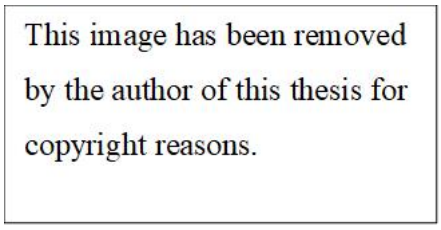


Figure 16 Batavia ware fragment found in Banten Lama, Indonesia (Courtesy of Ohashi 2008:115)

Manatuto

According to Chao (2011), Manatuto, situated in the east of Timor, was famous for the sandalwood trade possibly starting in the 12th century. This trade reached its peak in the 16th and 17th centuries, then experienced a decline in the early 18th century. It was suggested that the eastern part of Timor

Island was largely unaffected by Dutch trading activities during the period. However, Batavia ware (Figure 17) found in Manatuto shared the similarity with artefacts in historic sites and the shipwreck that likely relates to the Dutch maritime trade during the 17th century (Chao 2011:160).

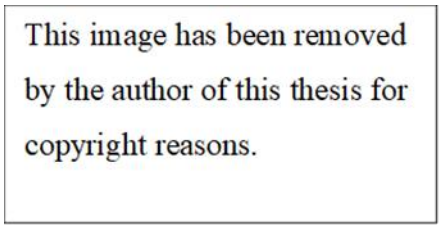


Figure 17 Batavia ware fragment found in Manatuto, Indonesia (Courtesy of Chao 2011:160)

Taiwan

Magong Harbour, Penghu

In archaeological excavations in Magong harbour, Penghu, located in the middle of Taiwan Strait, Batavian style cups (Figure 18) probably produced in Jingdezhen were discovered in the layer that dates from the 1684–1750s period, the early age of the rule of Qing court, which gave implications of this phase of porcelain consumption in Taiwan (Lu 2014:1–14).

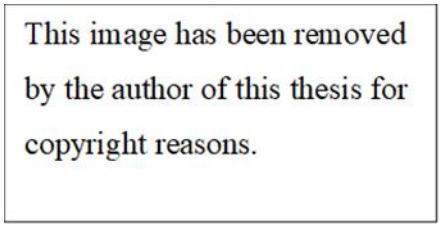


Figure 18 Batavian style porcelain fragment found in Penghu, Taiwan (Courtesy of Lu 2014:13)

Fongshan, Kaohsiung

The site located near the forefront of the early settlement established by Zheng Chenggong's military cantonment, suggests the potential discovery of some of the earliest Han Chinese cultural remains in the area. In the test excavation at the ancient city settlement site in Fongshan County of the Qing dynasty in Zuoying, Kaohsiung, conducted by the Institute of History and Philology, Academia Sinica in 1988, a lot of ceramic shards were found. The report described three porcelain fragments of sauce-glazed blue bowls (Figure 19) featuring a landscape motif with a blue banded pattern along the rim was unearthed, indicating a probable dating to the late seventeenth century (Zang et al 1993:763–865).

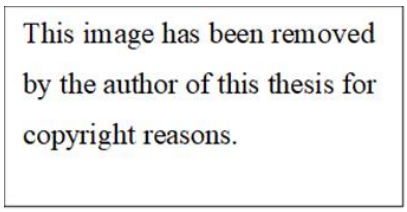


Figure 19 Fragments with brown glaze exterior and blue and white underglaze interior found in the Old City of Fongshan County of Qing Era in Zuoying, Taiwan (Courtesy of Zang et al. 1993:823)

Kiwulan, Yilan

Kiwulan site is located in Lanyang Plain which is 5km from Yilan City. In the mid-seventeenth century, the Kiwulan were one of the tribes that submitted to the Dutch East India Company (VOC) (Borao 2009:119; Hsieh 2012:33–60). In the archaeological excavation in 2001–2003 held by National Taiwan University, a brown-glazed blue and white cup (Figure 20) was uncovered and dated between the end of the 17th century and the end of the 18th century (Chen 2008; Hsieh 2011; Sakai 2012:5). Takashi suggested that this kind of Batavian style cup were superior quality trade ceramic for Southeast Asian market (Sakai 2012:5).

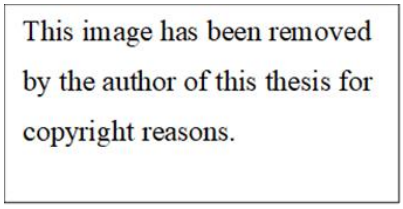


Figure 20 Jingdezhen Batavian style cup found in Kiwulan site (Courtesy of Sakai 2012:4).

Bahrain

Bahrain is a country located in the Persian Gulf. Zhao Bin is an archaeologist who participated in the archaeological field works in Bahrain for a long time. According to Zhao's research, assorted Kangxi period Jingdezhen sauce glazed blue and white bowls were unearthed at the Qal La Ta fortress archaeological site. These pieces were characterised by their pristine white colour, lightweight body, and exquisite craftsmanship. On the exterior, each object was coated with brown glaze, while the interior features intricate blue and white designs along the mouth rim and at the base (Zhao 2013:443–458). Zhao suggests that the Qal La Ta fortress might serve as a transitional site or warehouse based on several observations. One key observation was the presence of higher-quality trade porcelain at this location. Additionally, the porcelain found at Qal La Ta tends to be uncovered in pairs or groups. These characteristics suggest that the fortress could have been a point in the trade route where porcelain was temporarily stored or processed before being further transported or traded, rather than a final destination for these goods. This interpretation aligns with

the idea that Qal La Ta may have played a role as a transitional site in the distribution and trade of these porcelain items.

Guatemala

Guatemala is located in the Central America. Most of the Oriental porcelain discovered in Antigua Guatemala was of Chinese origin, with a diverse range of production dates from the archaeological excavations. These ceramics were manufactured in kilns located in Jingdezhen and Fujian, including the Zhangzhou and Dehua kiln systems. Within the site's archaeological findings, Batavian porcelain (Figure 21) has been unearthed in layers ranging from the latter part of the seventeenth century to the initial half of the eighteenth century. These findings exhibit notable similarities with artefacts recovered from the *Wanjiao No. 1* shipwreck (*Wanjiao No.1* archaeological team 2006; Takenori 2014:73–85)

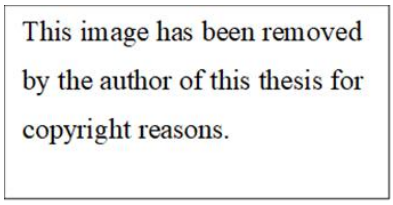


Figure 21 Batavian style porcelain fragment unearthed in Hotel Museo Casa Santo Domingo, Antigua (Courtesy of El Proyecto Arqueológico Hotel Museo Casa Santo Domingo and Takenori 2014:73–85）

Amsterdam, Netherlands

A set of cup and saucer in the Batavian style, adorned with flower sprays within panels on a brown glaze, is housed in the Rijksmuseum, Amsterdam, under the object number AK-NM-11860-16-1. This set is believed to date back to the 1730s–1760s. The cup displays a brown-glazed exterior embellished with three white panels featuring colorful flower sprays, complemented by a white interior. Similarly, the saucer presents a brown-glazed interior with three white panels adorned with flower sprays encircling the rim, accompanied by a smaller central white panel, while the exterior surface remains white (Figure 22).

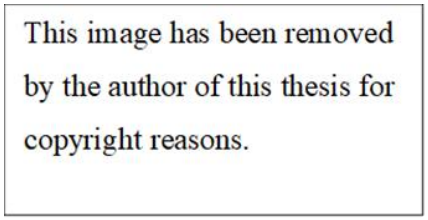


Figure 22 Batavian style cup and saucer in the collection of Rijksmuseum, Netherlands (Courtesy of Rijksmuseum)

Copenhagen, Denmark

The Frederiksstaden refuse dump was mentioned as a place to bring refuse from streets and public places all over Copenhagen. A large quantity of Chinese porcelain was uncovered in the excavations conducted at the site. It was suggested to be dated to the Qianlong period in the Qing dynasty between 1735 and 1760 based on the analysis of findings. Batavian style porcelain shards (Figure 23) were found at the site and share similarities with the findings from the *Geldermalsen* shipwreck (Kristensen 2014:151–181).

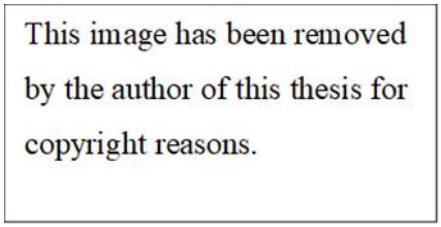


Figure 23 Figure 23 Batavia porcelain shards from the Fredriksstaden refuse dump assemblage (Courtesy of the Museum of Copenhagen and Kristensen 2014:151–181)

Cape Town, South Africa

Jane Klose's research on ceramics found in South Africa provides a large database for porcelain study. Brown-glazed Chinese export porcelain (Figure 24) with leaf-shaped reserves or ornamental panels decorated in either overglaze enamels or underglaze blue. According to Werz and Klose (1994), The excavation of the shipments of Asian porcelain aboard these vessels was destined for the European market in the Netherlands and was not specifically intended for the Cape.

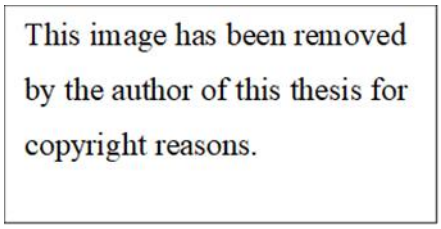


Figure 24 Batavian style porcelain fragments found in South Africa (Courtesy of Klose 1997 Appendices)

The United States

Limited Batavian style porcelains were uncovered in Thomas Everard, Virginia that can be dated to the period between 1752 and 1770 (Madsen and White 2011:128).

Victoria and Albert Museum (hereinafter referred to as V&A Museum)

Within the V&A Museum's collection, there was a set of Batavia tea ware (Figure 25) characterised by an exterior brown glaze adorned with an engraved pattern, while the interior has blue and white decorations. It was proposed that this tea ware was manufactured in Jingdezhen during the 18th century, with the engraved pattern added in Germany (Madsen and White 2011:97).

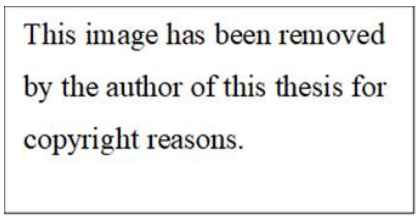
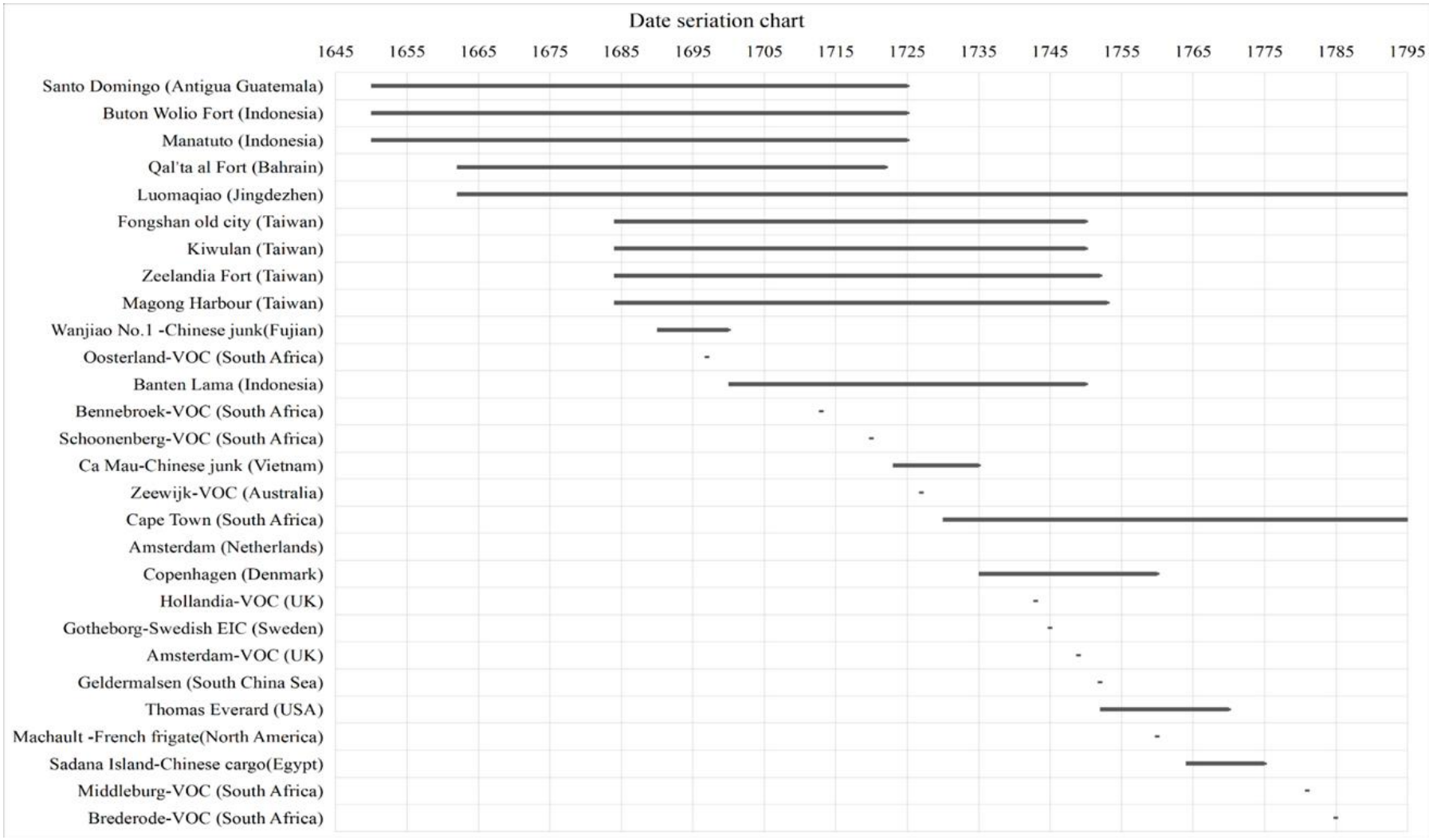


Figure 25 Batavian style porcelain with added engraved decoration (Courtesy of the Victoria and Albert Museum and Madsen and White 2011:97)

Despite the limitations of findings on both maritime and terrestrial sites, most of our understanding of Batavia ware was currently derived from these artifacts. It had been suggested that Batavia ware was a relatively less popular porcelain item in the 17th century, with only small quantities being exported. This understanding was supported by archaeological evidence from shipwrecks and other sites (Medley 1977:62; Martin 1993; Klose 1994; Woodward 1974:46). However, as we move into the 18th century, there was a notable increase in the export quantity of Batavia ware. Production of Batavia ware likely continued throughout the 18th century, with substantial exports reaching both Western and Inter-Asian markets (Vigário 2015). This shift in export quantities over time suggests changing preferences and demands for Batavia ware in the global market.

By illustrating and comparing archaeological discoveries from various identified sites, a continuous type of porcelain emerges over the extended period during which this specific type of porcelain was manufactured for export. The earliest datable Batavia wares were proposed to belong to the Kangxi period (1662–1722), as indicated by findings from both maritime and terrestrial sites. Given the exceptionally long reign of Emperor Kangxi spanning around six decades and considering the impact of political factors on porcelain production during the early period, it was suggested that porcelain making might have recommenced during the middle of the Kangxi period. Additionally, documentation about the recommencement of porcelain making after the 19-year reign of Emperor Kangxi, as mentioned in *Tao Lu*, implies that Chinese export porcelains were likely exported to Europe in mass quantities between 1680 and 1722 during the Kangxi reign.

Table 2 Date Seriation Chart


Date seriation chart
1645
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1785
1795
Santo Domingo (Antigua Guatemala)
Buton Wolio Fort (Indonesia)
Manatuto (Indonesia)
Qal'ta al Fort (Bahrain)
Luomaqiao (Jingdezhen)
Fongshan old city (Taiwan)
Kiwulan (Taiwan)
Zeelandia Fort (Taiwan)
Magong Harbour (Taiwan)
Wanjiao No.1 -Chinese junk(Fujian)
Oosterland-VOC (South Africa)
Banten Lama (Indonesia)
Bennebroek-VOC (South Africa)
Schoonenberg-VOC (South Africa)
Ca Mau-Chinese junk (Vietnam)
Zeewijk-VOC (Australia)
Cape Town (South Africa)
Amsterdam (Netherlands)
Copenhagen (Denmark)
Hollandia-VOC (UK)
Gotheborg-Swedish EIC (Sweden)
Amsterdam-VOC (UK)
Geldermalsen (South China Sea)
Thomas Everard (USA)
Machault -French frigate(North America)
Sadana Island-Chinese cargo(Egypt)
Middleburg-VOC (South Africa)
Brederode-VOC (South Africa)

2.4.3 Variations on Decorations of Batavia Ware from Archaeological Findings

The evolution of political and cultural events in China, Europe, and Asia played pivotal roles in instigating changes that significantly impacted the production, quality, and quantity of Chinese wares exported to the West. This resulted not only in disruptions to the Chinese export porcelain trade but also in variations in the quality of the porcelain manufactured (Madsen and White 2011:13). The variations exhibited from the techniques and decorations through time on Chinese export porcelain including Batavia ware based on the findings from maritime and terrestrial sites shown in Table 3 below. Despite the variations observed in the brown glaze and blue decorations, the enduring characteristic of Batavia ware emerges in the consistent combination of exterior brown glaze and interior blue decorations. This distinctive feature was proven to be a lasting hallmark, spanning a significant period.

Table 3 Variation table of Batavian style ware findings from maritime and terrestrial site

Attributes		Porcelain body		Brown glaze		Base mark	Border motif		White reserved panel on brown surface	Blue interior motif
		Complete	Incomplete	Interior brown	Exterior brown		Band	Single/ double circle		
Samples	SEACAL collection	Y			Y	Y		Y	N	Y
Maritime sites	*Wanjiao No.1* (Figure 6)	Y			Y	Y	Y		N	Y
	Ca Mau (Figure 7)	Y			Y	Unknown	Y		N	Y
	Sadana Island (Figure 8)	Y			Y	Unknown	N	N	Y	Y
	Gotheborg (Figure 9)	Y			Y	Y	Y		N	Y
	Geldermalsen (Figure 10)	Y			Y	Unknown	Y		N	Y
	Machault (Figure 11)	Y		Y	Y	Unknown	N	N	Y	N
Terrestrial sites	Jingdezhen (Figure 12)		Y		Y	Y		Y	Y	Y
	Jingdezhen (Figure 13)		Y		Y	Unknown	Unknown	Unknown	Y	Unknown
	Heilongjiang (Figure 14)	Y			Y	Y	Y		N	Y
	Buton Wolio (Figure 15)		Y		Y	N	Unknown	Unknown	Unknown	Y
	Banten Lama (Figure 16)		Y		Y	Y	Unknown	Unknown	Unknown	Y
	Manatuto (Figure 17)		Y		Y	Unknown	Y		Unknown	Y
	Penghu (Figure 18)		Y		Y	Y	Y		N	Y
	Fongshan (Figure 19)		Y		Y	N	Unknown	Unknown	Unknown	Y
	Kiwulan (Figure 20)		Y		Y	Unknown		Y	N	Y
	Guatemala (Figure 21)		Y		Y	Unknown	Unknown	Unknown	Unknown	Y
	Rijksmuseum (Figure 22)	Y		Y		Unknown	N	N	Y	N
	Copenhagen (Figure 23)		Y		Y	Unknown	Y		N	Y
	Cape Town (Figure 24)		Y		Y	Unknown	Y		N	Y
	V&A collection (Figure 25)	Y			Y	Unknown	Y		N (engraved pattern)	Y

Based on the identifiable features, the exterior brown glaze predominates in most findings, while the *Machault* shipwreck findings notably exhibit an interior brown glaze.

Rim Border:

Many findings display a rim border adorned with geometric or floral patterns. However, several findings, such as those from the *Sadana* Island and *Machault* shipwrecks, as well as the Rijksmuseum collection, lack a rim border altogether. The Batavia cup fragment from the Kiwulan site displays a distinctive double-circular line along the rim while the SEACAL samples only feature single-circular line along the rim.

Double Circle Base:

Similarities are observed between samples and Batavian-style cups from the *Wanjiao No.1* shipwreck and Batavia ware fragments from Luomaqiao site, Jingdezhen.

Central Motif:

Batavian-style cups from the *Wanjiao No.1* shipwreck and porcelain fragments from Penghu, and the Old City of Fongshan County in Zuoying, Taiwan, exhibit landscape motifs, setting them apart from other findings which predominantly feature floral motifs. Similarities were observed on the samples with type 1 motif and the findings of the Ca Mau shipwreck which depicted lotus motif which was a popular auspicious flower pattern applied on ceramic decoration in Qing dynasty (Ströber 2011:108–109). A more thorough investigation of the central landscape motif on the samples will be undertaken in the subsequent discussion chapter.White Panels:

The *Sadana* Island and *Machault* shipwreck findings, along with those from the Rijksmuseum collection, feature white panels. These distinctive features provide valuable insights into the diversity of decorative styles and motifs present in the Chinese export porcelain trade during the Yongzheng and Qianlong periods. Jorg's study outlines prevalent decoration styles relate to Batavia ware between 1729 and 1793, spanning from the Yongzheng to Qianlong periods. These styles comprise brown with Imari decoration on the inside, brown with enameled colors on the inside, brown with Imari panels, and brown with enamel panels (Madsen and White 2011:125). Nevertheless, analysis of 21 samples from the SEACAL collection reveals the absence of these features.

CHAPTER THREE
METHODOLOGY

3.1 Introduction

The research methodology employed in this study relies significantly on an extensive literature review centred around the Chinese export porcelain trade and Dutch trade routes. Given the intricate history of porcelain manufacturing, this literature review was a fundamental method for analysing the historical context of export porcelain across both time and space. Utilising physical variables as a foundational index for comparisons within the sample group and with other relevant findings, this approach spans various dimensions. To complement the physical-based approach, the research incorporates photography and online searches to construct a database for cross-comparisons, facilitating visual examinations between samples in the SEACAL collection and other discoveries. Additionally, the most scientific methodology employed in this section was pXRF, which examines the chemical compositions of manganese, cobalt, and iron. This analytical technique provides insights into the cobalt materials applied in Batavia ware sample production. There were four steps in methodology, listed below and described in the following sections individually:

1. Observing and recording physical variables
2. Photography
3. Online searching
4. PXRF

3.2 Observing and Recording Physical Variables

For this thesis, SEACAL has provided a selection of specimens, and I carefully studied these target items, marking the inception of this research. These objects were carefully labelled using non-destructive conservation techniques. The presence of physical objects enables the recording of various physical variables, forming a foundation for comparisons with similar items. Variables such as glaze colour, decorations, measurements, marks, and other characteristics convey distinct cultural elements.

3.3 Photography

Physical items serve as the primary source for comparing similar objects, yet the collection of Batavia ware in SEACAL remains inaccessible elsewhere at any time. Consequently, photographs assume a significant role as our primary reference when physical items were not readily available, providing a convenient and viable alternative. Furthermore, numerous online search engines offer

image-based searching, effectively transforming photographs into visual keywords for online research. When considering the evolution of porcelain decoration over time, these photographs constitute a significant portion of the Batavia ware pattern specimen book.

3.4 Online Searching

3.4.1 Keywords Searching

Information technology has transformed the landscape of information access, where digital databases play a pivotal role as they transcend the limitations of physical database institutions in terms of space and time. Online searching became the primary approach for accessing the information we require. While not all references were digitised due to various constraints, online searching remains an effective means to locate available physical references.

Considering the research question at hand, it was valuable to explore a few extended keywords in addition to 'Batavia ware.' These include terms like 'Chinese export porcelain,' 'Dutch East India Company (VOC) porcelain trade,' and 'brown glaze blue and white ware.' These extended keywords expand the scope of our search and can lead to a more comprehensive understanding of the subject.

3.4.2 Photograph Searching

As mentioned in the previous section on photography, using images to search the internet, images were also a special kind of keyword to quickly target related objects.

Blue and white porcelain was a remarkable commodity that had a profound impact on people's lives worldwide due to its distinct characteristics. Its water-resistant body, combined with a translucent glaze and blue underglaze motifs, sparked the curiosity of potters and consumers globally. This fascination even led to a craze for blue and white porcelain in Europe during the 17th and 18th centuries (Fischer and Hsieh 2017:14–26). Batavia ware represents a unique type of porcelain that shares similarities with blue and white porcelain, while also possessing distinctive features that appealed to the preferences of its time.

Nevertheless, Batavia ware remains relatively understudied among scholars, with limited comprehensive literature available on this Chinese export porcelain. Given this context, exploring the interior blue-and-white decorations becomes a crucial starting point for understanding this unique category.

Blue-and-white porcelain from Jingdezhen was commonly distinguished by its distinctive features: a white body, a clear glaze, and intricate blue decorations, often considered of superior quality

compared to counterparts like Zhangzhou ware. Zhangzhou ware, in contrast, was characterised by a less transparent glaze, coarser blue decorations, and frequent shrinkage cracks, with a sandy foot being a notable feature. These distinctions arise from variations in raw materials, recipes, and production processes (Bai 1995:27–35; Xue and Liu 1995: 22–27; Fischer and Hsieh 2017:14–26). It is crucial to acknowledge that not all Jingdezhen products share the same level of delicacy; some may exhibit sandy foot rims resembling the characteristics of Zhangzhou ware. In certain samples from the SEACAL collection, sandy foot rims were observed, raising the possibility that this feature was a result of the production process, where pieces may have encountered coarse sand during firing in the furnace. Alternatively, the sandy foot rims could have been acquired underwater, perhaps in a shipwreck environment.

3.5 PXRF

3.5.1 Introduction

Through the previous steps, information on many similar objects can be obtained, and in combination with the recorded physical variables, they can be sorted according to relevance to find the closest reference to the sample, thus narrowing down the chronological range of the sample and related information such as the place of origin.

When it comes to mineralogy, certain elements like manganese, iron, copper, arsenic, nickel, and zinc, along with other related elements, are typically associated with specific sources of cobalt ore. Because pigment ores can originate from various places, the types and amounts of accompanying elements can vary (Fischer and Hsieh 2017:14–26). As a result, the examination of the variability in these associated elements conducted by the pXRF is currently the standard method for studying the provenance of blue pigments.

The scientific analysis of blue pigments was primarily conducted on representative artefacts from identified archaeological sites. Various sophisticated analytical techniques have been employed, ranging from synchrotron radiation X-ray fluorescence (SR-XRF) (Wen et al 2007:101–115) and energy-dispersive X-ray fluorescence (EDXRF) (Yap 1988:173–177; Yu and Miao 1996:257–262) to particle-induced X-ray emission (PIXE) (Cheng et al 2005:527–531) and X-ray absorption spectroscopy (XAS) (Figueiredo et al 2012:97–102), along with electron probe X-ray micro-analysis (EPMA) (Qu et al. 2014:8783–8790). These studies have significantly enhanced our understanding of the chemical composition of blue pigment materials, shedding light on cobalt-based pigment types, their sources, and their use during the peak time of blue and white porcelain.

While Batavia porcelain may not have been the primary focus of porcelain research scholars, some

have dedicated their studies to Batavia porcelain, particularly its brown glaze development. These research efforts offer valuable insights that can serve as inspiration and guidance for contemporary studies in this field. Some scholars have specifically explored a particular type of Batavia ware characterised by white panels on an exterior brown glaze (Li 2012:23–30; Martin 1992:83–94). In this study, the primary focus was not on the brown glaze due to its limited research, and the challenge of examining it on the exterior curved surfaces of the samples using pXRF. However, given the widespread popularity and extensive research on blue and white porcelain, the study has made efforts to contribute to a deeper understanding of the blue pigment used in the interior motifs rather than the exterior brown of Batavia ware samples.

3.5.2 Samples

As mentioned earlier in the limitations section, the flatness of the surface can impact the outcomes of the pXRF test. After examining the whole collection of Batavia ware using pXRF instruments, twenty-one Batavia saucers were specifically chosen as they were the sole group to yield valid data, enabling further explorations. Twenty-one Batavia saucers from the SEACAL collection were analysed with a particular focus on the blue pigment. Based on Professor Martin Polkinghorne's interview with Michael, the collector and donor, they were purchased by Michael from antique dealers in Bali in the early 2000s, and he was told they were from a shipwreck in Batam (Martin Polkinghorne, pers. comm. 2022). The objects were in good condition with intact bodies and foot rims. They all featured a mark on the bottom of the ware depicting an ancient Chinese ritual ware '*Jue*.' The '*Jue*' vessel was a usual form during the Zhou dynasty, typically crafted from bronze and characterised by three legs. In a book specialising in the identification of Ming and Qing dynasty porcelain, it was suggested that the base mark featured in this vessel was initially applied during the Kangxi period (Tie and Xi 2004:243–244). According to the stylistic features and visual criteria, the original products were possibly manufactured in Jingdezhen. Table 4 shows the descriptions of the characteristics and stylistic features of three typical decorations on Batavia saucers in the sample group of the SEACAL collection. Table 4 shows three main characteristics and stylistic features of Batavia samples in the collection. The inventory profile of all Batavia ware with typical decorations will be seen in Appendix 4.

Table 4 Characteristics and stylistic features of the Batavia ware samples from the SEACAL collection

Type No.	Items	Example (ABT0793/ABT0833/ABT0816)		Descriptions
1	ABT0793 ABT0797 ABT0798 ABT0815 ABT0829 ABT0890 ABT0928 ABT0929 ABT1213	 Figure 26 ABT0793 Front (Courtesy of the author)	 Figure 27 ABT0793 Back (Courtesy of the author)	Nine pieces of Batavian style tea saucers with steeply rounded sides. The tea saucers were wheel thrown and were of thin and light construction. The porcelain body is white, the exterior glaze is brown, and the interior glaze is clear. There is decoration on the interior surface with an underglaze blue and white painting of a flower motif which depicts a lotus and its leaf and stems with a circle along the rim. The foot-ring carries a signature mark of ritual ware "*Jue*" in underglaze cobalt blue in an area outlined by a double circle. All these types of samples have the same well-painted motifs with only minor variations. The decoration is painted in an uneven blue colour with truly minor difference between similar types of samples.
2	ABT0828 ABT0833 ABT0921 ABT0927 ABT0934 ABT0935 ABT0936 ABT0941 ABT0998 ABT1002 ABT1016	 Figure 28 ABT0833 Front (Courtesy of the author)	 Figure 29 ABT0833 Back (Courtesy of the author)	Eleven pieces of Batavian style tea saucers with steeply rounded sides. The tea saucers were wheel thrown and were of thin and light construction. The porcelain body is white, the exterior glaze is brown, and the interior glaze is clear. There is decoration on the interior surface with underglaze blue and white painting which depicts a tranquil scene featuring a plum blossom tree in full bloom, firmly rooted in the ground, two clusters of bushes on each side and a circle pattern along the rim. The foot ring carries a signature mark of ritual ware "*Jue*" in underglaze cobalt blue in an area outlined by a double circle. All these types of samples have the same well-painted motifs with only minor variations. The decoration is painted in an uneven blue colour with truly minor difference between similar types of samples.
3	ABT0816	 Figure 30 ABT0816 Front (Courtesy of the author)	 Figure 31 ABT0816 Back (Courtesy of the author)	One Batavian style tea saucer with a steeply rounded side. These saucers were crafted using the wheel-throwing technique, resulting in a delicate and lightweight construction. The porcelain body is white, the exterior glaze is brown, and the interior glaze is clear. There is decoration on the interior surface with blue and white underglaze paintings. The interior surface has a main motif similar to tea saucer group type 1 which depicts rough mountains, running water and swinging trees on land. The foot-ring carries a signature mark of ritual ware "*Jue*" in underglaze cobalt blue in an area outlined by a double circle. All these types of samples have the same well-painted motifs with only minor variations. The decoration is painted in an uneven blue colour with truly minor difference between similar types of samples.

PXRF analysis was employed to identify the composition of the blue-coloured areas in the samples. The primary objective was to compare the data obtained from the samples at SEACAL with data acquired from other Chinese porcelain pieces featuring blue decoration, using a pXRF instrument. The pXRF experiment was conducted at the Southeast Asian Ceramics Archaeology Lab (SEACAL) located at Flinders University.

The pXRF analysis was carried out using a Bruker TRACER 5i instrument. This instrument was equipped with a rhodium (Rh) target X-ray tube capable of producing up to 4W, with a maximum

voltage of 50kV. It also features a silicon drift detector, and a camera was utilised to precisely control the area being measured by the portable XRF instrument. This precise control allowed for a more accurate differentiation between the coloured areas on the samples. The instrument offers several built-in calibration modes, including the Mining mode and Soil mode, both of which were employed in this study to obtain compositional data from the samples. In the Mining mode, internal calibrations convert X-ray counts of major and minor elements into concentrations, while the Soil mode was optimised for measuring elements present at low concentrations. The measurements for both modes were conducted with a 60-second acquisition time. The data obtained using the pXRF instrument was recorded and exported into an Excel file for further analysis.

3.5.3 Limitations

Firstly, as discussed in Chapter One, the absence of an archaeological context related to this set of Batavia ware is notable. The available information pertains solely to physical objects, lacking proper archaeological context. Secondly, due to the inability to examine the exterior brown surface of the samples and the limitations of available methodology, the analysis focused on the interior blue area (including glaze and blue pigment) rather than the exterior brown glaze of each sample. Additionally, the curved interior shape of all porcelain samples may impact the accuracy and precision of readings of the interior blue area. The non-destructive testing approach, particularly challenging with intact curved shapes, poses greater difficulty compared to testing fragmented samples (Millhauser et al. 2011: 3141–3152; Fischer and Hsieh 2017:14–26). In response, the analysis involved placing the samples facing down evenly to minimise the gap to the detector.

Moreover, it is important to note that the pXRF data from a piece of Batavia ware focusing on the blue pigment area combines results from the glaze, blue pigment, and paste body. The study does not provide a precise differentiation and determination of the thickness of the body, glaze, and pigment. Furthermore, only 21 samples, all saucers, were selected for the study based on suitable conditions to obtain valid data for analysis. However, given the presence of a group of cups in the collection sharing similarities with the saucers, the analysis conducted on these samples only serves as an implication. Further studies with a larger group of samples and more accurate instruments are necessary for a comprehensive understanding of Batavia ware in this collection.

CHAPTER FOUR
RESULTS

4.1 Physical Variables Result and Analysis

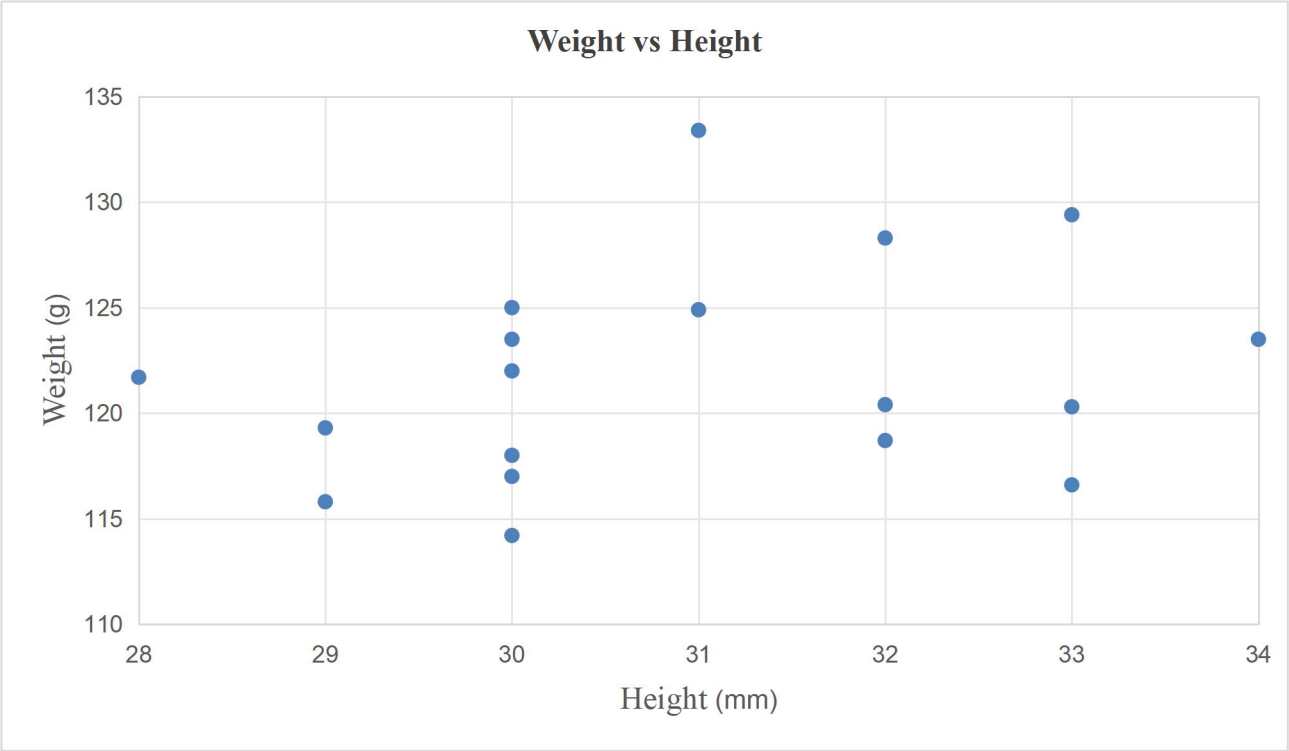

Figure 32 Scatter plot showing the physical variables based on the relative proportions of weight, rim diameter and height (Courtesy of the author)

All physical variables data of the samples are listed in Appendix 1. Figure 32 shows the physical variables based on the weight and height. These two physical variables seem to have the ability to group some samples with minor variations. The minor variation in terms of the weight possibly indicates differences arising from the glazing process applied to the body which will be discussed further in the following chapter.

4.2 PXRF Results and Analysis

To interpret the data comprehensively, it was obtained using pXRF as shown in statistic graphs. The efficiency of the graphs for differentiate ceramics artefacts was evidenced in previous publications (Fischer and Hsieh 2017:14–26; Wen et al 2007:101–115; Yap 1988:173–177; Yu and Miao 1996:257–262). For this study, the results were also compared with the reference data already published by other researchers who worked on the porcelain materials produced in Jingdezhen through different time periods.

PXRF was exceptionally precise when it came to measuring higher Z-elements like Rb, Sr, Zr for trace elements, and Co, Fe, Mn for the blue pigment. The uniformity of the structure enhances the

effectiveness of pXRF. PXRF instrument had the potential to establish a database containing the weight percentages of elements present in the glaze, coloured regions, and the paste bodies. This endeavor can be instrumental in addressing the questions related to provenance and authenticity (Franci 2020:314–322).

To obtain the trace concentrations of Mn, Fe and Co, the measurements were carried out using pXRF on the blue underglaze motif of a group of Batavia ware samples in SEACAL collection. Quantitative analyses of these three elements within the blue pigment and glaze were conducted under the operation of pXRF.

The Mn, Fe and Co concentrations of blue pigment areas of the twenty-one selected samples measured with Soil mode in this study are listed in Table 5. All samples were analysed on interior regions which were decorated with blue pigment painting and were as flat as possible. The regions chosen were a circular area with 8mm diameter. The Mn concentration is obviously higher than Fe concentration from Table 5 which indicates the possible domestic pigment source.

Table 5 Chemical compositions measured with pXRF on the blue pigment area of Batavia ware samples from the SEACAL collection (Soil mode)

SEACAL No.	Mn(ppm)	Fe(ppm)	Co(ppm)	Fe/Mn	Fe_2O_3/CoO	MnO/CoO
ABT0793	2196	57	219	0.03	0.29	10.18
ABT0797	4549	375	593	0.08	0.71	7.79
ABT0798	2166	223	244	0.10	1.03	9.01
ABT0815	2990	632	337	0.21	2.11	9.01
ABT0816	2878	248	358	0.09	0.78	8.16
ABT0828	1734	134	208	0.08	0.72	8.47
ABT0829	5110	613	605	0.12	1.14	8.58
ABT0833	1562	100	164	0.06	0.69	9.67
ABT0890	3785	485	527	0.13	1.03	7.29
ABT0921	2187	514	219	0.24	2.64	10.14
ABT0927	2333	122	244	0.05	0.56	9.71
ABT0928	1890	24	187	0.01	0.14	10.26
ABT0929	3283	203	341	0.06	0.67	9.78
ABT0934	2399	162	263	0.07	0.69	9.26
ABT0935	2792	284	327	0.10	0.98	8.67
ABT0936	3124	414	300	0.13	1.55	10.57
ABT0941	3984	647	453	0.16	1.61	8.93
ABT0998	1553	288	163	0.19	1.99	9.68

ABT1002	3801	454	424	0.12	1.20	9.10
ABT1016	2443	306	262	0.13	1.31	9.47
ABT1213	2423	76	267	0.03	0.32	9.22

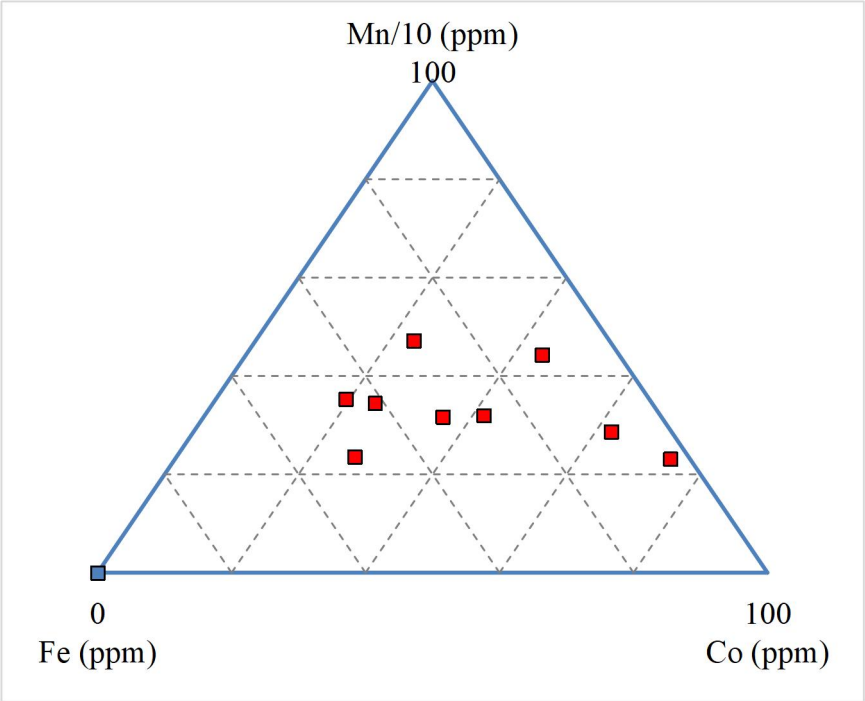

Figure 33 Ternary plot showing the blue pigment area composition of samples with type 1 decoration based on the Soil mode concentration results of elements Mn, Fe and Co (Courtesy of the author)

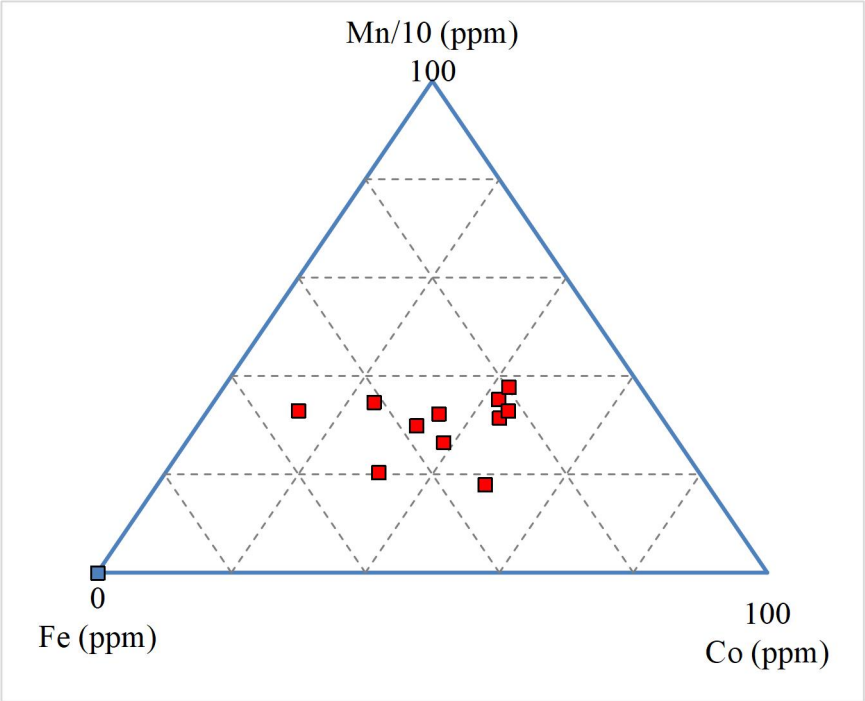

Figure 34 Ternary plot showing the blue pigment area composition of samples with type 2 decoration based on the Soil mode concentration results of elements Mn, Fe and Co (Courtesy of the author)

Figures 33 and 34 are ternary plots showing the correlation of elements of manganese, iron and cobalt based on the results of samples with decoration type 1 and type 2 respectively. The data for decoration type 3 could not be effectively compared because there was only one item available for analysis. It seems to be difficult to group type 1 and type 2 samples together respectively solely based on the ternary plots due to the methodology limitations (Bao et al. 2015:5034–5040). However, comparing Figure 33 with Figure 34, the scatter patterns on type 2 samples exhibited more similarities and closer correlations compared to type 1 samples. This suggests that there might be distinct differences in the composition of elements among samples with different decoration types, with type 2 samples showing a more relatively coherent correlation pattern.

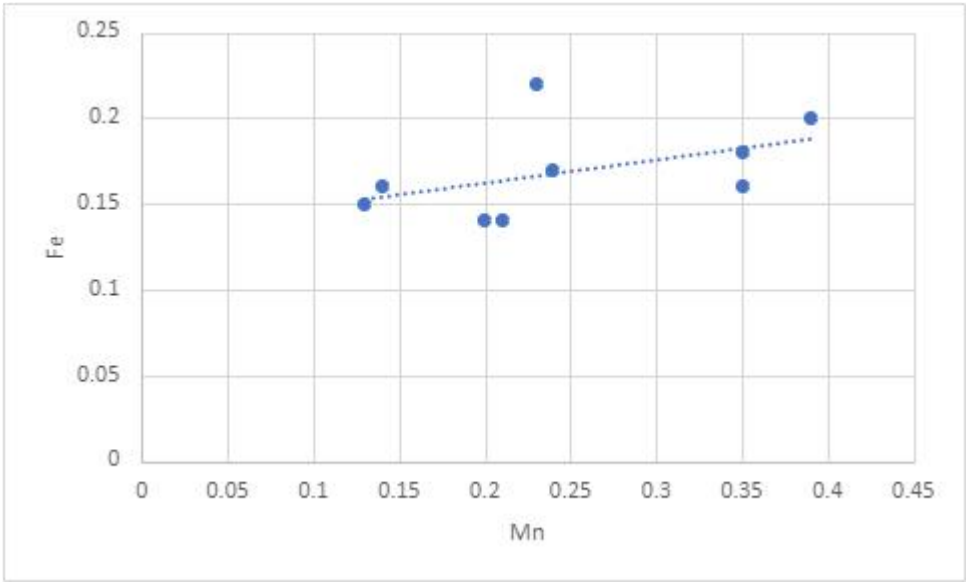

Figure 35 Mn-Fe bivariate plot, pXRF data collected with Mining mode on the blue pigment area of samples with type 1 decoration (Courtesy of the author)

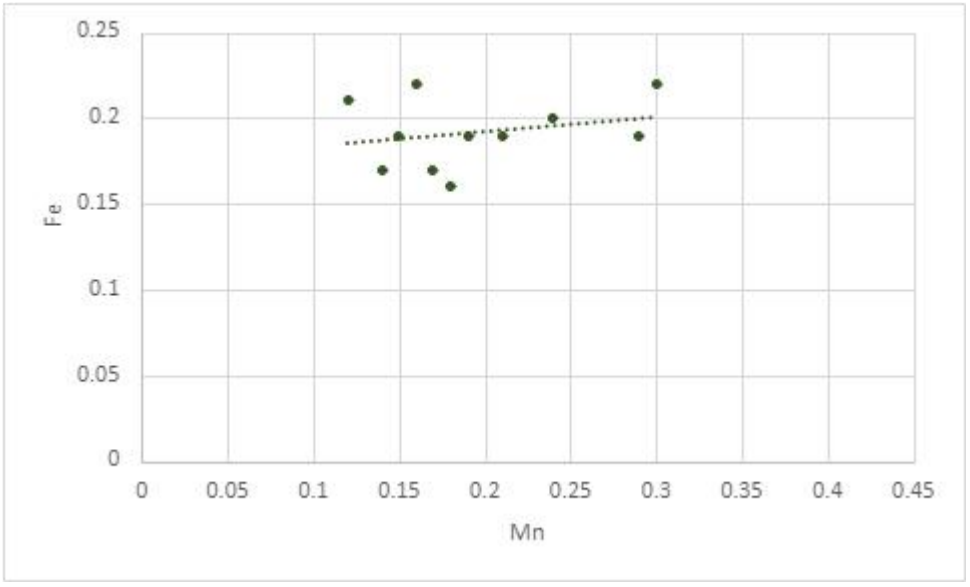

Figure 36 Mn-Fe bivariate plot, pXRF data collected with Mining mode on the blue pigment area of samples with type 2 decoration (Courtesy of the author)

The Mn, Fe and Co concentrations of blue pigment areas of the twenty-one selected samples measured with Mining mode in this study are listed in Appendix 2. Figures 35 and 36 are Mn-Fe bivariate plots of type 1 and type 2 samples respectively. They show the correlation of Mn and Fe contents in both type 1 and 2 groups with some outliners. It seems to have a similar trend in the two groups and can be visualized in the bivariate plots.

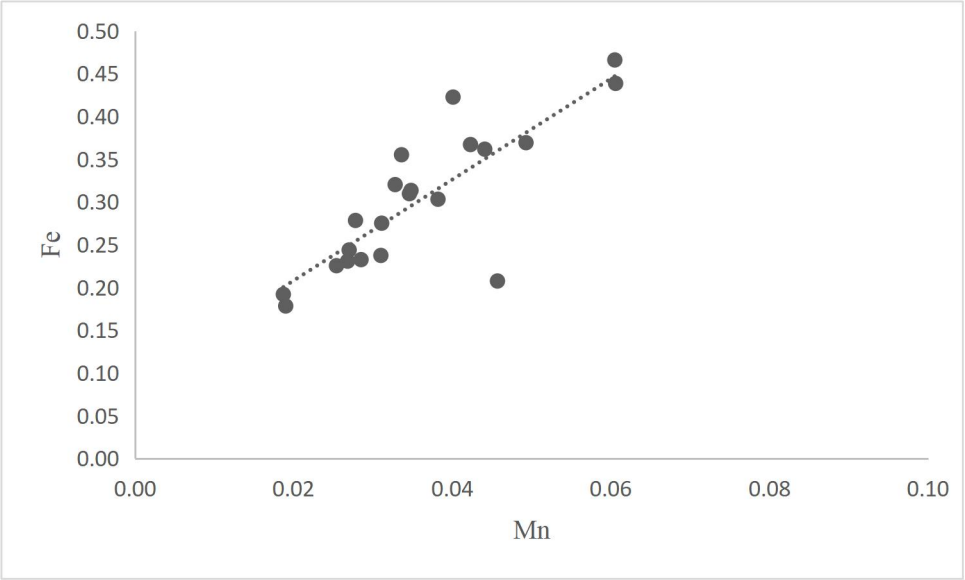

Figure 37 Mn-Fe bivariate plot, pXRF data collected with Mining mode on the transparent glaze area (Courtesy of the author)

This study also tested the transparent glaze areas of the twenty-one selected samples and the Mn, Fe and Co concentrations results measured with Mining mode in this study are listed in Appendix 3. Figure 37 is a bivariate plot showing the correlation of Mn and Fe on the transparent glaze area. It seems to have the possibility to group all samples with similar linear trends and a smaller number of outliners.

The Mn content is higher than the Fe content measured with both Soil mode and Mining mode through pXRF on the blue pigment area and suggests the possibility of a domestic pigment source. The ternary plots and bivariate plots above show more similarities among type 2 samples with certain variations than type 1 samples. There is the possibility that decoration affects the elements' composition results. However, it is challenging to identify the similarities and differences among samples solely based on these results due to the limitation of pXRF and needs further study with a more precise method.

CHAPTER FIVE
DISCUSSION

5.1 Consistency Study of the Batavia Samples in the SEACAL Collection

Based on the recorded physical variables in the scatter plot in the last chapter, including height and weight, it was observed that minor variations exist in the indices of height for each sample. However, a more substantial difference was noted in terms of weight. The reasons that cause this distinctive variation will be discussed below regarding the glazing process.

The glazing process in porcelain making involves three methods: shaking, dipping, and blowing. The glaze-shaking method was typically applied to the interior of the paste body, where the glaze was poured into the body, lifted, and shaken a few times before being poured off. In the glaze-dipping method, the exterior surface was glazed after the interior surface was glazed through shaking. The object was dipped into the glaze to ensure complete coverage before being removed from the glaze material. The glaze-blowing method involves using a bamboo tube covered with gauze, which was dipped in glaze and then blown onto the paste body (Fang 2002:285–286).

It was evident that variations occur in the glazing process with all the methods, and consistency among different objects cannot be precisely achieved. It suggests that the variations in weight may be attributed to differences in the glazing process. It is important to bear in mind that there are limitations to identifying the cause of these weight variations, which necessitate further study with more precise techniques focused on studying the consistency of the samples.

Measurement of trace elements using the pXRF technique therefore provides a fast and non-destructive method of identifying major and minor elements of Chinese porcelain (Yap 1988:173–177). The blue and white porcelain contains a paste body, blue pigment motif and transparent glaze. There are systematic works conducted by researchers in previous studies of cobalt pigments in Chinese porcelain fragments that differentiate the paste body, blue pigment motif and transparent glaze. Under the condition of this study, all the samples were intact whole pieces that were not allowed to differentiate the layers of three components in detail under the concept of non-destructive methodology. The curved body surfaces with blue and white motifs posed a challenge, as they could not directly attach to the detector due to a gap between the objects and the detector, highlighting a limitation in the methodology.

Despite this limitation, all samples underwent recording and testing under uniform conditions using the same instrument, ensuring comparability of results. The findings revealed consistency among the samples, particularly in physical variables and elemental compositions within the blue pigment

and glaze, with minor differences. This suggested a likely common origin and the use of similar materials.

The pXRF test on the blue pigment area indicated a higher manganese content compared to iron, while the transparent glaze test showed higher iron content than manganese. This discrepancy hinted at variations in cobalt materials, with the manganese-to-iron ratio serving as a potential index for distinguishing between imported and domestic sources.

In addition, in the pXRF test on the blue pigment area, the manganese was much higher than the iron from the pXRF results while the iron was higher than the manganese in the test on transparent glaze area. It was likely to imply the manganese was higher in the cobalt materials applied in the blue painting because the net value of elements composition of the cobalt materials was the difference between the results of the blue pigment area and transparent glaze area.

From the previous studies on the blue and white Chinese porcelain cobalt materials source, there were two typical sources of cobalt rich materials from overseas and domestic market. Domestic pigments were first employed in porcelain decoration during the Ming dynasty and persisted through the Qing dynasty. When comparing this with the date seriation table of Batavia ware, it becomes evident that domestic pigments were predominantly utilised in porcelain decoration from the early Qing dynasty until late 18th century (Fischer and Hsieh 2017:14–26; Wen et al 2007:101–115; Yap 1988:173–177; Yu and Miao 1996:257–262). The ratio between manganese and iron was a potential index to make suggestions about the imported and domestic source of origin. Imported cobalt rich materials exhibit more iron than manganese from samples tested with different XRF instruments while domestic materials exhibit more manganese than iron in those studies. Bearing this in mind, it suggests that the cobalt materials applied on the samples of the Batavia ware in the SEACAL collection was likely to be domestic source, and the time period spanning from latter half of 17th century and end of 18th century.

Furthermore, there were three typical cobalt rich materials sources in the domestic origin. Jiangxi province, Zhejiang province and Yunnan province were recorded in the documents that provided the cobalt materials for porcelain making. Highly manganese and low iron exhibits in these domestic materials. However, there were slight differences among them about the ratios of elements composition of manganese, iron, and cobalt (Fischer and Hsieh 2017:14–26).

The correlation of the Mn and Fe contents in two different decoration type sample groups indicates the similarities and differences among the Soil mode and Mining mode results measured by pXRF. It seems to have the possibility that similar blue pigment decoration might have similar elements

compositions of Mn and Fe based on the visualised plots.

Overall, the blue pigments used on the interior of the Batavia ware were possibly produced from native cobalt materials. Considering the limited number of samples that were analysed for this study and the limitation of the pXRF, the preliminary results presented show a tentative possibility but not determinedly.

5.2 Tracing the Landscape Motifs on Batavia Ware

Chinese porcelain patterns represent an accumulation of diverse cultural symbols rooted in the nation's historical, political, economic, and social life. Due to differences in geography, ethnicity, history, and language, when porcelain serves as a vessel for cultural exchange between China and Europe, it introduces numerous graphic symbols that initially challenge Europeans. These symbols form a complex puzzle of cultural codes that Europeans cannot easily decipher due to their unfamiliarity with the deep historical and cultural legacies of both China and Europe, as well as the intricacies of their respective linguistic expressions (Sun 2012:181). The SEACAL collection displayed recurring decorative motifs. Specifically, Batavia cups and saucers consistently featured lotus, plum, and landscape patterns. The following part was taking the lotus and landscape motif into account to provide insights of the historical context.

A publication dedicated to the decoration of ancient Chinese ceramics, using this sample collection as a focal point, offered valuable insights into the date of landscape motifs on Batavia porcelain.

Figure 38 A Batavian style saucer in the SEACAL collection, No. ABT0833 (Courtesy of the author)

This image has been removed by the author of this thesis for copyright reasons.

Figure 39 Blue and white porcelain depicts a landscape scene in collection of Jingdezhen folk kilns (Fang 2002:110)

Figure 39 from a book written by Fang Lili, who is an anthropologist and archaeologist specialising in ceramics. Her book focuses on the folk kilns in Jingdezhen and provides a systematic historical and anthropological context from different perspectives. According to Fang, the typical Kangxi blue and white porcelain primarily utilise domestic cobalt materials from Zhejiang. At that time, Painters were seeking new modes of expression, drew inspiration from ink painting while incorporating Western painting technique. In this innovative process, artists employ a large peach-shaped brush, saturating it with the desired concentration of blue and white material (usually diluted into a liquid form with tea water). Without touching the surface of the blank, the brush was delicately guided, allowing water to drip onto the surface, creating a settling effect. The use of the brush and the unique traces left by the blue and white material on the blank during the process result in a distinct watermark pattern resembling finger-pressed imprints, contributing to the craft's unique and exceptional visual effect (Fang 2002:103–118).

Figure 40 A Blue and white porcelain saucer depicts a landscape scene in the China Ceramic Museum, which dates to the Qing dynasty (Courtesy of the author in a visit to the China Ceramic Museum)

Figure 40 shows a blue and white porcelain saucer in the China Ceramic Museum, Jingdezhen. It was described that was collected in the United States and dated to the Qing dynasty (1644–1912). The artefact was on an exhibition pertaining to Chinese export porcelain in the Museum.

As mentioned before in Chapter Two, the similarities between Batavia ware and blue and white porcelain, particularly in their typical interior blue and white decorations, provide valuable insights for the study of Batavia ware. This connection was exemplified by the two blue and white porcelain saucers (Figure 39 and Figure 40), which closely resemble objects found in the SEACAL collection, with minor variations. The only notable difference lies in the exterior glaze. This similarity could serve as a crucial link in uncovering the historical context of the SEACAL Batavia ware collection. The shared features between these saucers and the SEACAL collection suggest a relationship that may shed light on the production, trade, and cultural exchange involving Batavia ware in the broader context of Chinese export porcelain. Considering both objects were recorded as produced in the Qing dynasty that provides a potential period to date the Batavia ware in the SEACAL collection.

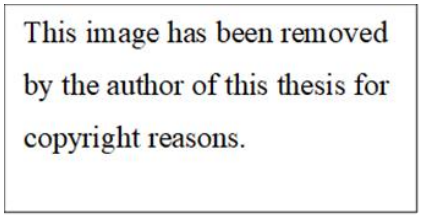

Figure 41 Blue and white porcelain fragment found in Shanghai depict a landscape scene (Mei et al 2010:104)

Figure 41 depicts ancient trees that were prevalent in the mid-Qing period as a theme in landscape decoration. The distant view was mostly painted with mountain ranges lined with pepper dots, the middle view was painted with thin horizontal lines on the water surface, and the close view was of fir trees and pines. Brightly coloured blue and white, the simple and simple landscape scenes were prevalent in the mid-Qing decorations (Mei et al 2010:104). According to Mei (2010), The compositional style with bright blue and white colours was widely utilised in the decoration of bowls, plates, and cups, creating a simplistic elegant depiction of landscapes and was highly popular in the mid-Qing era. In the distant mountain views, artists often employed a style characterised by rough peaks and the use of pepper dots to represent trees. And the intricate horizontal lines were used to depict bodies of water (Mei et al. 2010:104). However, this decoration style was also found in *Wanjiao No.1* shipwreck (Figure 6) shared the same decorations with the mountain, trees, and water depictions but with a simplified version. Building upon earlier discussions, This Thesis suggested that this decorative style persisted for a considerable duration during the Qing dynasty (1644–1912), possibly originating as early as the mid-Kangxi period (1680–1700) when *Wanjiao No.1* was probably sunken. This suggestion implies a continuity in the utilisation of the decorative motif, emphasising its enduring presence and influence over an extended period within the specified historical context.

5.3 The Implications of Historical Contexts of the Batavia Ware as One of the Trade Wares in the Chinese Export Porcelain Trade

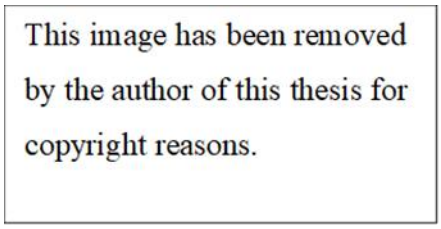

Figure 42 Photo depicts that Syahrin Abdurrahman shows the artefacts that were rescued from the hands of treasure hunters in the waters of the Riau Islands (Source: Batamtoday.com, Chandra 24 April 2014).

According to the news on Batamtoday website, on 24th of April in 2014, 3680 pieces of artefacts were rescued from theft in a surveillance operation conducted by the Indonesian special police in the Riau Islands province. The objects were secured from a fishing boat with a tonnage of 27 GT. It was believed to be artefacts from a potential shipwreck site in the water of Numbing Island. According to a speech by Syahrin Abdurrahman, the director General of Marine Resources and Fisheries Monitoring, the artefacts including ceramic-based objects in the form of jars, bowls, and other forms (Chandra 2014). A potential Batavian style porcelain was depicted in Figure 42.

In the further legal process, those fishmen involved in this theft activity were sent to jail. The location recorded in the court case refers to the potential shipwreck site shows in Figure 43 and named Kangxi Cargoes (Zainab Tahir, pers. comm. 2023). The illegal salvaging activities in Indonesian waters presented significant challenges, involving numerous complicated elements that constrained this study from developing a broader understanding of Kangxi Cargoes at this stage.

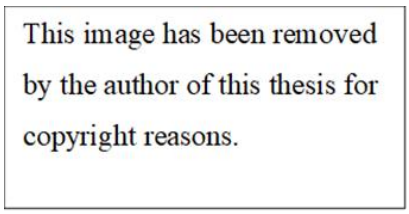

Figure 43 The location of the Kangxi Cargoes in the court case (Courtesy of the Indonesian Military of Marine Affairs and Fisheries)

Based on the investigation of archaeological findings of Batavian style artefacts all over the world, there was no specific site containing similar objects featured with all the characteristics. The so-called Kangxi Cargoes has the possibility of being the potential site for the Batavia ware collection. However, due to the extensive salvage and looting and stay unstudied with proper archaeological investigation, there was no more properly recorded information I could access. Consequently, the link between the Batavia ware in the SEACAL collection and the Kangxi Cargoes cannot be

definitively defined at this point and requires further in-depth investigation.

CHAPTER SIX
CONCLUSION

The aim of this study was to investigate the historical context of Batavia ware in the SEACAL collection in an archaeological perspective based on the Chinese export porcelain trade through the ancient Maritime Silk Route, especially the Dutch China trade route. This Thesis tried to pile up a seriation date of Batavia ware found in both maritime and terrestrial sites and hope to construct a database pertaining to Batavia ware, particularly with the entanglement of production, decorations, and trade of Chinese export porcelain.

More Batavia ware was uncovered from the sites as earliest as the second half of 17th century and throughout the 18th century. The Dutch East India Company (VOC), as the significant commercial enterprise, were established and dominated the Chinese export porcelain trade during the 17th and 18th century. The VOC plays an essential role in the trade because the quantity of VOC shipwrecks that were reported to contain Batavia ware were relatively higher. Objects from shipwrecks are helpful to show what was transported during this period. Objects from terrestrial sites were useful to show what was produced and distributed through the trade. They were not independent but entangled with each other through the trade route. The findings uncovered in American regions except the European regions shows that the possibility of preference of Batavia ware was not pertaining to the Dutch but somewhere else at that time and the potential of broader historical context that the findings might relate to Dutch activities in the Americas. Nevertheless, this study has limitations in offering sufficient insights into the American findings. Further investigation and a more comprehensive understanding are needed to substantiate this hypothesis in future research.

This study presented a comprehensive demonstration of the seriation of Batavia ware based on maritime and terrestrial findings combined with the variations of decoration and producing techniques. Bear this in mind the variations through time, the consistency showed in physical variables recording and the pXRF analysis methodologies gave an implication of the similarity of producing site, techniques, and source of origin of the pigment materials. This was the starting point of grouping these Batavia ware together in this collection under the background of the absence of historical contexts. Furthermore, insights drawn from the source concerning the origin of pigment materials suggest that the utilization of Chinese domestic sources was probable. This origin was likely associated with the period when domestic materials were initially employed in porcelain production during the Ming and Qing dynasties which included the Kangxi reign. The so-called Kangxi Cargoes, which named for a reason that have not been identified in a proper archaeological way but still indicates the possibility of the Kangxi reign. Considering the significant archaeological

findings have been dated to the Kangxi period and shed some light on the earliest produced period because of the preliminary design without additional elaborated decorations like enamel, which became popular after the Kangxi period, especially during the Qianlong period. Given the absence of similar findings in other recorded sites and the significant looting and lack of archaeological investigations in the so-called Kangxi Cargoes, there was potential of the Kangxi Cargoes to be the same site to house the Batavia ware samples in the SEACAL collection and needs further investigations. Based on the archaeological findings of Batavia ware, since domestic pigments continued to be utilised after the Kangxi period, it implies that the possibility of the Yongzheng and Qianlong periods cannot be ruled out entirely. However, further comprehensive, and precise studies would be necessary in future research to make a more definitive conclusion.

Nevertheless, this research also highlights the issue of variability among products originating from folk kilns in Jingdezhen. This variability may be attributed to varying levels of standardisation in production processes, shifts in local industries, or changes in the social circumstances of the potters. Further research should expand to encompass a more extensive sample of Batavia porcelain, which includes fragments from well-documented excavations from various locations worldwide.

This research was subject to certain limitations, particularly pertaining to the absence of the proper historical context of the Batavia ware and the constraints associated with the pXRF instrument employed in this study. Firstly, challenges arise from the problematic issues faced by the SEACAL collection, which experienced permissive salvage and dispersal without proper archaeological documentation. This mirrors broader concerns regarding underwater cultural heritage in Southeast Asia and globally, making it difficult to conduct a comprehensive historical context study. Secondly, the brown glaze, being the most distinctive feature of Batavia ware, could not be tested in this study due to methodological limitations. It may be worthwhile to conduct future studies specifically focusing on the brown glaze applied to the samples. Furthermore, a notable challenge encountered during this research involves the gap between the sample surface and the detector in the methodology used by pXRF instrument. This gap can influence the results of element compositions such as manganese, iron, and cobalt. Eliminating this gap would enable a more precise determination of the provenance of the blue pigment used in these samples, warranting further investigation with a more accurate and suitable instrument. Additionally, the sample size utilised in this study, representing only one fifth of the entire Batavia ware group in the SEACAL collection, may not be sufficient for precise demonstration. Future work should encompass a more extensive selection of samples meeting specific conditions to bolster the suggestions proposed in this study. Moreover, the absence of identifiable archaeological findings from maritime and terrestrial sites consistent with the physical variables and decorations of the Batavia ware samples poses a

challenge. Lastly, the Kangxi Cargoes site, as reported in local news and documented in a court case in Indonesia, suggests the potential presence of similar Batavia ware. Further investigations and documentation of this site would be useful for a comprehensive understanding of its contents in the future.

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APPENDICES

Appendix 1 Physical variables of 21 samples in the SEACAL collection

Sample No.	SEACAL No.	Type	Group	Height (mm)	Rim Diameter (mm)	Base Diameter (mm)	Weight (g)	Glaze Colour (Munsell)	Motif/Decoration Colour (Munsell)
1	ABT0793	Saucer	Batavia ware	33	118	56	136.5	10YR 4/6	2.5PB 3/8
2	ABT0797	Saucer	Batavia ware	29	116	55	115.8	10YR 4/6	2.5PB 3/8
3	ABT0798	Saucer	Batavia ware	30	113	55	123.5	10YR 4/6	2.5PB 3/8
4	ABT0815	Saucer	Batavia ware	32	117	57	128.3	10YR 4/6	2.5PB 3/8
5	ABT0816	Saucer	Batavia ware	30	116	57	118	10YR 4/6	2.5PB 3/8
6	ABT0828	Saucer	Batavia ware	33	113	54	116.6	10YR 4/6	2.5PB 3/8
7	ABT0829	Saucer	Batavia ware	31	118	54	124.9	10YR 4/6	2.5PB 3/8
8	ABT0833	Saucer	Batavia ware	32	118	58	118.7	10YR 4/6	2.5PB 3/8
9	ABT0890	Saucer	Batavia ware	30	116	56	122	10YR 4/6	2.5PB 3/8
10	ABT0921	Saucer	Batavia ware	33	117	56	129.4	10YR 4/6	2.5PB 3/8
11	ABT0927	Saucer	Batavia ware	31	114	54	133.4	10YR 4/6	2.5PB 3/8
12	ABT0928	Saucer	Batavia ware	34	115	57	123.5	10YR 4/6	2.5PB 3/8
13	ABT0929	Saucer	Batavia ware	29	118	57	119.3	10YR 4/6	2.5PB 3/8
14	ABT0934	Saucer	Batavia ware	30	114	56	107.7	10YR 4/6	2.5PB 3/8
15	ABT0935	Saucer	Batavia ware	30	112	55	117	10YR 4/6	2.5PB 3/8
16	ABT0936	Saucer	Batavia ware	32	117	58	136.5	10YR 4/6	2.5PB 3/8
17	ABT0941	Saucer	Batavia ware	33	115	54	120.3	10YR 4/6	2.5PB 3/8
18	ABT0998	Saucer	Batavia ware	28	117	57	121.7	10YR 6/3	2.5PB 3/8
19	ABT1002	Saucer	Batavia ware	30	117	56	114.2	10YR 4/6	2.5PB 3/8
20	ABT1016	Saucer	Batavia ware	30	118	57	125	10YR 6/3	2.5PB 3/8
21	ABT1213	Saucer	Batavia ware	32	118	56	120.4	10YR 4/6	2.5PB 3/8

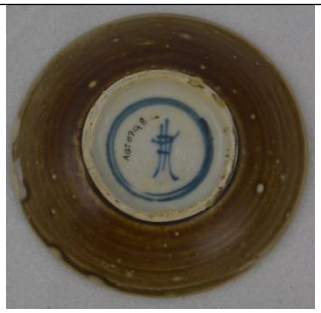
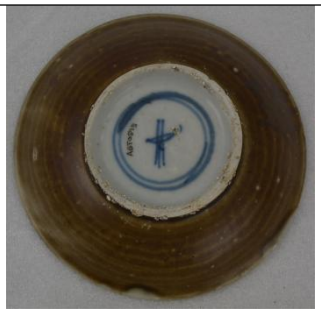
Appendix 2 Chemical compositions measured with pXRF on the blue pigment area of Batavia ware samples from the SEACAL collection (Mining mode)

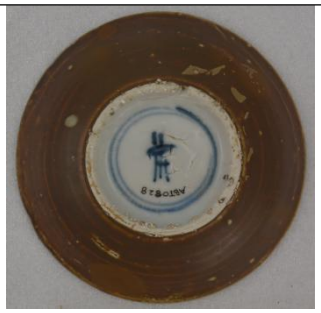
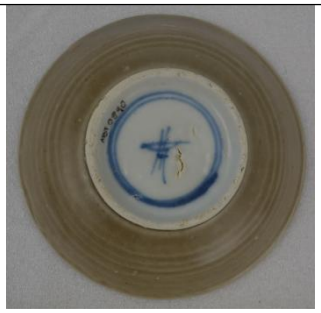
		Trace Elements (%)		
SEACAL No.	Spot	Mn	Fe	Co
ABT0793	Blue pigment	0.21	0.14	0.02
ABT0797	Blue pigment	0.35	0.16	0.07
ABT0798	Blue pigment	0.13	0.15	0.00
ABT0815	Blue pigment	0.23	0.22	0.02
ABT0816	Blue pigment	0.22	0.17	0.03
ABT0828	Blue pigment	0.14	0.17	0.01
ABT0829	Blue pigment	0.39	0.20	0.07
ABT0833	Blue pigment	0.15	0.19	0.01
ABT0890	Blue pigment	0.35	0.18	0.08
ABT0921	Blue pigment	0.16	0.22	0.00
ABT0927	Blue pigment	0.17	0.17	0.01
ABT0928	Blue pigment	0.14	0.16	0.00
ABT0929	Blue pigment	0.24	0.17	0.03
ABT0934	Blue pigment	0.18	0.16	0.02
ABT0935	Blue pigment	0.21	0.19	0.02
ABT0936	Blue pigment	0.24	0.20	0.02
ABT0941	Blue pigment	0.30	0.22	0.05
ABT0998	Blue pigment	0.12	0.21	0.01
ABT1002	Blue pigment	0.29	0.19	0.04
ABT1016	Blue pigment	0.19	0.19	0.02
ABT1213	Blue pigment	0.20	0.14	0.02

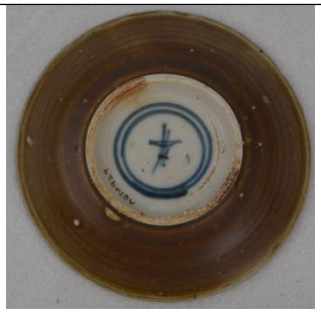
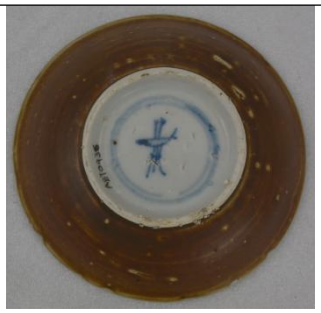
Appendix 3 Chemical compositions measured with pXRF on transparent glaze of Batavia ware samples from the SEACAL collection (Mining mode)

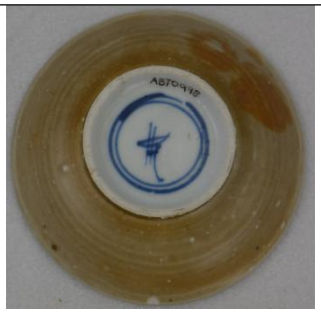
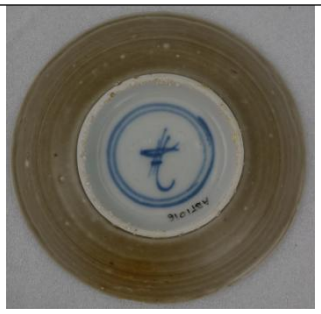
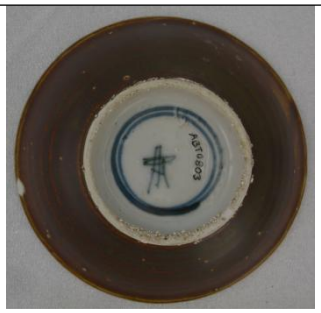
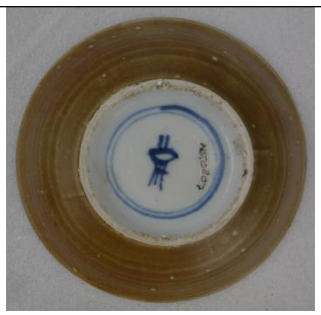
		Trace Elements (%)	
SEACAL No.	Spot	Mn	Fe
ABT0793	transparent glaze	0.02	0.19
ABT0797	transparent glaze	0.03	0.23
ABT0798	transparent glaze	0.02	0.18
ABT0815	transparent glaze	0.05	0.21
ABT0816	transparent glaze	0.04	0.37
ABT0828	transparent glaze	0.03	0.23
ABT0829	transparent glaze	0.03	0.23
ABT0833	transparent glaze	0.04	0.36
ABT0890	transparent glaze	0.03	0.32
ABT0921	transparent glaze	0.03	0.36
ABT0927	transparent glaze	0.06	0.47
ABT0928	transparent glaze	0.06	0.44
ABT0929	transparent glaze	0.03	0.31
ABT0934	transparent glaze	0.03	0.28
ABT0935	transparent glaze	0.03	0.24
ABT0936	transparent glaze	0.03	0.31
ABT0941	transparent glaze	0.03	0.28
ABT0998	transparent glaze	0.04	0.30
ABT1002	transparent glaze	0.04	0.42
ABT1016	transparent glaze	0.05	0.37
ABT1213	transparent glaze	0.03	0.24

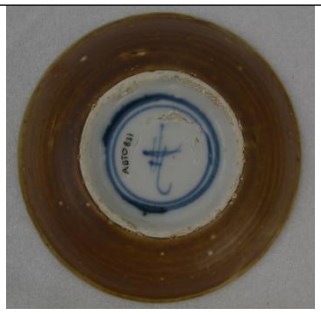
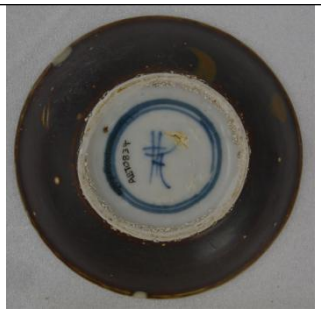
Appendix 4 Photographs of all Batavia ware in the SEACAL collection (First 21 objects were the samples applied in this study)

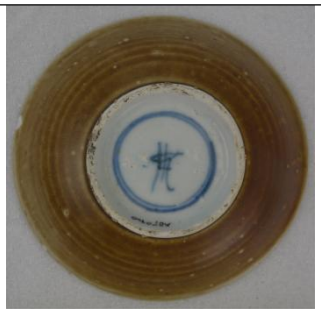
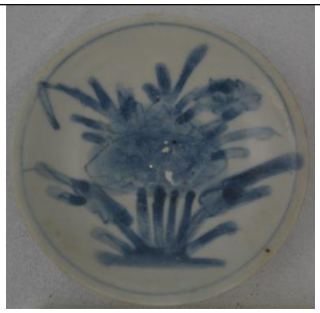
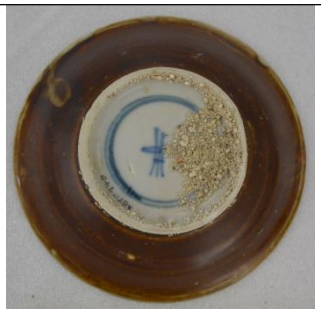
SEACAL No.	Decoration type	Ware type	Front	Back
ABT0793 Sample 1	Type 1	Saucer		
ABT0797 Sample 2	Type 1	Saucer		
ABT0798 Sample 3	Type 1	Saucer		
ABT0815 Sample 4	Type 1	Saucer		
ABT0816 Sample 5	Type 3	Saucer		

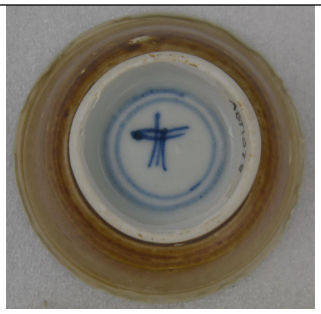
ABT0828 Sample 6	Type 2	Saucer		
ABT0829 Sample 7	Type 1	Saucer		
ABT0833 Sample 8	Type 2	Saucer		
ABT0890 Sample 9	Type 1	Saucer		
ABT0921 Sample 10	Type 2	Saucer		
ABT0927 Sample 11	Type 2	Saucer		

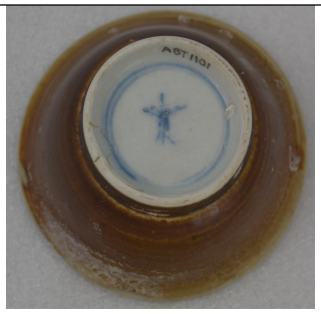
ABT0928 Sample 12	Type 1	Saucer		
ABT0929 Sample 13	Type 1	Saucer		
ABT0934 Sample 14	Type 2	Saucer		
ABT0935 Sample 15	Type 2	Saucer		
ABT0936 Sample 16	Type 2	Saucer		
ABT0941 Sample 17	Type 2	Saucer		

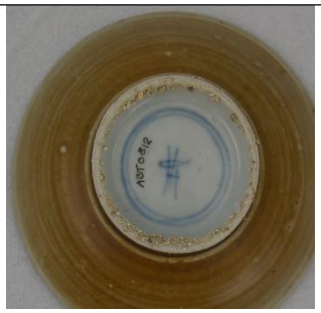
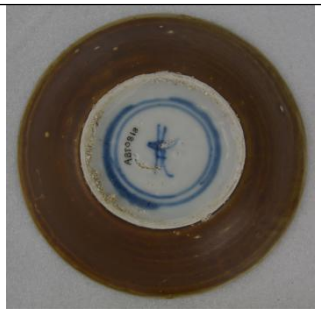
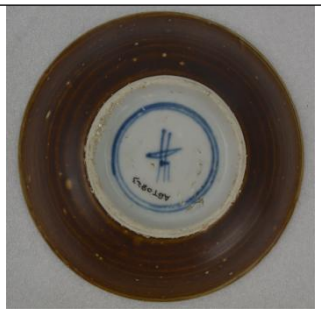
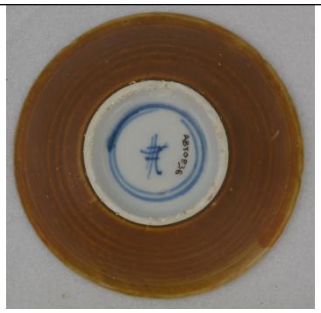
ABT0998 Sample 18	Type 2	Saucer		
ABT1002 Sample 19	Type 2	Saucer		
ABT1016 Sample 20	Type 2	Saucer		
ABT1213 Sample 21	Type 1	Saucer		
ABT0803	Type 1	Saucer		
ABT0807	Type 1	Saucer		

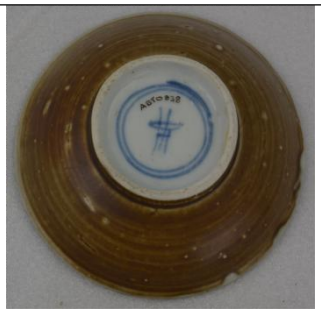
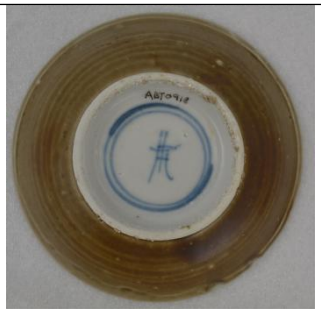
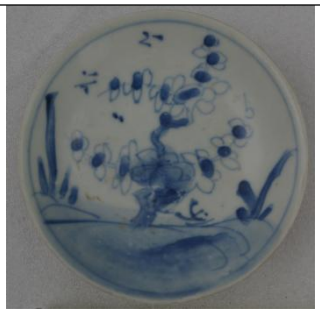
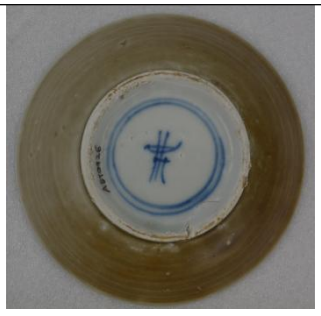
ABT0809	Type 1	Saucer		
ABT0813	Type 1	Saucer		
ABT0822	Type 1	Saucer		
ABT0824	Type 1	Saucer		
ABT0831	Type 1	Saucer		
ABT0834	Type 1	Saucer		

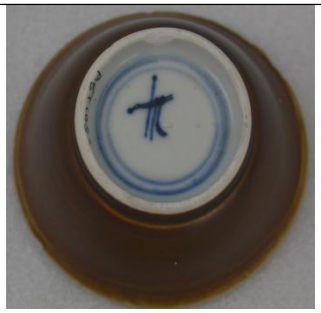
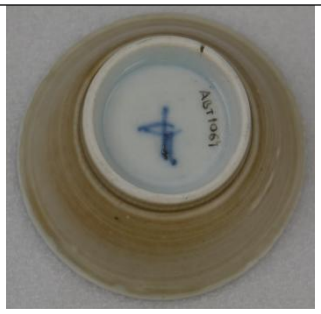
ABT0920	Type 1	Saucer		
ABT0924	Type 1	Saucer		
ABT0925	Type 1	Saucer		
ABT1058	Type 1	Cup		
ABT0930	Type 1	Saucer		
ABT0940	Type 1	Saucer		

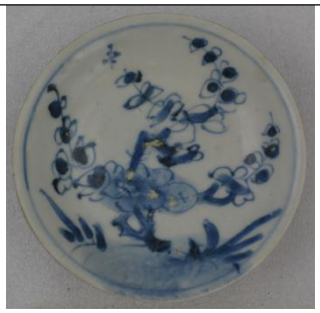
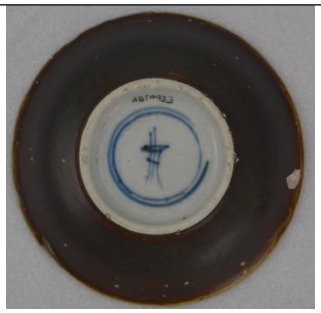
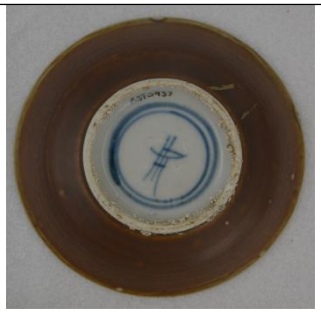
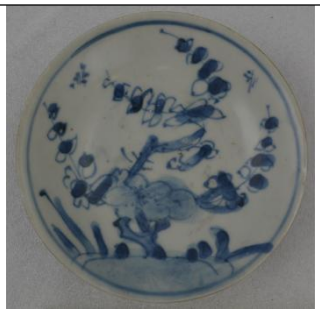
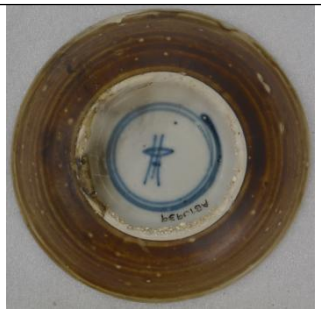
ABT1069	Type 1	Cup		
ABT1070	Type 1	Cup		
ABT1078	Type 1	Cup		
ABT1219	Type 1	Saucer		
ABT1225	Type 1	Saucer		
ABT1231	Type 1	Saucer		

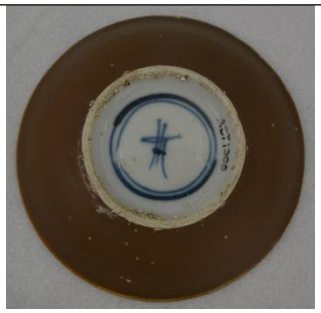
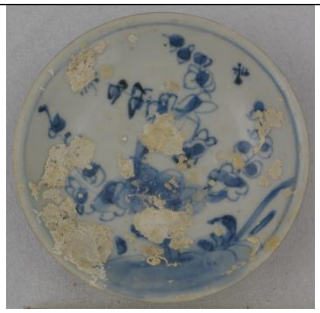
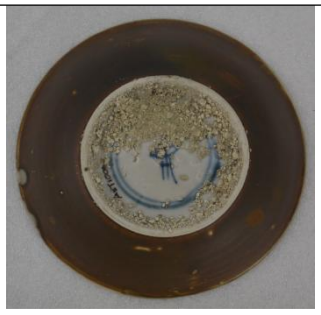
ABT1085	Type 1	Cup		
ABT1086	Type 1	Cup		
ABT1100	Type 1	Cup		
ABT0792	Type 2	Saucer		
ABT0804	Type 2	Saucer		
ABT0808	Type 2	Saucer		

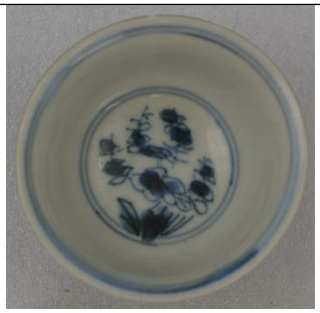
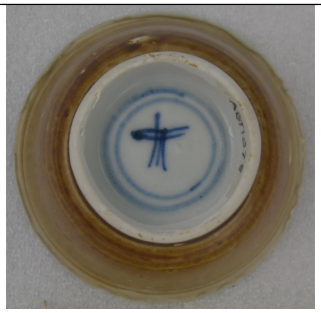
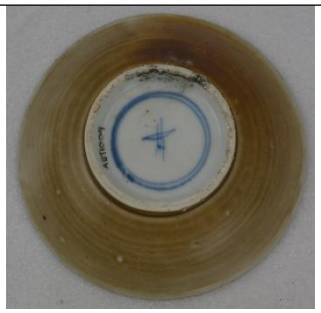
ABT0812	Type 2	Saucer		
ABT0814	Type 2	Saucer		
ABT0817	Type 2	Saucer		
ABT0818	Type 2	Saucer		
ABT0823	Type 2	Saucer		
ABT0836	Type 2	Saucer		

ABT0838	Type 2	Saucer		
ABT0918	Type 2	Saucer		
ABT0919	Type 2	Saucer		
ABT0922	Type 2	Saucer		
ABT0923	Type 2	Saucer		
ABT0926	Type 2	Saucer		

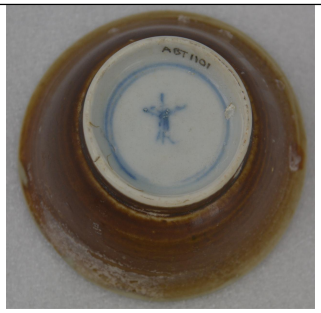
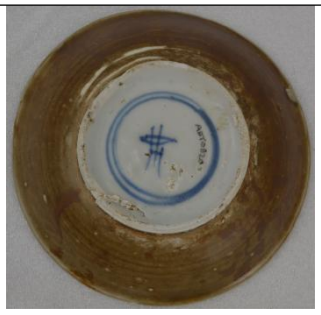
ABT1050	Type 2	Cup		
ABT1051	Type 2	Cup		
ABT1061	Type 2	Cup		
ABT1064	Type 2	Cup		
ABT0931	Type 2	Saucer		
ABT0932	Type 2	Saucer		

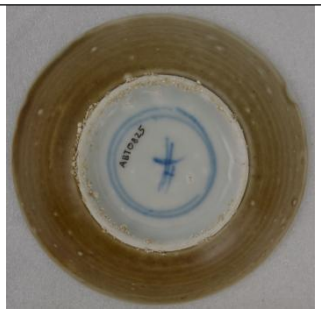
ABT0933	Type 2	Saucer		
ABT0937	Type 2	Saucer		
ABT0938	Type 2	Saucer		
ABT0939	Type 2	Saucer		
ABT0942	Type 2	Saucer		
ABT0999	Type 2	Saucer		

ABT1000	Type 2	Saucer		
ABT1001	Type 2	Saucer		
ABT1003	Type 2	Saucer		
ABT1005	Type 2	Saucer		
ABT1006	Type 2	Saucer		
ABT1067	Type 2	Cup		

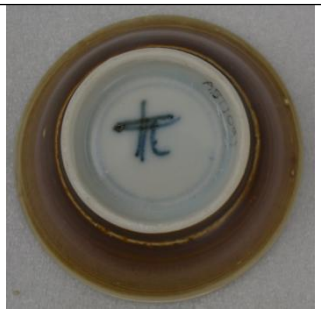
ABT1076	Type 2	Cup		
ABT1079	Type 2	Cup		
ABT1007	Type 2	Saucer		
ABT1008	Type 2	Saucer		
ABT1009	Type 2	Saucer		
ABT1010	Type 2	Saucer		

ABT1011	Type 2	Saucer		
ABT1012	Type 2	Saucer		
ABT1013	Type 2	Saucer		
ABT1014	Type 2	Saucer		
ABT1015	Type 2	Saucer		
ABT1090	Type 2	Cup		

ABT1093	Type 2	Cup		
ABT1101	Type 2	Cup		
ABT1103	Type 2	Cup		
ABT0819	Type 3	Saucer		
ABT0820	Type 3	Saucer		
ABT0821	Type 3	Saucer		

ABT0825	Type 3	Saucer		
ABT0826	Type 3	Saucer		
ABT0830	Type 3	Saucer		
ABT0832	Type 3	Saucer		
ABT0835	Type 3	Saucer		
ABT0837	Type 3	Saucer		

ABT1052	Type 3	Cup		
ABT1053	Type 3	Cup		
ABT1056	Type 3	Cup		
ABT1057	Type 3	Cup		
ABT1059	Type 3	Cup		
ABT1063	Type 3	Cup		

ABT1065	Type 3	Cup		
ABT1071	Type 3	Cup		
ABT1072	Type 3	Cup		
ABT1091	Type 3	Cup		
ABT1092	Type 3	Cup		
ABT1097	Type 3	Cup		

ABT827	Type 4	Saucer