# INVESTIGATIONS INTO CHINESE EXPORT LACQUERWARE: BLACK AND GOLD, 1700-1850

by

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A dissertation submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Preservation Studies

Summer 2019

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#### ABSTRACT

This dissertation characterizes black and gold export lacquerware from Canton (Guangzhou), made in the eighteenth and nineteenth centuries, through documentary and material analysis evidence.

A group of 40 wooden objects from European and North-American collections, was analyzed using cross-section optical microscopy (OM), thermally assisted hydrolysis and methylation pyrolysis-gas chromatography/mass spectrometry (THM-Py-GC/MS), and scanning electron microscopy-energy dispersive X-ray spectroscopy (SEM-EDS). This multi-technique approach permitted identification of similarities and differences between the objects and the establishment of patterns of production.

Concurrently, archival research focused on the objects included in this study to reinforce connections of the objects with the city of Canton; in this way the combined data from analytical techniques and documentary evidence can be used to characterize Cantonese lacquerware production of particular importance in attribution discussions.

Research results demonstrate that *Toxicodendron succedaneum* lacquer species was the main source for Cantonese black and gold lacquerware during the eighteenth century. In the nineteenth century, this same specie continued to be used in different combinations with *Toxicodendron vernicifluum*. The nature of these materials is discussed as well as their technology of application. The use of *Gluta usitata* is reported for the first time in Cantonese lacquerware.

Materials applied in the lacquer coating, manufacturing technology, and material constraints in Cantonese lacquerware are discussed. Information on Cantonese lacquerware manufacturers, sellers and consumers, elucidates the relationships between foreigners and Chinese during the eighteenth and the nineteenth centuries.

The combined data from analyses results, documentary evidence, and stylistic characteristics, creates a representative corpus of knowledge for Cantonese export lacquerware production from the eighteenth and the nineteenth centuries that can be applied to the study of related pieces. Acknowledgment of the role of Cantonese lacquerware in the economic and cultural relations between European countries, the United States, and China places this form of material culture as a primary heritage to be preserved.

#### INTRODUCTION

In this dissertation, I will show that Chinese export lacquerware is an important form of material culture heritage. Its significance also grew out of the economic and cultural relations between European countries, the United States, and China. Through the study and scientific analysis of several examples of Chinese export lacquerware production I will demonstrate the significant role that these objects had in the trade between different countries and how they created an exotic impression in Western interiors. This research will focus on wooden pieces coated with black lacquer decorated with gold with manufacture attributed to South China, namely the area of Guangzhou (Canton). Scientific analysis, archival research, and stylistic comparison are combined to investigate how these objects were created and traded.

The first lacquered objects to be registered in Europe were most probably of Chinese origin. Dated to the sixteenth century, these objects were introduced in European courts through the Portuguese, who established the first contacts with China in 1513 and with Japan in 1543. Several of these objects were described as having gilded decoration. Following the Portuguese, the Spaniards, and later the English and the Dutch, established their own commercial routes with China and Japan, importing a different range of commodities among which was lacquerware. In the seventeenth century, Japanese export lacquerware was most appreciated and considered in Europe to be the best quality lacquer.<sup>1</sup> After the expulsion of the catholic Iberians from Japan — in an attempt to restrain the fast dissemination of Christian faith in that country the Dutch were allowed to stay and trade with Japan and gained a privileged access to Japanese lacquerware.<sup>2</sup> For all other nations, access to Japanese lacquerware became increasingly difficult. In 1685, Emperor Kangxi (r. 1662-1722), opened the port of Canton to international trade, and several European commercial posts in China began to settle in that city. This situation allowed the Chinese workshops to begin creating replacements for the Japanese products at that point difficult to obtain. The lacquer produced in the city of Canton or Guangzhou, located in the Pearl River and the capital of Guangdong province, is thought to have increased as a replacement for the Japanese black and gold lacquer which became more difficult to obtain after the partial closure of Japan to European trade in 1639. The Japanese makie or "sprinkled gold" decoration over black lacquer was one of the most favored techniques, and the pieces produced in Canton followed that decorative pattern. By the 1700s black and gold lacquerware was already one of the Cantonese specialties and was produced for export

<sup>&</sup>lt;sup>1</sup> François Gersaint's (1694–1750) essay on lacquer — written on a catalogue to accompany an estate sale in 1745 — is considered to be one of the first commentaries on Japanese lacquer for collectors and *connoisseurs*. Two years later, Gersaint expanded his essay and considers Japanese lacquer superior to Chinese lacquer writing that the same opinion was shared by Jean-Baptiste du Halde (1674-1743.) Kristina Kleutghen, "Imports and Imitations: The taste for Japanese lacquer in eighteenth-century China and France," *Journal for Early Modern Cultural Studies* 17, 2 (2017): 178.

<sup>&</sup>lt;sup>2</sup> Although restrained to the island of Deshima.

as well as for domestic consumers appreciative of *yangqi* or "foreign lacquer" in a clear allusion to Japanese lacquerware.

In existing scholarship research on Chinese black and gold lacquerware as part of broader studies concerning Chinese export art is few. The 1950 book by Margaret Jourdain and R. Soame Jenyns, *Chinese Export Art in the Eighteenth Century*, is one of the first works to dedicate a chapter to export lacquerware and lacquered furniture, providing notes on lacquerware imports mainly from the English East India Company.<sup>3</sup> Carl Crossman, a respected author in this field, published *The China Trade: Export Paintings, Furniture, Silver and Other Objects*, in 1972, including a chapter on lacquerware. His updated volume, *The Decorative Arts of the China Trade: Paintings, Furnishings and Exotic Curiosities*, published in 1993, remains the key reference on the subject to date. Crossman documented several pieces, classifying them and presenting a pioneer chronology for the different motifs used in their decoration. A considerable number of the objects referenced by Crossman now belong to the collection of the Peabody Essex Museum in Salem, Massachusetts, which is considered one of the most comprehensive collections of Chinese export lacquer from

<sup>&</sup>lt;sup>3</sup> Margaret Jourdain and R. Jenyns, *Chinese Export Art in the Eighteenth Century* (Feltham: Spring Books, 1967). The East India Company or EIC was the English, and later British, company formed in 1600 (at that time known as "The Governor and Company of Merchants of London Trading into East Indies,") to pursue trade with the East Indies.

this period.<sup>4</sup> Crossman based several of his observations and comparisons on the information gathered from two catalogues previously published by Patrick Conner, *The China Trade 1600-1860* and Jean Gordon Lee, *Philadelphians and the China Trade, 1784-1844.*<sup>5</sup> Both publications include numerous pieces of furniture, some with data on provenance, which Crossman used to compare designs and dates. Craig Clunas has also published extensively on Chinese artisan production and its relationship to Western art. He edited and contributed for the catalogue that accompanied the opening of the Chinese Export Art and Design gallery at the Victoria and Albert Museum in London in 1987.<sup>6</sup> The publication focused on the most important commodities of the China Trade: ceramic, silk, wallpaper, metalwork, etc., and also dedicated a chapter to lacquer and furniture mentioning the development of black and gold lacquerware in Canton. Other publications focus on the connections of specific countries or locations with China. In these references, examples of Cantonese black and gold export lacquerware are also found mainly with indications on their time period and buyer (if

<sup>&</sup>lt;sup>4</sup> One of the institutions that merged to create the Peabody Essex Museum was the East India Marine Society, formed by captains and supercargoes of Salem. Their mission was to bring to Salem objects that would illustrate their voyages to Asia, Africa, Oceania, among others, starting what is today the museum collection.

<sup>&</sup>lt;sup>5</sup> Patrick Conner, *The China Trade 1600-1860* (Brighton: The Royal Pavilion, Art Gallery and Museums, 1986,) and Jean Gordon Lee, *Philadelphians and the China Trade 1784-1844* (Philadelphia: Philadelphia Museum of Art, 1984).

<sup>&</sup>lt;sup>6</sup> Craig Clunas, *Chinese Export Art and Design* (London: Victoria & Albert Museum, 1987).

known.) These publications include *Precious Cargo: Scots and the China Trade*, by Susan Leiper published in 1997. In Portugal, a compilation of Chinese export furniture in both public and private collections — including black and gold lacquerware — was published in 1999 by the Missão de Macau em Lisboa titled *Artesão Chinês, Cliente Europeu: O Móvel Chinês de Influência Ocidental em Colecções Reais e Particulares Portuguesas*. In Guangzhou, an exhibition held at the Guangdong Museum focused on the city's manufactures designed specifically for the export market. Cantonese black and gold lacquerware was one of them. The catalogue, *Chinese Export Fine Art in the Qing Dynasty from Guangdong Museum*, was published in 2013. Despite these fundamental studies about the subject, the field of black and gold Chinese export lacquerware is still fairly unexplored. This is particularly true for the material study of the objects. Information on what materials were used, how the objects were manufactured, and on who was making them, is scarce and the existing one hardly systematized.

The role of Cantonese production as a replacement for Japanese lacquerware seems to have contributed to the lesser attention given to Chinese black and gold lacquer pieces and consequently the lack of research about these objects. Chinese black and gold lacquer pieces made for export from the seventeenth century to the nineteenth century have not been studied in depth, not stylistically, nor from a technical point of view. Unlike the study of Japanese export lacquer,<sup>7</sup> the study of Chinese export lacquer is usually included within global China trade commodities research and is not considered as a subject on its own. A substantial number of examples of Chinese export lacquerware are held in different collections both private and public in Europe and North America. During the eighteenth and the nineteenth centuries, pieces with Western shapes such as chairs, sewing tables, and game tables, among others, decorated in the Chinese *miaojin* (painted gold) technique were exported to Europe and the Americas in considerable quantities. The plentifulness of Chinese black and gold export lacquer pieces present in European and American collections creates the need for a better understanding of these objects that will benefit a variety of professionals including curators, conservators, collectors, and scholars who deal with these pieces.

This research aims to contribute to Chinese export lacquerware significance by exploring its material characteristics. The analytical results generated by this study confirmed that *Toxicodendron succedaneum* is the main specie for the lacquerware manufactured in Guangzhou, China. This sap, and consequently the varnish produced from it, is different from the one produced by *Toxicodendron vernicifluum* species, also used in China as well as in Japanese lacquerware. Objects made with different lacquer species will have different characteristics such as appearance and conservation

<sup>&</sup>lt;sup>7</sup> For the key study on this subject please refer to Oliver Impey and Christiaan Jörg, *Japanese export lacquer 1580-1850* (Amsterdam: Hobei Publishing, 2002).

that particularly influence how the decorative coating ages. Furthermore, the production time for the lacquered objects, which tended to be shorter in Canton due to demands during the trading season, is crucial for lacquerware conservation. Characterization of Cantonese lacquerware and further discussions on its characteristics should take into account such specificities as the nature of the materials applied in the lacquer coating, manufacturing technology, and material constraints caused by production times. A further goal of this research is to establish a firm connection between several of the objects classified as Chinese export lacquerware and the city of Canton, and on the role of lacquerware trade in the economic and cultural relations of the various countries involved. The identification and discussion on Cantonese lacquerware manufacturers, sellers and consumers, is expected to elucidate on their relationships based on a heritage that has been created precisely in the context of contacts between their different cultures.

As part of this research, a group of study pieces was analyzed to identify materials and techniques employed in the manufacture of these works. A total of 40 objects, lacquered black with gilded decoration, were selected to be representative of Guangzhou's production. These objects belong to both North American and European collections. From the United States, 14 pieces belong to the collection of the Winterthur Museum, in Delaware; 11 objects belong to the Peabody Essex Museum, in Salem, Massachusetts; and finally, two objects are held by the Philadelphia Museum of Art, in Philadelphia, Pennsylvania. In Europe, four objects belong to the

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collections of the Victoria and Albert Museum, in London; three objects to the National Palace of Ajuda (Palácio Nacional da Ajuda), in Lisbon; two pieces are from the collection of Jorge Welsh Works of Art, in both Lisbon and London; one object comes from a private collection in Lisbon, and another one from the collection of the São Roque Museum (Museu de São Roque) also in Lisbon. Finally, two more objects are from Fredensborg Palace and are property of the Agency for Culture and Palaces (Slots- og Kulturstyrelsen), Copenhagen, Denmark.

Other pieces of the same production were used as comparison objects. Objects from institutions such as the Lacquer Museum (Museum für Lackkunst) in Münster, Germany; Ronald Phillips Antiques in London, England; the Guangdong Museum in Guangzhou, China, and the Hong Kong Maritime Museum, in *Hong Kong* Special Administrative Region of the People's Republic of China, were studied in terms of shape and decoration. Some of these objects could be classified as documented objects. An object was considered "documented" if there is documentary material related to the piece that links it to the city of Guangzhou, proof of ownership from an individual/family with direct connections to the previous referred geographic area, and physical inscriptions on the piece that allow for a tentative date of production *e.g.* coats-of-arms. This combined data was used to create a timetable for the objects and to define comparative styles.

Analysis of all the 40 objects in the study group provided material identification, as well as understanding of manufacturing technology. The analyses

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focus on the lacquer coating of the pieces which were investigated and compared. In this dissertation, the term lacquer coating describes the finishes applied over a wood substrate and constituted by the ground layers, lacquer layers and gilded decorations applied on top. Due to its structure and varying constituents, a multi-technique approach that includes cross-section optical microscopy (OM), thermally assisted hydrolysis and methylation pyrolysis-gas chromatography/mass spectrometry (THM-Py-GC/MS), and scanning electron microscopy-energy dispersive X-ray spectroscopy (SEM-EDS), was required to analyze and identify the materials present in these decorative finish layers. Comparison of the different pieces in this study permitted identification of similarities and differences and the establishment of patterns of production.

Archival research was carried out to document the relation of the pieces to their geographic provenance, to understand the lacquer trade during that period, and to investigate lacquer production and workshops in that region of China. This consisted of identifying primary sources and other documentary references with information about owners of the pieces in the study, about Cantonese lacquer workshops, and information about the lacquer trade from that city. Archival research focused on the objects included in this study. The goal was to reinforce connections of the objects with the city of Canton; this was of particular importance to characterize Cantonese lacquerware production but also to support the analytical study. In that way, the analyses results can be specifically used to characterize objects from that same provenance which is of particular importance in attribution discussions.

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Languages used in manuscripts or printed references consulted include Portuguese, English, and French. Some Dutch and German documents were also used. Since most of the objects in this study are housed in North American collections, archival research focused on North American archives. An attempt was made to trace the history of specific objects, namely the ones that had solid indication of provenance. Research regarding trade and lacquer merchants in Canton required the use of mainly North American archives. (Previous discussions on the difficulties and constrains of this research favored the selection of these sources.)<sup>8</sup> Archives included the Phillips Library at the Peabody Essex Museum, Salem; the Massachusetts Historical Society, Boston; the Rhode Island Historical Society, Providence, and the Fleet Library, Rhode Island School of Design, Providence.

The designation "Chinese export" that will be used throughout this dissertation was adopted for the purpose of clarity. Still, it requires interpretation in this context. The adjective "Chinese" communicates that the presumed country of origin of the objects is China. The term "export" is framed in this study rather narrow, bypassing the production for the South-East Asian, Indian, and Middle Eastern markets, limiting Chinese export art to the production that had to suit European and American markets. Its design, either in shape or in decoration represents customs and iconography related

<sup>&</sup>lt;sup>8</sup> I am most deeply grateful to Dr. Paul Van Dyke, professor in the Department of History at Sun Yat-sen University, Guangzhou, for the discussions on references regarding lacquer merchants in Canton and available information present in different archives related to this subject.

to European and American history and culture, and not to China itself. Although Chinese motifs are also present in the objects' decoration, and indigenous techniques were used in their manufacture, the production goal was not to please the Chinese customer but to be sold and to travel to different destinations outside of China. Objects like these are representations of one country's culture produced by another country, China, and not necessarily representative of China itself.<sup>9</sup> Henceforth, for this study, the classification "Chinese export lacquerware" will consider objects with the following characteristics: made of wood, presenting shapes suitable for the Western market, coated with black lacquer, and decorated with gold (Figure 1).

<sup>&</sup>lt;sup>9</sup> Vimalin Rujivacharakul, "China and china: an introduction to materiality and a history of collecting," in *Collecting China: the world, China, and a history of collecting*, ed. Vimalin Rujivacharakul (Newark: University of Delaware Press, 2011), 22.



Figure 1 Sewing table with a view of Canton, circa 1835, Guangzhou, China, E82997. Courtesy of the Peabody Essex Museum.

Chapters in this dissertation will refer primarily to pieces of furniture: chairs, game tables, sewing tables, cabinets, and work tables, among others, as well as smaller objects such as boxes, trays, and tea caddies, that have a European or American shape. Also included are screens although their form is of Chinese origin and used widely in China, Japan, and Korea.<sup>10</sup> After the first European encounters with China, screens

<sup>&</sup>lt;sup>10</sup> For more on the origin and development of this shape please refer to the author's MA thesis Maria João Petisca, "A laca de Cantão: um estudo sobre biombos chineses

rapidly became popular imports to countries like Portugal, France, and England, and their imports increased as trade arose. Screens with a decoration comparable to that of other objects executed for the export market are included in this study. Moreover, screens that bear coats of arms indicating a clear connection to a Western commission are also studied. This is also the case for fans, another shape originally connected to China but quickly imported in considerable numbers by several of the countries trading with the Middle Kingdom. Export pieces from the region of Guangzhou, in South China, characterized mainly by a black lacquer coating decorated with gold, constitute the core of this study with emphasis on the manufacture from the 1700-1850 period.

The term "lacquer" in this dissertation designates lacquer that was produced in Asia from the sap from the tree species *Toxicodendron vernicifluum*, *Toxicodendron succedaneum*, and *Gluta usitata*. These trees are indigenous to the Asian continent and belong to the Anacardiaceae family, Toxicodendron genus. Lacquer production is not exclusive to this tree species, but these are the main species used and the ones this dissertation will discuss. Lacquer can be applied in a variety of substrates such as wood, ceramic, metal, leather, glass, basketry, among others.<sup>11</sup>

de exportação nos séculos XVIII e XIX" (MA thesis, Universidade Católica Portuguesa, 2009), 12-23.

<sup>&</sup>lt;sup>11</sup> In the literature about furniture, the term "lacquer" is most often replaced with or used in combination with designations of associated materials such as resin, varnish,

Other terms in need of clarification are "Westerners" and "foreigners," which are used interchangeably to designate the European and North American traders and individuals who established commercial and cultural interactions with their Chinese counterparts. Guangzhou refers to the presumed city of provenance of the objects being studied. Nonetheless, the name Canton, used by the different nationalities with a presence in the Chinese city since the sixteenth century has become so associated with it, that the two designations will be used in this study. Guangzhou was named "Cantão," "Kan-ton," or "Canton," by the different nationalities of Westerners that arrived there since the beginning of the sixteenth century. After the Portuguese arrived in 1517, the Dutch followed in 1601, and the English in 1637. The name Canton most probably derived from "Quang-tong" (Guangdong), the name of the province where the city is located.<sup>12</sup>

All dimensions mentioned in this dissertation will be presented in centimeters. Although the majority of the objects belongs to North American collections, where the

and paint. The word lacquer is also most often applied to designate the raw material (the tree sap) as well as the objects produced with it.

<sup>&</sup>lt;sup>12</sup> The name Guangzhou is thought to have been used first in the early years of the Wu dynasty of the Three Kingdoms period (220-280 CE). Graham E. Johnson and Glen D. Peterson, *Historical Dictionary of Guangzhou (Canton) and Guangdong* (London: The Scarecrow Press, Inc., 1999), 3.

United States customary units' system (USCS) is used the inclusion of objects from European collections justifies the use of the Metric system.<sup>13</sup>

Chapter 1, analyzes the development of the use of lacquer in China, showing that this country is the oldest in the world to use this natural product for the creation of artistic and utilitarian materials. I define the lacquer species used in China, explore the material characteristics, and provide an overview on the evolution of the different decorative techniques used throughout Chinese history. I also explore the *miao-jin* or "painted gold" technique and the history of its use in the region of Guangzhou.

Chapter 2 focuses on the encounter between European countries and China, with an emphasis on maritime routes. It explores the outcome from those meetings in the form of material culture, in this case Chinese export lacquered objects, and their impact in Western interiors. The entering of the United States into the China Trade in 1784 is discussed as well as the rapid and prosperous trade that followed the arrival of the ship *Empress of China* to Guangzhou.<sup>14</sup> I will examine the production of black and gold lacquer objects in Guangzhou providing information related to the workshops producing them, shops and hong merchants selling them to Westerners, and the import of these objects to different countries by the ships' supercargoes.<sup>15</sup>

<sup>&</sup>lt;sup>13</sup> USCS uses inch, foot, yard, and mile, for length measurements.

<sup>&</sup>lt;sup>14</sup> The *Empress of China* left New York in February 1784 and arrived in Guangzhou in August of that year.

<sup>&</sup>lt;sup>15</sup> Hong was the designation given to the trading factories as well as to the Chinese merchants that traded with the westerners in Guangzhou. The supercargo was the man

Chapter 3 will engage with the methodology that guided the study of my group of pieces namely how the archival research, the scientific analyses, and the stylistic comparison will be combined to create new knowledge about the characterization of Chinese export lacquer objects. I present the selected group of objects to be studied, outline the various reasons for my choice of those pieces, discuss their importance as examples of this production, and explain how they correlate to each other. The objects will be compared to each other and also with other related pieces. Such comparison pieces were not analyzed using scientific techniques but, nonetheless, will constitute unique contributions for this research as documented objects. For example, the characteristics of decorations such as coats-of-arms, provide a strong indication for the dating of the object. Furthermore, evidence of provenance, directly relating the pieces to the area of Guangzhou, provides additional documentary data. This combined knowledge will be used to characterize the objects stylistically, with regard to different periods and to create a chronological arrangement for the selected group.

Chapter 4 evaluates the results of scientific analysis applied to lacquered objects. The lacquer coating of all of the objects in this research study group was sampled and analyzed using different analytical techniques. A description of all the analytical protocols that were followed is provided. This chapter demonstrates the importance of data produced by the different analytical techniques with a focus on thermally assisted hydrolysis and methylation pyrolysis-gas chromatography/mass spectrometry (THM-py-GC/MS), and places the important contribution of this data in conjunction with archival data.

on board who was responsible for all the money from investors and for all the commercial transactions in the different ports where the ships docked.

Chapter 5, the concluding chapter, summarizes all the combined data related to the studied objects, namely analytical data and stylistic characteristics, creating a representative corpus of knowledge for the Chinese export lacquer production from the eighteenth and the nineteenth centuries from Guangzhou and nearby. The developed chronology, supported by both material and stylistic evidence, can be applied to other objects that relate to those included in this research thus providing a toolbox for scholars in different fields investigating this subject. I will summarize the previous discussions demonstrating how Chinese export lacquer has a role of its own in the material culture generated from the trade between European countries, the United States, and China. Acknowledgment of the presence of these objects in several Western collections is fundamental in order to position them as a primary heritage to be preserved.

The extended tabulation of results of scientific analysis of the different objects will be included in the Appendix. The collected data will be contributed to the Getty Recent Advances in Characterizing Asian Lacquer (RADICAL) project. This project, developed by the Getty Conservation Institute, aims to acquire detailed compositional information about lacquered objects in order to improve the characterization, understanding, and preservation of this material, and disseminate to the field.<sup>16</sup> This will significantly increase the available information on the material composition of Asian lacquer, and more specifically Chinese export lacquerware, contributing to a more precise material identification for future analyses. The enhanced and more

<sup>&</sup>lt;sup>16</sup> More information about this project can be found at

 $http://www.getty.edu/conservation/our\_projects/education/radical/radical\_overview.html.$ 

detailed knowledge of the materials used on these objects will also be central for more accurate and informed conservation decisions.

This dissertation contributes to the material characterization and understanding of Cantonese lacquerware. Chinese export lacquer is a common and global heritage for all countries that traded with China since the beginning of the sixteenth century. Research on its materials, technology, and trade, creates a corpus of knowledge to be used by different professionals working with this subject. At the same time, understanding the history of these objects, through references on their manufacturers, sellers, and consumers, builds connections with a broader and general audience. This is of particular importance for future conservation of these objects. Demonstrating the role of Chinese export lacquerware as a trade product in the economic and cultural relations between Europe, the United States, and China, advocates for the importance of these objects in a comprehensive way. This a fundamental tool to promote its conservation. Cantonese lacquerwares have a history of their own and "preservation of their physical integrity is important because they form the basis for further research."<sup>17</sup>

<sup>&</sup>lt;sup>17</sup> Nick Umney and Shayne Rivers, *Conservation of Furniture* (Oxford: Butterworth-Heimann, 2003), 368.

## Chapter 1

### **CHINESE LACQUER**

### **1.1** Lacquer tree species in China

Asian lacquer is a sap tapped from a tree, and it is a polymer of vegetal origin. It has been used for thousands of years as a protective and decorative coating in several Asian countries. As noted earlier, Asian lacquer is different from the other materials also called lacquer in the West. Asian lacquer is derived from the sap of several species of trees, indigenous to the Asian continent. These trees belong to the Anacardiaceae family, Toxicodendron genus, being the species *Toxicodendron vernicifluum*, *Toxicodendron succedaneum*, and *Gluta usitata* the main sources for Asian lacquer. In earlier as well as in more recent studies regarding lacquer analysis and production, like the ones by Ju Kumanotani in 1995 and Le Hô et all in 2012, it is sometimes usual to consider the distribution of the main tree species that produce lacquer, *Toxicodendron vernicifluum*, *Toxicodendron succedaneum*, and *Gluta usitata*, in a linear way.<sup>18</sup> According to the mentioned studies, *Toxicodendron vernicifluum* is associated with Japan, China, and Korea; *Toxicodendron succedaneum* with Vietnam and Taiwan; and *Gluta usitata* with Thailand, Laos, and Burma. Although correct, the

<sup>&</sup>lt;sup>18</sup> Please refer to Ju Kumanotani, "Urushi (oriental lacquer) - a natural aesthetic durable and future-promising coating," *Progress in Organic Coatings* 26 (1995): 163-195, and Anne-Solenn Le Hô *et al.*, "Molecular criteria for discriminating museum Asian lacquerware from different origins by pyrolysis gas chromatography/mass spectrometry," *Analytica Chimica Acta* 710 (2012): 9-16.
distribution of trees is far wider. This is particularly noted in the case of *Toxicodendron succedaneum* species. This species grows across Taiwan, China, Malaysia, Indochina, India, and Japan.<sup>19</sup> In 1979, Sir Harry Garner, known for his extensive and laborious research on domestic Chinese lacquer, raised the hypothesis that lacquerwares made in South China would use *Toxicodendron succedaneum* and not *Toxicodendron vernicifluum* as commonly accepted. Garner wrote that "we cannot rule out the possibility that lacquerwares were made in the extreme south china from *Rhus succedanea*, the species used for annamese wares," focusing his theory in the geographical proximity with the border of present day Vietnam, where *Toxicodendron succedaneum* tree is far wider in southern Chinese provinces, as will be discussed in the following paragraphs. *Toxicodendron succedaneum* geographic distribution combined with analytical results — to be discussed in Chapter 4 — have consistently proved that Garner was correct.

Chinese lacquer is the sap from trees that belong to the Anacardiaceae family, Toxicodendron genus. The species *Toxicodendron vernicifluum* and *Toxicodendron succedaneum* are distributed throughout China. *Toxicodendron succedaneum* is found

<sup>&</sup>lt;sup>19</sup> Yuishiro Hiraoka, Ichiro Tamaki and Atsushi Watanabe, "The origin of wild populations of *Toxicodendron succedaneum* on mainland Japan revealed by genetic variation in chloroplast and nuclear DNA," *Journal of Plant Research*, 2017. Published online, https://doi.org/10.1007/s10265-017-0992-7.

<sup>&</sup>lt;sup>20</sup> Harry Garner, *Chinese Lacquer* (London: Faber, 1979), 20.

mainly in the Southern area of China, including Guangdong province of which Guangzhou city is the capital.<sup>21</sup> (Figure 2)



Figure 2 Distribution maps for *Toxicodendron vernicifluum* (left) and *Toxicodendron succedanea* (right) in China. Jingyun Fang, Zhiheng Wang and Zhiyao Tang, *Atlas of woody plants in China: distribution and climate* (Beijing: Higher Education Press; New York: Springer, 2011), 1: 864-865.

*Toxicodendron succedaneum* is also the prevalent species in Taiwan, formerly known as Formosa, an island that was under Chinese rule during the Qing dynasty (1644-1912). Both species are also present in Japan, where *Toxicodendron succedaneum* is used for the production of sumac wax also called "Japan wax."<sup>22</sup> *Toxicodendron* 

<sup>&</sup>lt;sup>21</sup> Jingyun Fang, Zhiheng Wang and Zhiyao Tang, *Atlas of woody plants in China: distribution and climate* (Beijing: Higher Education Press; New York: Springer, 2011), 1: 862-865.

<sup>&</sup>lt;sup>22</sup> Yuishiro Hiraoka, Ichiro Tamaki, and Atsushi Watanabe "The origin of wild populations of *Toxicodendron succedaneum* on mainland Japan revealed by genetic

*succedaneum* is also present in Japan's Okinawa prefecture, part of the Ryukyu islands.<sup>23</sup>

As early as the eighteenth century, *Toxicodendron succedaneum* was distinguished from *Toxicodendron vernicifluum* as the tree species that produced varnish in the region of South China. In 1790, João de Loureiro, S. J., published in Lisbon a major work resulting from his years as a missionary, *Flora Cochinchinensis: sistens plantas in regno Cochinchina nascentes, quibus accedunt aliae observatae in Sinensi Imperio, Africa Orientali, Indiasque locis variis, omnes disposita secundum systema sexuale Linneanum.<sup>24</sup> Loureiro spent almost thirty years in Cochinchina,<sup>25</sup> between 1742 and 1777, the year he went to Canton and stayed for four years. <i>Flora Cochinchinensis* should be interpreted with caution, since not all of his findings and conclusions can be confirmed by other specialists in the field.<sup>26</sup> Nonetheless, several of Loureiro's findings and observations were accurate and are accepted in present

variation in chloroplast and nuclear DNA," *Journal of Plant Research* 131, 2 (2018): 225-238, doi: 10.1007/s10265-017-0992-7.

<sup>&</sup>lt;sup>23</sup> Rong Lu et al., "Analysis of fresh sap collected from Ryukyu lacquer tree," *Analytical Sciences*, 33 (November 2017): 1253-1257.

<sup>&</sup>lt;sup>24</sup> João de Loureiro, Flora Cochinchinensis: sistens plantas in regno Cochinchina nascentes, quibus accedunt aliae observatae in Sinensi Imperio, Africa Orientali, Indiasque locis variis, omnes disposita secundum systema sexuale Linneanum (Ulyssipone, Typis et expensis Academicis, 1790).

<sup>&</sup>lt;sup>25</sup> Cochinchina was the name given to the Southern area of present-day Vietnam.

<sup>&</sup>lt;sup>26</sup> For more on this subject please refer to E. D Merril, "Loureiro and his botanical work," *Proceedings of the American Philosophical Society* 72, 4 (April 1933): 229-239. http://www.jstor.org/stable/984687.

days. Loureiro documented the tree used for varnish production in Cochinchina, China, Cambodia, and Siam (present day Thailand), as *Augia Sinensis*.

According to the *Plants of the World Online* (POWO), the online portal from the Kew Royal Botanical Gardens, *Toxicodendron succedaneum* (L.) Kuntze is an accepted species of which *Rhus succedanea* L. and *Augia Sinensis* Lour. are synonyms.<sup>27</sup> *Augia Sinensis* Loureiro is classified as *Toxicodendron succedaneum* var. *succedaneum* in Flora of China (1993), <sup>28</sup> where it is also designated as *Rhus succedanea* Linnaeus and *Rhus succedanea* var. *japonica* Engler.<sup>29</sup> The geographical distribution of the species in Chinese provinces is Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, SE Xizang, Yunnan, and

<sup>29</sup> For the purpose of clarity, the designation *Toxicodendron succedaneum* will be used throughout this dissertation except when quoting other references. The same is valid for the designation *Toxicodendron vernicifluum*, formely known as *Rhus verniciflua*.

<sup>&</sup>lt;sup>27</sup> I am very thankful to Dr. Teresa Quilhó, Center for Forestry Studies, and Dr. Isabel Moura, PlantStress & Biodiversity Group, at the Agronomy School, Universidade de Lisboa, for the discussion on reliable databases and clarification of botanical terms.

<sup>&</sup>lt;sup>28</sup> The *Flora of China* (FOC) is a collaborative international project to publish the first modern English-language account of the vascular plants of China. All taxonomic treatments are co-authored by Chinese and non-Chinese botanists and nearly 150 Chinese and 500 non- Chinese botanists are participating in the FOC Project. The project will result in the printed and online publication of 25 volumes of text of all of China's approximately 30,000 species of vascular plants, accompanied by 25 volumes of illustrations representing all genera. Published volumes are available online at www.eFloras.org. Anthony Brach and Hong Song, "eFloras: New directions for online floras exemplified by the Flora of China project," *Taxon* 55, 1 (2006): 188-192.

Zhejiang. Outside China the species is distributed in Cambodia, India, Japan, Korea,

Laos, Thailand, and Vietnam.<sup>30</sup>

On page 337 of Loureiro's *Flora Cochinchinensis*, the entry for *Augia Sinensis* presents the following description,

### Species I: Chinese Olive

Winged petals, very clean with a tufted tip. Shape: small tree with a rough bark and rising branches. Pale flower. Loose stubs placed around the top of the branches. Lives: In the woods of Cochinchina, China, Cambodia, Siam. Uses: From the bark of this tree flows acid sap, thick and viscous, the true sap of China, from which flasks are being exported to Europe, where it is valued for its beautiful intense sheen. The black olives will be a deep black once dried out. The ones that are red have been in a color bath to intensify the red. The Japanese olive about which Kaempferus and Thunbergius have written are from a different Plant which Linnaeus called Rhus Vernix.<sup>31</sup>

Loureiro's observation that "flasks are being exported to Europe" is of major interest

and will be further discussed in a later paragraph.

One of the most detailed accounts on lacquerware production in Canton was

written by M. Natalis Rondot for the Journal Asiatique in 1845. Natalis Rondot wrote

extensively about different aspects of Chinese life, with strong emphasis on the

country's manufactures, that he had the opportunity to explore during his three years

<sup>&</sup>lt;sup>30</sup> Oxalidaceae through Aceraceae, ed. Z. Y. Wu, P. H. Raven and D. Y. Hong, vol. 11, *Flora of China* (Beijing: Science Press; St. Louis: Missouri Botanical Garden Press, 2008), 353.

http://www.efloras.org/florataxon.aspx?flora\_id=2&taxon\_id=242352486.

<sup>&</sup>lt;sup>31</sup> Loureiro, *Flora Cochinchinensis*, 337. I am most deeply indebted to Marijke and Evert Van Buchem for their translation of the Latin's original entry to English. My gratitude is also extended to Father Mário Santos for the translation of that same entry to Portuguese.

stay in the country as a French Embassy delegate. <sup>32</sup> While describing the lacquering process in one of Canton's workshops, Rondot provided some explanations regarding the tree species from which the lacquer was extracted. At that point, Rondot considered that some authors believed that sap was extracted from *Augia sinensis*, while others stated that the sap would come from a "*melanoroea*," from "*rhus succedaneum*" or even "*rhus vernix*." Natalis Rondot shared the opinion of authors like João Loureiro, who considered *Augia sinensis* to be a tree from which the lacquer used in Canton was collected.<sup>33</sup> He based his statement on the drawing of the Chinese varnish tree published by Father Pierre D'Incarville in his *Mémoire sur le Vernis de la Chine* (Figure 3).<sup>34</sup> Furthermore, he used the observations compiled by the French abbot Jean-Baptiste Grosier from several of the missionaries' accounts. Grosier names the "*tsi-chou*, ou l'arbre au vernis" as *Augia sinensis* based on Loureiro's work. He adds that several botanists have named this tree an anacard, a balsam tree, and even a

<sup>33</sup> Natalis Rondot, "Une promenade dans Canton. La manufacture de laque d'Hip-qua et l'atelier de tabletterie de Ta-Yu-Tong," *Journal Asiatique* 11 (January 1848): 45-46.

<sup>&</sup>lt;sup>32</sup> Natalis Rondot (1821-1900) was born in Saint-Quentin, France. He dedicated his life to research having interest in areas such as chemistry, botany, and geology. He worked in wool manufacture becoming an expert in this area. After the signing of the Nanking treaty in 1842, that put an end to the war between England and China and allowed for the entry of European nations in the Chinese market, the French Government sent a mission to that country to investigate the best products to trade. Rondot was the delegate for wools. He stayed in China for almost three years and wrote extensively on several aspects of that country. For a detailed account on his life and work please refer to Léon Galle, *Natalis Rondot, sa vie et ses travaux* (Lyon: Bernoux, Cumin & Masson, 1902).

<sup>&</sup>lt;sup>34</sup> Pierre Nicholas D'Incarville, "Mémoire sur le Vernis de la Chine," *Mémoires de mathématique et de physique, présentés à l'Académie royale des sciences, par divers savans, & lûs dans ses assemblées* Tome 3 (1760): 142.

"caju-sanga", and others have confused it with the varnish tree from Japan, named by Linneus as *rhus vernix*. The French abbot writes that the Chinese tree is different from all the former and should constitute a new species of its own.<sup>35</sup> When Natalis Rondot and other delegates were sent to China in 1849,<sup>36</sup> he clearly expressed his opinion when he mentioned the different species said to produce lacquer, "Lacquer is a resin that exudes from a tree classified by some as an *augia*, and by others as a sumac;" but then stated that "*augia sinensis*, the lacquer tree, is similar to the ash tree."<sup>37</sup>

<sup>&</sup>lt;sup>35</sup> Jean Baptiste Grosier, *De la Chine, ou Description Générale de cet Empire, redigée d'après les mémoires de la mission de Pé-kin*, Tome 2 (Paris, Chez Pillet Imprimeur-Libraire, 1818), 328-329.

<sup>&</sup>lt;sup>36</sup> A commercial delegation of the French Embassy was sent to China from January 1844 to May 1846, to explore the industries of that country and understand potential trade opportunities. Édouard Renard was the delegate for the Parisian industry, Auguste Haussmann for cottons, Natalis Rondot for wools, and Isidore Hedde for silks. N. Rondot, I. Hedde, A. Haussman, and E. Renard, *Étude pratique de commerce d'exportation de la Chine, revue et complétée par Natalis Rondot* (Paris: Imprimérie Administrative de Paul Dupont, 1849), 120.

<sup>&</sup>lt;sup>37</sup> "La laque est une résine qui exsude d'un arbre classé par les uns avec les *augia*, et par les autres avec les sumac;" "L'*augia sinensis*, ou arbre à laque, ressemble au fréne.", translation by the author. N. Rondot, I. Hedde, A. Haussman, and E. Renard, *Étude pratique de commerce d'exportation de la Chine, revue et complétée par Natalis Rondot* (Paris: Imprimérie Administrative de Paul Dupont, 1849), 120.



Figure 3 Tapping the varnish tree. Pierre Nicholas D'Incarville, "Mémoire sur le Vernis de la Chine," *Mémoires de mathématique et de physique, présentés à l'Académie royale des sciences, par divers savans, & lûs dans ses assemblées* Tome 3 (1760): 142.

Samuel Wells Williams spent several years in Guangzhou acting as a missionary and a printer and was the editor of the *Chinese Repository* between 1848 and 1851. In his compilation dedicated to Chinese geography and industries, he made an interesting statement. Williams wrote that the lacquer used both in China and Japan came from the "*Rhus vernicifera*" tree, cultivated in both countries. The author added that the different qualities of lacquered wares could be achieved by the use of wood-oils obtained from other plants such as *Augia*, which he places in the category of

"inferior ingredients."<sup>38</sup> It is not completely clear whether the author was indicating that wood oils such as *Augia* were mixed with *Toxicodendron vernicifluum* or if they were used to produce lower quality lacquerware. My interpretation from the way it is written is that *Augia* was mixed with *Toxicodendron vernicifluum*.<sup>39</sup> J. Dyer Ball seems to have interpreted William's observation the same way. In his 1903 compilation of *Things Chinese*, the author refers when describing lacquerware, "Other ingredients are added, as wood-oils obtained from plants such as *Augia sinensis* and others. These, combined with *Rhus vernicifera*, form the different qualities of lacquerware."<sup>40</sup> Analytical results from the lacquer pieces sampled for this study will contribute to the further discussion on this observation in Chapter 4.

In a publication prepared for the Universal Exhibition in Paris, in 1895, a distinction was made between the lacquer used in China from that used in Japan, "We are aware that lacquer is the sap of *augia sinensis*, in China, and of *rhus vernix*, in

<sup>&</sup>lt;sup>38</sup> Samuel Wells Williams, *The Middle Kingdom: a survey of the geography, government, education, social life, arts, and history of the Chinese Empire and its inhabitants* (New York: C. Scribner's Sons, 1913), 30.

<sup>&</sup>lt;sup>39</sup> According to Williams, "The lacquered-ware peculiar to China and Japan owes its lustre to the prepared sap of a kind of sumach (*Rhus vernicifera*) cultivated in both countries for this purpose. Wood oils are obtained from other plants such as the *Curcas, Augia, Elcococcus,* and *Rhus semi-alatus,* and the different qualities of lacquerware are owing to the use of these inferior ingredients." In Williams, *The Middle Kingdom: a survey of the geography, government, education, social life, arts, and history of the Chinese Empire and its inhabitants,* 30.

<sup>&</sup>lt;sup>40</sup> According to J. Dyer Ball, his observations on lacquerware are based in two books which he recommends for further reading, *L'Art Chinois* by M. Paléologue, and *The Middle Kingdom* by Samuel Wells Williams (for William's book, page 30 and following, as specified by Ball.) J. Dyer Ball, *Things Chinese or Notes connected to China* (Hong Kong: Kelly & Walsh, Limited, 1903), 363-367.

Japan."<sup>41</sup> That distinction was also documented in 1876; a remark was made about the quality of the sap, placing the Japanese tree in a more favorable position than the Chinese one, although not extending the reasons for doing so, "it is the tree named *rhus vernix* that yields the Japanese varnish, used for the production of lacquered objects; that varnish is considered superior to the one that Chinese collect from *augia sinensis*."<sup>42</sup>

It is clear that the botanical classification of the trees is in some points not accurate and some designations are used interchangeably by different authors. Nonetheless, the majority of the researchers had the clear notion that the tree used in South China was different from the one used in Japan and that several species would provide proper sap to produce a varnish used to achieve a lacquered decorative coating. *Augia Sinensis* Loureiro is classified as *Toxicodendron succedaneum*, and as will be discussed in Chapter 4, it is confirmed that *Toxicodendron succedaneum* is the main specie for the lacquerware manufactured in Guangzhou. This sap, and consequently the varnish produced from it — since it is derived from different tree species — has different physical and chemical characteristics from sap produced from

<sup>&</sup>lt;sup>41</sup> "Nul n'ignore que la laque est la sève de l'*augia sinensis*, en Chine, et du *rhus vernix*, au Japon," translation by the author. Louis Figuier, dir., *La Science illustrée: journal hebdomadaire / publié sous la direction de Louis Figuier* 16, no 418 (1895): 419.

<sup>&</sup>lt;sup>42</sup> William Duckett, dir. *Dictionnaire de la conversation et de la lecture, inventaire raisonné des notions génerales las plus indispensables a tous par une société de savants et de gents de lettres sous la direction de M. W. Duckett (Paris: Firmin-Didot frères, 1876), 4: 376. http://gallica.bnf.fr/ark:/12148/bpt6k97701246. Translation of the author from the original, "C'est l'arbrisseau nommé <i>rhus vernix* qui donne le vernis japonais, employé dans la préparation des objects laqués; ce vernis est regardé comme supérieur à celui que les Chinois tirent de l*'augia sinensis."* 

other tree species, namely the *Toxicodendron vernicifluum* species.<sup>43</sup> Furthermore, objects made with different lacquer species will also have different characteristics, appearance and conservation being two of them, particularly while the decorative coating ages.<sup>44</sup> Recent research in the composition of laccol and urushiol-based lacquers suggests that the high fractions of carbohydrate-rich material present in laccol, greater than those seen in urushiol-based lacquers, may contribute to photo-oxidative reactions and degradation phenomena frequently observed in the export pieces.<sup>45</sup> Comparison in terms of the lacquer coatings should take these differences into account.

Another difference that should also be taken into account is the production time for the lacquer objects, that tended to be shorter in Canton to fulfill demands during the trading season. As will be seen in detail in Chapter 2, some commissions would allow as little as "three weeks" for the manufacturing of an article which is far from adequate timing for the proper polymerization of a lacquer coating with several layers. This is noted in the 1730s by the French Jesuit Jean-Baptiste Du Halde in his compilation regarding the Chinese Empire,

<sup>&</sup>lt;sup>43</sup> Takayuki Honda *et al.*, "Characterization and comparison of Asian lacquer saps," *Progress in Organic Coatings* 61(2008): 68-75.

<sup>&</sup>lt;sup>44</sup> For more on the aging and conservation of Chinese export lacquer coatings please refer to Nanke Schellmann, "Delamination and flaking of East Asian export lacquer coatings on wood substrates," in in *East Asian Lacquer: Material Culture, Science and Conservation*, edited by Shayne Rivers et al. (London: Archetype Publications, 2011): 107-120.

<sup>&</sup>lt;sup>45</sup> Michael Schilling *et al.*, "Chinese lacquer: Much more than Chinese lacquer," *Studies in Conservation* 59, 1 (2014): 131-133.

Though the varnish'd works, made at Kan-ton, are neither so beautiful nor serviceable by a great deal, as those that come from Japan, Tonking, and Nan-king, Capital of the Province of Kyang-nan: it is not that the workmen do not employ the same sort of varnish or gilding, but because they fit them up too hastily; and then if they do but please the eye of the Europeans, they are well enough content.<sup>46</sup>

A similar observation was registered more than a century later in Europe by

Edward Charles Bowra. Bowra was a British citizen who organized the Chinese

contribution to the Vienna Universal Exhibition in 1873. In his remarks about the

Chinese objects at the Vienna fair Bowra confirms the common and "traditional"

observation of the Japanese lacquerware superiority towards the Chinese, but the best

even of these, contrast unfavourably in finish, polish, and artistic design, with the

magnificent specimens of Japanese art exhibited in the neighbouring court. Despite

this, he makes a very interesting remark about the Cantonese production;

True, an enormous quantity of roughly finished work is annually turned out to meet the increasing demand for cheap goods, but give a Canton manufacturer the two factors essential to creditable production, time and a fair price, and the result will probably stand comparison with the finest specimens of previous generations.<sup>47</sup>

<sup>&</sup>lt;sup>46</sup> Jean-Baptiste Du Halde, A description of the Empire of China and Chinese-Tartary, together with kingdoms of Korea, and Tibet: containing the geography and history (natural as well as civil) of those countries. Enrich'd with general and particular maps, and adorned with a great number of cuts. From the French of P. J. B. Du Halde, Jesuit: with notes geographical, historical, and critical; and other improvements, particularly in the maps, by the translator, Vol. 2 (London: Printed by T. Gardner in Bartholomew-Close, for Edward Cave, at St. John's Gate, 1738), 336.

<sup>&</sup>lt;sup>47</sup> Edward C. Bowra, "Chinese Manufactures suited to English markets," in *Reports* on the Vienna Universal Exhibition of 1873: presented to both houses of Parliament

In summary, not only the nature of the materials should be taken into account when investigating a lacquer coating but also their technology of application, and the time frame in which they were applied, a crucial factor for the proper drying of the different lacquer layers.

# 1.2 Use and availability of lacquer in Europe

Since the first encounters with the Middle Kingdom in the early sixteenth century, Chinese lacquer amazed the visitors, and the will to imitate its appearance flourished. In 1615, in his treatise *Arte da pintura, symmetria e perspectiva*, the Portuguese Fillipe Nunes described the way to gild a tray using a varnish to imitate the ones from China:

to gild a roundel or tray in the fashion of China, note, there is the need to prepare the ground, as said before for the other wood; and after preparation one should apply whatever color suits thee with oil, either black, either red. &c. After well dried, so that gold will not stick, draw with the mordant, that was also mentioned before for gilding glass; and after it is proper lay down the gold, and after gilded, and well-dried, varnish all the roundel, or tray, with spike varnish, which is very drying.<sup>48</sup>

*by command of her Majesty* IV (London: G. E. Eyre and Spottiswoode for H. M. Stationery Office, 1874), 721.

<sup>&</sup>lt;sup>48</sup> Fillipe Nunes, Arte da pintura, symmetria e perspectiva, Arte Poetica, e da Pintura, e Symmetria, com princípios da Perspectiva (Pedro Crasbeeck, Lisboa: 1615), 127-128. Author's translation from the Portuguese original "Para dourar huma ródela ou bandeja ao gosto da China, notai, que se ha de apparelhar, como dissemos da outra madeira; e depois da imprimidura lhe dareis a côr que quizeres a oleo tambem, ou preta, ou vermelha, &c. Depois de muito bem enxuta, que não pegue nella ouro, debuxai com o mordente, de que tratamos no dourar do vidro; e depois que estiver em fazão assentai o ouro, e depois de dourado, e muito bem enxuto envernizai toda a ródela, ou taboleiro com verniz de espique, que e muito seccante."

Nunes's description not only of the recreation of Chinese lacquered objects but also specifically on their gilded decoration testifies that the strong impression made by these pieces translated to the desire to copy them.

Athanasius Kircher, S.J., in his *China Illustrata* published in 1667, compiled information regarding China based on the reports of several Jesuits priests. He dedicated several paragraphs to the Chinese varnish affirming that no European could refrain from admiring it,

Now I will explain the beauty and ornamentation of the interior of the houses and of the palaces, which indeed seem greatly to surpass those of Europeans, for the interiors parts and surfaces are covered with beautiful Chinese varnish, which no European can praise enough. Everything is covered with varnish and gleams like a mirror.<sup>49</sup>

He provided details about the nature and preparation of the varnish as well as its poisonous effects,<sup>50</sup> and completed his observations documenting a method and a

<sup>&</sup>lt;sup>49</sup> Athanasius Kircher, S.J., *China Illustrata*, trans. Dr. Charles D. Van Tuyl from the 1667 original Latin edition (Muskogee, Oklahoma: Indian University Press, 1987), 209.

<sup>&</sup>lt;sup>50</sup> "The other is a gum called Cie which drips from the trees, and which is similar to the tear which our terebinth produces. In the summer it is collected and purified by the Chinese, who color it as they want. The best is colored yellow, the next best is black. When it is not dry, it gives off a poisonous exhalation. If people unaccustomed to it breathe it, their faces swell and turn pale. Unless a remedy known only to them is administered, the person will die. The remedy is easily administered at the onset of the reaction and it is infallible. The materials of this gum or varnish dry out very slowly except in a humid area. When dried out, they never become liquid again. They are

recipe to prepare the most perfect imitation of the Chinese original "so that whatever is covered with his varnish seems to equal in gleaming splendor."<sup>51</sup>

The main tree species that produce lacquer, Toxicodendron vernicifluum,

Toxicodendron succedaneum, and Gluta usitata, are indigenous to the Asian

continent.<sup>52</sup> Therefore, the production of Asian lacquer and subsequently its use in

artefacts was not found in Europe or the Americas. In 1766, a tree was brought to Isle

de France (present day Mauritius) from China but did not survive long, Charpentier de

Cossigny<sup>53</sup> noted:

The varnish of China is the product of a tree that grows in a province of the Empire. A Jesuit missionary brought one to the Isle de France and trusted it to me. It produced some buns. This shrub has a very slow vegetation, and does not belong to the group of plants that seems to be pleased with the climate of this Colony. It bloomed once and perished two or three years after.<sup>54</sup>

<sup>52</sup> In the case of *Toxicodendron succedaneum*, the species spread into the Australian continent where it is nowadays cultivated in the Southern part of Australia. W. T. Parsons, William Thomas Parsons and E. G. Cuthbertson, *Noxious Weeds of Australia* (Collinghood: CSIRO Publishing, 2001), 165-166.

<sup>53</sup> Joseph-François Charpentier de Cossigny (1736-1809), was born in Port Lois, Isle de France (present day Mauritius).

<sup>54</sup> Joseph-François Charpentier de Cossigny, Voyage a Canton, capitale de la province de ce nom, a la Chine; Par Gorée, le Cap de Bonne-Esperánce, et les Isles de France et de la Réunion; suivi d'observations sur le voyage à la Chine, de Lord Macartney e du Citoyen Van-Braam, et d'une esquisse des arts des Indiens et des Chinois, " (Paris: André, 1798), 581. Translation of the author from the French original "Le vernis de la

elegant, splendid, and pleasing, as Europeans can learn from the Chinese capsules which have been imported here." Kircher, *China Illustrata*, 209.

<sup>&</sup>lt;sup>51</sup> Kircher, China Illustrata, 209.

It is not clear which tree species was brought to Charpentier de Cossigny.

Around that same period, a Chinese lacquer tree was introduced into the Royal Gardens at Kew, along with other plants. It was brought there by John Bradby Blake (1745-1773), an English botanist who served in Canton as a resident supercargo from 1769 to 1773 for the East India Company. John Bradby Blake studied the plants of Canton and Macau, including how they were used trying to understand how they could potentially be useful to Britain. Blake drew is observations in a series of scientific illustrations made mainly between 1769 and 1773, and today kept at Oak Spring Garden Library of the Oak Spring Garden Foundation.<sup>55</sup> According to Jane Kilpatrick, Blake brought to Kew a specimen of *Toxicodendron succedaneum*. Blake was interested in the economical role of plants more than the ornamental, and it was in that practical perspective that he introduced *Toxicodendron succedaneum* in England.<sup>56</sup>

Hongwen Huang published in 2017 a detailed study of Blake's archive of drawings.<sup>57</sup> According to Huang, one of Blake's drawings represents a *Toxicodendron* 

Chine est le produit d'un arbre qui crôit dans un province de l'Empire. Un Missionaire Jésuite en apporta un à l'Isle de France qui me fut confié. Il a produit quelques drageons. Cet arbrisseau a une végétation três-lente, et n'est pas du nombre de ceux qui paroissent se plaire dans le climat de cette Colonie. Il a fleuri une seule fois, et à péri deux ou troix ans aprés."

<sup>&</sup>lt;sup>55</sup> Hongwen Huang, "The plants of John Bradby Blake," *Curtis's Botanical Magazine* 34, 4 (2017): 360.

<sup>&</sup>lt;sup>56</sup> Jane Kilpatrick, *Gifts from the gardens in China: the introduction of traditional Chinese garden plants to Britain 1698-1862* (London: Frances Lincoln, 2007): 79-80.

<sup>&</sup>lt;sup>57</sup> Huang used *Flora of China* and the most recently updated checklist of *Cultivated Flora of China* identifying 138 species among the Bradby Blake drawings belonging

*vernicifluum* (Figure 4). The tree is included in the group of industrial plants since it was an important resource for the manufacture of the region. Also referred and drawn by Blake are the tung oil tree (*Vernicia montana*, Euphorbiaceae,) the Chinese tallow tree (*Triadica sebífera*, Euphorbiaceae,) and the castor oil tree (*Ricinus communis*, Euphorbiaceae.)<sup>58</sup>



Figure 4 Lacquer tree (Toxicodendron vernicifluum), OSGB, JBB, 3:29. Hongwen Huang, "The plants of John Bradby Blake," Curtis's Botanical Magazine 34, 4 (2017): 377.

to over 100 genera and 60 families. Hongwen Huang, "The plants of John Bradby Blake," *Curtis's Botanical Magazine* 34, 4 (2017): 359-378.

<sup>&</sup>lt;sup>58</sup> Hongwen Huang, "The plants of John Bradby Blake," *Curtis's Botanical Magazine* 34, 4 (2017): 377.

A later successful transfer within Europe of a specimen of *Toxicodendron succedaneum* is known. It came from Kew to Portugal attesting for the presence of that tree in the English botanical garden. After acquiring Monserrate, in Sintra, Portugal, in 1856, Sir Francis Cook created a garden showcasing exotic species from all over the world. Between 1861 and 1906 several specimens were sent to Monserrate from the Royal Botanic Gardens at Kew. On the first of the recorded lists of plants sent to Monserrate and dated 4 April 1861, one of the specimens registered is *"Rhus succedanea."* It no longer survives in Monserrate, and due to the risks of contact dermatitis it is unlikely to be reintroduced into the garden.<sup>59</sup>

The fact that the trees can develop outside of the Asian continent does not necessarily mean that their sap is appropriate for lacquerware production. Even when the trees are in their environment factors such as season, altitude, and precipitation, among others, affect the characteristics and the amount of sap that can be collected.<sup>60</sup> In Lisbon, at the Botanical Garden of Tapada da Ajuda, a tree was identified as *Toxicodendron vernicifluum* specie using py-GC/MS. This experiment, held in Lisbon by agronomy students in 2011, included tapping and collecting of the sap for identification. Nonetheless, the first attempt for sap collection was unsuccessful due to

<sup>&</sup>lt;sup>59</sup> Gerald Luckhurst, "Monserrate: Sir James Cook and the acclimatisation of exotic plants in 1861," in *The Garden as a Lab – Where Cultural and Ecological systems meet in the Mediterranean Context*, edited by Ana Duarte Rodrigues (Évora: CHAIA, 2014): 99-100.

<sup>&</sup>lt;sup>60</sup> Yumin Du, "The production and use of Chinese raw urushi and the present state of research," *Urushi: Proceedings of the Urushi Study Group, June 10-27, 1985, Tokyo,* edited by N. S. Brommelle and Perry Smith, 189-197 (Marina del Rey, CA: The Getty Conservation Institute, 1985.)

an extended period of lack of precipitation in Lisbon. Only after a period of rain the students were able to collect the sap but in a quantity inferior to 10ml.<sup>61</sup>

As we have seen in a previous paragraph, foreigners acquainted with lacquer production attempted to bring the sap collected from the tree. According to João Loureiro, sap collected in China, "from which flasks are being exported to Europe, where it is valued for its beautiful intense sheen,"<sup>62</sup> was somehow arriving in Europe. Before that, most probably between 1690 and 1700, Filippo Bonanni<sup>63</sup> also claimed to have experimented with the Chinese varnish in Rome. Bonanni wrote that he had the opportunity of experimenting with the *chiaram*,<sup>64</sup> as well as the oil that was added to it, from bottles that were given to him by the Grand Duke of Tuscany Cosmo III (1642-1723), who in turn had received them "in considerable quantity" from China. The Italian Jesuit followed the instructions found in other Jesuits letters as well as in the ones provided by other travelers who had been to China. He was able to avoid the rash from which, according to him, some had suffered in Florence. He prepared two parts of *chiaram* with one part of oil, "the latter has no other function than that of making the mixture more obedient to the brush," and was able to apply the mixture with ease over wood and paper. The drying process was not as successful for after

<sup>&</sup>lt;sup>61</sup> José Carlos Frade, *A laca: Identificação das origens e das técnicas* (PhD diss., Instituto Superior de Agronomia, 2011), 68-69.

<sup>&</sup>lt;sup>62</sup> Loureiro, Flora Cochinchinensis, 337.

<sup>&</sup>lt;sup>63</sup> Filippo Bonanni (1638-1723) was a Jesuit Father, entering the Order of the Society of Jesus at the age of seventeen, and attending at the Collegio Romano in Rome.

<sup>&</sup>lt;sup>64</sup> From the Portuguese charão or xarão, a designation used both for the raw material as well as for lacquered objects.

some weeks, although no fingerprint would mark the varnish surface, it had not hardened at all.<sup>65</sup>

It is not known whether there was any successful use of the varnish in Europe to create lacquer objects. Assuming that Loureiro's statement is correct and Chinese lacquer was arriving in Europe and that Bonanni's attempt did not allow him to properly dry the lacquer, it is still not possible to say if there were any other successful experimentations. This author has not yet located reported cases of objects created in Europe using Asian lacquer from the seventeenth or eighteenth century. If the sap could be brought to Europe, as we have seen, some hypothesis may be raised for the lack of its successful application to create lacquered pieces, something the Europeans would most certainly have admired and described. One reason could be that the quality of the sap on its arrival after such a long journey would no longer be suitable for application. Another constraint may relate to the lack of dependable knowledge regarding the proper techniques of application. A final deterrent could have been the toxicity of the material, that, as mentioned earlier, had already created some "victims" amongst the European craftsmen who tried to use it. La Barbinais Le Gentil made an observation in his traveling records in 1728 that support the first hypothesis. The Frenchman wrote that the Dutch have been trying in vain to transport the Chinese varnish to Europe, "but it loses its strength after six months."<sup>66</sup> It also seems

<sup>&</sup>lt;sup>65</sup> Filippo Bonanni, *Techniques of Chinese lacquer, the classic eighteenth-century treatise on Asian varnish*, translated by Flavia Perugini (Los Angeles: The J. Paul Getty Museum, 2009): 24-25.

<sup>&</sup>lt;sup>66</sup> From the original "elle perde sa force au bout de six moins." La Barbinais Le Gentil, *Nouveau voyage autour du monde, par Le Gentil, enrichi de plusieurs plans, vûës et perspectives des principales villes et ports du Pérou, Chily, Brésil et de la* 

reasonable that craftsmen would prefer to use materials they were trained in and were used to, especially considering the highly specific procedures that Asian lacquer application requires. It would be easier and faster, thus more profitable, for craftsmen to imitate Chinese lacquer by using materials and techniques that they were familiar with. And certainly, the painful dermatitis caused by contact with the Chinese sap would most certainly be a dissuading factor when considering working with the unfamiliar material. Dossie's observation in his 1764 *The handmaid to the arts* seems to support these hypotheses,

The true Japan black lacquer (which is now frequently brought from China) has been sometimes used for the varnishing snuff-boxes, cups, and all such pieces made of paper or saw-dust. But this lacquer, being the concrete juice of the toxicodendron tree, its poisonous qualities are almost constantly fatal to those who work with it for any length of time, and sometimes even on very slight intermeddling with it. Such a momentous inconvenience, together with the tediousness of dispatching the work, on account of its great tardiness in drying, being extremely good reasons against its use, it is much more advisable to employ the common kinds of varnish, which, when managed judiciously, may be rendered nearly both as beautiful and durable, without either the danger or the difficulty attending the other.<sup>67</sup>

#### **1.3** Use of lacquer in China and decoration techniques

Lacquer has been used in China for at least 6000 years. A wooden bow is the oldest known artifact on which lacquer was applied, and it was unearthed from a Neolithic site in Zhejiang Province, China. The bow dates to approximately 5000-

*Chine, avec une description de l'Empire de la Chine...* Tome 2 (Amsterdam: P. Mortier, 1728): 17.

<sup>&</sup>lt;sup>67</sup> Robert Dossie, *The handmaid to the arts- 2d ed., with considerable additions and improvements* Vol. 2 (London: Printed for J. Nourse, 1764): 408-409.

6000 BC.<sup>68</sup> Scientists Rong Lu and Tetsuo Miyakoshi mention several Japanese lacquer artifacts: a headband, a shoulder rest, bracelets, and a foot ornament, unearthed in the Kakinoshima-B site in Minamikayabe, Hokkaido, that was radiocarbon dated to 9000 years ago.<sup>69</sup> As stated by the above authors, since these remains were destroyed in a fire in 2002, the dating could not be reconfirmed. The Chinese bow remains to date the oldest known object on which lacquer was used.

China was the birthplace of most of lacquer decoration techniques. A famous red lacquer bowl from the Neolithic period was unearthed from the site of Hemudu, Zhejiang Province, in 1977 and is dated from around 4000BC.<sup>70</sup> It is housed today at the Zhejiang Provincial Museum; the red pigment added to the lacquer coating attests to the use of this material not only for its protective features but also for its decorative ones. Current scholarship shows that different decoration techniques were developed in China and from there were assimilated by other countries that developed some of them into national artistic traditions with their own unique characteristics.<sup>71</sup>

<sup>&</sup>lt;sup>68</sup> Z. Gao and Y. Bei," Discussion on the Lacquer Art Features of Jiangnan Region in New Stone Age," *Colleges* 256, 8 (2014): 129–30, quoted in Julie Chang and Michael R. Schilling, "Reconstructing lacquer technology through Chinese classical texts," *Studies in Conservation* 61, sup 3 (2016): 38. I am most thankful to Julie Chang for the discussion on the characteristics of this object.

<sup>&</sup>lt;sup>69</sup> Rong Lu and Tetsuo Miyakoshi, *Lacquer Chemistry and Applications* (Amsterdam: Elsevier, 2015), 267.

<sup>&</sup>lt;sup>70</sup> Monika Kopplin, ed., *Lacquerware in Asia, Today and Yesterday* (Paris: UNESCO Publishing, 2002), 25.

<sup>&</sup>lt;sup>71</sup> Mother-of-pearl lacquerware in Korea is one of those examples.

Archeological finds from the Shang Dynasty (c.1650-1027 BC) show the use of black and red lacquer combined as well as the use of turquoise inlays. Shang decorations follow the patterns and themes used in Chinese bronzes, like taotie or animal masks patterns and geometric backgrounds or *leiwen*.<sup>72</sup> Lacquers unearthed from Western Zhou (1027-771BC) and the Spring and Autumn Period (770-476 BC) follow the tradition of the previous dynasty and objects excavated from this period display similar decorations. From the Warring States period (475-221 BC) onwards, lacquerware techniques in China had their first noteworthy development that lasted into the Han dynasty (206 BC - 220 AD). The application of ground layers above the substrate and before the application of lacquer layers was first registered in pieces from this timeline. This layering allowed for the creation of much more detailed and elegant objects. The technique of dry-lacquer or tuotai also dates from this period. In this technique, a core, either in wood or clay, is created to support the lacquer. Strips of cloth impregnated in lacquer are applied over the core creating a three-dimensional form. After completion, the core is removed creating a light-weight-yet-larger-piece. Sculptures of Buddha and other divinities are some of the examples of the application of this technique.<sup>73</sup> The use of gold in lacquerware was detected in one of the most important archeological digs for this period. A bowl with lids, shaped like a *dou* 

<sup>&</sup>lt;sup>72</sup> Joan Hornby, *Chinese Lacquerware in the National Museum of Denmark* (Copenhagen: The National Museum of Denmark, 2012), 20.

<sup>&</sup>lt;sup>73</sup> Donna Strahan and Blythe McCarthy, *Construction from the Inside Out: Early Chinese Lacquer Buddha Fabrication*, Freer Sackler Museum Essays, 2017. https://www.freersackler.si.edu/essays/construction-from-the-inside-out-early-chinese-lacquer-buddha-fabrication/

vessel,<sup>74</sup> was unearthed from the grave of the Marquis Yi of Zeng, who died circa 430 BC in Suixian, Hubei province. The two handles of the vessel, shaped like dragons, contain remnants of gold in the scales of the mythological creatures.

The combination of gold and lacquer was also used in a technique known as *pingtuo*. In this technique, lacquer is used as a support for inlaying cutouts of thin sheets of gold and silver. This creates the decorative motifs on top of the substrate.<sup>75</sup> The *pingtuo* technique was used to decorate caskets, cosmetic boxes, hoof-shaped boxes, and cups, as early as the 1<sup>st</sup> century BCE.<sup>76</sup>

The lacquer trade expanded with the Han dynasty (206 BC – 220 AD). Consolidation of the Chinese borders and peace in the territory allowed for the expansion of trade routes namely to the West. The Silk Road had its genesis under the rule of Emperor Wuli (146-87 BC), and the production of imperial lacquer workshops was stimulated. Some of the most remarkable workshops were situated in Sichuan province. The introduction of the lathe also allowed for the creation of new shapes in lacquerware. The substrate used for the objects was mainly wood.

The period following the end of the Han dynasty was marked by separation and change in the Chinese borders and capital. Several lacquer objects were unearthed

<sup>&</sup>lt;sup>74</sup> A *dou* is an ancient Chinese bronze vessel used to contain food. It is usually a circular bowl supported on a short stem and with two handles on the rim. Another shallow bowl serves as a lid.

<sup>&</sup>lt;sup>75</sup> James C. Y. Watt and Barbara Ford, *East Asian Lacquer – The Florence and Herbert Irving collection* (New York: Metropolitan Museum of Art, 1991), 26.

<sup>&</sup>lt;sup>76</sup> Yan Liu, "Emblems of Power and Glory: the Han-Period Chinese Lacquer Wares Discovered in the Borderlands," in *Production, Distribution and Appreciation: New aspects of East Asian lacquer ware*, edited by Patricia Frick and Annette Kieser (Leiden: Brill, 2018), 65.

from a grave dating from the year of 249, during the period of the Three Kingdoms (220-280). In two of them, the use of the *qiangjin* technique, that would become popular in a later period, was noted. In the *quiangjin* or etched-gold technique, a needle or knife tip is used to scratch a fine decorative pattern into the lacquer surface. Lacquer glue is then applied into the etched patterns to adhere gold foil or powdered gold. This technique had already been identified in earlier objects from the Western Han period, but the gold foil inlay was preserved in the case of the two ear cups in the later excavation.<sup>77</sup>

One of the most remarkable archeological finds of the Northern Wei period (386-535), was excavated in 1965 close to Datong, Shanxi, the dynasty's first capital. A screen with multiple panels was placed beside the tomb of general Sima Jinlong. The piece is lacquered red, and the paintings on its surface represent stories of virtuous women copied from the Han dynasty *Liehn Zhuan* (Biographies of Exemplary Women) by Liu Xiang (79-8 BC).<sup>78</sup> In recent years, the screen's decoration was analyzed, and the pigments used to create the black, yellow, red, and white colors present were identified as carbon black, orpiment/realgar, cinnabar, and gypsum.<sup>79</sup>

During the Tang Dynasty (618-906), one of the lacquer decoration techniques produced was *luodian*, or lacquer decorated with inlays of mother-of-pearl. The first

<sup>&</sup>lt;sup>77</sup> Hornby, Chinese Lacquerware in the National Museum of Denmark, 30.

<sup>&</sup>lt;sup>78</sup> Hung Wu, *The Double Screen: Medium and representation in Chinese painting* (London: Reaktion Books Ltd, 1996), 89.

<sup>&</sup>lt;sup>79</sup> T. Li *et al.*, "Pigment identification and decoration analysis of a 5th century Chinese lacquer painting screen: a micro-Raman and FTIR study," *Journal of Raman Spectroscopy* 40 (2009): 1913. doi 10.1002/jrs.2340

example of carved lacquer known, a technique that would become a symbol of Chinese craftsmanship, dates from this period. The technique was applied to decorate several scales from a leather armor excavated by Sir Aurel Stein in East Turkestan (present day Xinjiang province) in 1906.<sup>80</sup>

The Song Dynasty (960-1279) initiated what is considered one of the most fruitful periods of lacquer production in China. Song dynasty lacquerwares are known, similar to its ceramics, by their elegant shapes and monochrome shades. Archeological sites from this period revealed the production of *qiangjin* objects as well as objects that combined this technique with *tianqi*, a technique believed to have derived from *qiangjin*. In *tianqi* or incised-and-filled lacquer, the decorative pattern is incised into the lacquer ground and then the incision filled with colored lacquer.

The most famous Chinese lacquer technique, carved lacquer, or *tixi*, had its heyday during the Yuan (1280-1367) and Ming (1368-1644) dynasties. The earlier examples from the Yuan dynasty featured incisions polished and rounded with smoothed contours. In later examples from the Ming period these same incisions appear sharper and rougher.

*Luodian* technique also continued through the Yuan and Ming dynasties. The examples of this technique that use thin and shiny pieces of mother-of-pearl (from the *Haliotis* or *Turbo cornutus* species) have become, in Western countries, to be known as *laque burgauté*.<sup>81</sup>

<sup>&</sup>lt;sup>80</sup> Garner, *Chinese Lacquer*, 68.

<sup>&</sup>lt;sup>81</sup> Hornby, Chinese Lacquerware in the National Museum of Denmark, 43.

Coromandel lacquer or *kuan-cai*, a technique that gained popularity and expanded in the later Qing dynasty (1644-1912), was also introduced during the Ming. The designation "Coromandel," assigned by the Europeans, was a "commercial designation only..."<sup>82</sup> It named the Indian southeast coast, between the Godava and the Nagapatnam rivers where the European trading posts were located, as the area responsible for the prosperous trade between West and East during the seventeenth and eighteenth centuries. Lacquer pieces done in the *kuan cai* technique came mainly from the Chinese provinces of Fujian, Zhejiang, Jiangsu, and Anhui. Folding screens and cabinets were the most exported objects. These pieces were first designated in Europe as Bantam and after 1720, Coromandel, due to the fact they were originally shipped from the Indian east coast.<sup>83</sup>

During the Qing dynasty lacquerware in different techniques, such as carved, *miaojin*, laque burgauté, *qiangjin* and *tianqi*, and Coromandel (*kuan cai*) continued to be produced. Lacquered wooden objects both in Coromandel and in black and gold decoration, *miaojin* or painted gold technique, were the most exported pieces to European and American countries during the Qing dynasty.

<sup>&</sup>lt;sup>82</sup> Emille-Allain Séguy, *Les Laques du Coromandel*, (Paris: Éditions Albert Lévy, 1926), s.p. Translation by the author from the original "L'étiquette est simplement commerciale; …"

<sup>&</sup>lt;sup>83</sup> Named after the port of Bantam, in Java, where the East India Company had its main commercial post between 1602 and 1682. Pedro M. Carvalho, "As Lacas Chinesas de Exportação e o Papel Pioneiro de Portugal na sua Difusão," in *O Mundo da Laca: 2000 Anos de História*, edited by Pedro M. Carvalho (Lisboa: Fundação Calouste Gulbenkian, 2001), 47.

#### 1.4 Chinese lacquer decorated with gold

Decorative techniques where the gold is incised into the lacquer surface developed especially in the Song Dynasty (960-1279).<sup>84</sup> The term *qiangjin*, for "engraved and gilded," came in use in connection with the lacquer work of the late Yuan dynasty (1279-1368.) The technique was described in 1366 by Tao Zongyi in the following manner: the design was engraved or incised in a black or red lacquer background before it had fully dried out; following that, the incisions would be painted with a mixture of lacquer and orpiment and after lined with gold leaf. The gold leaf excess was removed with cotton wool. In some cases, gold powder instead of gold leaf could also be rubbed into the incisions.<sup>85</sup> The *qiangjin* technique was popular in China during the sixteenth century and was introduced in the Ryukyu islands in the fifteenth century.<sup>86</sup> It was designated as *chinkin* (incised and gold-filled) technique and became associated with these islands. The Ryukyuan lacquerware was strongly influenced by Chinese techniques due to the close contacts of the two regions since the fourteenth century until the islands were annexed to Japan in 1609. Ryukyuan production of *chinkin* lacquerware continued even after its popularity decreased in China.

<sup>&</sup>lt;sup>84</sup> Watt and Ford, *East Asian Lacquer – The Florence and Herbert Irving collection*,
26.

<sup>&</sup>lt;sup>85</sup> Patricia Frick, "Simplicity and Restraint: Lacquer of the Song Dynasty," in *Production, Distribution and Appreciation: New aspects of East Asian lacquer ware*, edited by Patricia Frick and Annette Kieser (Leiden: Brill, 2018), 88.

<sup>&</sup>lt;sup>86</sup> Several islands of this chain were part of the former Ryukyu kingdom, known for its important role in the network trade between East and Southeast Asia from the fourteenth century to the sixteenth century.

Lacquered pieces painted with gold, the gold-outlined or *miaojin* decoration, have been found in China since at least the Song dynasty. Lacquered objects with gold painting decoration were excavated in Northern Song sites. All the objects were integrated in a Buddhist context, and the group consists of pieces such as sutra boxes and reliquaries from the pagodas of Huiguang, in Rui'an, Zhejiang province, and Ruiguang, in Suzhou, Jiangsu province. The pieces are decorated with gold powder mixed with lacquer combined with relief décor and inlay work.<sup>87</sup>

In the *miaojin* technique thin-lined drawings are brushed on top of a lacquer base using a tinted mixture of semitransparent lacquer. The piece is then set to dry in a room with high level of humidity and warm temperatures. When nearly dry, gold or silver powder is applied on the drawings by using a cotton ball, leaving the metallic powder adhered to the outlined patterns (Figure 5).

<sup>&</sup>lt;sup>87</sup> Patricia Frick, "Simplicity and Restraint: Lacquer of the Song Dynasty," 90.



Figure 5 "Precious treasures" display cabinet (one of a pair). Yongzheng or Qianlong period, 1723-95. Lacquer with gold on wooden core. Palace Museum, Gu207580. *Empress of China's Forbidden City: 1644-1912*, edited by Daisy Yiyou Wang and Jan Stuart (Salem, MA: Peabody Essex Musem, 2018), 179.

The degree of dryness is crucial to the success of this decorative technique. If the powder is applied too early, an excessive amount will adhere, which will translate not

only to waste but also to a dull lackluster finish.<sup>88</sup> Lee Yu-kuan distinguishes *miaojin* and *nijin*. Both are techniques for painting with gold but *miaojin* implies painting with thin gold. As for the *nijin* technique it infers painting with thick gold lacquer creating a raised decoration.<sup>89</sup> *Miaojin* and *nijin* are both used to designate the technique of painting with gold. Nonetheless, there are nuances between the two, with *nijin* corresponding to a gold with a "thicker" or "muddier" consistency.<sup>90</sup> As Rene-Yvon Lefebvre D'Argence notes, the term *miaojin* seems to incorporate different nuances. On his observations of two objects from the Late Song to Yuan dynasty, dated from the end of the thirteenth century/beginning of the fourteenth century, the author documents the use of red lacquer underneath the gilded decoration. In one of the pieces, a table, the red lacquer is applied very thinly while in the other, a box, the red lacquer is applied in a way it creates a raised gold decoration.<sup>91</sup>

Pieces in *miaojin* technique have been produced since the Song to the Qing dynasty (1644-1912) and are still being produced today. The first objects known that

<sup>&</sup>lt;sup>88</sup> Desheng Hu, *A Treasury of Ming and Qing Dynasty Palace Furniture from The Palace Museum Collection*, trans. Curtis Evarts (Beijing: Forbidden City Pub. 2008), 1: 474.

<sup>&</sup>lt;sup>89</sup> Lee Yu-kuan, Oriental lacquer art (New York: Weatherhill, 1972), 30.

<sup>&</sup>lt;sup>90</sup> During the author's stay at the Guangdong Museum, Guangzhou, the *miaojin* and *nijin* designations were discussed with Dr. Bai Fang, Director of exhibition & Design department, and with Dr. Ruan Hua-duan, Deputy Director, and expert in Chaozhou lacquerware; I am grateful to them for generously sharing their knowledge with me. The term *nijin* is nowadays somewhat dated; *miaojin* is generally used to designate all the painted gold decoration technique.

<sup>&</sup>lt;sup>91</sup> Rene-Yvon Lefebvre D'Argence, "Chinese lacquerware of the late medieval period," *Apollo* CVII, 221 (July 1980): 12-14.

use this technique are dated to before 1043. In these objects this technique is combined with molded appliqué decoration, the preceding technique for carved lacquer. The gilded decoration is represented in formal scrolls and diapers. In earlier objects the gold was applied over a flat surface while in later examples one can find decorative motifs in relief. Commonly, when the lacquer background is red the reliefs are executed in black and when the background is black the reliefs are obtained with red lacquer.<sup>92</sup>

# 1.5 Black and gold lacquerware in China and Japan

Attributing the origin of a decoration technique to a specific country is a recognized challenge, and determining to which extent Chinese gilded lacquerware influenced Japan and vice-versa remains an open field of debate.<sup>93</sup>

Chinese lacquer decorated with gold was already popular in Japan during the Song (960-1279) and Yuan (1279-1368) dynasties when it was exported together with other *karamono* (things from China). These objects, arriving via intra-Asian trade, were collected and used as symbols of status denoting power and wealth from their owners. Collections from that period held in Japan contain several Chinese pieces decorated in the *quiangjin* or *chinkin* (incised and gold-filled) technique.<sup>94</sup> Lists from gifts sent from China to Japan, marking a period of peaceful relationships under the

<sup>94</sup> Kaori Hidaka, "Maritime Trade in Asia and the Circulation of Lacquerware," 6.

<sup>&</sup>lt;sup>92</sup> Garner, Chinese Lacquer, 195.

<sup>&</sup>lt;sup>93</sup> Kaori Hidaka, "Maritime Trade in Asia and the Circulation of Lacquerware," in *East Asian Lacquer: Material Culture, Science and Conservation*, edited by Shayne Rivers, Boris Pretzel and Rupert Faulkner (London: Archetype Publications, 2011), 5.

rule of shōgun Ashikaga Yoshimitsu, include several of these objects. In lists dated from 1403, 1406, and 1407, the majority of the objects sent are in carved lacquer but reference is made to red lacquer furniture in the *quiangjin* technique. These pieces of furniture were mostly beds, chairs, and screens. In a later list, dated from 1433, in the reign of Yoshimitsu's son, the shōgun Ashikaga Yoshimochi, no carved lacquer is registered but some pieces of red *quiangjin* furniture are again sent as well as red and black *quiangjin* lacquer bowls.<sup>95</sup>

Chinese black lacquer decorated with gold also reached Japan via the trade with the Westerners. Sixteenth-century Portuguese Jesuit writings attest to the articles made in lacquer that the priests were supposed to bring from China to Japan as diplomatic gifts for their mission.<sup>96</sup> An example of Chinese black and gold lacquer taken as a gift is a parasol now in the Twenty-Six Martyrs Museum in Nagasaki and thought to have been made in Macao in the first half of the seventeenth century.<sup>97</sup>

On the other hand, Japanese lacquer was also collected by the Chinese literati, as a symbol of connoisseurship, and Chinese scholars became avid admirers and

<sup>&</sup>lt;sup>95</sup> Harry Garner, "The export of Chinese lacquer to Japan in the Yuan and early Ming dynasties," *Archives of Asian Art* 25 (1972): 10-28.

<sup>&</sup>lt;sup>96</sup> Pedro M. Carvalho, "The Circulation of European and Asian Works of Art in Japan, circa 1600," in *Portugal, Jesuits and Japan: Spiritual Beliefs and Earthly Goods*, edited by Victoria Weston (Boston: McMullen Museum of Art/Boston College, 2013), 38.

<sup>&</sup>lt;sup>97</sup> For image please refer to Pedro M. Carvalho, "The Circulation of European and Asian Works of Art in Japan, circa 1600," 38-39.

collectors of such objects, either contemporary lacquer or antique pieces.<sup>98</sup> In the wider context of collecting in China, scholars collected calligraphy already in the fourth and fifth centuries. Song scholars recognized the importance of collecting materials connected with that art and utensils and materials such as brushes, ink pots, ink stones, and inscriptions, among others, were added to their collections. Scholars also considered painting and music to be a part of intellectual activity and these pursuits were then also reflected in collecting habits. The four pleasures associated with scholarly life were music, board games, calligraphy, and painting. During the Song Dynasty (960-1279) scholars treasured ancient bronzes and jades as "texts" that represented the past, turning them into historical collectible artifacts. In the late Ming Dynasty (1368-1644), scholars' objects were meant to appeal to the senses and express ideas of scholarship, morality, and refined taste. These superfluous objects<sup>99</sup> communicated valuable concepts about their owner and placed him within the intellectual elite. Members of the newly rich merchant class that emerged during the Ming dynasty adopted this habit, even if their background was not scholarly. The possession of wealth made it possible for a collector to accumulate objects that

<sup>&</sup>lt;sup>98</sup> Dhont, G., Kesel, W. de, *Coromandel Lacquer Screens*, (Gent: Snoeck-Ducaju & Zoon, 2002), 85.

<sup>&</sup>lt;sup>99</sup> Designation used by Craig Clunas in his book *Superfluous Things: Material Culture and Social Status in Early Modern China* (Cambridge: Polity Press, 1991,) where he discusses Ming texts like Gao Lian's "Eight Discourses on the Art of Living" and Wen Zhenheng 's "Treatise on Superfluous Things" regarding these objects and issues of connoisseurship.

represented him as a scholar. Antique collecting continued through the Qing Dynasty (1644-1912) and peaked during the seventeenth and the eighteenth century.<sup>100</sup>

The Chinese taste for Japanese imports, among which was lacquerware, is recorded since at least the tenth century. During the Ming Dynasty that interest was facilitated and increased due to the diplomatic and trade relationships with the Ashikaga shogunate. Japanese lacquers were considered fashionable collectibles by the Chinese literati, particularly those from the Jiangnan area in the southeastern coast due to the relative geographical proximity to Japan.<sup>101</sup> Texts dating to the Wanli reign (1572-1620) praise Japanese lacquerwares particularly the ones embellished with gold such as "sprinkled-gold cupboards, sprinkled-gold writing tables, gold-traced cosmetic boxes, sprinkled-gold portable boxes, [and] gold-leaf painted screens."<sup>102</sup>

Qing Emperors, in particular Kangxi (1661-1722), Yongzheng (1722-1735), and Qianlong (1735-1796), are known for their collecting and patronage of the arts. The reestablishment of the maritime trade by Emperor Kangxi after 1684 allowed for the Sino-Japanese trade to increase. Emperor Kangxi also created workshops inside the Forbidden City to create precious objects in diverse materials such as metal, stone,

<sup>&</sup>lt;sup>100</sup> Sensabaugh, David Ake, *The scholar as collector: Chinese art at Yale*, (New Haven: Yale University Art Gallery, 2004).

<sup>&</sup>lt;sup>101</sup> Kristina Kleutghen, "Imports and Imitations: The taste for Japanese lacquer in eighteenth-century China and France," *Journal for Early Modern Cultural Studies* 17, 2 (2017): 189.

<sup>&</sup>lt;sup>102</sup> Kleutghen cites A Study of Japan, by Li Yangong and Hao Jie (1530-1600).
Kristina Kleutghen, "Imports and Imitations: The taste for Japanese lacquer in eighteenth-century China and France," *Journal for Early Modern Cultural Studies* 17, 2 (2017): 189.

jade, glass, and lacquer, among others. These workshops continued to operate during Yongzheng's reign. The imperial lacquer workshop would produce lacquerware in various techniques and, as will be further discussed in a later paragraph, had specialists producing pieces in Japanese style. <sup>103</sup> Although Japanese style lacquerwares produced in the imperial workshops in Beijing were added to the imperial collections, Japanese lacquerwares are also known to be part of those same collections.<sup>104</sup>

Japanese *maki-e* lacquer was so popular and praised in China that it is said to have been responsible for the development of the Chinese *miaojin* technique from the Ming (1368-1644) period forward. Both techniques were so popular during the Qing Dynasty (1644-1911) that an imperial workshop for the latter was set up.<sup>105</sup> Emperor Yongzheng (1678-1735) was particular found of Japanese objects including *yangqi* lacquer, and seems to have been the first emperor to commission imitations of it from the imperial workshops. The term *yang*, meaning overseas, is used generically to refer to "foreign goods" or *yanhuo*, but when applied to foreign lacquer refers specifically to Japan. In palace records, some items are described as "imitation foreign lacquer" or *fang yanqi*, but more often the term *yangqi* is used interchangeably for both commissions of "imitation Japanese lacquer" as well as "Japanese lacquer," making it

<sup>&</sup>lt;sup>103</sup> Royal Academy of the Arts, *China: The Three Emperors* 1662-1795, edited by Evelyn S. Rawski and Jessica Rawson (London: Royal Academy of the Arts, 2005), 213, 244.

<sup>&</sup>lt;sup>104</sup> For an image of a black and gold Japanese lacquer box in Qianlong's collection see Royal Academy of the Arts, *China: The Three Emperors 1662-1795*, 42.

<sup>&</sup>lt;sup>105</sup> Kaori Hidaka, "Maritime Trade in Asia and the Circulation of Lacquerware," 7.
impossible from documents alone to distinguish imported objects to commissioned imitations.<sup>106</sup> The fact that they were produced in China in Japanese style, in opposition to "true" Japanese objects manufactured in Japan, does not seem to diminish the appreciation Yongzheng had for them. Yangqi was one of the most important lacquer techniques produced in the imperial workshops during Yongzheng's reign and also one produced in Jiangning, Jiangxi, and Fuzhou, and presented to the court. The yangqi or "foreign-style lacquer" refers to the "gold-painted lacquer" or *miaojin*, where lacquer is applied in different layers and then polished after dried. Next, the design is painted with lacquer and then, while still wet, gold leaf or gold powder is applied. Several variations in the technique are recognized: gold on black lacquer or heigi miaojin, gold on red lacquer or honggi miaojin, lacquer with painted polychrome lacquer and gold outline or *jinligoumiaoqi*, lacquer with polychrome oil painting and gold outline or *jinligoumiaoyou*, lacquer with various shades of gold decoration or *caijinxiangmiaojin*, gold on raised decoration or *shiwenmiaojin*, and sprinkling of gold in a lacquered background to produce a gold-freckled surface or *saiin*.<sup>107</sup>

## **1.6** Cantonese black and gold lacquer technology

Black lacquered furniture decorated with gold from the Guangzhou region is produced in the *miaojin* technique. One of the earliest Western references to lacquered

<sup>&</sup>lt;sup>106</sup> Kristina Kleutghen, "Imports and Imitations: The taste for Japanese lacquer in eighteenth-century China and France," *Journal for Early Modern Cultural Studies* 17, 2 (2017): 193.

<sup>&</sup>lt;sup>107</sup> Jiajin Zhu, "Yongzheng lacquerware in the Palace Museum, Beijing," *Orientations*, 19, 3 (1988): 30-34.

furniture manufacture in Canton is found in *Tractado em que se contam muito por extenso as coisas da China*, by the Portuguese Gaspar da Cruz, published in 1569-70. The Dominican friar mentions a "*verniz galante*"<sup>108</sup> and describes furniture coated with a "fancy varnish" that would most probably refer to lacquered pieces.<sup>109</sup>

Lacquer from South China is referred in volume 13 of the *Notes on Nanyue* by Li Diaoyuan (1734-1802), active during the second half of the eighteenth century.<sup>110</sup> The text refers many sources from different dynasties which are not related making it of extreme complexity.<sup>111</sup> Although not specifically mentioning lacquer from Canton it concerns lacquer from the south provinces of Guangdong and Guangxi, where Canton is located,

<sup>109</sup> Pedro de M. Carvalho, "Macao as a Source for Works of Art of Far Eastern Origin," *Oriental Art* 46, 3 (2000), 14.

<sup>110</sup> I am grateful to Daisy Yiyou Wang, Robert N. Shapiro Curator of Chinese and East Asian Art at the Peabody Essex Museum, for bringing this reference to my attention and generously sharing it with me. The sixteen volumes of the *Nanyue biji* [*Notes on Nanyue*] are also known under the name *Yuedong Notes*. *Notes on Nanyue* is a Qing-dynasty record of Guangdong's geography, flora, commodities, and customs, among others.

<sup>111</sup> The author is deeply grateful to Dr. Patricia Frick, Curator, Museum fur Lackkunst, and Mrs. Jian, Hangzhou University, for painstakingly translating the Chinese reference to English and for all further explanations to make it comprehensible.

<sup>&</sup>lt;sup>108</sup> "Têm continuamente feito muitos caixões de muitas maneiras, uns envernizados de um **verniz galante**, outros pintados, outros forrados de couro, e assim de outras maneiras." Gaspar da Cruz, *Tratado em que, se contam muito por extenso as cousas da China com suas particularidades e assim do reino de Ormuz composto por el r. Padre Frei Gaspar da Cruz da Ordem de São Domingos...*, trans. Fan Weixin (Macau: Museu Marítimo/Instituto de Promoção do Comércio e do Desenvolvimento de Macau, 1996), 71.

Lacquer from the south and southern provinces [of Guangdong and Guanxi]

The lacquer produced in the southern provinces, is [also] sold to other provinces and is known under the name *guangqi* [lacquer from the southern provinces of Guangdong and Guangxi].<sup>112</sup>

The lacquer artisans of the southern provinces produce small tables, small boxes, vessels [etc.]; they are all of high quality and great elegance. The most carefully polished pieces reflect the light best. Further in the *Zongzhou* [*fu*] *zhi*,<sup>113</sup> in the chapter 'Lacquer Ware', it is said that there are built-up and carved lacquer wares [from the southern provinces], among them are red and black carved lacquer wares.

The [*Guihai*] yuheng  $zhi^{114}$  states: The lacquer of the south is like a [soft] candy [as it is of bright color and flows easily]; its qi [energy, vitality] is like that of pine resin and it is easy to handle and work with.

In the *Tongzhi*<sup>115</sup> it is said: The color of the lacquer from the southern provinces is bright / radiant and the lacquer is not sticky; it comes from places like Yangchun, Xinxing and Deqing [all in nowadays Guangdong province]. The *Guangzhouzhi* states that there are flowers in the sea that look like peonies; they are called *zhan zi*. If you soak

<sup>113</sup> Zongzhou fuzhi is a Qing dynasty book published in 1890.

<sup>114</sup> Guihai yuheng zhi 桂海虞衡志 [Well-balanced records of Guihai] is a Southern Song period (960-1279) description of southwestern China written by Fan Chengda 范 成大. Fan, better known for his poetry, wrote down his memories of the time when he acted as prefect of Jingjiang 靜江府 (modern Guilin 桂林, Guangxi) from 1171-1175. In 13 chapters, Fan Chengda describes, among others subjects, the industrial and agricultural products of the region of modern Guangxi and Guizhou provinces.

<sup>115</sup> *Tongzhi* [*Comprehensive Records*] is an encyclopedia written by Zheng Qiao 鄭樵 in the Song dynasty, containing 200 chapters on the most diverse topics.

<sup>&</sup>lt;sup>112</sup> The term *guangqi* denotes a type of lacquer which consists of raw lacquer (not boiled) and up to 40% of pi-oil, a type of tung-oil.

them, they can be used as an adhesive; they can [also] be used like the varnish obtained from persimmons.  $^{116}\,$ 

There are [also] called *haiqi*, lacquer of the sea. A term [first] used / introduced by [Su] Dongpo<sup>117</sup>, according to Lu Yingyang.<sup>118</sup>

The execution of painted lacquer was less time consuming than carved lacquer, and would therefore be more favorable for the commercial seasons of a port city such as Canton.<sup>119</sup> After the arrival of the Portuguese in China (1513) and later to Japan (1543), lacquer pieces began to reach Western countries more systematically. Imports of Japanese *namban*<sup>120</sup> lacquer pieces were known since the sixteenth century; the peak of their consumption was in the seventeenth century.<sup>121</sup> The almost complete closure of Japan to the international trade after 1639 translated to a decrease of lacquer imports. For the Dutch merchants, allowed to stay in Deshima and trade, quality lacquer was more and more difficult to obtain at reasonable prices, as the end of the

<sup>117</sup> Chinese writer and poet of the Song dynasty.

<sup>118</sup> Author of the Ming dynasty.

<sup>119</sup> Craig Clunas, *Chinese Export Art and Design* (London: Victoria & Albert Museum, 1987), 82.

<sup>120</sup> From "South barbarians," a designation used for the Portuguese in their first contacts with Japan, and after extended to all foreigners arriving there. The term *namban* relates to the group of pieces with Western shapes and Eastern decoration, produced in Japan for export as well as to pieces with Japanese shapes and decoration inspired in Western motifs produced for the local market.

<sup>121</sup> Julia Hutt, "Asia in Europe: Lacquer for the West," in *Encounters: The Meeting of Asia and Europe 1500-1800*, edited by Anna Jackson and Amin Jaffer (London: Victoria & Albert Publications, 2004), 238.

<sup>&</sup>lt;sup>116</sup> Shiqi 柿漆 or "persimmon lacquer."

seventeenth century approached.<sup>122</sup> This situation allowed the Chinese workshops to begin creating replacements for the sought-after Japanese products. As mentioned previously, the *makie* decoration over black lacquer was one of the most favored techniques, and the pieces produced in Canton followed that decorative pattern (Figure 6). Craig Clunas notes, that by the 1700s black and gold lacquerware was already one of the Cantonese specialties and was produced for export as well as for domestic consumers keen on *yangqi* or "foreign lacquer" in a clear allusion to Japan and the lacquer produced there.<sup>123</sup>



Figure 6 Low cabinet (FE.38-1981). Canton, 1730-1770. Courtesy of the Victoria & Albert Museum.

<sup>&</sup>lt;sup>122</sup> Deshima was an artificial island built in Nagasaki to house the Dutch that were authorized to trade in Japan. Oliver Impey and Christiaan Jörg, *Japanese export lacquer 1580-1850*, 29.

<sup>&</sup>lt;sup>123</sup> Craig Clunas, Chinese Export Art and Design, 82.

An attempt to reconstruct how a lacquer object would have been made in Canton in the nineteenth century can be based on travelers' descriptions of lacquer workshops visited during stays in the city. In general terms the process can be described as follows: the wooden pieces would be smoothed, covered with coarse ground layers that could be reinforced with paper or fabric, and then polished. The lacquer layers would be applied in the next step of the process. For gold decorations, the artisans transferred the motif they wished to reproduce with the design outlined in pierced paper. This paper was applied to the object to be decorated and a powder applied through the holes, thus defining the drawing on the black lacquer surface. Other travelers observed that the outlines were first drawn on the surface with orpiment. The artisans would then scratch the lines with a sharp pointed utensil, and the complete motif would be painted in red lacquer, to which the gold dust would adhere before the red lacquer dried completely.<sup>124</sup>

The workshop of Hipqua was the one most often mentioned by the foreigners, but there is also one account that mentions the workshop of a man named Fiqua.<sup>125</sup> More details on these two craftsmen will be provided on Chapter 2. These specific descriptions of the foreigners have to be interpreted with caution and full awareness that visitors were often not familiar with the various materials, and the names given to

<sup>&</sup>lt;sup>124</sup> Maria J. Petisca *et al.*, "Chinese Export Lacquerware: characterization of a group of *Canton lacquer* pieces from the 18<sup>th</sup> and 19<sup>th</sup> centuries," edited by Jane Bridgland, *ICOM Committee for Conservation 11th Triennial Meeting, Lisbon Preprints* (Almada: Critério, 2011): Paper 2106.

<sup>&</sup>lt;sup>125</sup> Hipqua and Fiqua are Romanized names given by the foreigners to the Chinese shopkeepers.

the materials in different periods and regions may vary. Furthermore, in their descriptions the visitors might have focused on one material while neglecting others.

In 1838, Théodore-Adolphe Barrot visited Canton. Barrot was a French diplomat, and during his stay in Canton he was taken to visit "*le bon Hip-qua*" workshop. Upon his return he dedicated several paragraphs of his *Voyage en Chine* to describing the experience in the lacquerware workshop.<sup>126</sup> Osmond Tiffany provided similar descriptions when he published his *Canton Chinese* eleven years later. Tiffany's determination was to "come in actual contact with the people, instead of remaining in the hongs and obtaining all my information from the numerous books which have been written on the Celestials."<sup>127</sup> He too met Hipqua in his shop at China street and then proceeded with the Chinese man to his lacquer workshop. As noted before, it was M. Natalis Rondot that provided the most detailed description of lacquerware production in Canton, in 1845. He described "*la manufacture de laques du fameux Hip-qua*" with extreme detail in regards of organization and materials.<sup>128</sup> The reference to a different Cantonese workshop was registered in 1852 by Charles

<sup>&</sup>lt;sup>126</sup> Théodore-Adolphe Barrot (1801-70) was a French diplomat having served in different locations as Colombia, the Philippines, Haiti, Brazil, Portugal, Italy, and Spain. Adolphe Barrot, "Voyage en Chine," *Revue des Deux Mondes* 20 (1839), 213-235.

<sup>&</sup>lt;sup>127</sup> Osmond Tiffany Jr. (1823-95) was the oldest son of Osmond Capron Tiffany, a merchant of Baltimore. He sailed for Canton in May 1844 and left the city a little before the Chinese New Year. Osmond Tiffany, *The Canton Chinese or the American's sojourn in the celestial empire* (Boston/Cambridge: James Munroe and Company, 1849), preface.

<sup>&</sup>lt;sup>128</sup> Natalis Rondot, "Une promenade dans Canton. La manufacture de laque d'Hip-qua et l'atelier de tabletterie de Ta-Yu-Tong," *Journal Asiatique* 11 (January 1848): 34-58.

Hubert Lavollée. The French author names Fiqua, as the owner of the workshop he visited.<sup>129</sup> Another French, Auguste François Marie Montfort in 1854, also described a Cantonese lacquerware factory but no mention is made to who the owner was.<sup>130</sup> A later reference, from 1875, mentions the name of Hip-ki. This is how John Henry Gray named the lacquerware hong he visited during his stay in Canton.<sup>131</sup> He also added the Chinese characters to the name and, from the translation, it seems most likely he is referring to Hip-qua.<sup>132</sup>

# **1.6.1** Ground layers

According to the visitors, the first phase of the lacquering process consisted of priming the wood substrate of the objects before lacquer was applied. Barrot mentions the application of a clay of coarse grain to fill in the wood pores. This clay was then polished with a flat and stiff stone after it dried.<sup>133</sup> Rondot documents that a mixture

<sup>&</sup>lt;sup>129</sup> Charles Hubert Lavollée (1823-1899) was a writer and a press officer of the French mission in China. Charles-Hubert Lavollée, *Voyage en Chine* (Paris: Imprimerie de Pommeret et Mobeau, 1852), 348.

<sup>&</sup>lt;sup>130</sup> Auguste François Marie Montfort was a captain of the French Navy. Auguste François Marie Montfort, *Voyage en Chine du Capitaine Montfort, avec un appendice historique sur les derniers événements, par George Bell* (Paris: Victor Lecou, 1854), 137-139.

<sup>&</sup>lt;sup>131</sup> John Henry Gray (1823-1890) was an English priest that became the first archdeacon of Hong Kong from 1868 until his death. He was also consular chaplain in Canton. John Henry Gray, *Walks in the City of Canton* (Hong Kong: De Souza & Co., 1875), 199-201.

<sup>&</sup>lt;sup>132</sup> I am most thankful to Ying Xu for the help with the translation of this name.

<sup>&</sup>lt;sup>133</sup> Barrot, "Voyage en Chine," 224.

of pulverized "old red sandstone" and pig or buffalo gall is prepared. Furthermore, Rondot states that this operation is done very slowly and can last an entire day. Following that, this mixture was applied to the wood in a thick layer, by means of a flat brush, and left to dry. Once dried this preparatory layer would look coarse and have a reddish-brown color. Then the layer would be polished with a burnisher made of red sandstone. Rondot wrote that the furniture would be ready to receive the lacquer after being brushed with a gummed water (*eau gommé* in the original) where chalk would be in suspension or just by scrubbing it with wax (as it is done in Japan, the author noted) so that the lacquer does not penetrate the wood.<sup>134</sup> In Fi-qua workshop, Lavollée wrote, the furniture received a first powdery layer of a "particular sandstone." This layer is then carefully sanded with a stone.<sup>135</sup> Back in Hipgua's workshop, Gray described a second ground layer (since the first – *Chue-liu* – Gray said would be used to adhere paper to the wood substrate in the areas of joints) as a paste named Fui-Ni and made of disintegrated granite and "blood of pigs."<sup>136</sup> In summary, one or two ground layers constituted of clays/earths mixed with animal blood or gall, were applied on to the wooden furniture according to the various descriptions by the travelers.

<sup>&</sup>lt;sup>134</sup> Rondot, "Une promenade dans Canton. La manufacture de laque d'Hip-qua et l'atelier de tabletterie de Ta-Yu-Tong," 44-45.

<sup>&</sup>lt;sup>135</sup> Lavollée, Voyage en Chine, 351.

<sup>&</sup>lt;sup>136</sup> Gray, Walks in the City of Canton, 200.

#### **1.6.2** Lacquer layers

Information regarding the lacquer layers is also given by the different authors. Barrot starts by expressing his disappointment with Hipqua's vague answers, allowing him to understand only that the varnish was prepared with a mixture of several gums and juices of different plants. The French diplomat adds that one layer of lacquer is not enough to create a perfect finish. He mentions this first lacquer layer is polished until almost nothing remains on the surface. From then onwards, from three to ten lacquer layers are applied to the object, depending on the desired finish.<sup>137</sup> Tiffany also noted that the first layer of lacquer (lac in the original) was "very carefully smoothed" and then left to dry. It was then "rubbed a long time with a smooth stone, and this process is repeated again and again until the several coats of lac are polished in the most perfect manner."<sup>138</sup> Regarding the lacquer used in Hipqua's manufacture, Rondot wrote that independently of the harvesting region, the lacquer reached Canton from the provinces of Sichuan and Jiangxi carried in small elliptic barrels. A recipe for the lacquer applied on the objects at the workshop is given by Rondot: first a mix is made with one catty<sup>139</sup> of lacquer of first quality and two catties of water. To this, one tael<sup>140</sup> of *camellia sesanqua* or *oleifera* is added, and also, one pig's gall and five *méces* of rice vinegar. If the lacquer is too thick, vinegar is added to increase fluidity. By mixing all these ingredients, Rondot stated, a pasty, fine varnish of a brilliant black

<sup>&</sup>lt;sup>137</sup> Barrot, "Voyage en Chine," 225.

<sup>&</sup>lt;sup>138</sup> Tiffany, The Canton Chinese or the American's sojourn in the celestial empire, 81.

<sup>&</sup>lt;sup>139</sup> Chinese measurement corresponding to around 604 grams.

<sup>&</sup>lt;sup>140</sup> Measurement corresponding to 1/16 of a catty, approximately 37 grams.

was obtained. The lacquer was then applied, by means of a flat brush, in thin layers. After each layer, the piece was left to dry in a designated drying chamber. After it was dry, an artisan damped the surface and polished it carefully until the surface was even and shiny. According to Rondot, lacquer was applied in a minimum of three layers and a maximum of eighteen.<sup>141</sup> Regarding Figua's workshop, Lavollée mentioned a first black layer that is allowed to dry without specifying if this layer would be lacquer or other material. As for the second layer the author clearly mentions that the "résine*laque*" is spread and dries naturally due to its constituents.<sup>142</sup> In the workshop where Montfort made his observations, the lacquer would arrive in baskets from the interior of the country and had a thick consistency. Once there, a mixture of lacquer and water is also prepared, and the author noted that the mixing is prepared over heat to make the lacquer more fluid and homogenous. Montfort stated that two layers of lacquer are applied, and each one of them is polished, and this was the way to do it for "expensive furniture" (meubles de prix in the French original), which in some cases may even receive a third lacquer layer.<sup>143</sup> Gray also stated that two lacquer layers are usually considered sufficient, calling the type of lacquer applied in the first layer Kum-Ts'at and for the second layer Min-Ts'at. According to the author, both come from the province of Sichuan. However, Gray noted "with the view, (...), of rendering the

<sup>&</sup>lt;sup>141</sup> Rondot, "Une promenade dans Canton. La manufacture de laque d'Hip-qua et l'atelier de tabletterie de Ta-Yu-Tong," 51-53.

<sup>&</sup>lt;sup>142</sup> Lavollée, Voyage en Chine, 351.

<sup>&</sup>lt;sup>143</sup> Montfort, Voyage en Chine du Capitaine Montfort, avec un appendice historique sur les derniers événements, par George Bell, 138.

articles preeminently fine, three coatings of lacquer in question, are not unfrequently applied to them."<sup>144</sup>

#### **1.6.3 Gilded decoration**

The step of creating the gilded decoration on the objects seems to have created a strong impression on foreigners. Almost all of the authors mentioned here described the evident attention to detail during this phase and described it with extreme detail. Barrot registered his admiration, and previous inaccurate judgment in thinking that the gilded motifs were created with one single step. Instead, he wrote, the first thing the craftsman does is to pierce with a sharp utensil the paper where the motif to be transferred is drawn. Thereafter, the paper was placed on top of the lacquer surface and covered with pulverized talc. This talc powder would go through the holes in the paper thus transferring the drawing onto the lacquer surface to be decorated. The lines of motif were then engraved into the surface with a punch. Next, a painter received the object and painted the lines of the motifs either in red or brown before the gold is applied. Barrot noted that in earlier years only matte and bright gold were applied in lacquer decoration but at that point other decorations like silver, green leaves, and flowers in white and red colours, were also in use.<sup>145</sup> Like Barrot, Tiffany also mentioned that a sharp steel point "pricked" the design on the black lacquer surface and after that, the gold preparation kept in small porcelain containers was applied by

<sup>&</sup>lt;sup>144</sup> Gray, Walks in the City of Canton, 200.

<sup>&</sup>lt;sup>145</sup> Barrot, "Voyage en Chine," 225.

means of fine brushes.<sup>146</sup> Rondot mentioned two ways for the design pattern to be transferred onto the lacquer surface. In one, the craftsman drew the motif directly on the lacquer surface with white lead (*céruse* in the French original) using a brush. He then incised it with a very sharp steel utensil, tracing all the details of the drawing. More often, according to Rondot, it was the painting workshop master that drew the motif on paper using China ink. After that, the craftsman or apprentice followed the lines with a brush using orpiment in suspension in water. While these lines were still wet, he transferred the motif onto the lacquer piece. In order to print the drawing in the lacquer surface, the craftsman traced the lines again with orpiment or vermillion. Following that, the motifs were painted with lacquer diluted with camphor that was used as a mordant for the gold.<sup>147</sup> When this lacquer was dried, shell gold was applied with a ball made of the silkworm nymph parchment. The gold applied was produced in Canton, and if a paler tone of gold was desired, that was achieved by adding silver. Rondot continued that to create the reliefs in the decoration, *hoa-kin-tsi* was used with no dilution in camphor and applied several times. To achieve the details over the gilded motifs like eyes, mouths, drapery, etc, Fujian (Fo-kién in the original) lacquer was used. If the goal was to paint the gilded motifs directly onto the lacquer surface

<sup>&</sup>lt;sup>146</sup> Tiffany, *The Canton Chinese or the American's sojourn in the celestial empire*, 81.

<sup>&</sup>lt;sup>147</sup> Rondot names the types of lacquer used for this step as *kouang-si* or *hoa-kin-tsi* using the designations used by Pére d'Incarville in his *Mémoire sur le Vernis de la Chine*. According to him, and reproduced by Rondot, *kouang-tsi* was the varnish of kouang-tcheou-fou, kouang-tong (Guangdong province), with a yellowish color. To be used it should be mixed with the oil of *vernicia montana* L., a very common oil in China. The *hoa-kin-tsi*, or *vernis doré pour les peintres*, was used to thin the colors to apply on the lacquer or as a mordant for gold application. In this case, vermillion or orpiment would be added to it.

with a brush, the different kinds of gold would be used directly from small containers where they were kept in powder (*porphyrisés* in the original) and suspended in water with glue.<sup>148</sup> Lavollée, describing the work in Figua's workshop, mentioned only that after the lacquer was dried the object was passed down to the gilders and decorators who then applied the gold and the colors with brushes.<sup>149</sup> Montfort for his part, noted that it was when the lacquer was nearly dried that the work was given to the draftsman (dessinateur in the original). This man drew in red the motifs desired and the gilder, after him, covered all of them with gold.<sup>150</sup> Gray paid extra attention to the way the decorative motifs were transferred to the lacquered surface. According to him, several drawings on paper of the different motifs would be available to the artisan, that had been traced with a very sharp pointed needle. The chosen drawing would be placed on the area to be decorated and rubbed with a little pouch filled with powdered chalk. This powder would penetrate the perforations in the paper leaving the lines of the design on the lacquer surface. The artisan would then follow the lines of the chalk with a wire pencil, thus scratching the design into the article to be decorated. Following that, the motif would be painted using red lacquer obtained by adding vermillion. The craftsman would then use a piece of cotton that he would dip into a small bowl containing gold dust. This cotton charged with gold would be used as a brush and "rubbed" in the red lacquer that was, to certain extension, dry. Gray

<sup>&</sup>lt;sup>148</sup> Rondot, "Une promenade dans Canton. La manufacture de laque d'Hip-qua et l'atelier de tabletterie de Ta-Yu-Tong," 53-54.

<sup>&</sup>lt;sup>149</sup> Lavollée, Voyage en Chine, 351.

<sup>&</sup>lt;sup>150</sup> Montfort, Voyage en Chine du Capitaine Montfort, avec un appendice historique sur les derniers événements, par George Bell, 139.

concludes his description by saying "In this, and, indeed, in all factories of a similar kind, very beautiful articles are produced."<sup>151</sup>

These descriptions tend to agree regarding how the objects were produced and decorated. The main difference in these descriptions is not that they contradict one another, but that they differ in their degree of detail.

<sup>&</sup>lt;sup>151</sup> Gray, Walks in the City of Canton, 201.

# Chapter 2

## CANTON, TRADE CITY

#### 2.1 Chinese black and gold lacquer in the West

Archeological diggings and continuous research have systematically redated the estimated appearance of Chinese lacquerware in Western locations to earlier times. The discovery of Han lacquerwares in the Crimean Peninsula testifies to the transportation and exchange of these objects throughout the land Silk Routes.<sup>152</sup> Nonetheless, it was after the development of maritime routes connecting Europe and the Americas to China, that trade increased and the presence of lacquered objects became more visible in Western interiors.

The first reference to lacquered objects in European collections dates to 1523. It refers to five small lacquerwares given by Eleanor of Austria and Castile (1498-1558), Queen Dowager of Portugal, to the Archduchess Margaret of Austria (1480-1530) Governor of the Habsburg Netherlands.<sup>153</sup> Catherine of Austria (1507-1578), Queen of Portugal, was known to be a collector of lacquerware. Her 1557 inventory

<sup>&</sup>lt;sup>152</sup> Margaret Prüch, "From East to West: The journey of Han-dynasty lacquer boxes to the Crimean Peninsula," in *Production, Distribution and Appreciation: New aspects of East Asian lacquer ware*, edited by Patricia Frick and Annette Kieser (Leiden: Brill, 2018): 10-29.

<sup>&</sup>lt;sup>153</sup> Kristina Kleutghen, "Imports and Imitations: The taste for Japanese lacquer in eighteenth-century China and France," in *Journal for Early Modern Cultural Studies* 20, 2 (2017): 181.

includes lacquered objects such as trays, boxes, and tables, several of them described as having gilded decoration. It is difficult to attribute a specific country of origin to each one of these, mostly due to the random use of designations such as "Indian," "Chinese," or "Japanese." These adjectives were used with no concern about their correspondence with the region or country of provenance of the different objects. In any case, China is most probably the place where several of them were made.<sup>154</sup> The trading networks created by the Portuguese, particularly after their establishment in Malacca in 1511, positioned the country to have a privileged access to the commodities from distant countries such as China, Japan, and the Ryukyu Kingdom. During the sixteenth century, different exotic objects reached Portugal and were distributed throughout Europe. The Portuguese Royal Household also had a leading role in disseminating foreign goods, one of them being Asian lacquer. The gifts and heirlooms between family relatives promoted the distribution of lacquerware through other European courts.<sup>155</sup>

Some of the first lacquer objects known to have reached European collections do not have a clear origin since their descriptions related to more than one geographic area. Pieces like a chest, named the "Pope's trunk," from the collection of the Museen

<sup>&</sup>lt;sup>154</sup> Annemarie Jordan Gschwend, "O Fascínio de Cipango: Artes decorativas e lacas da Ásia Oriental em Portugal, Espanha e Áustria (1511-1598)," in *Os Construtores do Oriente Português*, edited by Mafalda Soares da Cunha (Lisboa: Comissão Nacional para as Comemorações dos Descobrimentos Portugueses, 1998), 205.

<sup>&</sup>lt;sup>155</sup> Oliver Impey and Christiaan Jörg, *Japanese export lacquer 1580-1850* (Amsterdam: Hobei Publishing, 2002), 284.

des Hofmobiliendepots, Vienna (accession number MD047590,)<sup>156</sup> or the "Cardinal's" tabletop (accession number LA280,)<sup>157</sup> from the Austrian Museum of Applied Arts, Vienna, are decorated with lacquer in black color (tabletop) or red color (chest). Both feature gilded decoration over the lacquered background. The "Pope's trunk" combines a lacquer-decorated surface with carved and gilded wood areas. Due to the different decorative influences and combinations of manufacturing techniques, these objects are difficult to classify and have been attributed to different regions by different authors.<sup>158</sup> Nonetheless, authors seem to agree on the Chinese features and inspiration of the gilded decoration that embellishes the lacquered surface of these pieces. Gilded birds, animals, branches, and foliage are combined and profusely cover the entire background of both pieces. Analyses performed in 2011, in Lisbon, have shown that the lacquer species used to create the red decoration in the "Pope's trunk," was *Toxicodendron succedaneum*, the lacquer specie associated with South China lacquerware production.<sup>159</sup>

<sup>158</sup> Authors like Felgueiras (1999) suggested Gujarat, India as the manufacture location for these objects, Moura Carvalho (2001) pointed for their production center to Bengal and the Coromandel Coast, and more recently Crespo (2015) and also Köber (2015) indicate Southern China as a probable origin for the objects.

<sup>159</sup> José Carlos Frade, *A laca: Identificação das origens e das técnicas* (PhD diss., Instituto Superior de Agronomia, 2011), 172.

<sup>&</sup>lt;sup>156</sup> For an image of this object, please refer to Pedro M. Carvalho, "Oriental export lacquerwares and their problematic origin," *Jahrbuch des Kunsthistorischen Museums Wien* 3 (2001), 251.

<sup>&</sup>lt;sup>157</sup> For an image of this object, please refer to Annemarie Jordan Gschwend, "Olisipo, *Emporium Nobilissimum*: Global consumption in renaissance Lisbon," in *The Global City, on the streets of renaissance Lisbon*, edited by Annemarie Jordan Gschwend and K.J.P. Lowe (London: Paul Holberton, 2015), 149.

Chinese black and gold furniture is documented to have been part of Portuguese households in Goa, in the late sixteenth century. The Florentine Francesco Carletti described houses furnished with objects from different parts of India as well as with the best from China such as "gilded beds, chests, small tables, chairs and cabinets coated with black lacquer, whose resistance and shine, similar to a mirror, were worthy of his praise."<sup>160</sup> The presence of Chinese furniture in black lacquer decorated with gold was also registered in Lisbon in 1571. The diarist of Antonio Tiepolo, the Venetian ambassador sent to Portugal and Spain in 1571-72, describing the city and the different goods brought there, wrote,

From China are brought some beds, tables, and chairs, from a certain wood made black and shiny like ebony worked and carefully covered with gold  $(...)^{161}$ 

Due to the proximity and relationships between the Portuguese and the Spanish crowns, Spain also had early access to lacquerware coming mostly from China and Japan.<sup>162</sup> In the second half of the sixteenth century, after the foundation of Manila in

<sup>&</sup>lt;sup>160</sup> Francesco Carletti, *Voyage au tour du monde de Francesco Carletti, 1594-1606* (Paris: Chardeigne, 1999), 249; cited by Celina Bastos, "*Things from China*: trading, disclosure and ownership of Chinese furniture in Portugal. 16<sup>th</sup> to 18<sup>th</sup> century," in *The exotic is never at home? The presence of China in the Portuguese faience and azulejo* (*17<sup>th</sup> to 18<sup>th</sup> centuries*), edited by Alexandra Curvelo (Lisboa: Museu Nacional do Azulejo, 2013), 147.

<sup>&</sup>lt;sup>161</sup> The text is anonymous but attributed to the diarist of the ambassador Antonio Tiepolo. The complete text is available in Kate Lowe, "Foreign descriptions of the global city: Renaissance Lisbon from the outside," in *The Global City, on the streets of renaissance Lisbon*, edited by Annemarie Jordan Gschwend and K.J.P. Lowe (London: Paul Holberton, 2015): 47 and Appendix 3.

<sup>&</sup>lt;sup>162</sup> Even more so during the period of 1580-1640, during which the Spanish and Portuguese crowns were unified.

1571 and the establishment of the maritime connection between this city and Acapulco, lacquers began to enter Spain through this route. Objects arrived to the port of Seville, through the *Casa de Contratación* ("House of Trade"), and to other important ports in that country.<sup>163</sup> As in the case of the first lacquers arriving to Portugal, establishing a country of origin is challenging. In the *postmortem* inventory of Felipe II (1598-1612), lacquers coming via the Philippines are noted. Together with musical instruments said to be made in China in black lacquer with gilded decoration, furniture objects were also noted,

six writing desks, coated with black lacquer, painted in gold and colored inside, with locker, key and brass hardware that Governor Guido de Lavazano sent from the Philippines.<sup>164</sup>

Although it is not known for sure if these objects were made in China, that location together with Japan are the two most probable origins for the pieces.

England and the Netherlands imported lacquerware throughout the seventeenth century via their East India Companies, the English *East India Company* (EIC), established in 1600 and the Dutch *Vereenigde Oostindische Compagnie* (VOC), established in 1602. The EIC settled one of its trading centers in Bantam (West Java) in 1601. After several attacks, the Dutch took Bantam in 1682. The English trade with Japan was seriously compromised and the EIC left the country in 1683. After 1671 the

<sup>&</sup>lt;sup>163</sup> Cristina Ordóñez Goded, *De lacas y charoles en España: siglos XVI-XIX*, Ph.D. dissertation (Madrid: Universidade Complutense de Madrid, 2016), 194.

<sup>&</sup>lt;sup>164</sup> "seis escrebanías de asiento, cubiertas de laque negro, pintadas de oro y por de dentro coloradas, con cerradura, llave y guarniciones de latón, que embió de las Filipinas el Gobernador Guido de Lavazano." Guido de Lavazaris was Governor of the Philippines between 1572 and 1575. Cristina Ordóñez Goded, De lacas y charoles en España: siglos XVI-XIX, 200.

British were allowed to trade with Taiwan, and in southern Chinese ports such as Amoy and Canton. EIC records from the end of seventeenth century mention the import of black and gold and red and gold screens, tables, folding card tables, and cabinets decorated the same way.<sup>165</sup> Throughout the eighteenth century lacquered furniture pieces such as screens, tables, tea tables, panels, and trunks, continue to be taken to England, although the private trade of the captains and supercargoes was now the main channel for these imports.<sup>166</sup>

The Dutch had their main trading post in Batavia (Java) and had been in Japan since the 1600s. After the expulsion of all Iberians in 1639, they gained a leading role in the trade with Japan (although restrained to the island of Deshima), and a privileged access to Japanese lacquerware. Due to the increasing price of Japanese lacquerware towards the end of the seventeenth century and loss of profit, VOC was importing it less and after 1693 Japanese lacquerware is not documented in the company's sales list. VOC documents also show that in order to fulfill the demand for lacquerware, the Dutch company began importing lacquerware from Canton to the Netherlands, via Batavia. In the lists of lacquerwares bought by the VOC in Canton from 1733 to 1738, the articles brought to the Netherlands in largest quantities were tea trays, powder boxes, quadrille boxes (for a card game,) and small tea boxes. In much lesser quantity, the lists also include articles such as cabinets, tables, chairs, arm chairs, mirror frames,

<sup>&</sup>lt;sup>165</sup> Margaret Jourdain and R. Soame Jenyns, *Chinese Export Art in the Eighteenth Century* (Feltham: Spring Books, 1950), 69.

<sup>&</sup>lt;sup>166</sup> Kyoungjin Bae, *Joints of Utility, Crafts of Knowledge: The Material Culture of the Sino-British Furniture Trade during the Long Eighteenth Century, Ph.D. dissertation (New York: Columbia University, 2016), 47-57.* 

and sets for dressing tables. Between 1732 and 1756, only tea trays were brought from Canton by the VOC. The lists reference the guilders paid in Canton for the articles, and for how many guilders they sold in auction demonstrating the gross profit of the sales. The gross profit from imports of tea trays from 1732 to 1756 fluctuated with a maximum of 247% reached in 1732, and a minimum of 22% in 1752. In the years of 1762, 1763, and 1765, the previously mentioned articles continued to be imported; other shapes such as trays for a bottle (wine), tea boxes, shaving bowls, small trays for needles, and trays for glasses, were also brought to the Netherlands. The shape imported in largest quantity were the trays for one bottle; 3360 pieces imported in 1762, 6000 in 1763, and 3440 in 1765. After 1765, due to higher profit that could be obtained from other articles sales, lacquerware imports from Canton were abandoned by the VOC.<sup>167</sup>

One of the first known pieces of furniture to arrive in Europe which is associated with a Chinese, most probably Cantonese manufacture, was the writing chest of Madame de Sévigné (1626-1696). This chest from circa 1680, today in the collection of the Musée Carnavalet, Paris, arrived in France most probably via the Netherlands.<sup>168</sup> It is a writing desk with multiple drawers, lacquered black with gold decoration. Its most unique decoration combines Chinese-style birds, butterflies, flowers, and foliage, with Western inspired garlands (Figure 7). In the front, it bears

<sup>&</sup>lt;sup>167</sup> Christiaan Jörg, "De handel van de V.O.C. in Oosters lakwerk in de 18e Eeuw," *Nederlands Kunsthistorisch Jaarboek* 31 (1981): 360-61. I am most grateful to Dr. Christiaan Jörg for this reference and for the translation of the VOC lists from the Dutch.

<sup>&</sup>lt;sup>168</sup> http://www.carnavalet.paris.fr/en/collections/le-secretaire-de-madame-de-sevigne.

the arms of Rabutin and Sévigné, for the Marquise de Sévigné or Marie de Rabutin-Chantal, a reference in French seventeenth-century literature. In 1644, the Marquise married Henri de Sévigné, an aristocrat from Brittany. The chest came from the Château des Rochers, near Vitré, in Ille-et-Vilaine. After the first voyage of the ship *l'Amphitrite* to Canton in 1698, regular trade between France and China was initiated, and lacquerware was one of the commodities imported.<sup>169</sup> The French *Compagnie des Indes* stopped trading in 1755 and *marchands-merciers* would acquire lacquerware to supply their clients either in the Netherlands or in French sales from older collections which they would then repurpose.<sup>170</sup> Export lacquerwares were adapted and



Figure 7 Madame de Sévigné writing desk (MB224). Canton, circa 1680. Courtesy of the Musée Carnavalet.

<sup>&</sup>lt;sup>169</sup> Musée D'Histoire de Nantes, *La Soie et le Canon: France et Chine 1700-1860* (Nantes: Gallimard/ Musée D'Histoire de Nantes, 2010), 51.

<sup>&</sup>lt;sup>170</sup> Oliver Impey and Christiaan Jörg, Japanese export lacquer 1580-1850, 65.

re-used in other furniture; *marchands-merciers*' inventories from the beginning of the eighteenth century show that these merchants, often at the origin of new fashions in decorative arts, would stock both lacquer panels (as raw material) as well as furniture newly veneered with lacquer panels. The *marchands-merciers* would supply cabinet-makers who would insert lacquer elements into furniture forms, creating designs that were most esteemed among eighteenth-century French patrons.<sup>171</sup> Some examples of this practice were analyzed at the Getty Conservation Institute, and the material composition of the lacquered panels will be further discussed in Chapter 4.

Some of the first black and gold lacquers in Europe, of which the manufacture is related to the city of Canton, were wall panels. That is the case of the wall panels of the Chinese Pavilion, in Drottningholm, Stockholm. The first Chinese Pavilion was built in 1753 by King Adolf Fredrick (1710-1771), as a gift to his wife Queen Lovisa Ulrika (1720-1782).<sup>172</sup> The original building was decorated with forty-eight lacquer panels. The present building encompasses fifty-one panels, three of them created in European lacquer most probably during the renovation of the Pavilion.<sup>173</sup> Ten of the original panels, now in the Yellow Room, came from a lacquer screen that was split and depicts on one side a view of the Pearl River and the city of Canton, and on the

<sup>&</sup>lt;sup>171</sup> Carolyn Sargentson, *Merchants and Luxury Markets – The merchants-merciers of eighteenth-century Paris* (London: Victoria & Albert Museum, 1996), 79-90.

<sup>&</sup>lt;sup>172</sup> The original wood building was replaced in the 1760s by a sturdier structure that was completed in 1769.

<sup>&</sup>lt;sup>173</sup> Ewa Björdell and Carmen Romero, "A description of the conservation project on the 18th century Asian lacquer paneling from the Chinese Pavilion, Drottningholm Palace, Stockholm," in *Investigations and Conservation of East Asian Cabinets in Imperial Residences (1700-1900), Conference 2013 Postprints*, edited by Gabriela Krist and Elfriede Iby (Wien: Böhlau Verlag Ges.m.b.H., 2015), 196-97.

other side the preparation for the Dragon Boat Festival, a traditional celebration in South China, including Canton and Macao. These central scenes are framed by reserves in which landscapes alternate with the "Hundred Antiquities" theme. Since the view of Canton does not depict the factories in European style, built after the fire of 1748, the panels are thought to have been made before that date and their installation in the Pavilion likely took place in 1753.<sup>174</sup>

Several of panels that furnish the Round and the Oval "Chinese Cabinets" at Schönbrunn Palace, Vienna, can also be related to Cantonese production. The "Chinese Cabinets" were built around 1746, and furnished between 1753 and 1760. Among a combination of panels with different lacquer techniques and origins, 13 panels in *miaoqi* ("lacquerware with painted decorations in colored lacquer") and 17 larger plus 50 smaller panels in *miaojin* ("painted with gold") are distributed between the two rooms. All these panels relate to Cantonese production and were originally part of screens reused to decorate the Schönbrunn cabinets. The *miaojin* panels have central scenes depicting palace life scenes, hunting, landscapes, and people in different activities, framed by cartouches with flowers or landscapes, and are dated around 1720. <sup>175</sup>

<sup>&</sup>lt;sup>174</sup> Stig Fogelmarck, Bo Gyllensvärd, Åke Setterwall, *The Chinese Pavilion at Drottningholm* (Malmö: Allhem Publishers, 1974), 279-80.

<sup>&</sup>lt;sup>175</sup> Silvia Miklin-Kniefacz et al., "First investigations of the Asian lacquer panels in the "Chinese cabinets", Schönbrunn Palace, Vienna," in *Investigations and Conservation of East Asian Cabinets in Imperial Residences (1700-1900), Conference* 2013 Postprints, edited by Gabriela Krist and Elfriede Iby (Wien: Böhlau Verlag Ges.m.b.H., 2015), 152-154.

Some of the best documented lacquerware objects made in Canton, and today held in European collections, are several furniture pieces that belong to Danish Royal collections. Ships sent to China by the new *Det Kongelige Danske Asiatiske Compagnie* (The Royal Danish Asiatic Company), brought back to King Christian VI different pieces of furniture, and the receipts for some these objects still exist today in the Royal Danish archives. In 1735 a set of twelve lacquered chairs (six bearing the King's name and the other six the Queen's) was sold to the king, in 1737 a rosewood table that can be converted three ways for different uses, and in 1738, a pair of black gilt lacquer *sécretaries* or cabinets.<sup>176</sup> The chairs and cabinets are today housed in Fredensborg Palace, built as a hunting residence for King Frederik IV in 1720, and used frequently by the Danish royal household. Two of these objects are included in the study group of this dissertation and will be discussed in detail in Chapter 3.

## 2.2 First Encounters – Portugal and China

In 1513, the Portuguese Jorge Álvares was the first European to reach China through a sea route. Álvares had left the Portuguese entrepôt in Malaca in 1511 and arrived to the area of the Pearl River Delta, South China coast, in 1513. He returned to Malaca just to leave again in 1517, together with Fernão Peres de Andrade and Tomé Pires, arriving in Canton in that same year. In 1521, with a permit from the emperor Zhengde (1506-1521), the Portuguese mission with Tomé Pires as ambassador proceeded to Beijing with the goal of developing commercial relations between the

<sup>&</sup>lt;sup>176</sup> Tove Clemmensen, "Some furniture made in China in the English style, exported from Canton to Denmark 1735, 1737 and 1738," *Furniture History* 21 (1985): 174-180.

two countries. Due to protocol fiascos on the Portuguese side the embassy failed in its attempts, and in 1522 commercial exchange with Portuguese traders was forbidden. Nonetheless, illicit trade continued in several ports along the south China coast.<sup>177</sup>

The relations between Portugal and China resumed only about three decades later. The reasons for the change of attitude on the Chinese side are not fully understood, but the help provided by the Portuguese regarding piracy, a constant problem all over the south Chinese coast, is recognized as a relevant factor. This cooperation granted the Portuguese the permit to establish themselves in Macao in 1557. The number of Portuguese settled in Macao increased rapidly to eight hundred by 1562, and in 1586 the city was officially named Santo Nome de Deus (Holy Name of God).<sup>178</sup> Although controlled by the Portuguese and managed by the Senado, established in 1583, Macao was still under heavy surveillance from the Chinese authorities.<sup>179</sup>

Canton, ninety miles up the Pearl River, became the official commercial port city. The Portuguese arrived in 1517, followed by the Dutch in 1601, and the English in 1637. As mentioned previously, the different nationalities of Westerners that arrived named Guangzhou, as "Cantão," "Kan-ton," or "Canton," derived from the name

<sup>&</sup>lt;sup>177</sup> Carvalho, Pedro de M. "Macao as a Source for Works of Art of Far Eastern Origin." *Oriental Art* 46, 3 (2000): 13.

<sup>&</sup>lt;sup>178</sup> Pedro Dias, "O Estabelecimento dos Portugueses e os Primeiros Contactos com a China," in *História da Arte Portuguesa no Mundo, 1415-1822: O Espaço do Índico* (Lisboa, Círculo de Leitores, 1998), 412.

<sup>&</sup>lt;sup>179</sup> The Senado was the administrative institution that managed the municipality of Macao since its establishment in 1583, until Macao returned to the People's Republic of China administration in 1999.

"Quang-tong" (Guangdong) the province of which the city is capital. All trade in the city was highly controlled and the presence of foreigners reduced to a minimum. Since 1578, two annual trading fairs took place where access was granted to non-Chinese under strict surveillance from Chinese authorities.<sup>180</sup>

There were several reasons that the official trading post between China and the foreign nations was established in Canton and not Macao. The geographical location of Canton, with access dependent on the Pearl River tides, allowed for the control, and if necessary, the impediment, of supplies to the city. That fact conditioned all the foreigners' negotiations, forcing them to have a more permissive attitude to all conditions imposed by the Chinese authorities. All the goods traded in Macao originated for the most part from Canton, and for that reason the merchant factories were built in Canton. To transport the merchandise up and down the Pearl River in the Chinese sampans was not viable, and to keep the foreign ships docked in Macao would cost the Chinese a fortune in creating a network of river patrols.<sup>181</sup> The number of custom houses along the river to control the sampans cargo would also have to increase, as well as the control of pirates' activity necessitating even more expenses on the Chinese side. The experience acquired by the Chinese in trade control from the

<sup>&</sup>lt;sup>180</sup> Valery M. Garret, *Heaven is High, the Emperor Far Away: Merchants and Mandarins in Old Canton* (Oxford: Oxford University Press, 2002), 11.

<sup>&</sup>lt;sup>181</sup> A sampan refers to a small wooden boat used in China for people and cargo transportation most often in coastal areas or rivers.

Portuguese settle in Macao was used and applied when defining the policies for the new commercial entrepot in Canton.<sup>182</sup>

# 2.3 Canton – The Open Port

In 1685, Emperor Kangxi (r. 1662-1722), issued an edict that not only changed the Chinese tribute trade system but also allowed foreign trade in four coastal provinces, "All four coastal provinces – Jiangnan, Zhejiang, Fujian, and Guangdong – have been opened, and foreigners are permitted to enter and trade in any of their ports."<sup>183</sup> Canton was one of them. Foreigners from different nationalities that had waited for an opportunity to create a commercial post in China began to settle in the city. Direct and regular traffic between Europe and China began with the arrival to Canton of the French ship *l'Amphitrite* in 1698. In 1715 the English *East India Company* established in the city, in 1728 the *French East India Company*, followed in 1729 by the Dutch *Vereenigde Oostindische Compagnie*, and from 1731 the *Swedish East India* initiates its trade with China. The United States entered the trade later in 1784, when the *Empress of China* made the first round-trip to Canton from New York.<sup>184</sup>

<sup>&</sup>lt;sup>182</sup> Paul A. Van Dyke, *The Canton Trade: Life and Enterprise on the China Coast, 1700-1845* (Hong Kong: Hong Kong University Press, 2005), 6-7.

<sup>&</sup>lt;sup>183</sup> Gang Zhao, *The Qing opening to the ocean: Chinese maritime policies 1684-1757* (Honolulu: University of Hawaii Press, 2013), 111.

<sup>&</sup>lt;sup>184</sup> Contrary to European nations, the United States never had a national company that hold the monopoly of trade with the Far East. For that reason, American merchants were known as *free traders*.

The way business was carried out, with enough flexibility from the Chinese side and enough tolerance from the foreign traders, made Canton an appealing port for international trade to the detriment of other locations. In 1757, the English made an attempt to establish trade in Chusan (Zhoushan), an island from the Zhejiang province, threatening the leading role of Canton.<sup>185</sup> Aware of these movements, Emperor Qianlong (r. 1736-1795) made all the traders in other ports return to Canton in December of 1757. In November 1759, through an imperial decree, Canton became the only Chinese port where international trade was permitted.<sup>186</sup> The imperial regulations concerning trade in the city registered in writing practices that were used since the beginning of the eighteenth century. This regulated system of negotiation, that was used in Canton from 1700 to 1842, was known as the *Canton System*.<sup>187</sup>

All trade in Canton was made through the hong merchants.<sup>188</sup> The role of the hong merchants was to trade with the foreigners, and to act as the connection between the later and the mandarins.<sup>189</sup> In 1720, to avoid attempts of monopoly, the hong

<sup>&</sup>lt;sup>185</sup> Dyke, The Canton Trade: Life and Enterprise on the China Coast, 1700-1845, 16.

<sup>&</sup>lt;sup>186</sup> Garret, *Heaven is High, the Emperor Far Away: Merchants and Mandarins in Old Canton*, 76.

<sup>&</sup>lt;sup>187</sup> For more on the Canton system and all the organization of trade in Canton city, please refer to Paul A. Van Dyke, *The Canton Trade: Life and Enterprise on the China Coast, 1700-1845* (Hong Kong: Hong Kong University Press, 2005).

<sup>&</sup>lt;sup>188</sup> By extension the designation hong was also used for the factories where both Chinese and foreigners took care of all the logistics related with business. These became known as the hong factories.

<sup>&</sup>lt;sup>189</sup> The mandarins were the public officials of the Chinese empire related directly to the Emperor.

merchants formed a Co-Hong, an association through which all business related to international trade were regulated. As a consequence, the interests of the foreign traders were also protected. The Co-Hong leader position would change regularly and at the end of the eighteenth century and beginning of the nineteenth century that same position was shared by Howqua and Punqua, owners of two of the most profitable hong factories in Canton.<sup>190</sup>

As early as the Tang dynasty, Canton was an important international trading port between China and different locations in West Asia.<sup>191</sup> The strong Arab presence in the city led to the construction of a minaret, around 850, named *Kwangtah*.<sup>192</sup> Due to the regularity of its walls this minaret was named "Smooth Pagoda" by the foreigners visiting the city.

The *Kwangtah* minaret, together with the *Hua* Pagoda, constitutes two of the landmarks frequently depicted in various representations of Canton. The *Hua* Pagoda is located at the *Liurong* Buddhist temple, and has nine exterior stories and seventeenth interior ones.<sup>193</sup> The *Hua* (flower) Pagoda was named "Flowery Pagoda"

<sup>&</sup>lt;sup>190</sup> All hong merchants had the suffix qua in their names, used as a term of respect, and meaning manager or control. William C. Hunter, *An American in Canton (1825-44)* (Hong Kong: Derwent Communications Ldt., 1994), 20.

<sup>&</sup>lt;sup>191</sup> Geraldine Heng, "An ordinary ship and its stories of early globalism: World travel, mass production, and art in the global middle ages," *Journal of Medieval Worlds* 1, 1 (2019): 11-53.

<sup>&</sup>lt;sup>192</sup> *Kwangtah* minaret is part of the Huaisheng Mosque, the main mosque in Guangzhou.

<sup>&</sup>lt;sup>193</sup> The Liurong temple, originally Luk Yung, was built in 537. It was destroyed by a fire and re-erected in 989. Since that date it has several interventions to its original architecture.

owing this designation to its profuse ornamentation, as opposed to the "Smooth Pagoda" (Figure 8).



# Figure 8Kwangtah minaret (left) and Hua Pagoda at the Liurong Buddhist<br/>temple (right) in Guangzhou, October 2017. Pictures by the author.

Another architectonic landmark of the city is *Zhehai Lu* (Figure 9). Like several Chinese cities, Canton was surrounded by a wall, with doors that would close at night time.<sup>194</sup> In the northern part of the city, closer to the mountains and an area easier to attack, the walls were 300 meters above sea level. The *Zhehai Lu* (named by

<sup>&</sup>lt;sup>194</sup> This wall was built in 1067 during the Northern Song dynasty (960-1127).

the foreigners as "Five-Storey Pagoda") was built in this location as a watch tower by general Zhu Liangzu, in the Ming dynasty (1368-1644).<sup>195</sup>



Figure 9 *Zhehai Lu*, today part of the Guangzhou Museum. Guangzhou, October 2017. Picture by the author.

These three buildings, the "Smooth Pagoda," the "Flowery Pagoda," and the "Five-Storey Pagoda," are used in several depictions of Canton in export lacquerware (as well as in other forms of export art), allowing for an immediate recognition of the city represented in it.

During the Ming dynasty, another wall was built to the south, across the city and bordering the river, with the goal of defending the area between the two. Among the Westerners, the original city was known as *Old City*, and the area created by the

<sup>&</sup>lt;sup>195</sup> The tower is today part of the Guangzhou Museum.

construction of the newer wall as *New City*. When Canton was taken by the Qing (1644-1911) both "cities" were surrounded by a wall that extended throughout 10 kms (Figure 10).



Figure 10 Map of Canton with the representation of the two city walls that surrounded the city up to the Qing dynasty. Johnathan Andrew Farris, *Enclave to Urbanity: Canton, Foreigners, and Architecture* from the Late Eighteenth to the Early Twentieth Century (Hong Kong: Hong Kong University Press, 2016).

## 2.4 Shopping for lacquerware in Canton

In the eighteenth century, Canton was one of the biggest cities in the world

with more inhabitants than London or Paris, and the third major city of China.<sup>196</sup>

<sup>&</sup>lt;sup>196</sup> Fa-Ti Fan, "Science in a Chinese Entrepôt: British Naturalists and their Chinese Associates in Old Canton," *Osiris* 18 (2003): 60.

Foreign merchants were not allowed to stay in the city through the Winter, and could only remain while the trading season lasted, which would vary accordingly to the monsoons.<sup>197</sup> During this period, the westerners were obliged to live in the hong factories and under strict Chinese surveillance. Outside the trading season, they were forced to leave the city and several of them would stay in Macao between seasons.

In 1782, Emperor Qianlong distributed twelve licenses for hong factories that later became thirteen. The factories were located in an area southwest of the city, outside the walls, and were not considered a part of it. The buildings were placed next to each other along a street that was named *Saap Sam Hong* or Thirteen Factories Street. These factories were rented by the hong merchants to foreigners, and were named either for the nationality that was renting them, the name of the Chinese hong merchant, or for Chinese names that indicate good fortune and prosperity. These were usually two-story buildings, with the first floor used as a warehouse and the second dedicated to men's accommodations.

Thirteen Factories Street ran parallel to the Pearl river and from this street extended another two perpendicular streets, New China Street and Old China Street. In the nineteenth century, in these two streets one could find the majority of the shops for foreigners who wanted to buy Canton goods. Recent research by Paul Van Dyke and

<sup>&</sup>lt;sup>197</sup> Monsoons (from the Arabic *mawsim*, "season"), refers to the system of winds that facilitated premodern navigation in the Indian Ocean and South China. In the summer months, the southwest monsoon would take the ships eastward, from around the beginning of June to around the end of September. In the opposite direction, the northeast monsoon, would power the ships from around October/November to March. Geraldine Heng, "An ordinary ship and its stories of early globalism: World travel, mass production, and art in the global middle ages," *Journal of Medieval Worlds* 1, 1 (2019): 12.

Maria Kar-Wing Mok has shown that this was true but only after 1822. From 1760 to 1822, the only two streets in this area were (Old) China Street and Hog Lane.<sup>198</sup> Prior to 1822 (Old) China Street was also named "New Street," "Porcelain Street," and "China Street." The street later named New China Street was created after the fire of 1822.<sup>199</sup> Before the creation of the New China Street, the street named "Old China Street" was in fact Thirteen Factory Street. All the maps that show the three streets, New China Street, Old China Street, and Hog Lane, date from after 1822 (Figure 11).<sup>200</sup>

The area of the hongs was considered a shopping mall, and around 1822 the shops located there would number as high as five thousand.<sup>201</sup> The narrowness of the streets was noticed by foreigners such as Osmond Tiffany,

The streets, as mentioned before, are extremely narrow. A broad one is no wider than a common alley, and a narrow one might be choked with a single dry goods box.<sup>202</sup>

<sup>200</sup> Paul Van Dyke and Maria Kar-Wing Mok, *Images of the Canton Factories 1760-1822: Reading history in art* (Hong Kong: Hong Kong University Press, 2015), 83-98.

<sup>201</sup> H. A. Crosby Forbes (ed.), *Shopping in China: The Artisan Community at Canton*, *1825-1830* (Baltimore: International Exhibitions Foundation, 1979), 3.

<sup>202</sup> Osmond Tiffany, *The Canton Chinese or the American's Sojourn in the Celestial Empire* (Boston: James Munroe and Company, 1849), 59. Osmond Tiffany was born in Baltimore, Maryland, USA. He traveled to Canton in 1844, and published *The Canton Chinese or the American's Sojourn in the Celestial Empire* in 1849 describing his voyage.

<sup>&</sup>lt;sup>198</sup> Hog Lane was in existence at least since 1740. It was an alley were sailors would go to drink and considered a place for errant people, not a place to shop.

<sup>&</sup>lt;sup>199</sup> In the 1st and 2nd of November, 1822, a major fire destroyed all the seventeen buildings of the hong factories.


Figure 11 Plan of the factories in Canton, about 1825. William C. Hunter, *The "Fan Kwae" in Canton Before Treaty Days: 1825-1844* (Taipei: Ch'eng-wen Pub. Co., 1965), 12.

The streets were traditionally organized by the kind of goods and manufacturers represented in them. This arrangement was already in practice in the early 1700s, as described by Charles Lockyer in 1704, "the bamboo cap-makers, lacquer-men, smiths, and others, have some part or other in the Town... for their Trades."<sup>203</sup> This practice continued, but in the case of New China Street and Old China Street, shops with different trades could be found, providing a more pleasant and convenient shopping

<sup>&</sup>lt;sup>203</sup> Charles Lockyer, *Account of the Trade in India* (London, S. Crouch, 1711), 163. Cited by Maria Kar-Wing Mok, "Trading with traders: the wonders of Cantonese shopkeepers," *Revista de Cultura* 54 (2017): 105.

experience for the foreign shoppers.<sup>204</sup> Like the majority of the buildings in the city, shops had two stories. They were labelled with small lacquered plates on a pole next to the front door, with the name and trade of the owners written in English. In the interior, the merchandise would be exhibited on shelves or in glass vitrines, reaching from the floor to the ceiling. The display would occupy the two lateral walls as well as the wall behind the counter, frequently placed opposite to the entrance door.<sup>205</sup> This is the display depicted in a nineteenth-century gouache of a lacquerware shop in Canton (Figure 12). In this detailed representation it is possible to see some of the most exported shapes of lacquerware such as tilt-top tables, boxes, and chests, all in black lacquer decorated with gold. In another gouache, one can also see red and black lacquerware for sale in another shop (Figure 13). The English title of the work is somewhat misleading. The work is titled *Common Red Lackaware*, which could indicate just another shop selling Cantonese lacquers. In fact, the Chinese inscriptions in the gouache indicate that this shop offers a variety of stylish objects such as fans and shoes, from Suzhou, Jiangsu province, and Hangzhou, in Zhejiang.<sup>206</sup>

<sup>&</sup>lt;sup>204</sup> Garret, *Heaven is High, the Emperor Far Away: Merchants and Mandarins in Old Canton*, 89-90.

<sup>&</sup>lt;sup>205</sup> Osmond Tiffany, *The Canton Chinese or the American's Sojourn in the Celestial Empire*, 60.

<sup>&</sup>lt;sup>206</sup> I am grateful to Karina Corrigan, for sharing the English translation for the characters in this painting.



Figure 12 Lacquerware shop in Canton. Watercolor, circa 1840. Carl Crossman, *The Decorative Arts of the China Trade* (Suffolk, UK: Antique Collectors' Club, 1991), 265.



Figure 13 Common Red Lackaware. Gouache. Guangzhou, circa 1825. Patrick Conner, The Hongs of Canton (London: English Art Books, 2009), 83.

Lacquer from other locations was available in Cantonese shops and was also exported to different countries, such as Java, India, Russia, and Japan, from those locations.<sup>207</sup> Painted lacquer was also manufactured in Fuzhou (formerly romanized as Foochow), Fujian province,

<sup>&</sup>lt;sup>207</sup> Margaret Jourdain and R. Soame Jenyns, *Chinese export art in the eighteenth century* (London: Country Life Limited, 1950), 19.

Nearly all the lacquerware is manufactured in Canton, but magnificent specimens far exceeding the Canton ware in beauty, colour and fineness are turned out in Foochow. They are made by a single family said to be of Japanese origin, who brought the secret over with them and have retained it ever since.<sup>208</sup>

Fuzhou lacquerware was also exported in the same way as Cantonese lacquerware and

Fuzhou examples of "gold lacquer" were greatly appreciated. The surface of Fuzhou

lacquerware was frequently worked in low relief, and inlays of mother of pearl, jade or

ivory, were also applied.<sup>209</sup>

Foreign visitors to Canton, noted that lacquerware was sold in the different

shops available to Westerners in the city, as the one of Fiqua in Old China Street, "Fi-

qua showed us huge panels for screens, guéridons, furniture of all kinds that will soon

be sent to Europe."210 Black and gold lacquerware was also sold in the shops in

Macao, as noted by Ferrière Le Vayer, member of a French embassy,

there are tables, coffers, lacquer screens, black and gold, where the black shines like a mirror and the gold, in thin and agile traces, curls or extends in millions of microscopic figures;<sup>211</sup>

<sup>210</sup> "Fi-qua nous fit voir des grands panneaux de paravent, des guéridons, des meubles de toute espèce qu'il devait prochainement envoyer en Europe." M.C. Lavollée, Voyage en Chine, 349.

<sup>211</sup> "là ce sont des tables, des coffrets, des paravents de laque, noir et or, don't le noir brille comme un glace, don't l'or souple et délié se roule ou s'allonge en millions de figures microscopiques" Translation by the author. Théophile de Ferrière Le Vayer, Un Ambassade Française en Chine (Paris: Librairie D'Amyot, Éditeur, 1854), 187.

<sup>&</sup>lt;sup>208</sup> Catalogue of the Chinese Imperial Maritime Customs Collection, class 289, introduction, cited in Carl Crossman, *The Decorative Arts of the China Trade*, 263.

<sup>&</sup>lt;sup>209</sup> Eunice T. Thomas, "Foochow lacquer," *Fukien Arts and Industries*, 81-97 (Fukien: Christian Herald Industrial Mission Press, 1933).

Lacquerware was sold in the shops of Canton, and also made in several workshops within the city. References to different hong merchants selling lacquerware appear in the records although it is difficult to know if they were sellers as well as makers. The following paragraphs compile information found for lacquerware sellers that were manufacturers as well.

From the number of descriptions by Westerners' about the city of Canton that include a visit to a lacquer workshop, it seems that this tour was an expected part of the sojourn in that city. The practice of showing articles being made and demonstrated to the costumer regarding what was involved in their production is a sales technique used in different countries around the world and practiced from ancient times to today. That was the case in Canton, and producers of different commodities such as silk, porcelain, ivory, and lacquer, to name only a few opened their factories so that costumers appreciated the labor involved in manufacturing their goods.<sup>212</sup>

The names of two lacquer sellers and manufactures are known from references made by foreigners buying from them or visiting their factories. These are Fiqua and Hipqua, previously mentioned in Chapter 1. Both men are referenced as makers of lacquerware as well as owners of shops that sold lacquered pieces. The names of Fiqua and Hipqua are mentioned in American, English, and French documents. Names of merchants and shopkeepers are often difficult to match between records from different countries since very often the names used to identify them were not the same. In the Danish Asiatic Company (DAC) records of 1783 and 1784, there is reference to a Feiqua selling lacquerware, but it is not possible to say if this is the same man as

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<sup>&</sup>lt;sup>212</sup> Maria Kar-Wing Mok, "Trading with traders: the wonders of Cantonese shopkeepers," 111.

Fiqua.<sup>213</sup> In the Portuguese sources in Macao records, that mentioned Chinese names

between 1750 and 1850, no reference to these two men was found.<sup>214</sup>

The name of Fiqua is mentioned only by Charles-Hubert Lavollé. As described in Chapter 1, Lavollé was invited in 1852 to visit Fiqua's shop and factory in Canton. About that visit Lavollé observed.

Everybody knows the pretty lacquer boxes covered with Chinese drawings that visitors bring back from Canton - Tea caddies, work boxes, boxes to store Chinese ink, etc. Fiqua showed us big panels for folding screens, circular tables, furniture of all shapes to be sent to Europe soon. The lacquer work and the motifs, mixing gold and red, are executed with extreme delicacy. (...) Fiqua shop is one of the best ones; it is a close competitor to the one of Hipqua, the most famous lacquerware dealer in Canton.<sup>215</sup>

Lavollé met Fiqua at his shop in Old China Street: subsequently the lacquer dealer took him to visit his factory located a walking distance away. The place was made of four or five rooms all with very dim light, in work conditions that Lavollé

<sup>&</sup>lt;sup>213</sup> I am most grateful to Prof. Paul van Dyke for this information and for going through his records, and generously sharing information on merchants in Canton and Macao for this study. Dr. Van Dyke pointed out the absence of the names of Hipqua and Fiqua in the records of the British EIC in the 18<sup>th</sup> and early 19<sup>th</sup> centuries, as well as in the Dutch records. The VOC records show a Fiqua in 1784, but selling silk. No reference was found in the Swedish records as well.

<sup>&</sup>lt;sup>214</sup> These records were diligently compiled by Rev. Carl T. Smith and are available online at https://search.grs.gov.hk/en/index.xhtml. The names used in Macao most often do not correspond to the names used in Canton making difficult to understand if reference is made to the same person. Paul van Dyke, *Merchants of Canton and Macao – Politics and strategies in eighteenth-century Chinese trade* (Hong Kong: Hong Kong University Press, 2011), xvi.

<sup>&</sup>lt;sup>215</sup> M.C. Lavollée, *Voyage en Chine* (Paris: Imprimerie de Pommeret et Mobeau, 1852),349.

considered very strange considering the amount of profit Fiqua would have made with his lacquerware sales. Lavollé added that only the simplest procedures for the production of ubiquitous objects were shown to him, and that slower and costlier steps would be needed for the fabrication of higher quality objects. Regarding the organization of the workshop, the application of lacquer layers was executed by some workers, and then the piece was passed to the gilders who were responsible for the golden decoration steps.<sup>216</sup> No other references were found about a lacquer maker named Fiqua.

The earliest reference found for the name of Hipqua dates from 1839: this was written by the Frenchman Adolphe Barrot. The process of lacquer manufacture that Barrot described was discussed in Chapter 1, but information regarding the location and organization of Hipqua's workshop can also be gathered from the Frenchman's other writings. Barrot mentioned that to get to Hipqua's factory he would have to walk around three kilometers (*deus milles*, in the French original). He did not mention where he began to walk, but one can assume that he left from his residence, in the southwest part of the city, outside its walls, where foreigners were allowed to stay. Unfortunately, Barrot did not indicate in which direction he headed, mentioning only that he would cross some of the busiest streets in the city.<sup>217</sup> Hipqua's workshop was considered the biggest in Canton, according to Barrot, employing 100 workers. In the first room, the carpenters would turn the wood into the desired shape an in a second

<sup>&</sup>lt;sup>216</sup> M.C. Lavollée, Voyage en Chine, 351-352.

<sup>&</sup>lt;sup>217</sup> "Une occasion favorable se présente: il s'agit de visiter une manufacture d'objets laqués, et, pour y arriver, nous aurons deux milles à faire au milieu des rues les plus populeuses de Canton," Barrot, Voyage en Chine, 324.

room, the wooden piece would receive the lacquer coating, and finally would reach the workers responsible for the gilding decoration steps. According to Hipqua, work lasted from 7:00 am to 5:30 pm with two breaks of a half an hour each. Hipqua complained to Barrot that the objects were getting harder to sell, since the demand for them was decreasing in Europe, and the price of lacquerware had dropped to a half of what he had been receiving ten years before. On his way back, Barrot mentioned he was in a neighborhood where Europeans were rarely seen.

Hipqua was described as a "jolly old fellow," who had followed the maxim, "laugh and grow fat" by Osmond Tiffany. Tiffany visited Canton in 1844 and 1845 and joined Hipqua one day at his shop in "China Street." From there they walked through many different streets, at times over bridges and crossing canals, to a "different part of the suburbs up the river." Tiffany noted that the workshop had around 40 workers, from young boys to older men and also referred to the workshop as an area where the wood is shaped into the different articles to be lacquered. He described the lacquer application and gilding procedures and noted the striking impression the gilded objects made,

Nothing can exceed the splendor of the magnificent folding screens they make for rooms; large landscapes are represented, and scenes of Chinese gardens, which are always irrigated, and in which bridges and boats are necessary as well as ornamental. A fanciful taste occasionally colors the costumes of the figures, and the borders of the screen glow in brilliant flowers. But that lacquer work is most beautiful, which, not profusely gilded, displays large single figures upon a black ground.<sup>218</sup>

<sup>&</sup>lt;sup>218</sup> Osmond Tiffany, *The Canton Chinese, or the American sojourn in the Celestial Empire*, 81.

For those acquainted with this kind of object then and now, the detail and "picturelikeness" of Tiffany's description is absolutely outstanding. The impression made by this visit to the workshop translated to the acquisition of a fan that according to Tiffany took a man six weeks to paint. On their return, they tried to take a boat back but, due to the tide running up stream, the return had to be made walking.

In 1848, Natalis Rondot, also mentioned previously in Chapter 1, provided a detailed route and a location for Hipqua's factory. He, together with another French delegate, left the French hong to meet Hipqua at his nearby shop which Rondot located at number 15, New China Street.<sup>219</sup> Together they proceeded through *Chapsam-hong kai*, or Thirteen Factory Street, and from there through different busy streets until they reached an area also described by Rondot as a place where almost no foreigner has been. He mentioned Hipqua's factory located in *La-houo-tchong* street next to a glass workshop. Like Barrot, Rondot also described a separation of spaces and tasks inside the factory. The objects are first in the hands of carpenters that shape them, then taken to other workers that apply the lacquer coating (in a closed room to avoid dust.) Finally, the piece is taken to an area with two big rooms where more than 50 workers are seated in stools in front of small tables, who are responsible for the final steps of the gilded decoration.<sup>220</sup>

Number 15, New China Street, was also the address registered for Houqua, a lacquerware dealer. A black gilt lacquer fan from the collections of the Hong Kong

<sup>&</sup>lt;sup>219</sup> Rondot mentions another name for Hipqua, Hip-tcheuong. And names New China Street as Tong-wann.

<sup>&</sup>lt;sup>220</sup> Natalis Rondot, "Une promenade dans Canton. La manufacture de laque d'Hip-qua et l'atelier de tabletterie de Ta-Yu-Tong," 49-52.

Museum of Art (accession number C1991.0001) bears in its box that name and address.<sup>221</sup> Shops would change owners and locations which could be the case here, or eventually a misinterpretation of the door number. There is reference to a Houqua, who traded under the name of Guangyi, from whom the Dutch bought porcelain and lacquerware in the 1760s, and a reference to a Howqua in 1784 American records (to be discussed below.)<sup>222</sup> Nonetheless as discussed above, New China Street was not there until 1823.

The address given for Hipqua's shop by Carl Crossman is just two doors down on the same street, at number 17. Crossman refers to a lacquered fan of "superb" quality from a private collection bearing two labels for the maker Hipqua. One reads "OLD HIP Lacquerd Ware," and the second "Hipqua, Lacquered Ware New China Street, N° 17."<sup>223</sup> A newspaper advertisement sheds some light on the use of these two designations for the same man: in July, 1861, *The London and China Telegraph*, mentioned an advertisement related to Hipqua. It was published in March 7<sup>th</sup>, 1861, in the *Hong Kong Daily Press*,

Old Hip, dealer in lacquered ware, long since known to foreigners by the name of Hip Qua, having heard that a man had advertised in the papers stating that one of Hip Qua's partners had withdrawn by consent from the firm and that this fact was generally known to Hip Qua's patrons.

<sup>&</sup>lt;sup>221</sup> Maria Kar-Wing Mok, "Trading with traders: the wonders of Cantonese shopkeepers," 105.

<sup>&</sup>lt;sup>222</sup> Paul Van Dyke, *Merchants of Canton and Macao. Success and Failure in the Eighteenth-Century Chinese Trade* (Hong Kong: Hong Kong University Press, 2016), 242.

<sup>&</sup>lt;sup>223</sup> Carl Crossman, The Decorative Arts of the China Trade, 336.

Old Hip begs to make the following particulars concerning his firm. He was formely known as Hip Qua, afterwards Pon Tsau Wing joined him as a partner, and the profits of their firm as lacquered ware dealers were equitably divided for many years. When Pon Tsau Wing died his son became the manager of the business and kept the books. This latter cheated Old Hip, so he was obliged to pay him off and dissolve the partnerships. All the foreign community are aware that Old Hip would not be guilty of dishonesty, and that long before he was noted for dealing in first-class goods.

After the partnership was dissolved this son of Pon Tsau Wing commenced business for himself under the style or firm of Old Hip, stating that this latter had been dismissed for dishonesty, which is a gross, falsehood. We have heard that this son of Pon Tsau Wing cheated some French soldiers of money in Canton, and that he is now in goal for the same. If you want to buy really good and cheap articles in lacquered ware, call at the establishment of Old Hip, Hongkong, or Young Hip, of Canton.<sup>224</sup>

Although characterized by the *Telegraph* as an "amusing specimen of the art of puffing," this ad indicates that by 1861, objects produced by Hipqua's workshop could be bought in shops both in Canton and Hong Kong. The two labels on the same object seems to be a sales strategy to advertise two shopping locations in a single object. This is also the case with another object, for shops in both in Canton and Macao, which is included in the study group of this research. The nineteenth-century instrument box from the National Palace of Ajuda (51171) bears two paper labels for Volong. In one it reads "Volong Canton", and in the other, "Francisco Antonio Volong. Tienda N° 44. Calle de la Aduana. Macao."<sup>225</sup>

<sup>&</sup>lt;sup>224</sup> *The London and China Telegraph*, July 17, 1861, 363.

<sup>&</sup>lt;sup>225</sup> Reference was found to a man named Francisco Antonio Volong, a Chinese dealer, and a Christian, and for that reason the first Chinese to be buried in the catholic

In 1867, Hipqua's lacquerware shop was said to be located in Honan, on the opposite side of the river facing Canton. Several streets and shops in Honan were dedicated to providing goods for the foreign shoppers, and Hipqua's shop was there in Club Street,

Here, first in order, will be found Hipqua's Lacker-ware shop, where tables, tea-poys, desks, work-boxes, cigar-boxes, etc., etc. in various degrees of fineness and cost may be obtained and bespoken. A handsome round table in fine lacker with central design in gilding may be had here for about \$15. A nest of four tea-poys costs from \$5 to \$12.

Further along the street, several other smaller shops sold lacquerware together with other articles, and "the multitude of miscellaneous articles usually grouped under the designation 'curious."<sup>226</sup>

Hipqua's lacquerware was known not only to Westerners visiting Canton but also to some who might have never visited the city. A folding screen from Hipqua's workshop was identified at the Crystal Palace in the *Great Exhibition of the Works of Industry of all Nations* in London, 1851. It attracted attention and of all the Chinese objects, Hipqua's screen was the only item that received compliments from the jury of the *Commission Française*, "The objects exhibited at the Chinese department are of no interest," a member of the jury noted. And continued on writing,

cemetery of São Miguel in Macao. A street in Macao (Rua do Volong) is named after him.

<sup>&</sup>lt;sup>226</sup> W. F. Mayers, N. B. Dennys and C. King, *The Treaty Ports of China and Japan. A complete guide to the open ports of those countries, together with Peking, Yedo, HongKong and Macao* (London: Trubner and Co. Paternoster Row, 1867), 181-82.

Of three screens present, only one, with six leafs and two meters and a half height, is well made and that comes from the workshop of Hipqua, the best manufacturer in Canton.<sup>227</sup>

Although Hipqua was known as the best manufacturer in Canton, pieces that can be related with certainty to his workshop are rare. A folding screen, featuring the mark "HIPQUA n<sup>o</sup> 1" was auctioned by Northeast Auctions, Portsmouth, NH, USA, in 1993. The screen has six leaves and is profusely decorated with birds and foliage over a landscape background.<sup>228</sup> In a study dedicated to Liverpool and the China trade the transcript of an order reads "John Middleton Oriental Club London 6<sup>th</sup> February 1844 - To ship by the first good opportunity the following articles, 1 Set Lacquered Seapoys, 1 Tea Caddy on Stand, 1 Work Table," and later in the document,

January, shipped per "Pathfinder" for London Memo of 6 cases & "Ariel" for J. Middletown Esq.

No 1 – 1 Case cont of 1 Lacq Work Table Hipqua

---- 2 – 1 ----- 1 set do Teapoys ---- do ----\$55

----- 3 - 1 ------1---do---Tea Caddy & stand --do---\$35<sup>229</sup>

<sup>&</sup>lt;sup>227</sup> "Des trois paravents, un seul, composé de six feuilles de 2 mètres et demi de haut, était d'un bonne exécution et provenait de l'atelier de Hip-qua, le meilleur fabricant de Canton." Translation by the author. Exposition Universelle de 1851: Travaux de la Comission Française sur l'Industrie des Nations, públies par ordre de l'Empereur, tome VII (Paris: Imprimerie Impérial, 1855), 12.

<sup>&</sup>lt;sup>228</sup> Northeast Auctions, *American and European Furniture and Decoration, Paintings, Prints, Oriental Rugs and Chinese Porcelains,* 29 and 30 May 1993, lot 471.

<sup>&</sup>lt;sup>229</sup> Christina Jane Baird, *Liverpool and the China Trade: 1834-1880*, Ph.D. dissertation (London: School of Oriental and African Studies, 1997), 68.

No reference is made to the price of the lacquered work table but for the set of teapoys a notably large sum of dollars, \$55, was paid. The following paragraphs discuss this price in detail.

From 1839 to 1841, Nathaniel Kinsman,<sup>230</sup> served as the master and supercargo of the ship *Zenobia*, which sailed from Boston, MA, to Batavia and Canton, returning to New York. In January 1840, several boxes of lacquerware were brought on board for different investors. The content of nine boxes marked "Nathaniel Kinsman" is described on *Zenobia's* account book under the designation "Lacquered Ware Shuequa [?/Huequa?]." Articles such as tea tables, writing boxes, waiters, writing desks, plates, and small cabinets are included, with prices that do not exceed around \$8 per article. The exception is box number 7 described as "a chest containing 1 Work Table," and worth the sum of \$40.<sup>231</sup> This must have been a particularly large size or high -quality article to cost such a high price compared to other lacquered articles from the same period.

Between 1843 and 1847 the Kinsman family lived in China. Rebecca Kinsman stayed in Macao, and Nathaniel spent long periods in Canton setting up a house for the firm Wetmore & Co., for which he had become a partner. In the correspondence between the two, information can be found on Hipqua and the lacquerware he

<sup>&</sup>lt;sup>230</sup> Nathaniel Kinsman (1798-1847) sailed ships for William Gray and Pickering Dodge. From 1834 to 1839, he lived in Salem where he married Rebecca Chase (1810-1882). Kinsman became a partner with Wetmore and Company, and the couple with two of their children (they had four), left for China in 1843. They settled in Macao following which Nathaniel left for Canton to establish a new house for the firm. The family lived in China for three and a half years. Nathaniel died in Macao in April 1847, having Rebecca returned to Salem in June that same year.

<sup>&</sup>lt;sup>231</sup> Nathaniel Kinsman Papers, 1784-1882, PEM MSS 43, Box 2, Volume 3.

manufactured at that time. Writing from Canton in November 23<sup>rd</sup>, 1843, Nathaniel wrote to Rebecca that he will start taking care of her "little orders" of lacquerware. He complained to her that he had to wait a few weeks more and on how difficult it was to explain what is requested to a Chinese. According to Nathaniel, it is better to find an article comparable to what one wants and then use it as an example of what is requested. Through the letters it is possible to understand that some of the "little orders" were for the couple's family own use (two writing desks) and some others were commissions from a third party. Nathaniel was upset with the fact that the "lacquer man" was very busy and things were to take longer than expected, and according to him perhaps it would be better "to procure the desks in Macao." November 27<sup>th</sup>, Nathaniel describes the situation to his wife as:

In relation to your orders I believe I have done the needful in every case and all is now in a fair way. I am to have some musters of lacqu'er ware brought tomorrow to select patterns and the articles – which are all to be made – will be ready in 4 or 5 weeks. I have some idea of getting two writing desks – which I have seen – and putting them on board the *Louvre*. One for dear Willi and one for Eliza but I have not fully decided upon it.<sup>232</sup>

Nonetheless, the lacquerware orders brought Nathaniel some trouble, especially the ones for a third party. He noted that the number of teapoys ordered were not specified by the requester and concluded saying to his wife that "These little orders give me a great deal of trouble. I hope to have no more such when I have other business to attend to," but assures his wife that he is not referring to "wifey's orders." The following day, Nathaniel wrote,

<sup>&</sup>lt;sup>232</sup> Nathaniel Kinsman Papers, 1784-1882, PEM MSS 43, Box 3, Folder 9.

The Lacquer'ware man has been here today. I have given him the necessary directions. I could not direct him on the gilding and shall leave that until I come up again, this will take but a very short time to do, putting on the lacquer is what takes so long. The ornamenting is done afterwards. He asks <u>10 dollars</u> for a set of teapoys & 12 for a set of waiters so that Lydia's will be \$2 short. I have ordered first rate articles made, and the lacquer will be far superior to anything I took home except your work table and guaranteed to give satisfaction.<sup>233</sup>

At this point the name of the lacquer man was not mentioned, but we know from a previous letter it was Hipqua. Nathaniel's letter indicates that he had earlier brought his wife a lacquered work table, better than any other lacquered object he had brought home. Could this be the \$40 work table that he took back to the US in 1840, on board the *Zenobia*? From the price of the object and the fact that it was mentioned as an out-of-the-ordinary object, it looks probable. On November 29<sup>th</sup>, Hipqua paid a visit to Nathaniel,

Hipqua brought a tea caddy and stand for me to look at this morning, the price of which was \$35. The box was ornamented with what is called the "tea pigeon" and was very beautiful.<sup>234</sup>

The \$35 price that Hipqua charged for a tea caddy and stand to Nathaniel in 1843, is similar to the \$35 commission mentioned previously and dated 1844. But the price that Hipqua asked for the set of teapoys, \$10, is much lower than what he had charged in 1844, when a set of teapoys sold at \$55. This is an extraordinary price difficult to justify since these are not large objects. Was this an extraordinary set of teapoys or was Hipqua trying to get additional profit from this sale? It is likely that this question

<sup>&</sup>lt;sup>233</sup> Nathaniel Kinsman Papers, 1784-1882, PEM MSS 43, Box 3, Folder 9.

<sup>&</sup>lt;sup>234</sup> In pidgin English, the language used in Canton between Chinese and foreigners, a "cargo-pigeon" was an article made for exportation. It is not completely clear what Kinsman is referring to with "tea-pigeon." Nathaniel Kinsman Papers, 1784-1882, PEM MSS 43, Box 3, Folder 9.

cannot be answered. The correspondence between Nathaniel and Rebecca indicates that for certain commissions and customers, the details of the object and its manufacture would be discussed and agreed upon between the "lacquer man" and the buyer, with the former even paying visits and bringing samples thus providing a better shopping experience to the latter.

### 2.5 Lacquer trade from Canton

Lacquer was a small part of the all trade practiced in Canton. Tea was by far the most important commodity imported by the East India companies from different countries and the private traders dealing in that Chinese city.

Like porcelain, lacquer was imported mostly through private trade practiced by captains and supercargoes of the ships that annually would return to Canton for the trading season. Hong merchants sold the various commodities to the foreigners, but other merchants also had shops near the foreign factories: some would specialize in a specific commodity such as lacquerware or porcelain. These were called the "outside merchants."<sup>235</sup>

Paul Van Dyke has written about a merchant named Attay (Chinese name Liang Diguan, also called Bao Diguan), who traded in various products including lacquerware around the 1740s. His factory was located east of the Portuguese and Dutch factories, and references to him are found in Danish, Swedish, and Dutch

<sup>&</sup>lt;sup>235</sup> Paul Van Dyke, Merchants of Canton and Macao. Politics and Strategies in the Eighteenth-Century Chinese Trade (Hong Kong: Hong Kong University Press, 2011), 11.

records. In the EIC records he is mentioned only once in 1741.<sup>236</sup> The extensive research done by Van Dyke on Cantonese and Macanese merchants published in 2016 also revealed the name of Sewqua who in the 1750s sold articles, including lacquerware, to the EIC, the Danish Asiatic Company (DAC), the VOC, and the Swedish East India Company (SOIC). Suchin Tiauquon (1746-1787) dealt in porcelain and lacquerware, and was sometimes called a "lacquer man." He did business mainly with the DAC, but two references about him are found in the Swedish records.<sup>237</sup>

Echong is mentioned as a dealer of porcelain in the Danish and Danish records from 1768 to 1788. However, his name, together with the previously mentioned Howqua (same man as Houqua?), appears in American records in 1784 selling lacquerware.<sup>238</sup> More specifically these two men were the ones who supplied the lacquerware exported to the United States in the inaugural voyage to Canton of the *Empress of China*. In the receipts book of Frederick Molineux,<sup>239</sup> two receipts state:

Rece'd at Canton November 13<sup>th</sup> 1784 of F. Molineux twenty six Tael, three Mace five Candereens being thirty five dollars & One Mace the amot, in full for an Invoice Box of Lacquered ware for Cap: Green

<sup>238</sup> Paul Van Dyke, Merchants of Canton and Macao. Success and Failure in the Eighteenth-Century Chinese Trade, 163, 242.

<sup>239</sup> Frederick Molineux served as a Captain's clerk on the first voyage of the *Empress* of *China* in 1784, assisting John Green, captain on the same voyage. Molineux recorded the purchases made on the account of Captain John Green in a same book labeled "Receipts."

<sup>&</sup>lt;sup>236</sup> Paul Van Dyke, Merchants of Canton and Macao. Politics and Strategies in the Eighteenth-Century Chinese Trade, 209-211

<sup>&</sup>lt;sup>237</sup> Paul Van Dyke, Merchants of Canton and Macao. Success and Failure in the Eighteenth-Century Chinese Trade (Hong Kong: Hong Kong University Press, 2016), 20, 153-154.

(Chinese characters) Echong lacquer man

Reced at Canton Decr 18<sup>th</sup> 1784 of F Molineux for Accot of Capt Green Forty Nine Dollars & 5 Candereens in full for a dressing box & four Lacquerd Fans for Mrs Morris

(Chinese characters) Howqua lacquer man<sup>240</sup>

In the accounts concerning Green's private purchases in Canton, the content of the box of lacquerware provided by Echong is described as consisting of a dressing box, nesting boxes, counter boxes, and small dressing boxes. Also, oblong, scallop, and octagonal trays (or servers), are included adding up to the total of \$35 12/90. In the investment account for Mrs. Morris "One box containing a Ladies dress table" worth \$49 16/90 is mentioned. Although one knows from the Molineux receipts, the dressing box came from Howqua "lacquer man" there is no specific reference to it being lacquered as is done for the fans. The five fans do not show up in the accounts, and no other reference to them is found. <sup>241</sup> The dressing table came with a "glass for the dressing table"; this relates to objects such as the PEM and the WM dressing tables (133000 and 2004.0030.001), a furniture shape also known as *Poudreuse*, for which a price of around \$49 seems appropriate.

Detailed documents about the lacquer trade are scarcer; they were not part of the official accounts of each ship. However, due to the diligence of some

<sup>&</sup>lt;sup>240</sup> Taels, maces (maes), and candereens, are traditional Chinese measurements of weight also used as a currency denomination. 1 tael equals 10 mace. 1 mace equals 10 candareens. Transcript published in Philip Chadwik Foster Smith, *The Empress of China* (Philadelphia: Philadelphia Maritime Museum, 1984), 260-62.

<sup>&</sup>lt;sup>241</sup> Transcripts published in Philip Chadwik Foster Smith, *The Empress of China* (Philadelphia: Philadelphia Maritime Museum, 1984), 281, 291.

supercargoes, various records of how these purchases were done can be found. Benjamin Shreve (1780-1839) papers, held at the Phillips Library, Peabody Essex Museum, have been used extensively to document several studies regarding trade in Canton. From 1812 onwards, Benjamin Shreve acted as a supercargo and a ship master for several voyages to Canton. Shreve's detailed and careful recording of all transactions permits a better understanding of how Cantonese lacquer was being traded into the United States in the first quarter of the nineteenth century.

Private investors would trust Shreve with money so that he could manage their purchases in Canton, and they would give him instructions on what to buy. In a letter dated May 9<sup>th</sup>, 1816, Gideon Tucker from Salem, wrote to Shreve that he gave him \$240 to buy several articles, amongst them "6 lacquer'd ware fruit baskets" and "3 dozen lacqer'd ware small plates" which he believed would cost around \$10.<sup>242</sup> Waiters,<sup>243</sup> fruit baskets,<sup>244</sup> and assorted plates seem to be popular items in the first two decades of the nineteenth century. In the invoices and commissions consulted from this period, these particular items were frequently present. In "Mrs Peabody's Memoradum of sundry articles to be purchased at Canton for family use," dated Salem, May 1<sup>st</sup>, 1815, more of these articles are present with detailed instructions of what should be bought by Shreve,

Lacker Ware 3 pair oval fruit baskets 9 inches long 2 <sup>1</sup>/<sub>2</sub> inches deep

<sup>242</sup> PEM MH20, Box 1, Folder 6.

 $^{243}$  Sets of waiters were sets of trays in different sizes that usually could carry up to a tea service.

<sup>244</sup> No object of this kind was found up until now to illustrate these commissions.

3 " " " 4 dto dto
6 dozen fruit plates to match
1 Tea tray 28 inches long, 1 Tray 22 inches long, 1 Tray 16 inches long
and 2 Tray 10 inches long
1 Cigar box
1 Work dto

Regarding the trays, there is a note on the side with additional details on how these objects should be decorated, "Black & handsomely gilt, but not gaudy."<sup>245</sup> In his personal book of notes dated 1817, Shreve noted the details regarding the "lackerware" requested by Joseph Peabody, R. Wheatland, and his own wife. After listing of all commissions, Shreve wrote, "Lacquerd Ware both of Yinqua to be done in 3 weeks – three times lacker'd."<sup>246</sup> From these records, it is evident that instructions were given not only for the gilded decorations but also for the number of lacquer layers. The idea that the more layers the better the article would be seems to be implied in these requests. What appears to have not been considered is that 3 weeks to dry 3 layers for lacquer is not the most suitable time frame to achieve a well dried lacquer coating, thus compromising the quality of the final product.

Yinqua seems to be the merchant from whom Shreve would buy most of his lacquerware between 1809 and 1817. The name of the merchant appears in various receipts and invoices. A receipt from 1817 that reads: "Canton November 12, 1817, Rec of Benjamin Shreve thirty-two dollars in full for lacquered ware" and is signed in Chinese by the merchant.<sup>247</sup> In the papers of ship Minerva, dated 1809, Canton, Shreve wrote several pages on "Remarks on the Canton Trade," listing several hong

<sup>&</sup>lt;sup>245</sup> PEM MH20, Box 4, Folder 7.

<sup>&</sup>lt;sup>246</sup> PEM MH20, Box 8, Folder 6.

<sup>&</sup>lt;sup>247</sup> PEM MH20, Box 1, Folder 9.

merchants and with whom to do business and on what. Yinqua is listed as "Lacquerd Ware."<sup>248</sup> In the *New Hazard* account book of 1815, Shreve noted the location of Yinqua's in Canton, which according to the supercargo would be "Yinqua – Lacker'd Ware – left side of the street not far from the entrance is considered the best man."<sup>249</sup> From Shreve's previous notes in the same account book, the street mentioned is "China Street" which, as discussed previously, at this date is (Old) China Street. Benjamin Shreve also relied on the opinion of others involved in the Canton Trade for his choices; this is illustrated in the case of Edward W. Waldo, who was happy Shreve appreciated his advice, as stated in a letter from Salem dated March 15, 1815, "as you are one of the few that will except advice and experience of younger men I feel so flattered by the application, that I can but give you all I have or know." Waldo made several remarks on the lacquerware trade stating that it can be bought from Esching, Washing, and Nanchong, all silk merchants, and give details on how the market was at that time,

My lacquerware sold at two hundred per cent. The articles most wanted are tea caddies at a dollar, backgammon boards same price. Sigar boxes half a dollar-seventy five cents. Loo boxes same. Fish counters same. Wine stands twelve cents and small articles to fill up the packages – they may be black or red.<sup>250</sup>

Not all lacquerware that was brought on board the ships in Canton is described in the invoices, and sometimes invoices mention only the number of boxes with lacquerware and the recipient without describing the boxes' contents. On other

<sup>&</sup>lt;sup>248</sup> PEM MH20, Box 10, Folder 4.

<sup>&</sup>lt;sup>249</sup> PEM MH20, Box 10, Folder 8.

<sup>&</sup>lt;sup>250</sup> PEM MH20, Box 11, Folder 9.

occasions, especially regarding objects for personal use, the buyers would be minutely-detailed in their descriptions as in the case of Dudley Pickman. Pickman provided details to Shreve about the lacquer pieces to be bought for him, in a letter dated May 4, 1819. The first part of Pickman's letter is dedicated entirely to the two sets of lacquered waiters that he wishes "you would procure for me in Canton." Instructions are given on the decoration and sturdiness of the sets that should be "black ground & little ornamented. I wish them strong & fit for use." Pickman provided detailed measurements for the set for his own use, specifically, 36"x24", 32"x24", 20"x15", and 15"x10", and mentioned that the second set was destined for a friend. At the end of the letter, Pickman adds a drawing of the shape of the waiters telling Shreve that "The waiters of the oval form, extended like those of your house. The common oval hold much less than yours."<sup>251</sup> (Figure 14) It is interesting to note that the favored shapes were passed from owner to owner as they were perceived and appreciated in mutual house visits. The requested waiters were registered on board of the Brig Governor Endicott in an invoice dated November 2 1820, in Canton. The invoice states all merchandise consigned to Dudley L. Pickman and includes,

"1 Box contg (containing) 6 waiters viz 1. 36inch \$2 1. 32inch \$1.75 1. 28inch \$1.50 1. 24inch \$1.25 1. 20inch \$1 1. 15inch 75cents & 3 round ones for \$1 Total \$9.25

1 box contg 4 waiters viz 1. 36inch 1. 32inch \$1.75 1. 20inch \$1 1. 15inch 75cents Total \$5.50<sup>"252</sup>

<sup>&</sup>lt;sup>251</sup> PEM MH20, Box 3, Folder 5.

<sup>&</sup>lt;sup>252</sup> PEM MH20, Box 4, Folder 2.

PHILLIPS LIBRARY, PEM STUDY/RESEARCH PHOTO The warters of the Oval form, entended like those at your bouse. do . The avals you much less than I surd you Twenty Dollars her

Figure 14 Dudley Pickman's letter to Benjamin Shreve dated May 4, 1819. PEM MH20, Box 3, Folder 5. Courtesy of the Phillips Library/PEM.

Cantonese lacquerware was brought to the Europe and North America but also to South America where around the 1820s it could apparently guarantee a notable profit. In December 1825, the ship China, owned by Joseph Peabody and Joseph Augustus Peabody,<sup>253</sup> left Salem headed for South America. Hiram Putnam was the ship's master, and his first stop was Valparaiso, Chili-reporting from Lima, Peru, in July 1826. Putnam had instructions to decide on where to proceed next depending on the acceptance and good deals he understood he could make. A letter from Joseph

<sup>&</sup>lt;sup>253</sup> Joseph Peabody (1757-1844) was a merchant and the one of the most prominent shipowners in Salem, Massachusetts, in the first half of the nineteenth century. Joseph Augustus Peabody (1796-1828) was his son.

Peabody and his son, written in Salem, in April 1827, indicates that Canton became the next destination for Putnam: "We had the pleasure a few days ago to receive your letter of the 21<sup>st</sup> November from Lima, announcing your intention of proceeding to Canton from thence and returning again to the coast with a cargo of Canton goods."<sup>254</sup> In Canton, April 30 1827, Putnam brought on board several lacquered articles at different prices. Among them was a pair of lacquered tea tables bought at \$15,50 each.<sup>255</sup> The pair of tea tables sold back at Lima for \$40, providing Putnam with a \$9 profit.<sup>256</sup>

The Rhode Island Historical Society in Providence, RI, houses the Carrington Papers, comprising Edward Carrington's personal investments in the China trade from 1802 to 1815, and his firm Edward Carrington & Co. from 1816 to 1843.<sup>257</sup> The cargo brought from Canton to South America on ship *Edward* revealed the most interesting information regarding the kind of lacquerware exported from China. In an invoice relating to merchandise brought on board in Canton, May 5<sup>th</sup>, 1831, a detailed list of the lacquerware shipped is given. These are mostly tea caddies, card cases, and one lacquered table. However, an important observation is that the color of the lacquerware is clearly specified for the different objects, with several described as

<sup>254</sup> PEM MH178 Box 1, Folder 12.

<sup>255</sup> PEM MH178 Box 1, Folder 12.

<sup>256</sup> PEM MH178 Box 2, Folder 6.

<sup>257</sup> Edward Carrington (1775-1843) worked as a clerk and supercargo for merchants such as Seth Wheaton, Samuel Butler, and Richard Jackson. Carrington resided in Canton, from 1802 to 1810, serving as an American consul. After his return to Providence in 1811, he continued to work in the mercantile trade, and in 1815, with Samuel Wetmore as a partner, he founded the firm Edward Carrington & Co.

"Black Lack'd Tea Caddies," while others are "Brown Lack'd Tea Caddies." The card cases are all in brown lacquer, but for the table the color is not specified.<sup>258</sup> The tea caddies are equally black or brown which probably means buyers would appreciate them both. The brown color of lacquerware is frequently attributed to light degradation, and in fact that is often the case with export examples. Nonetheless, this invoice indicated that brown color was also intentionally produced and exported since and that there was a market for it.

Different colors and various shapes of lacquerware do not seem to be associated with costumers of different nationalities. As discussed in the previous paragraph black and brown lacquerware was being sold in South America but also in North America. Included in this research, and to be discussed in detail in Chapter 3, is a sewing table made for a North American client, William Shepard Wetmore, that also displays black and brown lacquer intentionally toned.

Some of the furniture shapes manufactured in Canton to be lacquered can be related to a specific European country but were bought and brought back by different nationalities of Europeans. That's is the case of two chairs further discussed in Chapter 3: one from the V&A collections (FE.116-1978), and another from Fredensborg Palace, Denmark (SE-F47-10). The chairs date from circa 1730 and are based in an English Georgian shape. The V&A chair was once part of a set that furnished Warwick Castle in England. As for the Fredensborg Palace chair, it was brought from Canton in 1735 for King Christian VI (reign 1730-1746) of Denmark. English shapes can be found in various lacquered furniture pieces that were made in

<sup>258</sup> RHIS MSS333, Box 150.

Canton. That is also the case with the two lacquered cabinets or *secrétaires* brought back to King Christian VI in 1738 (also included in this study). A lacquered mirror stand of which the shape follows late eighteenth-century English examples bears the initials "ECVSB". It was brought from China by Andreas Everardus van Braam Houckgeest (1739-1801) for his daughter Everarda Catharina Sophia (1765-1816).<sup>259</sup> Van Braam Houckgeest was a Dutch East India Company merchant whot stayed in Canton and in Macao for extended periods of time. In 1794-95 he joined a VOC Embassy to the Beijing Court, and overall he was active as a collector of Chinese curiosities, including lacquer. Due to the French Revolution and the unrest in Europe, Houckgeest settled in the United States, near Philadelphia. He named his house "China's Retreat" and furnished it with Chinese objects.

Chinese lacquerware furniture designs adapted to the needs created by eighteenth-century new fashions. As drinking tea and coffee became wide-spread social practices, the demand for their implements grew explosively and increased the trade in the specific manufactured goods that would serve these new habits. Porcelain sets, lacquered cabinets, screens, and tea tables, were among the Asian goods that reacted to the changes in European material culture. In the sixteenth century Chinese lacquered pieces were scarcer and destined for royalty and some noblemen only. Although these objects arrived in larger quantities and became more available to the emerging middle class in the eighteenth century, they were still seen as "exotic" and as

<sup>&</sup>lt;sup>259</sup> This object is today part of the Rijksmuseum collections, accession number AK-RAK-2003-8-1. For an image see Jan van Campen and Ebeltje Hartkamp-Jonxis, *Asian Splendour: Company Art in the Rijksmuseum* (Amsterdam: Walburg Pers, 2011), 89.

a symbol of status, while their value was still enhanced by the "physical distance from the place of production" just as in previous centuries.<sup>260</sup>

Regardless of the style of their models — English, French, Dutch, among others —all these Chinese objects followed contemporary fashions and furnished interiors in several European countries.

<sup>&</sup>lt;sup>260</sup> Maxine Berg, "In Pursuit of Luxury: Global History and British Consumer Goods in the Eighteenth Century," *Past & Present* 182 (2004): 98-99.

## Chapter 3

### CHINESE EXPORT LACQUERWARE

#### 3.1 Interdisciplinary approach

This research combines three different methodologies: archival research, instrumental analysis, and stylistic comparison between the objects and with similar documented pieces.

# 3.1.1 Archival research

Archival research consisted of identifying primary sources and other documentary references appropriate for this study. This includes information about individual/family owners of the pieces in the study; information about Chinese lacquer workshops in the areas of provenance of the objects; information about the lacquer trade; and information about similar documented pieces for comparison.

The main concern with documentary research was to focus on the objects included in this study. The goal was to find or reinforce connections of the objects with the city of Canton. This connection is particularly important not only to characterize the city's production but also to complement the analytical study. With well-established connections of the pieces to their city of manufacture, the analyses results can be specifically used to characterize objects from that same provenance; of particular importance in attribution discussions.

The majority of the archives consulted were located in the United States. Most of the objects studied come from US collections, and most of the ones that have

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information about provenance were owned by American families. US archives consulted included the Phillips Library at the Peabody Essex Museum (PL/PEM), in Salem, MA; the Massachusetts Historical Society (MHS), in Boston, MA; and the Rhode Island Historical Society (RIHS), in Providence, RI. Research was also carried out at the Biblioteca Real da Ajuda (BRA), in Lisbon, Portugal, to search for mentions of lacquer imports to the Portuguese royal family; several objects included in this study belonged to the royal family and are today kept at the National Palace of Ajuda in Lisbon.

#### **3.1.2 Instrumental Analysis**

Instrumental analysis included several different techniques. Chinese export black and gold lacquer coatings feature a multi-layered stratigraphy composed of the ground layers, the lacquer layers, and gilt decorations, mainly gold and metallic alloys, applied on top. Ground layers are usually composed of an organic binder and inorganic material such as clay. Lacquer layers contain a mixture of Asian lacquer, drying oil, plant resins and other additives as well as inorganic pigments. Due to the structure and varying constituents of lacquer coatings, a multi-technique approach is required to analyse and identify the materials present in these decorative finish layers. Based on a review of academic and conservation literature and previous analytical work done by the author on Chinese export lacquer pieces, the following techniques were chosen as the most appropriate regarding the goals of this project: cross-section Optical Microscopy (OM) both under visible and under ultraviolet (UV) light, Pyrolysis-Gas Chromatography/Mass Spectrometry (Py-GC/MS), and Scanning Electron Microscopy-Energy Dispersive X-ray Spectroscopy (SEM-EDS).

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Since 2009, the GCI has been creating a data base compiling the analytical findings regarding the materials identified in Asian as well as in non-Asian lacquer decorative finishes. This database will be free and accessible to all researchers. All the analytical data from this research will be contributed to the GCI database.

### 3.1.3 Stylistical Comparison

Stylistic comparison was used to provide connections between the pieces as well as to determine chronological periods of production. Pieces from other museums and institutions as well as from private collections were used as comparison examples. Research was done to compile pieces stylistically similar, from the same period and with similar provenance. Whenever it was possible, pieces with enough data to be considered documented objects were chosen. A documented object was considered if: there is documentary material related to the piece that links it to Guangzhou in South China, proof of ownership from an individual/family with direct connections with the previous referred geographic area, and physical inscriptions on the piece that allow for a tentative date of production e.g. coats-of-arms. This comparison among all selected objects served as a support for the creation of a timetable for the Chinese production and evolution of black and gold lacquer pieces.

# 3.2 "Export" objects in this study

As mentioned in the introduction, the term export used throughout this dissertation requires further discussion. As stated, for this study the term "Chinese export lacquerware" will encompass objects made of wood, presenting shapes suitable for the Western market, coated with black lacquer, and decorated with gold. Both shape as well as decoration are being used to fundament the export classification. The shape, as mentioned, is narrowed to include pieces of furniture like chairs, game tables, sewing tables, cabinets, and work tables, among others. These shapes are characterized by a European or American design, created and used widely in these regions. In decoration terms, the pieces coated with black lacquer, and more rarely red, on which gilded decorative motifs are painted were considered. In the case of decoration, some motifs are repeatedly used on pieces imported by Westerners allowing to connect them with this kind of production and contributing to their chronological arrangement. Nonetheless, both shape and decoration criteria have exceptions that need to be identified.

Some objects require some caution in their "export" classification and, as said, a careful examination of both shape and decoration; boxes are one of them. Work boxes, for sewing, painting, gaming, and other activities were among the most imported objects from Canton. In general, clues to their purpose are given by the specifications of shape and interior accessories and relate them to the buyers' activities. In some cases, e.g. in the presence of coats-of-arms, they are directly related to Western ownership. When none of these indicators is present, some care should be taken in the classification of the object as export. A box, kept at the Hong Kong Museum of History (HKMH), is a good example of this ambiguity. This is a traditional box used to carry wedding documents and engagement gifts such as money and dried fruits. The box features a simple rectangular form, that can be used to store different items of different natures, and also typical of Chinese black and gold lacquer boxes that furnish both European and American interiors and are kept in related collections. In terms of decoration, the box is black with the characteristic painted gilded decoration. The motifs, especially the ones that frame the central decoration

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like the stylized flowers and spreading foliage, are found frequently in export furniture present in Western collections (Figure 15).



Figure 15 Traditional box to carry wedding documents. Black lacquer painted with gold. Hong Kong, nineteenth century [?]. Courtesy of the Hong Kong History Museum.

Furthermore, the figures and surrounding background in the central scene can also be related, both in theme as well as style, with decorations found in the referenced pieces. The Chinese characters depicted on the lid of the box are of major importance for the understanding of this object; or more correctly, the combination of the characters with the motifs depicted on the box. Motifs like bats, flowers and peaches, and the Chinese characters "加官晉爵" combine to convey wishes of good blessings,

appropriate for an engagement or wedding. The Chinese words "加官晉爵" mean "get promotion in an official rank in the ancient Chinese history." The "bat" due to its pronunciation in Chinese similar to "福" which means "blessing" and "good fortune." The "blossom of flower" means "wealth," and "peach" connotes of "longevity."<sup>261</sup> According to the HKMH, this is a box used traditionally for weddings and engagements and a very common object in that region. If this same object were placed in a European or American interior, it could easily be associated with and classified as "Chinese export lacquerware" due to its characteristics; in fact, it is likely that it traveled West as an import, and that someone brought it home for various purposes: as a gift, home décor, or a utility, among other uses. However, the piece was not created to be exported but rather to be used in local celebrations. This may also be true for other objects, frequently classified as export because they reached Western countries from China, but that in fact were produced for domestic use and traveled to other locations for various reasons.

The round table shape is an example of the "export" classification ambiguity. As recent research by Kyoung Bae has shown international trade and global connections introduced the use of this shape into Chinese interiors. The use of roundshaped tables as dinning surfaces was scarce in China up to the late Ming Dynasty. At the end of the seventeenth century in England, owing to the tea drinking habit, a new shape of furniture — the tea table, smaller than the traditional dining table, and constructed in order to be folded when not in use — became common in households. Due to its folding top, this kind of tables were not only used in English homes but also

<sup>&</sup>lt;sup>261</sup> I am grateful to the staff of the Hong Kong History Museum, for the translation of the Chinese characters, and all the help in the interpretation of this object.

taken on board by seafarers traveling to China. The same practicality determined that round gate legs, an English shape also prevalent in the seventeenth century, became part of ships' furnishings in the same way as round tilt-top tables. Both round shapes were introduced in Canton by the English merchant-seafarers who temporarily inhabited the city and furnished the factories where they would stay with these objects as well as used them in boats when they sailed in the local sea. The shape eventually penetrated from the European lodges to Chinese interiors becoming part of everyday life.<sup>262</sup> As in the case of the box discussed in a previous paragraph, some of the lacquered round tables classified as "export", due to their European shape, might eventually have been created to be used in Cantonese households, and from there brought to Europe and the Americas for a various number of reasons.

The adoption of Western forms and features in Chinese art and culture must be taken into account when considering "export" and "domestic" objects. Designs of European objects arriving in China — with Guangzhou being one of the main ports of entry — influenced the Chinese taste and contributed to the production of "hybrid" objects, which incorporated influences from both sides of the trade routes such as the case of the aforementioned round tables. The extent of the circulation of the "export" objects inside mainland China is also still fairy unknown but objects such as eighteenth-century export paintings with views of the Thirteen Factories in

<sup>&</sup>lt;sup>262</sup> Kyoung Bae, "Around the Globe: The Material Culture of Cantonese Round Tables in High-Qing China," in *China, Europe, and the Transcultural Object: 1600-1800*, edited by Anna Grasskamp and Monica Juneja, 37-56 (Cham, Switzerland: Springer, 2018).
Guangzhou seem to have been circulating abroad as well as in China.<sup>263</sup> These reinforces the idea that "export" objects may in fact not all have been created to sell to Europe or the Americas but also to fulfill the market of domestic patrons.

As discussed previously in Chapters 1 and 2, black and gold lacquerware was manufactured for both export and for the domestic market; however, the distinction may be problematic at times. That is the case for Cantonese lacquerware as well as for lacquered objects from other manufacturing centers. Chaozhou, also in Guangdong Province, is known for its woodcarving. The technique, that involves lacquered woodcarvings covered with gold leaf, is one of the most important South China crafts and is included in China Cultural Intangible Heritage. Various objects were (and still are) produced in this technique such as table shrines, screens, cabinets, chairs, and tables. The gilded carved wood elements are often combined with areas of gold painted black lacquer or polychrome lacquer painting (Figure 16). According to Dr. Ruan Hua-duan, a Chaozhou woodcarving specialist and deputy director at the Guangdong Museum, objects like these were manufactured both for the domestic as well as the export market.<sup>264</sup> Some of the gold-painted elements of Chaozhou woodcarving were closely studied during the author's stay at the Guangdong Museum. In Chaozhou lacquerware, as well as in Cantonese lacquerware, the challenge to distinguish what is designated as "export" and what is "domestic" is recognized. When factors like shape or ownership marks are not present, this distinction can be somewhat problematic; for the case of the black lacquered elements with gold painted

<sup>&</sup>lt;sup>263</sup> Kristina Kleutghen, "Chinese Occidenterie: The diversity of "Western" Objects in Eighteenth-century China," *Eighteenth-century Studies* 47, 2 (2014): 125-126.

<sup>&</sup>lt;sup>264</sup> Personal communication, October 2017.

decoration, the distinction between Chaozhou and Canton manufacture can also be, at times, complicated, due to the resemblance of the technique employed and the motifs used for decoration.



Figure 16 Chaozhou gilded carved wood shrine with lid (left). The lid (right) is painted in the *miaojin* technique. Chaozhou, early twentieth century. Courtesy of the Guangdong Museum.

## 3.3 Selected group of study

Forty objects constitute the core of this research. These pieces belong to European and North-American collections and are representative of the Chinese lacquer imports to these countries during the eighteenth and nineteenth centuries. Fourteen objects are from the Winterthur Museum (WM), Delaware, US: one dressing table (2004.0030.001), one circular table (1963.0096), three folding screens (2004.0030.002, 1962.0224, and 1961.0821), two shawl boxes (1964.0083 and 1964.0084), one tea caddy (1962. 0219), two trays (1969.5368 and 1959.2891), one desk (1962.0222), one sewing table (1962.0223), one nesting table (1959.0575D), and one miniature desk (1966.0779). Also, from the Peabody Essex Museum (PEM), in Salem, MA, eleven objects were chosen for this study: one dressing table (133000), one circular table (E40994), a set of four nesting tables (126018), and another set of three nesting tables (E80758), two game tables (AE82477 and AE5733), one screen (E84093), one sewing table (E82997), one Davenport desk (E80268), and two shawl boxes (AE85997 and E18314). From the Philadelphia Museum of Art (PMA), in Philadelphia, PA, two objects were chosen, one circular table (1940-34-01), and one sewing table (1931-42-6). In European collections, three objects belonging to the collections of the National Palace of Ajuda (NPA) in Lisbon are included, one numismatic box (44543), one musical instrument[?] box (51171), and a set of four nesting tables (58252-5). A lectern from a private collector in Lisbon is also part of this study in addition to one chest (Ao.328) from the São Roque Museum (SRM), Lisbon. From the collection of Jorge Welsh Works of Art (JWWA), with locations both in Lisbon and London, two objects were selected, one panel with a view of Macao and one chest. In England from the Victoria and Albert Museum (V&A), London, four objects are part of this group, one screen (W.37-1912), one cabinet

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(FE.38-1981), one chair (FE.116-1978), and one sewing table (FE.27.1981). From Danish collections, namely from the Fredensborg Palace – Agency for Culture and Palaces (ACP), two objects complete the selection, one cabinet (SE-F6), and a chair (SE-F47-10). For a summary of all objects, provenance, accession numbers, and images, please refer to Appendix A.

The core of this study is made up of wooden furniture pieces. This group of objects was selected observing several factors such as shape, decoration, region of manufacture and indications of provenance, period of manufacture, and variety of objects. These criteria will be discussed in detail in the following paragraphs.

Pieces of furniture featuring shapes suitable for the European and American markets were selected. For this study the term "furniture" includes not only larger shapes as chairs, game tables, sewing tables, cabinets, and work tables but also smaller house articles like boxes and trays. Shapes were selected considering European or American designs, created and used widely in these regions. This selection took in consideration objects that would represent the choice of foreigners visiting Canton and be taken back to their countries of origin as house furnishings or gifts. There are two exceptions to this classification: screens and fans; both shapes are originally connected to China. After their introduction into Western countries and interiors, these shapes became increasingly popular as attested by their continuous imports. Screens were used as objects in themselves but also as wall paneling; a number of rooms with screens are still conserved in European interiors today, such as Schönbrunn in Vienna and the Royal Palace in Turin. Screens were sometimes split into two sections, as was the case in the Chinese Pavilion at Drottningholm Palace, Sweden. Furniture, often chests of drawers, featured panels that had been removed from screens, representing

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an alternative use of screens. Fans also became an integrant part of life and habits in European countries; they were first produced in a variety of decorated materials, but the number of imported lacquered fans increased considerably during the nineteenth century.<sup>265</sup> Screens and fans that featured black lacquer and gilded decoration were selected for my study group. Moreover, the presence of coats of arms or monograms in their decoration, indicating a clear connection to a Western commission, was also an added criterion for selection.

All pieces in this study are lacquered black with gilded decorations. One object, the shawl box PEM E18314, is lacquered red and represents the only example of this type of decoration. References to objects coated with red lacquer are documented and determined the inclusion of this piece in the study group.<sup>266</sup> The focus of the analytical study is the identification of the materials used for lacquer coatings on these objects and the way the coatings were applied.

In summary, this research is dedicated to the study of Chinese export lacquerware. The city of Guangzhou (Canton), Guangdong province, was the manufacturing center chosen for further investigation. All objects included in the study group were made in the area of Guangzhou or are attributed to the production of that Southern China city. Selection of the pieces was based on links between the objects and the city of Guangzhou. These links were established through proof of

<sup>&</sup>lt;sup>265</sup> In 1834, the ship *Liberty*, from Canton and bounded for Philadelphia, had on its cargo 10 boxes of lacquered fans. On that same year, the ship *Italy*, also from Canton and bounded for New York, carried 20 boxes of lacquered fans. RHIS MSS333, Carrington Papers, Box 244, Folder 4.

<sup>&</sup>lt;sup>266</sup> Letter from Edward W. Waldo to Benjamin Shreve, March 15, 1815. PEM MH20, Box 11, Folder 9.

ownership by individuals or families connected to the China trade, the trade history of the objects connecting them to that city of South China, as well as attribution of provenance by scholars who have extensively researched the subject.

The time period selected for this research covers 1700 to 1850. Lacquer manufacture has been documented in Guangzhou since at least the sixteenth century and it evolved in the following centuries.<sup>267</sup> The period between the 1700s and the middle of the nineteenth century featured continuous production of lacquer. The majority of examples from Cantonese black and gold lacquer in European and North-American collections are from this time period, and the pieces chosen to integrate this study group are dated mainly from the eighteenth and nineteenth centuries.

One of the goals of the choice of objects was to represent the variety of lacquerwares that could be purchased and brought back by the foreigners. The study group contains unique pieces as well as more ubiquitous objects. Pieces with larger dimensions like screens and dressing tables most probably represent commissions, and were manufactured with a specific recipient in mind. More ordinary objects with popular shapes and no specific decoration that could indicate a commissioning entity were chosen to represent the readily available choices for the buyer from the different sellers. Even when objects feature decorations related to particular individuals, interpretations should proceed cautiously. A monogram (or even a coat of arms) does not necessarily indicate a commissioned object. It could have simply been added to an

<sup>&</sup>lt;sup>267</sup> Gaspar da Cruz, Tratado em que, se contam muito por extenso as cousas da China com suas particularidades e assim do reino de Ormuz composto por el r. Padre Frei Gaspar da Cruz da Ordem de São Domingos..., trans. Fan Weixin (Macau: Museu Marítimo/Instituto de Promoção do Comércio e do Desenvolvimento de Macau, 1996), 71.

existing piece at the request of a buyer, a common procedure even today. A letter dated October 23 1927, from Theodore A. W. Hance (1854-1943) describes the story behind a lacquered desk with his monogram (Figure 17) that he had recently offered to his friend,

You are very welcome to the lacquer desk. There is a bit of family history attached to it. You know I was one of those who suffered in the bread poisoning case at Hong Kong in 1857.<sup>268</sup> (...) When it was decided to ship me to England, my mother got me all sort of curious to take with me and amongst them was this desk which the late Archdeacon Gray of Canton<sup>269</sup> procured and had my name engraved in it. I was shipped from Whampoa in August 1863 on board the fine teaclipper "Northfleet."<sup>270</sup>

Investigation of the lacquered coating on examples of both commissions and ordinary objects aims to identify differences in both materials and application technology. As mentioned previously overall images and details of all the objects to be discussed in the following paragraphs are compiled in Appendix A. Images of the

<sup>&</sup>lt;sup>268</sup> In 15 January 1857, bread sold from a Chinese bakery (E-sing) that supplied the colonial community, was adulterated with arsenic with devastating consequences. The motivations behind this event remain debatable. Kate Lowe and Eugene McLaughlin, ""Caution! The bread is poisoned": The Hong Kong mass poisoning of January 1857," *The Journal of Imperial and Commonwealth History* 43, 2 (2015): 189-209.

<sup>&</sup>lt;sup>269</sup> Most probably John Henry Gray (1823-1890) the English priest that served as a consular chaplain in Canton, and was the inaugural archdeacon of Hong Kong in 1868. Gray wrote *Walks in the city of Canton* (1875), where he describes lacquerware production in Canton, as discussed in Chapter 1 of this dissertation.

<sup>&</sup>lt;sup>270</sup> Letter from Theodore A. W. Hance to a friend (Low?), October, 23, 1927. I am grateful to Jorge Welsh and Luísa Vinhais, for bringing this object to my attention and providing me with all related documentation.

gilded decorations discussed in the following paragraphs are compiled in tables throughout this chapter.



Figure 17 Lacquered writing desk (left) featuring the monogram of Theodore A. W. Hance (right) on the lid. Guangzhou, circa 1860. Courtesy of Jorge Welsh Works of Art, Lisbon.

## **3.4** Chinese export lacquerware from the eighteenth and nineteenth centuries

One piece in this study group does not follow the selection criteria explained above. This is the chest (Ao.328) from de São Roque Museum, in Lisbon.<sup>271</sup> The chest has a removable lid and is supported on four feet in the shape of a Chinese dragon. The top, front, and sides are decorated with mother-of-pearl inlays. The upper section of the front displays two multi-lobed reserves with floral motifs combined with birds and pavilions. This decoration, covering the upper section of front and sides, has characteristics similar to seventeenth-century Japanese *namban* chests. The lower section of the front is divided by three drawers and is a later addition. On the sides, it is also noticeable that the piece had a lower area added to its original shape. The back,

<sup>&</sup>lt;sup>271</sup> For images and details of all the objects included in this study, please refer to Appendix 1.

painted with foliage and with mother-of-pearl inlays, was also decorated at a later date. The chest is supported by a table made in Lisbon in 1875, mimicking the former decoration. The table is signed and reads "J. G. Ferreira. Painted. Year 1875. R<sup>a</sup> dos Cordoeiros Workshop Lisbon."<sup>272</sup> Further research showed that the signature "J. G. Ferreira" appears twice in the wall paintings of the Chinese room at the Palace Viana, Praia, e Monforte, in Lisbon. Among *chinoiseries*, several columns display paintings with mother-of-pearl inlays over a black ground, with motifs used in *namban* lacquers. Near one of the windows the same signature is found, "J. G. Ferreira pinxit 1882," and again over the main door "J. G. Ferreira 1881."<sup>273</sup>

Although the chest decoration follows closely the repertoire found in *namban* examples, the presence of the Chinese elements raised the hypothesis that the chest may have been made in Macao. Oliver Impey and Christiaan Jörg note that location as a probable manufacturing center, an opinion shared by Pedro Moura Carvalho.<sup>274</sup> These scholars mention the profusely decorated surface of the piece particularly in the lobed reserves where a group of rocks is also depicted. These features are not consistent with seventeenth-century Japanese *namban* examples but are more connected with the Chinese decorative vocabulary; the feet of the chest, designed in

<sup>&</sup>lt;sup>272</sup> Translation from the Portuguese original "J.G. Ferreira. Pintou. anno 1875.Officina R<sup>a</sup> dos Cordoeiros Lx<sup>a</sup>."

<sup>&</sup>lt;sup>273</sup> Isabel M. Godinho Mendonça, "O Fascínio do Oriente: Salas chinesas em palácios de Lisboa no século XIX," In *Oitocentos. Intercâmbios Culturais entre Portugal e o Brasil*, edited by Arthur Valle, Camilla Dazzi and Isabel Portella (Rio de Janeiro: Edur-UFRRJ, 2014), 223-224.

<sup>&</sup>lt;sup>274</sup> Oliver Impey and Christiaan Jörg, *Japanese export lacquer 1580-1850*, 64-64; and Pedro M. Carvalho, *O Mundo da Laca: 2000 Anos de História*, 58.

the shape of a Chinese dragon, reinforces that hypothesis. Kazumi Murose, from the Urushi Institute for Research and Restoration, Tokyo, visited the SRM, and his observations of the chest also point to a Chinese origin.<sup>275</sup> Close observation of the table reveals that the top was also reused from a lacquered piece. The underside reveals a black surface with lobed reserves similar to the ones displayed in the chest although of a different proportion. All the mother-of-pearl inlays in the original decoration detached from the table top underside reveal empty areas that delineate the original shapes (Figure 18). This feature complicates even more the discussion on provenance as the chest and table could have been assembled in China with parts from a Japanese *nanbam* object and repainted in Lisbon at a later date.

This same debate relates to two lecterns from the collections of the Santa Casa di Loreto. The two lecterns are made of wood, decorated with gold and mother-ofpearl inlays, and both display the "IHS" associated with the Society of Jesus (Figure 19).

<sup>&</sup>lt;sup>275</sup> Museu de São Roque, *Oriental Art in the Collections of the Museum of São Roque* (Lisboa: Santa Casa da Misericórdia, 2010), 158-159.



Figure 18 Underside of the table top showing empty areas where original mother-of-pearl inlays would have been placed. Courtesy of the São Roque Museum.



Figure 19 Lecterns from the collections of the Santa Casa di Loreto; to the left, the Japanese *namban* larger lectern, and to the right, the smaller lectern with provenance attributed to Macao. Mayumi S. Koyama, "Due Leggii della Santa Casa di Loreto," *Il Messagio della Santa Casa* 10 (2012): 384-386. The larger lectern was first registered in the church's inventory in 1633, and the smaller lectern in the inventory of 1635-1646, without a precise date. Differences in their decoration and decorative techniques suggest different provenances. Mayumi S. Koyama compared the two lecterns, and pointed to the *nanbam* characteristics of the one with a larger dimension, the mother-of-pearl inlays perfectly leveled with the lacquer surface, the gold and silver *hiramakie* decoration, and the engravings achieved with a sharp utensil. Koyama dated the lectern to the turn of the sixteenth to the seventeenth century classifying it as a Japanese namban object. As for the smaller dimension lectern, the author confirms that some of its decorative features relate to a Japanese repertoire including clouds, bamboo, and camellias. However, other elements are not consistent with a *namban* attribution for the smaller lectern: stars with an unusual shape, clouds filled with unordinary motifs, and a floral element with red color on the back of the lectern. Furthermore, the gilded decoration is not perfectly flat as in the larger lectern and the mother-of-pearl inlays are above the black lacquer background. Considering all these differences, Koyama concludes this smaller lectern was made in Macao, after the Jesuits left Japan and established themselves in Macao alongside Japanese craftsmen.<sup>276</sup>

In 1614, following the anti-Christian edict, the Jesuit School of Nagasaki was prosecuted and forced to close; the members took refuge in Macao. Several Japanese artists moved from Nagasaki to Macao at that time and continued to work in

<sup>&</sup>lt;sup>276</sup> Mayumi S. Koyama, "Due Leggii della Santa Casa di Loreto," *Il Messagio della Santa Casa* 10 (2012): 384-386.

Macao.<sup>277</sup> Also, after the expulsion of the Portuguese from Japan in 1639, the missionary presence in Macao increased.<sup>278</sup> With the returning Portuguese, several Japanese craftsmen also left the territory and joined them in Macao.<sup>279</sup> These missionaries and craftsmen migrations may be responsible for the hybrid character of some objects. Works of art with Japanese features that were most probably made in Macao by Japanese craftsmen who settled there have been referenced.<sup>280</sup> The SRM chest, in a similar way to the Santa Casa di Loreto smaller lectern, has been discussed by the previously mentioned scholars as one of those cases. In the case of the Loreto lecterns, Py-GC/MS analysis performed in 2014 detected differences in the lacquer species used in both pieces. In the *namban* lectern, *Toxicodendron vernicifluum* was used in the lacquer coating. For the lectern attributed to Macao, *Toxicodendron* 

<sup>279</sup> Pedro M. Carvalho, "As Lacas Chinesas de Exportação e o Papel Pioneiro de Portugal na sua Difusão," in *O Mundo da Laca: 2000 Anos de História*, edited by Pedro M. Carvalho (Lisboa: Fundação Calouste Gulbenkian, 2001), 44.

<sup>&</sup>lt;sup>277</sup> Alexandra Curvelo, "Nagasaki. An European artistic city in early modern Japan," in *Bulletin of Portuguese-Japanese Studies* 2 (Lisboa: CHAM, Universidade Nova de Lisboa, 2001): 29.

 $<sup>^{278}</sup>$  The Portuguese were expelled from Japanese territory due to the expanding catholic activities seen as threat to the Japanese feudal lords (*daimyō*). The only foreigners authorized to stay and trade in Japan from 1639 onwards were the Dutch, although confined to the Island of Deshima.

<sup>&</sup>lt;sup>280</sup> Francisca Figueira, Philip Meredith and Ana Clara Rocha, "A Sino-Japanese-Portuguese *byôbu*: its conservation and contextualization," In *ICOM Committee for Conservation 11th Triennial Meeting, Lisbon Preprints*, edited by J. Bridgland, 1-9. Almada: Critério, 2011.

*succedaneum* was the lacquer species detected.<sup>281</sup> The chest was included in this research in order to investigate whether its constituent materials are connected with Japanese or Southern Chinese lacquerware production, and if its material analysis can help to connect the object to Macao. Nonetheless, this object— for the previously discussed reasons — is an "exception to the rule," and related analysis will be discussed individually away the rest of the group of studied objects.

A lacquered lectern dated from the seventeenth century is included in this study. This lectern belongs to a private collection in Lisbon, is made of wood and displays a black lacquer coating with gilded decoration. The gilded decoration represents a double-headed eagle framing a heart pierced by arrows, symbols of the Augustinian order. The Catholic references suggested by the shape and decoration of this object determined its inclusion in the "export" group, although it was probably used in its place of origin. The lectern has been attributed to Chinese production by scholars like Maria Antónia Pinto de Matos, and dated to the seventeenth century.<sup>282</sup> Several lacquered lecterns with similar shapes are known. These are of Japanese origin and dated mostly from the Momoyama period (1573-1615) and early Edo period (1615-1868). These lecterns display the characteristic *namban* decoration combining black lacquer, gilded decoration, and mother-of-pearl inlays, as the one from the Santa Casa di Loreto discussed earlier in this chapter. These were used by the different

<sup>&</sup>lt;sup>281</sup> Stefania Pandozy *et al.*, "The Asian Lacquer Collection in the Vatican Museums: the experiences of the Ethnological Materials Conservation Laboratory," *Lo stato dell'arte 12, Milano Accademia di Belle Arti di Brera 23-25 ottobre 2014* (2014), 7.

<sup>&</sup>lt;sup>282</sup> Palácio Nacional de Queluz, Musée National des Arts Asiatiques, *Do Tejo aos Mares da China: Uma Epopeia Portuguesa* (Paris: Reúnion des Musées Nationaux, 1992), 157.

catholic missions in Japan in the same way as pixies and portable altars with similar features.<sup>283</sup> Matos classified the object as made in Macao to serve the missionaries' activities in that Portuguese territory. Lecterns of Chinese origin are rare and the one included in this study represents a unique object providing information about Chinese black and gold lacquer coatings in the seventeenth century. Its probable place of manufacture — Macao — also determined its inclusion, in order to compare analytical results with other objects attributed to the same manufacturing center. The Lisbon lectern, although with a gilded decoration different from the gold and mother-of-pearl decoration of the Loreto lectern also attributed to Macao, contains some similar features such as the continuous circular-shaped pattern in the front stand (Table 1, number 1). This continuous pattern also appears on several areas of the Loreto lectern including the front stand. The Lisbon lectern features a continuous motif of gilded spirals on the top of the front stand (Table 1, number 2). This same motif is also featured on a lacquered panel that was originally a lid of a chest. This panel, with gilded decoration on red lacquer, is dated to the seventeenth century and depicts a view of Canton with Portuguese[?] arriving to that city. Its central depiction of Canton is bordered by the same spiral pattern found on the Lisbon lectern.<sup>284</sup>

<sup>&</sup>lt;sup>283</sup> For more on the use of these objects please refer to Oliver Impey and Christiaan Jörg, *Japanese export lacquer 1580-1850* (Amsterdam: Hobei Publishing, 2002,) and Museu do Oriente, *Namban Commissions: The Portuguese in the Modern Age Japan/Encomendas Namban: Os Portugueses no Japão da Idade Moderna* (Lisboa, Fundação Oriente, 2010).

<sup>&</sup>lt;sup>284</sup> According to Prof. Jorge Santos Alves this object is at present in the collections of the Portuguese bank BPI. For an image please refer to Comissão Nacional para as Comemorações dos Descobrimentos Portugueses, *Os Construtores do Oriente Português*, edited by Mafalda soares da Cunha (Lisboa: CNCDP, 1998), 135.

A chest included in this study is in the collection of Jorge Welsh Works of Art. The object is attributed to the end of the seventeenth century or the beginning of the eighteenth century. The chest is decorated in several shades of gold on a black lacquer ground. The front features bands of garlands and intertwined scrolls interspersed by vases filled with bouquets of flowers, birds, and palmettes around the base; a scrolling band with pendant garlands of flowers and tassels held by ribbons is visible below the lid. This most unusual decoration also features long-tailed birds and butterflies among scrolls on the front, back, and sides. The sides are adorned with lion heads supporting a garland of flowers that encircles the metal handles. The lid is also decorated with garlands of leaves and flowers. The chest is supported on a stand made in carved lacquered wood. A similar object to this one, and most probably its pair, is held in the collections of the Paço dos Duques, Guimarães, Portugal (Figure 20).



Figure 20 Lacquered chest, most probably the pair of JWWA chest. Collection of the Alberto Sampaio Museum, Guimarães (accession number M-56-01-12-1/2). Museu Calouste Gulbenkian, *O Mundo da Laca: 2000 Anos de História*, edited by Pedro M. Carvalho (Lisboa: Fundação Calouste Gulbenkian, 2001), 60.

Despite the singularity of the pair decoration that combines Asian with European elements, the Chinese influence on several of its decorative features has been pointed out by Pedro M. Carvalho.<sup>285</sup> The decoration on the chests is comparable with the decoration on the writing chest of Madame de Sévigné, previously mentioned

<sup>&</sup>lt;sup>285</sup> Pedro M. Carvalho, O Mundo da Laca: 2000 Anos de História, 60.

in Chapter 2 and dated circa 1680. The Chinese writing desk, in the collection of the Musée Carnavalet, also depicts gilded birds, butterflies, flowers, and foliage, combined with Western-inspired garlands. In a similar way to the Lisbon lectern, this chest was included in this research with the goal of identifying materials and the technology of an earlier coating of gilded black lacquer. Furthermore, it is expected that the associated analytical results will indicate its most probable Chinese origin.

The view of Macao depicted in a lacquered panel was the factor that determined its inclusion in this research. This object also belongs to JWWA, and is attributed to the Kangxi period (1662-1722), based on the style of the painting and the restrained decorative borders that frame the central view. This attribution is also supported by the similarity of Macao's depiction in the lacquered panel with seventeenth-century plans of the city such as the one by Pedro Barreto de Resende in the *Livro das Plantas de todas as Fortalezas, Cidades, e Povoaçoens do Estado da Índia Oriental*, published in 1635.<sup>286</sup> The panel view of Macao features several landmarks of this territory such as the College and Church of São Paulo and the Chapel of Nossa Senhora da Guia. In this aerial view, several Western ships — including Portuguese galleons — are depicted in addition to Chinese junks. This central scene is surrounded by a frame of continuous winding motifs (Table 1, number 10). A similar panel is part of the collections of the National Ancient Art Museum (NAAM) in Lisbon. In this panel, the central view of Macao bears an inscription that reads "*Macao Anno de 1746*," meaning "Macao Year of 1746." This central scene is

<sup>&</sup>lt;sup>286</sup> Jorge Welsh Works of Art, *A Time and a Place: Views and Perspectives on Chinese Export Art*, edited by Jorge Welsh (London: Jorge Welsh Research and Publishing, 2016), 286.

framed (except on one side, probably the result of the repurposing of the panel) by a border with stylized lotus flowers and foliage, comparable to the ones used in screens and cabinets in the eighteenth century. The original function of both JWWA and NAAM panels has not been determined to date. The panels may have been used as decorative panels only or integrated into another furniture object e.g. as the lid of a chest or a front cover of a cabinet. Another lacquered panel, from a pair in a private Belgium collection, is dated to the Kangxi period, circa 1720. The panel depicts a landscape of islands with rocks, pavilions, and pagodas. In the center are the arms of Cloots and Pret, for the Baron Paul-Jacques de Cloots and wife Jeanne de Pret.<sup>287</sup> Although it is suggested in the publication that the pair of panels might have been repurposed from a screen, the measurements of the each panel — 86cm (W) x 68cm (L) — make it seem highly unlikely.<sup>288</sup> A similar panel with approximate measures — 72,7cm (W) x 50,3cm (L) — was readapted and used as a top of a table. It bears the arms of Tower family and is attributed to the mid-eighteenth century.<sup>289</sup> The border of winding motifs that frames the central scene in the JWWA Macao panel is also found in another two unique pieces that combine lacquer wok and enamels: one is a writing

<sup>&</sup>lt;sup>287</sup> Paul-Jacques de Cloots (Amsterdam 1672 – Anvers 1725) married is cousin Jeanne de Pret in 1713, and was made baron in 1718. Henry Maertens de Noordhout, *Porcelaines Chinoises "Compagnie des Indes" décorées d'armoiries belges* (Andenne: S.A. Magermans, 1997), 30-31.

<sup>&</sup>lt;sup>288</sup> From a number of Chinese black and gold export lacquer screens studied by the author, each individual leaf commonly has a width in the range of 50-55cm. The largest width measured in one of these objects was 67,5cm, still far from the 86cm listed for the Belgium panel.

<sup>&</sup>lt;sup>289</sup> Reproduced in Ralph Edwards, *The Dictionary of English Furniture* (London: Antiques Collector Club, 1954), 314.

desk from the Casa-Museu Anastácio Gonçalves (accession number CMAG 802), Lisbon, dated to the Qianlong period (1735-1796); the other is a dressing/writing desk from the PEM collection (E83380), dated to circa 1730. The rarity of these two pieces is the combination of gilded black lacquer decoration with surfaces covered with plaques of Cantonese *famille rose* enamels. Both pieces display the same continuous winding motifs pattern in different areas of the gilded decoration. Panels like the JWWA included in this study seem to have been used as decoration or repurposed from a lid of a chest as suggested by other authors.

Two of the best documented objects included in this research are the cabinet (SE-F6), and the chair (SE-F47-10) from Fredensborg Palace. These objects where brought directly from Canton to Denmark and have associated receipts for their purchase, which are kept at the Danish National Archives.<sup>290</sup> The frigate *Sleswig* was the first ship to be sent to Canton in 1733 by the new *Det Kongelige Danske Asiatiske Compagnie* (The Royal Danish Asiatic Company).<sup>291</sup> Guillaume de Brouwer, of Flemish origin, was the captain. The ship left Copenhagen in December 1733, arrived in Macao in August 1734, and docked back in Copenhagen in July 1735. Brouwer, as well as several supercargoes sold different Chinese items to King Christian VI (reign 1730-1746). One of the supercargoes who sold different items to the king was

<sup>&</sup>lt;sup>290</sup> I am grateful to Klaus Dahl, Agency for Culture and Palaces, Copenhagen, for the access to the original invoices and help with translation.

<sup>&</sup>lt;sup>291</sup> The Danish East India Company was established in 1616 by King Christian IV (reign 1588-1648) with further activity characterized by periods of intermittent trade. In 1732, to consolidate trade with the Far East King Christian VI (reign 1730-1746) issued a privilege for a new company, the *Det Kongelige Danske Asiatiske Compagnie* (The Royal Danish Asiatic Company).

Joachim Severin Bonsack.<sup>292</sup> In his invoice dated July 25, 1735, for Bonsack sales to the King, the final item of furniture reads "*12 laquerede Stole, de 6 med Hands Kongl. Majt's- og de 6 med Hendes Kongl. Majt's Vaabener paa* … *150 Rd,*" that is "12 lacquered Chairs, of which 6 with His Royal Majesty's and 6 with Her Royal Majesty's coat-of-arms."<sup>293</sup> The set of twelve chairs, derived from English walnut chairs with cabriolet legs, is today housed in the Chinese Dining Room at Fredensborg Palace (Figure 21).

<sup>&</sup>lt;sup>292</sup> Tove Clemmensen, "Some furniture made in China in the English style, exported from Canton to Denmark 1735, 1737 and 1738," *Furniture History* 21 (1985): 174-75.

<sup>&</sup>lt;sup>293</sup> For an image of the original invoice please refer to Tove Clemmensen and Mogens B. Mackeprang, *Kina og Danmark 1600-1950, Kinafart og Kinamode* (Kobenhann: Nationalmuseet, 1980), 124-25.



Figure 21 Chinese Dining Room at Fredensborg Palace, Denmark. The furnishings include the chair (SE-F47-10) and cabinet (SE-F6) included in this research. Courtesy of the Agency for Culture and Palaces.

The chairs are lacquered black with gold and silver decoration and have removable seats in red leather. The splat of the chairs contains a monogram in the middle. Six of them have C6, for King Christian VI, and the other six, SM for Sophie Magdalene, his wife. The set of chairs is listed in the 1755 Fredensborg inventory as "12 lacquered Chinese chairs" and placed in the eastern apartments of that palace. According to Tove Clemensen, the chairs were restored in the 1860s during which the monograms were covered. Another conservation campaign, this time at the National Museum of Denmark in the 1960s, uncovered the monograms, permitting the association of the 1735 invoice to this set of chairs.<sup>294</sup> One of these chairs (SE-F47-10) was studied and sampled to be included in this research. All chairs in the set have been thoroughly repainted. Chair SE-F47-10 was chosen for sampling after careful observation that indicated the presence of original lacquer under restoration materials.<sup>295</sup>

In the same room as the set of chairs, a pair of lacquered cabinets or *secrétaires* is also displayed. The pair came to Denmark in the same ship as the chairs but on a different voyage. This time, the *Sleswig* left Copenhagen in January 1737 and anchored in Whampoa in August of that year. It returned to Copenhagen in June 1738, carrying - just for its captain who was again Guillaume de Brouwer - 23 crates and 25 bundles of lacquer.<sup>296</sup> In Brouwer's invoice dated August 1<sup>st</sup>, 1738, among lacquered items sold to King Christian VI, such as two easy-chairs, 14 chairs, two tables, and five tea trays, reference is made to "2 schrifcontors."<sup>297</sup> This reference is in Dutch,

<sup>296</sup> *Treasures from Imperial China: the Forbidden City and the Danish Royal Court*, edited by Ole Villumsen Krog (København: Sølvkammer, 2006), 626.

<sup>&</sup>lt;sup>294</sup> Tove Clemmensen, "Some furniture made in China in the English style, exported from Canton to Denmark 1735, 1737 and 1738," 175.

<sup>&</sup>lt;sup>295</sup> Tove Clemmensen mentions the 1860s and the 1960s restoration campaigns. There is record for the 1960s campaign at the National Museum of Denmark although no information could be found regarding the materials used at that time. I am most thankful to Johanne Bornemann Mogensen, National Museum of Denmark, and Finn Killbuck, Royal Danish House, for sharing information on the conservation of these objects with me. The author also wishes to thank to Berit Møller, painted surfaces conservator, for all her help during the sampling campaign.

<sup>&</sup>lt;sup>297</sup> For an image of the original invoice please refer to Tove Clemmensen and Mogens B. Mackeprang, *Kina og Danmark 1600-1950, Kinafart og Kinamode* (Kobenhann: Nationalmuseet, 1980), 141.

captain Brouwer's native language, and corresponds to "schrijf kantoren," a cabinet or secrétaire with a flat front that could be opened and closed and used for writing activities.<sup>298</sup> The pair of cabinets is identical and based on English models of the early eighteenth century. Each one is composed of two sections, with the lower one presenting a sloping fall front, which when opened creates a writing surface. The pediment displays three gilded European-style busts. Clemmensen traced back these furniture objects and was able to connect the "schrifcontors" from the 1738 invoice with the pair of *sécretaries* currently on display in the Dining Room, Fredensborg Palace. After arriving in Copenhagen in 1738, the pair was placed at the *Prinsens* Palae (today the National Museum, Copenhagen), where the sécretaries remained until 1744. The cabinet with accession number Fbe-170 went from Copenhagen to various locations, but its associated piece (accession number SE-F6) went from the capital to Fredensborg Palace where it appeared in the 1752 inventory as "1 lacquered cupboard or cabinet with four drawers and brass mountings."299 In the 1755 inventory, reference is made to its "3 small gilded busts," and it was listed in Fredensborg Palace inventories, receiving its inventory number SE-F6 in 1861.<sup>300</sup> The cabinet SE-F6 was sampled and included in this study group. This piece seems to be the less restored one of the pair and the object that preserves most of the materials used at the time of its

<sup>&</sup>lt;sup>298</sup> I am grateful to Prof. Christiaan Jörg for the help with the translation from the Dutch and clarification of the object.

<sup>&</sup>lt;sup>299</sup> *Treasures from Imperial China: the Forbidden City and the Danish Royal Court*, edited by Ole Villumsen Krog (København: Sølvkammer, 2006), 630.

<sup>&</sup>lt;sup>300</sup> Tove Clemmensen and Mogens B. Mackeprang, *Kina og Danmark 1600-1950, Kinafart og Kinamode* (Kobenhann: Nationalmuseet, 1980), 143.

manufacture. The gilded decoration of the cabinet displays several continuous motifs found in other pieces from this period. One depicts a stylized lotus flower framed by continuous lines of leaves and is frequently depicted on screens (Table 1, number 12). Examples of the use of this pattern include a screen that depicts a view of both Canton and Macao (accession number FO/0532), at Orient Museum in Lisbon, as well as another screen at the National Museum of Ancient Art, Lisbon (accession number 1176). Both pieces are attributed to Cantonese manufacture and date to the first half of the eighteenth century.<sup>301</sup> The Fredensborg cabinet also displays landscape compositions most associated with this time period. In these scenes, islands with pavilions and pagodas are set in water represented by stylized waves that partially fill the black background. These landscapes compositions are often displayed on doors of cabinets such as the ones at Fredensborg, on table tops, and on screens. In screens, landscape compositions are frequently included in cartouches along continuous frames that surround the central scenes. Rocks are often present in these compositions and are frequently executed in relief compared with the remaining gilded decoration. Rocks are often depicted with black lines painted over the gold to enhance the relief and provide depth. This effect is also at times achieved with shading creating a juxtaposition of the rock shape. In this case, the rock is created with flat gold decoration and the effect of relief is provided by the shading. This shading is also use to create textures in architectural elements and grounds (Figure 22). Relief rocks

<sup>&</sup>lt;sup>301</sup> For images of both objects and decoration details please refer to Maria João Petisca, "Canton lacquer: a study of export Chinese lacquer screens from the 18<sup>th</sup> and 19<sup>th</sup> centuries/ A laca de Cantão: um estudo sobre biombos chineses de exportação dos séculos XVIII e XIX," *Revista de Artes Decorativas da Universidade Católica Portuguesa* 4 (2010): 65-100.

motifs are characteristic of eighteenth-century objects and tend to not be visible in nineteenth-century pieces.



Figure 22 Detail of the gilded decoration on the interior of one of the doors of the cabinet SE-F6. The rocks are raised and black lines over the gold are used to enhance the depth of these motifs. Shading on the gold is used to define the ground's texture.

A chair similar to those at Fredensborg Palace is found in the collection of the Victoria & Albert Museum in London. The V&A chair (FE.116-1978) is attributed to circa 1730, and its shape is identical to the one of the chairs in the Fredensborg set based on early Georgian chairs. Furthermore, the seat is also leather as in its "Danish" counterparts. Due to these characteristics and its time period, the V&A chair was also

included in this study and its coating was sampled for analyses.<sup>302</sup> The chair is part of a set that was at Warwick Castle.<sup>303</sup> The V&A chair depicts in the central splat a landscape composition such as the ones discussed previously. This central composition is surrounded by the decoration of the back frame displaying cartouches (with floral motifs) in a diamond shape grid background. This composition of cartouches on a geometrical background — frequently in a diamond pattern or "clock" pattern (Table 1, number 9) — is commonly found also in the decoration of screens, chests, and cabinets from this time period. This decorative scheme follows contemporary porcelain decoration where, for example, central scenes are surrounded by a continuous frame of cartouches in a geometrical background (Figure 23).

<sup>&</sup>lt;sup>302</sup> Samples of this object as well as from the screen (W.37-1912), the cabinet (FE.38-1981), and the sewing table (FE.27.1981), were collected and analyzed by Dr. Lucia Burgio and Valentina Risdonne, at the V&A, to whom I am thankful for sharing their observations and analytical reports regarding these objects. Samples of the same pieces for THM-py-GC-MS and SEM-EDS were mounted, prepared and analyzed, at Winterthur's Scientific Research and Analysis Laboratory.

<sup>&</sup>lt;sup>303</sup> Information provided by the V&A Archives. Another chair from this set is today kept at the De Young Museum in San Francisco, accession number 78.91. For an image of the chair please refer to https://art.famsf.org/side-chair-drop-seat-7891.



Figure 23 Chinese export porcelain plate (E83688) featuring in the center the arms of George Byng, 4° Viscount de Torrington, surrounded by a frame of cartouches in a geometrical background. China, circa 1755. Courtesy of the Peabody Essex Museum.

The decoration scheme in the Fredensborg chair is similar to the one depicted in the V&A chair, with a frame of cartouches surrounding the central splat and a basket of flowers in its upper section. Unfortunately, in the case of the Fredensborg chair and due to extensive repainting of the surface, it is difficult to determine the original gilded motifs. The shape of both chairs is identical. Other lacquered armorial chairs from the same time period are known such as the ones kept at Osterley, England. This is a set of six hall chairs with the Child family coat-of-arms. These chairs were probably ordered for Sir Francis Child (1684-1740), who served as a director of the EIC in the years 1721-22, 1724, 1726, 1728, and 1732; Sir Francis Child inherited Osterley in 1721. Armorial lacquered furniture at Osterley includes a chest and an eight-part folding screen (Figure 24).<sup>304</sup>



## Figure 24 Armorial lacquered set at Osterley House, England. https://blogs.ucl.ac.uk/eicah/osterley-park-middlesex/osterley-casestudy-material-goods-lacquer/

The shape of these chairs is distinct from the one at Fredensborg and the V&A, since hall chairs would be used in the entrance hall for occasional use and not thought to provide comfort. The back and seat wood panels are Chinese lacquer; the underframe aprons and legs are walnut probably made in England at a later date. The same

<sup>&</sup>lt;sup>304</sup> A porcelain dinner service with the same Child arms and ordered between 1700 and 1725 is also kept at Osterley. Yuthika Sharma and Pauline Davies, "A jaghire without a crime', The East India Company and the Indian Ocean Material World at Osterley, 1700-1800," in *The East India Company at Home, 1757-1857*, edited by Margot Finn and Kate Smith (London: UCL Press, 2018), 100-02.

construction is noted in a V&A armorial chair from circa 1725 (accession number W.16-1962). The shape of this chair is identical to the one at Osterley, as is the gilded decoration. Both chairs have a coat-of-arms depicted in the back and seat, framed by a pattern of alternating gilded ovals and sprigs (Table 1, numbers 4 and 15). This pattern most probably derived from border decorations in *namban* objects — where shaped pearl shell inlays are combined forming a pattern. The gilded ovals and sprigs pattern is common in pieces from the first half of the eighteenth century. In the case of the V&A chair the coat-of-arms seems to have been repainted and now displays the arms of Sir Herbert Pakington and wife Elizabeth Hawkins (added most probably in 1762 when he succeeded to the title of seventh Baronet.)<sup>305</sup> The combined construction of Chinese and English parts is also featured in the V&A chair suggesting the import of the black lacquered flat boards — for the back and seat — that would have been assembled as chairs upon their arrival to England. This is consistent with the optimization of space in a ship and would have provided more space for cargo. Several Chinese export furniture pieces make use of this shipping system in units. The different sections of each piece were packed flat and then screwed and assembled on arrival; this permitted the transport of more objects in a single cargo raising the profits for one journey.<sup>306</sup>

<sup>&</sup>lt;sup>305</sup> Another example of a similar armorial chair with the arms of the Heathcote family, belongs to the Ann and Gordon Getty collection, in Los Angeles. It dates from 1720-1733 and displays landscapes with buildings and rocks over a water background on the seat and back. The Heathcote arms are only depicted on the top of the back. As the V&A and Osterley armorial chairs, it also features the ovals and sprigs motif.

<sup>&</sup>lt;sup>306</sup> Carl Crossman, *The Decorative Arts of the China Trade: Paintings, Furnishings and Exotic Curiosities*, 264.

Two eighteenth-century screens are included in this study. One is an armorial twelve-leaf screen, from the PEM collections (E84093). The screen is dated to circa 1730 and bears the Eccleston coat of arms. The other has six leaves, belongs to the V&A collections (W.37-1912), with manufacture attributed to the period between 1730-1770. The Eccleston arms displayed in the PEM screen are probably for John Eccleston, director of the EIC in the period of 1721-1735. The screen is decorated in the front with palace views surrounded by cartouches decorated with landscapes, flora, and fauna, and displaying at the top of the leaves (except for the terminal ones) the Eccleston coat of arms. Two borders of stylized flowers and sinuous foliage frame the composition (Table 1, numbers 5 and 6). On the back, the decoration depicts various views of silk production and weaving. This central scene is also framed by cartouches alternating views of landscapes, animals, and floral compositions. On this side, the outside border displays a floral and foliage continuous pattern while the border closer to the central scene features the ovals and sprigs pattern (Table 1, numbers 3 and 4). The gilded decoration of the screen, similar to the decoration of other pieces from this time period, combines raised and flat motifs. The rocks are in relief as are structural elements in the buildings such as poles, columns, and roofs. The figures are also raised as the bark of trees. The trees' foliage is painted flat as are the waves and several other motifs in the background, enhancing the effect of the elements in relief. The varying quality in the execution of the different motifs is visible as if painted by different hands; this seems logical for larger pieces. Motifs such as figures were probably painted by skilled artisans, and as others in a second plane would be drawn by apprentices. Some of the details, particularly, on floral and foliage motifs, seem to be stamped and not painted (This is often found in gilded decoration of comparable

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objects.) An armorial screen dated circa 1720 is kept at Osterley, as previously mentioned. This eight-leaf screen has a decoration comparable to the Eccleston screen displaying in the front a palace complex and a landscaped garden with bridges and fences. Various figures are engaged in daily activities. The Child family coat-of-arms is painted in the same location as the Eccleston screen, at the top section of the leaves. The bottom section and sides display rectangular cartouches with a floral design. EIC records from 1730 mentioned an order of two large lacquered screens with the arms of the Company, "By the *Princess of Wales* your Honours will have two large lacquered screens with the Company's arms upon them, being made purposely for the Court Room." Although it is not possible to say if any of these screens could be the Eccleston or the Child examples, the hypothesis should be suggested.<sup>307</sup>

The V&A screen is decorated in both the front and the back with gilded landscapes with figures in various activities. These central scenes extend to the borders of the screen and have no cartouches to frame them as in the Eccleston screen. In both sides of the V&A screen, the central composition is surrounded by a pattern of vignettes featuring stylized chrysanthemums and foliage against a diamond-shape geometrical background (Table 1, number 8). This screen was donated to the museum by Captain S. Mavrojani. Before its donation to the V&A, the screen was restored by H. J. Samuel, 484 Oxford Street, London. H. Clifford Smith of the V&A's Department of Furniture examined the screen at Samuel's premises and observed in a report dated

<sup>&</sup>lt;sup>307</sup> Yuthika Sharma and Pauline Davies, "A jaghire without a crime', The East India Company and the Indian Ocean Material World at Osterley, 1700-1800," 100.

July 26 1912, that "It appears to have been judiciously repaired by Mr. Samuel."<sup>308</sup> Some of the gilded decoration seems to have been repainted and the analytical results of the screen confirmed this observation.

A note should be made regarding the armorial chest also included in the Osterley set together with the previously mentioned chairs and screen. This shape was used to store but also as a shipping box to bring back other items from overseas voyages. Several black lacquered chests with gilded decorations are held in Western collections with a similar shape and related gilded decorations. The chests are of rectangular shape, with a flat lid, and frequently the decoration contains landscapes of islands distributed along the black lacquer background, with trees, rocks, and pavilions. Most frequently each section of the chest is framed either by the ovals and sprigs pattern or by the continuous motifs of stylized lotus and scrolling foliage. Examples are in the collections of Paços dos Duques, Guimarães, Portugal; the Musée des Arts Décoratifs de l'Océan Indien; a chest displaying the Callenberg coat of arms is held at the Museum für Lackunst, in Munster. The Callenberg coat of arms most probably relates to Otto Carl von Callenberg (1686-1759), who may have ordered this chest through is DAC. This chest represents a remarkable record of this time period production displaying several of the previously mentioned decoration characteristics (Figure 25).

<sup>&</sup>lt;sup>308</sup> Acquisition file (archive ref. MA/1/M1317, nominal file: Mavrojani, Captain S.) from the V&A Archives.



Figure 25 Lacquered chest featuring the Callenberg coat of arms on the lid (AS-CH-a-5), first half of the eighteenth century. Courtesy of the Lacquer Museum, Munster.

Furthermore, this chest also provides additional clues regarding the decoration of pieces dated to this time period. The back of the chest (most probably protected from light and wear in comparison to other surfaces of the piece) preserves the original sprinkled-gold decoration used to embellish the grounds of the landscape. In the remaining areas of the chest this technique is no longer detected since it faded most probably due to light degradation. This chest constitutes a rare example of this delicate decoration. Other objects may have also displayed this sprinkled-gold decoration that disappeared due to the objects' conservation conditions (Figure 26).



Figure 26 Detail of the original sprinkled-gold decoration on the grounds on the back of the chest (left) and of the present condition of the same decorative motifs in the front of the chest (right). Courtesy of the Lacquer Museum, Munster.

Two game tables from the collections of the PEM are included in this research. Both present singular characteristics and were considered unique examples of eighteenth-century Chinese black and gold lacquerware. One is a game table with a view of Canton (AE85753), and the other is a game table depicting European figures (E82477). The AE85753 table features an articulated top that when opened displays a view of Canton and is dated to the first-half of the eighteenth century. It has four candle holders, each one placed at a corner of square table top. Next to each one of the candle holders, the top displays an oval recess used for game counters. The Canton central depiction is framed by two gilded borders filled with continuous motifs: closer to the center, the ovals and sprigs pattern, and on the outer border, juxtaposed circles and lozenges (Table 1, numbers 15 and 16). The siderails were divided in three sections in order to articulate in concertina (folded). Both siderails and legs display a decoration different from the top featuring an uncommon gilded honeycomb pattern covering the black background. The legs are straight with molded corners which are decorated with the same ovals and sprigs pattern as the top. The table was assembled from different objects. The side rails and legs were assembled from wooden boards decorated with the gilt honeycomb and the molded leg corners were glued to them (Figure 27).



Figure 27 Gilded-honeycomb decoration on the legs of the PEM game table (left) and detail of the construction of the legs using different lacquered wood boards (right). Courtesy of the Peabody Essex Museum.

The lacquer coating on the underside of table top was partially removed to accommodate the new legs and the areas where the original legs would fit are still visible. The top depicts Canton as a walled city including several landmarks such as the *Smooth Pagoda* and the *Flowery Pagoda*. The pavilion roofs, the boats' sails, and the rock elements are raised using red lacquer (now visible due to wear of the gold). The clouds and several flat rocks (visible on the top when closed) have the gold shading juxtaposition previously mentioned in other eighteenth-century objects. The trees are similar to those frequently depicted in objects from this time period such as stylized pines trees. A comparable example of a game table is kept at Drottningholm
Palace, Sweden. The table is also lacquered black and gilded and the top is identical in shape to the one of the PEM. The legs in the Drottningholm game table are articulated and most probably similar to those the PEM table had originally.<sup>309</sup> Another game table featuring comparable decoration is held by Ronal Phillips Antiques in London. This triangular tripod table was designed specifically to play a game named "hombre," a three-player card game that originated in Spain and was popular in Europe during the end of the seventeenth and the beginning of the eighteenth century. The top center displays the arms of James Craggs the elder and is dated to circa 1720.<sup>310</sup> The table top features three recesses for the game counters and is decorated with the ovals and sprigs pattern all around in a similar way to the Canton game table from the PEM. (Figure 28).

<sup>&</sup>lt;sup>309</sup> For an image of the table, please refer to Stig Fogelmarck, Bo Gyllensvärd, Ake Setterwall, *The Chinese Pavilion at Drottningholm* (Malmö: Allhem Publishers, 1974), 145.

<sup>&</sup>lt;sup>310</sup> James Craggs the elder (baptized 1675-1721), was a member of the English Parliament between 1702 and 1713, and was made Postmaster General in 1715.



Figure 28 Tripod game table featuring the arms of James Craggs the elder, circa 1720. Courtesy of Ronald Phillips Antiques, London.

The other game table (E82477) from the PEM collection displays a singular decoration. The table has three tops that articulate to create two distinct surfaces for gaming. In the lower section, the table features three stationary legs and one gateleg, identical to the previously mentioned Drottningholm table. One of table tops displays a central floral motif [peony?] surrounded by spirals and other smaller flowers resembling peonies. This central décor is framed by a circular border and more scrolling floral motifs. The gilded decoration on this top is flat. The second top is decorated with a landscape with figures, buildings, and ships. European figures meet in front of a building depicted as a Catholic church. Three women and a man talk

while another man sits on nearby rocks playing with a goat. A boy leaves the church leading another goat. In the background, more buildings in European style are depicted. On the water, a group of three ships is gathered; in two of them, flags display what seems to be the cross of the Order of the Knights of Christ [Portuguese?]; on the third ship, a flag with a black rampant lion can be identified. The decorative motifs such as the buildings, the figures, and the ships are all raised — with substantial relief — and the remaining decoration, such as trees and water, is flat. The legs are decorated with a continuous pattern of twisting leaves and sprigs (Table 1, number 14). On the table top, the position of the boats as well as several details in their depiction such as the cross, the masts, and the sterns, is comparable to the Portuguese group of vessels displayed in a lacquered panel dated to the end of the seventeenth century/beginning of the eighteenth from the collection of JWWA (Figure 29). The JWWA panel displays a partial view of a walled city thought to be Macao.<sup>311</sup>

<sup>&</sup>lt;sup>311</sup> Jorge Santos Alves and Luís Filipe Barreto, *Macau: The First Century of an International Port/Macau: O Primeiro Século de um Porto Internacional* (Lisboa: Centro Científico e Cultural de Macau, 2007), 141-143.



Figure 29 Portuguese group of vessels displayed in a lacquered panel dated to the end of the seventeenth century, early eighteenth century, from the collection of JWWA. Jorge Santos Alves and Luís Filipe Barreto, *Macau: The First Century of an International Port* (Lisboa: Centro Científico e Cultural de Macau, 2007), 46.

Also, in the previously mentioned Orient Museum screen with the views of Canton and Macao, the Portuguese vessels depicted near Macao shore, display the cross of the Order of Christ in their flags. This screen also displays a border with sprigs and foliage very similar to the one used in the PEM legs. The Catholic church, European figures, and the Portuguese vessels may indicate this landscape connects to Macao. Or could this view have been copied from a European engraving? Housed in the V&A is a low cabinet with double doors (FE.38-1981). It features decoration comparable to the V&A screen and is attributed to the same time period, 1730-70. The cabinet is decorated with watery landscapes featuring golden rocks and buildings in relief. The landscapes are framed by a band with cartouches over a diamond-shaped grid. The cartouches are ornamented with scrolling flowers over a gold background (Table 1, number 17). On the inside, the cabinet shelves are covered in metallic flakes, a decoration technique known as *nashiji* or *aventurine*.<sup>312</sup> This piece was purchased from C. T. Loo & Cie., in Paris; we have no further information about the provenance.

The tray 1969.5368 from WM is used as an example of an eighteenth-century ubiquitous object. The tray is rectangular with an everted flaring rim. A watery landscape in the center features red raised rocks surrounded by a brown border of winding motifs similar to the border of the JWWA Macao panel. A pattern of stylized lotus and foliage was used across the rim. The characteristics of the shape and decoration of the tray led the author to its inclusion as an example of eighteenthcentury production in contradiction to its previous attribution to the nineteenth-century period. This tray is a bequest of H. F. Du Pont and no related information on provenance has been found to date.

<sup>&</sup>lt;sup>312</sup> In this technique metallic flakes are sprinkled randomly into the surface to be decorated. In Japan, the technique is known as *nashiji*, and the flakes are applied over Asian lacquer. In Europe, during the eighteenth century, this technique was used for japanned pieces using natural resin varnishes and was known as *aventurine*. Tristram Bainbridge, "Imitating aventurine: an eighteenth-century technique of lacquer imitation," *Material Imitation and Imitation Materials in Furniture Conservation, Thirteen International Symposium on Wood and Furniture Conservation*, edited by Miko Vasques Dias, 207-211 (Amsterdam: Stichting Ebenist, 2017).

The miniature cabinet or *sécretaire* (1966.0779) from the WM, is attributed to the second half of the eighteenth century. Its shape replicates eighteenth-century English writing cabinets, such as the one included in this study from Fredensborg Palace. The gilded decoration also contains motifs and compositions used mostly during the eighteenth century. Its size (only 75,6cm height) determined its designation as "miniature"; the exact purpose of this reduced-sized cabinet is not known. The miniature cabinet could have been used as small-scale sample serving as a model for future commissions. It could also be a toy in which case it may replicate furniture from previous time periods. Another miniature furniture object (in the collections of the PEM), is a lacquered tilt-top circular table (E83567) about 22cm in height. Like the miniature cabinet, the PEM table is also lacquered black with gilded decoration following the patterns used in regular-sized furniture.

Object	Museum	Date	Decoration	
Lectern	РС	17th	N.S. O.S.	1
			AGROMAD'	2
Eccleston Screen (E84093)	PEM	Circa 1730	ののないのののののののののののののののののののののののののののののののののの	3
				4
				5
				6

Table 1Gilded decorations on eighteenth-century objects.

Object	Museum	Date	Decoration	
Screen (W37-1912)	V & A	1730- 1770		7
				8
Chair (FE.116- 1978)	V & A	Circa 1730		9
Macao Panel	JWWA	17th/1 8th		10
Cabinet (SE-F6)	ACP	1738		11
				12
				13
Game Table Europeans (E82477)	PEM	1700- 1750	A CONTRACTOR	14
Game Table Canton (AE85753)	PEM	1700- 1750		15
			LA A A A A A A A A	16
Low cabinet (FE.38-1981)	V & A	1730- 1770		17
Miniature Cabinet (1966.0779)	WM	18th?		18

As mentioned previously, archival research was used to establish the connections of several of the objects to the region of Guangzhou by following the information about their ownership; two dressing tables, WM 2004.0030.001 and PEM 133000, referred to by Carl Crossman as one of the "rarest forms" of the China Trade lacquered furniture, provide an example. According to Crossman, fewer than ten of these objects are known.<sup>313</sup> The shape of these objects is of English origin and several examples of similar furniture, designated as "bureau dressing tables," can be found in Chippendale's *The Gentleman and cabinet-maker's director*.<sup>314</sup> The two dressing tables, WM 2004.0030.001 and PEM 133000, share not only the shape but also the provenance; both are related to William Gray (1750-1825), a merchant of Salem, MA. William Rufus Gray, also known as William "Billy" Gray, was born in June 27, 1750. He moved to Salem with his parents when he was 10, and at the age of 28 he started his own business. William Gray was one of the first New England merchants to enter

<sup>&</sup>lt;sup>313</sup> Carl Crossman, *The Decorative Arts of the China Trade: Paintings, furnishings and exotic curiosities* (Suffolk, UK: Antique Collectors' Club, 1991), 272. Crossman mentions only 4 of these ten pieces namely the ones that belong to the Winterthur Museum, Peabody Essex Museum, the collection of Mr. and Mrs. Treacy (owned by Codman family in Boston), and the one at Gore Place, Waltham, MA. During this research it was possible to find images and references to similar examples that belong to the Royal Pavilion, Brighton, UK; to Osterley Park and House, London; to Partridge Antiques, London, UK, in 1995; to Sotheby's New York, in March 2011; and another example also from Sotheby's NY, that was auctioned in January 1996. A total of nine examples were identified for this study.

<sup>&</sup>lt;sup>314</sup> Thomas Chippendale, *The Gentleman and cabinet-maker's director: being a large collection of the most elegant and useful designs of household [sic] furniture in the Gothic, Chinese and modern taste ... and other ornaments... (London: printed for the author, and sold at his House in St. Martin's-Lane, 1754), plates XLI-XLII.* 

into trade with Russia, India, and China, and when he moved to Boston in 1809, his state was estimated at \$3 million. He died in Boston, November 4, 1825.<sup>315</sup>

The WM 2004.0030.001 and PEM 133000 dressing tables are said to have reached the US in William Gray's ships. The WM dressing table was donated to the museum in 2004 by Violet Thorn, and curatorial research has traced the provenance back to William Ward (1761-1827), who worked for William Gray in the maritime trade. The piece passed down through the family from father William Ward (1761-1827) to son, Thomas Wren Ward (1786-1858), to his son Samuel Gray Ward (1817-1907), to daughter Anna Barker Ward (1841-1875) and son-in-law Joseph Thoron, to son Ward Thoron (1875-1938), to son Benjamin W. Thoron – to his wife, Violet Thoron.<sup>316</sup> Two letters from William Ward to his second wife, Joanna Chipman Ward (whom he called "Nancy"),<sup>317</sup> are held by the Massachusetts Historical Society, Boston. In the first letter, written from Canton and dated November 3<sup>rd</sup> 1799, William Ward wrote to his wife, "I have spoke for on your account a Dining & Dessert sett of China, a Tea & Breakfast sett, a Dressing Glass, &c."<sup>318</sup> More details about the gifts

<sup>&</sup>lt;sup>315</sup> Edward Gray, *William Gray, of Salem, Merchant: A Biographical Sketch* (Boston/New York: The Riverside Press, 1914). Unfortunately, the majority of the papers and manuscripts related to the life and trading activities of William Gray were lost in the Boston fire of 1972.

<sup>&</sup>lt;sup>316</sup> The research on the descendance of the object through the family was done by Wendy Spencer and Spencer Wigmore at the Winterthur Museum.

<sup>&</sup>lt;sup>317</sup> William Ward was first married to Martha Procter Ward (1762-1788) and married Joanna Chipman of Marblehead, William Gray's sister, following Martha's death in 1788.

<sup>&</sup>lt;sup>318</sup> MHS Thomas Wren Ward family papers, 1717-1943, Box 5, Folder 1799.

he brought are provided on the next letter written by William Ward onboard the ship *Pallas*. The ship *Pallas* was owned by Samuel Gray, William Gray, and Joseph Peabody, with William Ward as Master. The *Pallas* left Portsmouth, NH, for Canton, in April 1799, and returned to Salem where it arrived in July 1800.<sup>319</sup> On Friday, December 13, 1799, eight boxes of lacquerware were registered boarding the *Pallas*.<sup>320</sup> In a letter dated January 10<sup>th</sup> 1800, written onboard, William Ward described with more detail the gifts he was bringing for Nancy and other women in the family, and that include several lacquered objects.<sup>321</sup> The letter is damaged and has a mend on the sentences corresponding to this description making it impossible to read two words of the document. A transcript of the same document kept in the archives of the Peabody Essex Museum permitted the reading of the two missing words (here in bold): "**I bought** you a handsome Lady's Dressing Case about as large as your Bureau – Lackred – two Sett of Lackerd Tea Trays – & one Sett of Lackerd Bread Basketts."

<sup>320</sup> PEM, Log 1672 - Pallas (ship) Logbook 1799-1804.

<sup>321</sup> MHS Thomas Wren Ward family papers, 1717-1943, Box 5, Folder 1800-1802.

<sup>&</sup>lt;sup>319</sup> Duane Hamilton Hurd, *History of Essex County, Massachusetts: with biographical sketches of many of its pioneers and prominent men / compiled under the supervision of D. Hamilton Hurd*, vol. 1 (Philadelphia: J.W. Lewis, 1888), 66-72.

<sup>&</sup>lt;sup>322</sup> This transcript was sent to Mr. David Little, Director of the Essex Institute, by Miss Hope Gray, on the occasion of the donation of the dressing table PEM 133000, by Miss Gray to the museum in 1973. On February 17, 1973 Miss Gray wrote: "Last summer I found that the owner of the other "Poudreuse" brought from Canton in one of Billy Gray's ships by his brother-in-law, Captain William Ward, now belongs to Mr. Thoron of Washington at Martha's Vineyard. Mr. Thoron kindly took some colored pictures of his Poudreuse, similar but not identical in decoration with mine which you now have, and also copies of two letters written by Captain Ward which,

Bureau – Lackred," it seems likely that Ward is referring to an object with the same characteristics as the WM and the PEM dressing tables. Although both dressing tables included in this study share similar characteristics, the permanence of WM 2004.0030.001 in the Ward family reinforces the hypothesis that it is this object that William Ward is referencing.

The dressing table PEM 133000 was always kept in the Gray family until it was donated to the Essex Institute (that later became part of the PEM). The piece was given to the Institute by Miss Hope Gray in 1973. William Gray was Miss Gray's great, great grandfather, and according to her, the object was brought in one of his ships from China to Salem.<sup>323</sup> In 1809 Thomas Wren Ward, son of William Ward, was master on the ship *Minerva*. The invoice of merchandise shipped at Canton on board of the Minerva for account of Thomas W. Ward, and dated November 25<sup>th</sup> 1809, reads "TWW # 1 Lac.d Ware One box contg a dressing table a \$40."<sup>324</sup> From the description and sum of dollars paid for this piece, it is likely this entry is referring to a second dressing table being shipped to the US, this time by Thomas W. Ward. Thomas W. Ward married Lydia Gray Ward in 1810. Lydia Gray was daughter of Samuel Gray, brother of William Gray. This connection may help explain the permanence of the object in the Gray's family (if this is in fact the same dressing table today in the PEM collection).

<sup>324</sup> PEM MH20, Box 4, Folder 4.

with Mr. Thoron's permission, I have had copied for you and which I herewith enclose, thinking they will interest you and provide a history of yours."

<sup>&</sup>lt;sup>323</sup> Letters exchanged between Miss Hope Gray and Mr. David Little, Director of the Essex Institute between 1969 and 1973. Peabody Essex Museum Files – 133000.

The WM dressing table decoration has been retouched, mostly in the gilded elements. Nonetheless, the original decoration is, to a certain extent, preserved. The central areas of the sides and hinged lids contain floral compositions with birds. These central compositions tend to cover a larger area of the black lacquered background than the watery landscapes discussed for earlier objects. These floral arrangements are framed by a band with small vignettes in a geometrical grid background. The PEM dressing table has been extensively repaired most noticeably on its exterior. The sides, the outside of the hinged lids, and several drawers were totally repainted, and in some cases the lacquer coating was removed down to the bare wood. Under the hardware the original lacquer coating was preserved; some of the original gilded decoration could be perceived and original materials were sampled. The remains of the original gilding display the grapevine motif. This motif, frequently combined to create a pattern, is characteristic of transitional pieces dated to the turn of the eighteenth century to the nineteenth century. This pattern is displayed in several pieces from this time period and often executed with extreme detailedness. On the inside of the hinged lids, the gilding is fairly well preserved, and it is possible to see the similarities between the flowers and birds drawn on both dressing tables (Figure 30).





Figure 30 Gilded decoration depicting birds and flowers on the PEM 133000 dressing table (left) and on the WM 2004.0030.001 dressing table (right).

As discussed in the previous paragraphs, both objects have strong provenance clues and are connected to lacquerware manufacture in Canton; both are also representatives of exclusive objects with manufacture most probably reserved for wealthy buyers only, and for those reasons included in this group.

Three sets of nesting tables and a single one (also from a set of four) are included in this research. Two sets are from the PEM (E80758, a set of three tables; and 126018, a set of four), the third set from the NPA (58252-5), and the single table is from the WM (1959.0575D). The shape of all nesting tables is identical; WM's has one more curved stretcher connecting the legs. The tables have lyre-shaped legs with a trefoil in the center, braced by a curved stretcher, and terminating with gilt paw feet.

The tops of the tables, with rounded edges, are lacquered black with gilded decoration. Concerning decoration, all the sets are lacquered black with gilded motifs. The decoration on the legs in three of the sets (PEM E80758, NPA 58252-5, and WM 1959.0575D), depicts flowers and foliage, combined with figures and butterflies in the NPA quartetto. As for the PEM 126018, the legs are decorated with buildings with features that resemble the most famous landmarks of Canton, such as the *Five-storey Pagoda*, the *Flowery Pagoda*, and the *Smooth Pagoda*.

The decoration of the sets of the nesting tables is most distinct on the tops. Both the WM table (and remaining set) and the PEM sets have tops decorated with rectangular gilded central scenes. In the PEM E80758 set, landscape views familiar to all involved in the China Trade are depicted, namely of Canton, Macao, and the Bocca Tigris. This set has only three tables but the original set most likely had four. The fourth missing one would have very likely represented Whampoa, another landmark along the Pearl River on the way up to Canton. The PEM 126018 set displays a fanshaped cartouche with painted figures around a table in front of a building. This set and the NPA set both feature a feathery band enclosing the central scenes, a pattern also repeated in other nineteenth-century objects such as the NPA numismatic box (44543) and the WM tea caddy (1962.0219) (Table 2, numbers 13, 14, 15, and 16). The WM nesting table (1959.0575D) also features this feathery band around the central scene on the top. Still, interpretation of the central depiction indicates its manufacture at a date later than the nineteenth century. The WM nesting table displays a central scene with several buildings that have Chinese characteres written over the entrance. The translation of the characters permitted the identification of the buildings as Cantonese tea-houses. Cantonese traditional tea-houses are usually two or three

stories. The top floor is where patrons sit and enjoy their tea and dim-sum, as is illustrated by the figures sitting around tables in the nesting table top. The tea-house on the right-hand side is the *Zhu Guan Lan* tea-house, which was a well-known Cantonese tea-house located in Longevity Street in old Canton center area (the street name is also written on the tablet). The other two buildings are the *Le Shan Yuan* and *Chang Ji*, also famous Cantonese tea houses. According to Ying Xu, *Zhu Guan Lan* did not exist until the early 1900s.<sup>325</sup> This observation places the manufacture date for this table in the twentieth century and demonstrates the challenge in using only patterns — that tend to be repeated throughout different time periods — to date the objects.

The set of four black lacquered nesting tables from the National Palace of Ajuda constitutes a unique case. The tops of the tables depict views of Lisbon during the celebrations of King Luís's and Queen Maria Pia's wedding, each one presenting a different scene. The central rectangular scenes are surrounded by a wide band of gilded flowers, bats, butterflies, and coins, on a diapered background. The outside border is decorated with the previously mentioned scrolling feather gilded motifs. The legs also have gilded decorations, depicting on the upper section two Chinese figures sitting together, and in the lower section butterflies holding a basket with flowers. These motifs are combined with gilded flowers and foliage. Two banks purchased the table set in the 1980s from a Lisbon antique dealer and offered the set to the Palace. It is not known if the tables previously belonged to the royal family or the Portuguese

<sup>&</sup>lt;sup>325</sup> I am grateful to Ying Xu, Center for Historic Architecture and Design, University of Delaware, and a native of Guangzhou, for the translation of the Chinese characters and further explanations on the motifs.

National Heritage; although, based on their specific decoration, such ownership remains a strong hypothesis. On September 27, 1862, the King of Portugal, D. Luís I married by proxy the Italian princess D. Maria Pia de Sabóia, at that time living in Turin. Nine days later, on October 5, the corvette *Bartolomeu Dias* entered the Tagus River, bringing the Queen consort of Portugal on board. The corvette was escorted by other ships and anchored at Belém, in Lisbon, where the Queen spent the night. On October 6, 1862, the King and Queen disembarked in the Terreiro do Paco Square. Several prints depicting views of Lisbon during the celebrations were published in Archivo Pittoresco.<sup>326</sup> The first print of a series dedicated to the royal wedding shows the view of the main square of Lisbon where the Queen disembarked on October 6th, 1862. Several arches were built at the time to decorate the city during the five-daylong celebrations, and the next print to be published was a view of the arch sponsored by the Associação do Commércio de Lisboa (Trade Association of Lisbon), followed by a print of the arrival of the *Bartolomeu Dias* corvette to the Tagus River, bringing on board the Queen Maria Pia. The next print to be published was of the arch built by Belém's municipality. Two weeks later, the last print of the series was published, representing the arch made by the *Companhia do Gaz* (Gas Company) at Boa-Vista street.<sup>327</sup> The table depictions were most certainly executed based on these prints (Figure 31).

<sup>&</sup>lt;sup>326</sup> Archivo Pittoresco was a Portuguese illustrated magazine published in Lisbon between 1857 and 1868.

<sup>&</sup>lt;sup>327</sup> Archivo Pittoresco 1862, n 32, 33, 34, and 40.



# Figure 31 Detail of *Commércio arch in Lisbon* print, © Hemeroteca Municipal de Lisboa (left); and detail of central image on the top of the second largest NPA nesting table, © PNA/DGPC (right).

The prints, as well as the captions used in the magazine to describe the views to the reader, are reproduced on the table tops. It is noticeable that some adaptations had to be made so that the images could be changed from a portrait format to a landscape format. In the case of the *Commércio* arch table, the change involved removing the flags on top of the arch represented in the original magazine print. The fine details of the prints were copied on the tables, including the black parallel hatching lines the artist used to create textures and to give the impression of lighter and darker areas. In the cases where the width of the scene needed to be enlarged to fit the table tops, figures were added to the composition and filled with similar black parallel hatching lines that give them a sense of background. This is visible both in the *Commércio* and the *Companhia do Gaz* table tops. In these two tables some of the figures were copied from one view, the *Companhia do Gaz*, and used to complete what would have been a blank space to the right of the *Commércio* arch. The

perspective in architectural features is also somewhat off scale and distorted, since buildings needed to be extended to fit the landscape composition. It seems most likely that the set, including the Lisbon views depicted on the center of the table tops are of Chinese origin (based on the results from material analysis, compiled in Chapter 4, and on visual examination). If this is the case, the prints were probably taken to the craftsmen who then used them as a template for the decoration. The historical relations between Portugal and Macao, very often translated in the trade of lacquered objects, would constitute an easy route for this exchange. <sup>328</sup> The use of Western prints for decoration of Chinese objects is common for porcelain decoration, as several examples of European views in different ceramic objects demonstrate. However, for lacquered objects, reported examples of this practice remain rare. One of the most unique examples of this practice relates to the voyages of the French ship Fills-de-*France*. The *Fills-de-France* was the first French to travel to Canton after an interruption of 25 years following the French Revolution. The ship anchored in Whampoa in 1818 and returned to China on another voyage in 1826. The ship was owned by Thomas Dobrée (1781-1828) and his associate Jean-Anne-Thomas Dubois-Villette, who served as the supercargo on the 1818 voyage.<sup>329</sup> Several documents associated with the travels of the ship *Fills-de-France* are kept in the Dobrée papers and drawings in the Nantes archives. One of them is card (*Carton* C - Figure 32) with

<sup>&</sup>lt;sup>328</sup> Maria João Petisca and Catherine Matsen, "Lisbon as Seen from China: Conundrums Posed by a Set of Lacquered Nesting Tables," *Studies in Conservation* 64, 1 (2019) https://doi.org/10.1080/00393630.2018.1564592.

<sup>&</sup>lt;sup>329</sup> Musée D'Histoire de Nantes, *La Soie et le Canon: France et Chine 1700-1860* (Nantes: Gallimard/ Musée D'Histoire de Nantes, 2010), 207.

a drawing of Thomas Dobrée coat-of-arms with the indication to be painted in lacquerware boxes.



Figure 32 Drawing of Thomas Dobrée coat-of-arms to be painted in lacquerware boxes. Nantes, city archives, inv. 8 z, Dessins Dobrée. Musée D'Histoire de Nantes, *La Soie et le Canon: France et Chine 1700-1860* (Nantes: Gallimard/ Musée D'Histoire de Nantes, 2010), 207.

A second card (*Carton* E – Figure 33,) represents the drawing of a box lacquered red with gilded dragons in relief and with the name *Fills-de-France* painted in relief indicating that six of these were to be made in China. The Musée Dobrée has in its collections an example of one of these objects made for Thomas Dobrée. In the same card, two more red and gold lacquer boxes are commissioned as well as two others, in black and gold, with the note stating that "on the medallion our coat-of-arms painted like in *Carton C*.<sup>330</sup> As the set of nesting tables with views of Lisbon, these drawings and lacquered tea box, constitute notable examples of the use of Western cards and prints for the decoration of Chinese lacquerware in the nineteenth century.



Figure 33 Drawing of a lacquered tea box to be made in Canton, 1818-1827, Nantes archives, inv. 8 z. 2 A127 (left), and red lacquered tea box with raised gilded dragons displaying *Fills-de-France* in the lid (right), Musée Dobrée, Nantes, inv. 896.1.972. Musée D'Histoire de Nantes, *La Soie et le Canon: France et Chine 1700-1860* (Nantes: Gallimard/ Musée D'Histoire de Nantes, 2010), 206.

<sup>&</sup>lt;sup>330</sup> Musée D'Histoire de Nantes, *La Soie et le Canon: France et Chine 1700-1860* (Nantes: Gallimard/ Musée D'Histoire de Nantes, 2010), 206-207.

One of the shapes of furniture imported in noticeable numbers was the sewing table, particularly during the nineteenth century. Sewing had become a way for women to demonstrate their femininity and role in the household; the tools associated with this activity also became a symbol of the women's status and as important as the outcome of their work.<sup>331</sup> Included in this research are four sewing table examples, all from the nineteenth century; three featuring more ordinary decorative motifs, and the fourth with a monogram and rarer decoration. The first three belong to the V&A (FE.27.1981), to the WM (1962.0223), and to the PMA (1931-42-6). The monogrammed sewing table is part of the PEM collections (E82997). All sewing tables have been attributed to the first-half of the nineteenth century. All sewing tables have hinged lids and bodies with interior compartments and sliding panels. The WM and the V&A tables have turned legs; the PMA has lyre-shaped legs. The legs in all these three tables terminate in two sets of hairy paw feet featuring a high-relief carved shell motif. The decoration in the WM and the V&A tables is quite similar, featuring gilded watery landscapes with buildings and figures. In a different way from what was used in the previous century, these landscapes now cover the majority of the black lacquer surface. The dimensions of the buildings and figures are also much larger; the horizon perspective visible in earlier objects is absent. The PMA sewing table also features a central landscape; however, in this case, the landscape is framed by a border filled with animals, flowers, and Buddhist symbols over a geometrical-grid background.

<sup>&</sup>lt;sup>331</sup> Danielle Thom, "A Stitch in Time: Home Sewing before the 1900," *V&A Articles* (2015), https://www.vam.ac.uk/blog/news/a-stitch-in-time-home-sewing-before-1900.

The date of the V&A table has been attributed to 1830-50, and was donated to the museum by Miss E. P. Cross with no accompanying information on provenance. The WM table was a gift of Mrs. G. Brooks Thayer. The PMA table was a donation of Elizabeth Campbell Madeira in 1931. It is said to have been obtained in China by Benjamin Chew Wilcocks (1776-1845), and it was given to the PMA by his granddaughter Mrs. Campbell Madeira. Benjamin Wilcocks started in the China trade as a supercargo and lived in Canton from 1812 to 1827.<sup>332</sup>

The PEM sewing table was a gift from Mr. and Mrs. Francis B. Lothrop. The monogram "W," it presents on the exterior of the lid, and, the interior features a view of Praia Grande, in Macao. The "W" monogram stands for William Shepard Wetmore (1801-1862) of New York and Newport, RI. In 1815, William S. Wetmore started his career in the mercantile business with the firm Edward Carrington & Company, Providence, RI. He worked as a supercargo, and in 1833 went to Canton, where he established a merchant house, having left China in 1839. Wetmore removed himself from all business in 1847 and retired in Newport, RI. In 1852 in Newport, William S. Wetmore built Chateau-sur-mer, one of the first grand mansions. The PEM sewing table was part of a suite of lacquered furniture that furnished one of the rooms at Chateau-sur-Mer. The suite comprised one *bonheur-du-jour*, three sets of four nesting tables (Figure 34), one circular table, and a sewing table.

<sup>&</sup>lt;sup>332</sup> Joseph Downs, "The Mary Wilcocks Campbell Memorial Gift," *Bulletin of the Pennsylvania Museum* 27, 144 (1931): 50-53.



Figure 34 William S. Wetmore and family posing on the porch of Chateau-sur-Mer, Newport, circa summer 1858. Three of the lacquered nesting tables are pictured. Courtesy of the Preservation Society of Newport County.

In 1843, Wetmore married for the second time, and had three children. George Peabody Wetmore (1846-1924) was one of them, and he was responsible for keeping the family business and state. George Peabody had in turn four children; the spinster sisters Maude and Edith Wetmore inherited Chateau-sur-Mer and were the last of the Wetmores to live there. Regarding the furnishings of Chateau-sur-Mer, Maude Wetmore remembered in 1936, "Chateau-sur-mer holds in its multitude of great rooms many family possessions. Particularly interesting are the Chinese objects that date to Grandfather Wetmore's importing days. (...) There were decorative bowls of Chinaware, and Miss Wetmore said that only recently they had unpacked dishes from the original boxes shipped to William Shepard Wetmore last century."<sup>333</sup> The sisters lent some of the lacquered furniture suite, namely the *bonheur-du-jour*, the circular table, and the work (sewing) table, to an exhibition that took place in Newport in 1949. The exhibition Skippers on the Pearl: Yankee ships in Chinese waters gathered articles that "were purchased in Canton," and "reflect the Southern Chinese civilization of that period."<sup>334</sup> Maude died in 1851 and Edith in 1966; subsequently the Chateau-sur-mer furnishings were auctioned off in 1969. The lacquered suite was sold and divided among different buyers, and the sewing table (lot 1007) was acquired for \$1,100.335 The shape of the Wetmore table is similar to the previously described examples, with turned legs and identical feet. What distinguishes this sewing table from the others is the exquisite decoration. As previously mentioned, the interior of the lid depicts a view of Macao, where Wetmore lived during his season in China. Both the interior and the exterior of the sewing table are profusely decorated leaving almost no black lacquer background visible. As in the other sewing tables, some of the

<sup>&</sup>lt;sup>333</sup> Interview to Miss Maude A. K. Wetmore by Gladys Van Egmond, *The Evening Bulletin*, Providence, Thursday, July 2, 1936. Rhode Island Historical Society, MSS1078 Wetmore-Sherman Family Papers, Box 1, Folder 30.

<sup>&</sup>lt;sup>334</sup> P. K. Weaver, *Skippers on the Pearl: Yankee ships in Chinese waters* (Newport: Society for the Care and Preservation of the Old State House in Newport, Rhode Island, Inc, 1949): preface.

<sup>&</sup>lt;sup>335</sup> Parke-Bernet Galleries, *Furniture, Porcelain, Silver and other works of art at Chateau-sur-mer Newport residence of the late Edith M. K. Wetmore & Maude A. K. Wetmore* (New York: Parke-Bernet Galleries, 1969), 244-247.

motifs are raised but in low relief when compared to the earlier previously discussed. The Wetmore sewing table displays several bands with gilded sinuous elements and flowers that were methodically executed (Table 2, numbers 4, 5, and 6). It also features unusual motifs such as angels. In the interior, some of the wooden compartments that hold the sewing utensils were executed in brown lacquer. The color difference is noticeable between elements in brown and black lacquer and seems to be intentional. Analytical results confirmed the presence of vermillion pigment in the brown lacquer supporting this observation (Figure 35). The Wetmore sewing table is a piece executed with a care and precision distinguishable from other similar sewing tables from the same time period. As discussed in Chapter 2, in 1843, Nathaniel Kinsman, partner of William S. Wetmore on the firm Wetmore and Co., was buying lacquerware from Hipqua, considered one of the best lacquerware manufacturers in Canton. Due to the proximity of the two partners, it is possible that this table could also have come from Hipqua's workshop.

#### Table 2Gilded decorations on nineteenth-century objects.

Object	Museum	Date	Decoration	
Dressing Table (2004.0030.0 01)	WM	1800's	A BAR STRAND	1
Sewing Table (1931-42-6)	РМА	Circa 1820		2
			PSPSPSPSPSPSPS	3

Object	Museum	Date	Decoration	
				4
Wetmore Sewing Table (E82997)	PEM	Circa 1835		5
				6
Circular Table (1940-34-1)	РМА	Circa 1840		7
Shawl Box Label Canton (AE85997)	PEM	19th		8
Shawl Box			SUBUSUU	9
Red (E18314)	PEM	19th		10
Davenport Desk (E80268)	PEM	Circa 1855		11
				12
Nesting Tables Views (4) (126018)	PEM	19th		13
Nesting Tables (4) (58252-5)	NPA	Circa 1862		14
Numismatic Box (44543)	NPA	Circa 1877		15
Tea Caddy (1962.0219)	WM	19th		16
	*****		BBBBBBBBBBBBBB	17



Figure 35 Lids from the interior compartments of the Wetmore sewing table made in brown lacquer (left) and black lacquer (right).

Three tilt-top circular tables are part of this study group: the PMA 1940-34-1, the PEM E40994, and the WM 1963.0096, all dated to the nineteenth century. As discussed previously in this chapter, this tilt-top table shape, introduced in Canton by the English merchant-seafarers who temporarily inhabited the city, was made for the export market but appears to have been adopted by and became part of Cantonese interiors during the Qing dynasty.<sup>336</sup> In that context, some of these tables may in fact

<sup>&</sup>lt;sup>336</sup> Kyoung Bae, "Around the Globe: The Material Culture of Cantonese Round Tables in High-Qing China," in *China, Europe, and the Transcultural Object: 1600-1800*, edited by Anna Grasskamp and Monica Juneja, 37-56 (Cham, Switzerland: Springer, 2018).

have been made for daily life use in Canton and not to be sold to the export market. The PEM and the WM tables are most similar in both shape and decoration. Both tables feature a circular tilt-top mounted onto a turned stand attached to a three-footed base. Both tables have a top decorated with a central scene with several figures; the Eight Immortals are depicted in the WM table. Both central images are surrounded by a border filled with various motifs: bats, butterflies, and auspicious Buddhist symbols in the WM table; phoenixes, coins, and scrolls appear on the PEM table. The PMA table is similar in shape to the other two tables but features a four-footed base with gilded paw feet each topped with a carved shell (similar to the ones featured in the previously discussed sewing tables). The decoration is more profuse than what is featured on the other two circular tables; in the PMA table the top is covered by different continuous and juxtaposed decorative bands that occupy half of its diameter (Table 2, number 7). On this table the gilded motifs are also slightly raised from the lacquer background. In the other two circular tables all gilding is painted flat. The PMA table is the only example of the three that has provenance information. It was a gift of Mrs. Joseph H. Burroughs (daughter of John A. Lewis), to the PMA in 1940. The table was made for Philadelphian John Alfred Lewis (1821-1904) while he was in China in 1839 and imported by his brother F. Mortimer Lewis.

Also dated from the nineteenth century, are three folding screens included in this research. All three screens belong to the same institution: the WM. They come from the China Trade Room: screen (2004.0030.002), the Philadelphia Bedroom screen (1962.0224), and the Chinese Parlour screen (1961.0821.) The China Trade and the Philadelphia Bedroom screens have six -leaves each; the Chinese Parlour screen features eight leaves. On the backs, all screens display gilded motifs such as flowers,

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bamboo, rocks, foliage, and birds, combined in individual compositions on each leaf. The front decoration is different on every screen: the China Trade screen features the same compositions as the back although more profusely decorated and framed by a border composed by animals, flowers, fruits, and other auspicious symbols juxtaposed to create a pattern; a similar border (although narrower) was used on the front of the Philadelphia Bedroom screen (Table 3, numbers 1, 2, and 3), framing a central scene with buildings in a waterfront and various figures engaging in different activities; the Chinese Parlour screen also displays a watery landscape with pavilions and figures, bordered by a frame of dragons playing with a flaming pearl. As for the smaller dimension nineteenth-century objects discussed previously, the landscapes depicted in these screens feature the same motifs as in the previous century — water, islands, rocks, pavilions, and various figures – but the distribution of the gilded motifs on the black lacquer background was expanded to cover a larger area. The scale of the motifs is also larger, creating the illusion of proximity of the observer to the scene. Several gilded motifs are also less detailed. Shading of the gilding continues to be used and is frequently applied to create patterns in grounds and architectural elements. The borders of continuous patterns are now in some cases used as part of the main decoration and not just as framing devices. Comparable examples to the Chinese Parlour screen are dated to circa 1820. The China Trade screen was donated to WM in 2004 by Violet S. Thoron in 2004, suggesting a similar provenance through the Ward and then Thoron families. It is dated to circa 1840. The border displayed in this screen as well as in the Philadelphia bedroom screen) is very often found in objects from around that date. It is interesting to note that in both screens, as in others that display this pattern, the insects and animals were often painted with caricature features.

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Object	Museum	Date	Decoration	
Philadelphia Screen (1962.0224)	WM	1820- 1840		1
				2
China Trade Screen (2004.0030.0 2)	WM	19th		3
Chinese Parlour Screen (1961.0821)	WM	19th	Legenererererere	4

### Table 3Gilded decorations on nineteenth-century screens.

Two writing desks of different shapes have been chosen for this group. One is from the WM (1962.0222) and the other from the PEM ((E80268). The WM is a writing desk divided in three parts; a tall cabinet with hinged doors, and a box fitted on a matching stand. Several lacquered examples of this shape are known. The PEM writing desk is a rare form described by Carl Crossman as a "fall-front senatorial type desk, based on the English Davenport," and "an unusual furniture shape in export market."<sup>337</sup> The shape is named Davenport desk for the first example made by the English company Gilles of Lancaster for a certain Captain Davenport at the end of the eighteenth century. Another example of a lacquered Davenport desk was recently acquired by the Hong Kong Maritime Museum and has decoration comparable to the PEM desk (Figure 36). Both WM and PEM writing desks were because their shapes suit the same purpose, writing activities; however, one shape is rarer and the other found in a larger number of examples. The goal was to understand if this difference could be recognized in the materials used and the objects' manufacturing technology.

<sup>&</sup>lt;sup>337</sup> Carl Crossman, *The Decorative Arts of the China Trade: Paintings, furnishings and exotic curiosities* (Suffolk, UK: Antique Collectors' Club, 1991), 277.



## Figure 36 Lacquered Davenport desk, nineteenth century. Courtesy of the Hong Kong Maritime Museum.

Two black gilded shawl boxes from WM are included in this group (1964.0083 and 1964.0084). The only example of a red gilded lacquerware in this study is a shawl box from the PEM collection (E18314). Another shawl box from the PEM, combining red and black lacquer, was included; the name of the shop in Canton is painted on the lid (AE85997). The two shawl boxes from WM have an oral tradition of being procured in Canton for William Hemphill, a Wilmington-area merchant active in the China trade, as a gift for his daughter, Mary Hemphill, and descended through the family. The decoration is identical on the two boxes, although after tracing the designs and comparing the traced drawings, the measurements are slightly different between the motifs. Even if a stencil was used to trace the drawings and transfer the motifs to the area to be painted — a practice followed in Canton to copy the motifs to be gilded into the lacquer surface, as discussed in Chapter 1 — the details seem to have been finalized by hand. In the PEM shawl box with the lid inscription, the top line identifies the name of the shop in Chinese characters followed by the English translation "Shiu Ying Long, Canton, China." The shawl box also displays two paper labels; one explains that the embroidery is done in Shanghai style, and the other provides details of the enclosed shawl such as size and fringes.<sup>338</sup> The fact that these were common pieces found in the shops of Canton determine the inclusion of these four boxes in the present study.

Two objects from the Portuguese Royal collections at the NPA are included in this study. These were chosen because both feature coats-of-arms related to Portuguese kings. One of the objects is a rectangular box that most probably served to store a musical instrument (51171).<sup>339</sup> The center of the lid displays a pair of ducks surrounded by flowers; above them is the coat-of-arms and name of King D. Pedro V (reign 1853-1861). The other object, also a rectangular box, was used to store a numismatic album (44543). This box has a lid profusely decorated with a border of continuous feathery motifs framing a composition of auspicious symbols identical to

<sup>&</sup>lt;sup>338</sup> I am thankful to Daisy Wang, Robert N. Shapiro Curator of Chinese and East Asian Art at the Peabody Essex Museum, for the translation of the Chinese characters.

<sup>&</sup>lt;sup>339</sup> The box has two empty recessed areas on the inside shaped in the form of the object it is meant to store. The shapes seem to correspond to a *guqin*, a seven-string Chinese zither and to the stand used to place the *guqin* when its being played. Nonetheless, no *guqin* with the exact shape of the box recesses has been found to date.

the ones used in contemporary objects (Table 2, number 15). Several flowers are highlighted in a silver color. In the center of the lid the box features the coat-of arms for King D. Luís I (reign 1861-1889); in the interior of the lid, below the King's crown, painted in gold "D.L.1°" for "Dom Luis 1<sup>st</sup>". Inside the box is a Japanese lacquered numismatic album that was offered to D. Luis by a Japanese embassy in 1877.<sup>340</sup> It is not known if the album was given to the King inside this box or if it was just placed there because it is a perfect fit. Both objects are documented in the NPA archives as part of the furnishings of the Chinese Room in 1910, but no further information is given.<sup>341</sup> Both objects are in good condition, and the lacquer coating is of notable quality.

The last two objects in this group were included for a reason opposite to the two previous ones; to represent ubiquitous manufacture that would be accessible to a higher number of buyers. These pieces are a tea caddy (1962.0219) and a tray (1959.2891), both from the collections of WM. The tea caddy represents a shape that was exported in considerable numbers since it would serve as container for the most important product traded in Canton: tea. The lid displays a building against a wall that resembles the *Five-Storey Pagoda* in Canton surrounded by a border of gilded scrolling feathers. Other buildings and views are depicted on the sides of the tea caddy and framed by juxtaposed circles enclosing tiny leaves (Table 2, number 17). The tray has an octagonal shape; the shape is similar to the one drawn and ordered by Dudley

<sup>&</sup>lt;sup>340</sup> Palácio Nacional da Ajuda, *D. Luís, Duque do Porto e Rei de Portugal*, edited by Isabel Silveira Godinho (Lisboa: Instituto do Património Cultural, 1990), 181.

<sup>&</sup>lt;sup>341</sup> Arrolamento dos Paços da Ajuda, folio dated March 16, 1912, Z, numbers 42 and 43.

Pickman, bought in Canton by supercargo Benjamin Shreve in 1819, as discussed in Chapter 2. Trays were one of the lacquerware shapes exported in largest numbers. WM's tray decoration displays boats, pagodas, trees, and figures, from the central panel to the rim. The figures' faces are slightly raised in red lacquer.

All the analytical results from this group of objects will be compiled and discussed in the following chapter.

### Chapter 4

### SCIENTIFIC ANALYSIS

The word "lacquer" has been historically used to designate lac a different material from the Asian lacquer discussed here. Lac originated from the Sanskrit lākshā. One interpretation of the word lākshā suggests "one hundred thousand" meaning innumerable, possibly by the high number of insects required to produce a unit of shellac.<sup>342</sup> Another etymological origin for the word is "the red," for the dark red tree sap.<sup>343</sup> Lac is a resinous secretion of several species of lac-producing insects belonging to the genus Metatachardia, Laccifer, Tachordiella, and others of the superfamily Coccoidea of the Homoptera order. The one most commercially explored is *Kerria lacca*. The insect *Kerria lacca*, genus Laccifer, also known by the designations *Laccifer lacca*, *Tachardia lacca*, and *Carteria lacca*. *Kerria lacca* belongs to the Kerriidae family, which is one of the 28 families of scale insects and

<sup>&</sup>lt;sup>342</sup> It is estimated that 50,000 beetles are needed to produce one kilogram of shellac. In Julianne Derry, "Investigating Shellac: Documenting the Process, Defining the Product. A study on the processing methods of Shellac and the analysis of selected physical and chemical characteristics" (MA thesis, University of Oslo, 2012), 22.

<sup>&</sup>lt;sup>343</sup> Monika Kopplin, European lacquer: selected works from the Museum für Lackkunst, Münster (Munich, Hirmer Verlag, 2010), 14.
mealy bugs that produce similar natural products. The female insects primarily deposit a resinous substance on the twigs and new branches of several varieties of soapberry and acacia trees found in India, Thailand, Myanmar, and other locations in Southeast Asia. After several methods of refinement, from heating to bleaching, the final product is designated as shellac. Shellac has been used widely since the nineteenth century for finishing and refinishing of woodwork, usually dissolved in denatured alcohol.<sup>344</sup> Resins like shellac, copal, and rosin among others are some of the most used materials to create Asian lacquer imitations, known as "japanning."<sup>345</sup>

As previously noted, the term lacquer used in this dissertation refers to Asian lacquer only. Asian lacquer remains a different material, with a unique nature, differentiated from other materials that may also be called lacquer. The Asian version is a natural polymer of vegetal origin and the only one that is polymerized by an enzyme. It has been used for thousands of years as a protective and decorative coating in several Asian countries. Asian lacquer is a sap tapped from a tree, and it is a

<sup>&</sup>lt;sup>344</sup> Velson Horie, *Materials for conservation: organic consolidants, adhesives and coatings* (Amsterdam; Boston: Butterworth-Heinemann, 2010), 150-51.

<sup>&</sup>lt;sup>345</sup> Resins designate solid or highly viscous substances that can have a natural or synthetic origin. Natural resins are constituted of mixtures of volatile and non-volatile terpenes. Some of the most used natural resins are categorized within the group of diterpenoids or triterpenoids depending on their chemical composition. Diterpenoids encompass natural resins like rosin (colophony), Venice turpentine, sandarac, and copal. Dammar and mastic are classified as triterpenoids. The first varnishes used were natural resins dissolved in hot linseed oil. In the mid-twentieth century, synthetic resins became available, although natural resins are still widely used today especially in traditional artistic practice.

polymer of vegetal origin.<sup>346</sup> While resins spontaneously exude from several trees and plants and constitute a water-insoluble by-product, Asian lacquer requires tapping of the tree to yield a liquid with film-forming properties.<sup>347</sup> Asian lacquer has a unique drying process that is responsible for the singularity of this material. Unlike other varnishes, Asian lacquer does not dry by solvent evaporation. Its drying process is so complex that it is still not fully understood. Asian lacquer polymerizes by a chemical enzyme-catalyzed reaction followed by physical drying, creating high cross-linking films. These films are hard and insoluble in most solvents thus distinguishing Asian lacquer from any other resin.

Asian lacquer is derived from the sap of several species of trees indigenous to the Asian continent. These trees belong to the Anacardiaceae family, Toxicodendron genus, being the species *Toxicodendron vernicifluum*, *Toxicodendron succedaneum* and *Gluta usitata* the main sources for Asian lacquer. Chinese lacquer has been described as the sap of *Toxicodendron vernicifluum* in different studies.<sup>348</sup> In the same

<sup>&</sup>lt;sup>346</sup> Rong Lu and Tetsuo Miyakoshi, *Lacquer Chemistry and Applications* (Amsterdam: Elsevier, 2015), 1.

<sup>&</sup>lt;sup>347</sup> John Mills and Raymond White. *The Organic Chemistry of Museum Objects* (Oxford; Boston: Butterworth-Heineman, 1994), 83.

<sup>&</sup>lt;sup>348</sup> See for example Stephen W. Bushell, *L'Art Chinois* (Paris: Henri Laurens, 1910,) and Fritz Low-Beer, "Chinese Lacquer Wares," *East and West* 5, 4 (1955): 285-290.

way, Chinese export lacquer has also been characterized as the sap of the *Toxicodendron vernicifluum* tree species.<sup>349</sup>

The first Western analytical study of Chinese lacquer was carried out by Sir Harry Garner in 1963.<sup>350</sup> In his "Technical studies of Oriental lacquer," Garner discussed the difficulty of attributing a time period and place of manufacture to lacquered objects and that "It seems likely that technical studies of pieces of lacquer may help to throw light both on the date of manufacture and the provenance of a piece."<sup>351</sup> Garner looked mainly at Ming carved lacquerware and used visual observation as well as photo-micrographs of lacquer sections to understand the different number of lacquer layers applied in the coating and the physical characteristics of the pigment particles added to those layers. The detail and meticulous of his visual observations should be noted. With the support of

<sup>&</sup>lt;sup>349</sup> Margaret Jourdain and R. Soame Jenyns, *Chinese export art in the eighteenth century* (London: Country Life Limited, 1950,) and Missão de Macau em Lisboa, *Artesão Chinês, Cliente Europeu: O Móvel Chinês de Influência Ocidental em Colecções Reais e Particulares Portuguesas* (Lisboa: Ministério da Cultura, 1999).

<sup>&</sup>lt;sup>350</sup> Sir Harry Garner (1871-1977) was an English mathematician and astronomer, that worked extensively in aerodynamics for the British Government, and became chief scientist at the Ministry of Supply. He was also an art collector with a special interest in Chinese porcelain and lacquerware.

<sup>&</sup>lt;sup>351</sup> Harry Garner, "Technical studies of Oriental lacquer," *Studies in Conservation* 8, 3 (1963): 84.

spectrographic analyses,<sup>352</sup> he was able to further study the pigments added to the lacquer layers and also to materials added to the ground layers.

In 1985, Andreas Burmester published his research on Chinese lacquer. Titled "Technical studies of Chinese lacquer," Burmester's research was based on and expanded Gardner's work, with the common intention that "The aim of these investigations was to find out to what extent scientific examination could help to answer questions of dating, provenance, or identification of Chinese lacquerware."<sup>353</sup> While developing his work, Burmester had access to Gardner's literary estate held at the V&A; the archive allowed Burmester to understand that Gardner was seeking further samples and intended to test new analytical methods. Letters exchanged by Gardner with other scientists show that the first attempts to subject urushi to pyrolysis gas chromatography had been successfully made.<sup>354</sup> Also referencing Gardner's correspondence, Burmester mentioned the importance of knowing if *Toxicodendron vernicifluum* was the exclusive species to be used as the source of raw lacquer

<sup>&</sup>lt;sup>352</sup> The instrumental techniques used are not specified in the article.

<sup>&</sup>lt;sup>353</sup> A. Burmester, "Technical studies in Chinese lacquer," in *Urushi: Proceedings of the Urushi Study Group, June 10-27, 1985, Tokyo*, edited by N. S. Brommelle and Perry Smith (Marina del Rey, CA: The Getty Conservation Institute, 1985), 163.

<sup>&</sup>lt;sup>354</sup> Burmester refers to a letter exchanged with P. H. Plesch, from the University of Keele, and dated September 29, 1965. A. Burmester, "Technical studies in Chinese lacquer, 164.

mentioning that *Toxicodendron succedaneum* may also have been used.<sup>355</sup> In "Chinese Lacquer," a reference book on the subject, published posthumously in 1979, Sir Harry Garner continued to advocate for the scientific contribution in the study of lacquerwares. He also clearly confirmed his convictions that "The possibility that lacquerwares made from *Rhus succedanea* may have been produced in South China in the borders with Annam has already be mentioned." The extended distribution of *Toxicodendron succedaneum* species into southern Chinese provinces such as Guangxi and Guangdong, previously discussed in Chapter 1, confirms the availability of this lacquer in a far wider region that the one originally considered by Garner. The information presented in the following paragraphs and analytical data collected in this research prove that in regard to Cantonese lacquerware production, Sir Harry Garner was correct in his hypothesis.

The contribution of pyrolysis gas chromatography to the study of lacquered objects advocated by both Garner and Burmester, continued to be developed by the latter, with published results in 1983 and 1985. In 1985, Burmester improved his analytical results for urushi using high resolution mass spectrometry, but noted that this was the only sap of the genus *Rhus* he had the opportunity to analyze.<sup>356</sup>

<sup>&</sup>lt;sup>355</sup> A. Burmester, "Technical studies in Chinese lacquer, 165.

<sup>&</sup>lt;sup>356</sup> A. Burmester, "Technical studies in Chinese lacquer," 166.

The first separation of urushi sap components occurred in 1878. Ishimatsu Sadama, at that time a student at the University of Tokyo, made an experiment with ethanol trying to separate lacquer sap, and obtained a brown, viscous, and alcohol-soluble portion which was the main component of the lacquer sap.<sup>357</sup> In1897, Gabriel Bertrand identified laccase as the enzyme responsible for starting the polymerization process of the sap of *Toxicodendron vernicifluum*.<sup>358</sup> Laccase is also involved in the polymerization process for *Toxicodendron succedaneum*. Further research developed in 1992 by Japanese researchers isolated the enzyme involved in *Toxicodendron vernicifluum* curing process, consisting in a peroxidase in conjunction with a small amount of laccase. It was observed that much faster oxidation of the phenols occurred in contrast with sap where only laccase is present, indicating that lacquer from different origins require different curing times.<sup>359</sup>

The work developed by Ju Kumanotani in the 1970s and following decades allowed for extensive development in understanding the chemical characteristics and polymerization process of urushi.<sup>360</sup> Urushi lacquer sap is a water-in-oil emulsion,

<sup>&</sup>lt;sup>357</sup> Rong Lu and Tetsuo Miyakoshi, *Lacquer Chemistry and Applications* (Amsterdam: Elsevier, 2015), 16-17.

<sup>&</sup>lt;sup>358</sup> A. Burmester, "Far Eastern lacquers: classification by pyrolysis mass spectrometry," *Archaeometry* 25, 1 (1983): 45.

<sup>&</sup>lt;sup>359</sup> C. Mcsharry *et al.*, "The chemistry of East Asian lacquer: a review of scientific literature," *Studies in Conservation* 52, 1 (2007): 32.

<sup>&</sup>lt;sup>360</sup> See J. Kumanotani, "Laccase-catalyzed polymerization of Urushiol in precisely confined Japanese lacquer system," *Die Makromolekulare Chemie* 179 (1978): 47-61,

composed of urushiol (55%-70%) and glycoprotein (1.4-2.8%) in the oily phase, and water (20-25%), polysaccharides (6.5-10%), and laccase enzyme (0.1-1%) in the water phase.<sup>361</sup> As for the composition of *Toxicodendron succedaneum*, its main constituent is laccol (42-44%), together with glycoprotein (3-7%) in the oil phase, and water (32-39%), plant gum (16-17%), and laccase enzyme (0.1-1%) in the water phase.<sup>362</sup> The main component of the lacquer sap is the lipid component, the catechol derivatives, urushiol for *Toxicodendron vernicifluum* and laccol for *Toxicodendron* 

succedaneum.<sup>363</sup>

In 1995, Niimura et all successfully used pyrolysis-gas chromatography with mass spectrometry (Py-GC/MS) to characterize urushi lacquer films. In the following year, the same authors were able to characterize laccol and thitsiol lacquer films with the same method.<sup>364</sup>

<sup>363</sup> In the case of *Melanorrhoea usitate* the cathecol derivative is thitsiol. Rong Lu and Tetsuo Miyakoshi, *Lacquer chemistry and applications*, 109.

<sup>364</sup> X. Ma, R. Lu and T. Miyakoshi, "Application of Pyrolysis Gas
Chromatography/Mass Spectrometry in lacquer research: a review," *Polymers* 6 (2014): 133. For more on the applications of Py-GC/MS to urushi, laccol, and thitsiol lacquer films please refer to: N. Niimura, T. Miyakoshi, J. Onodera and T. Higuchi,

and J. Kumanotani, "Urushi (Oriental lacquer) – A natural aesthetic durable and future-promising coating," *Progress in Organic Coatings* 26 (1995): 163-195.

<sup>&</sup>lt;sup>361</sup> Y. Kamiya and T. Miyakoshi, "Synthesis of urushiol components and analysis of urushi sap from Rhus vernicifera," *Journal of Oleo Science* 50, 11 (2001): 19.

<sup>&</sup>lt;sup>362</sup> Y. Kamiya, W. Saito and T. Miyakoshi, "Synthesis and identification of laccol components from *Rhus succedanea* lacquer sap," *Journal of Oleo Science* 51, 7 (2002): 473.

Analytical studies of Chinese export lacquerware objects are relatively new. In 2000, Piert-Borgers identified laccol in Chinese lacquer in a European collection.<sup>365</sup> The studied object, an encoignure from a pair, is stamped M CRIAERD, for Mathieu Criard who lived from 1689 to 1787 and became a master in 1738. The front doors of the piece are the veneered with Chinese lacquer panels most probably salvaged from a screen, in black lacquer with gilded and painted polychrome decoration. The lacquer decoration relates to export production of that period. Lacquer samples from these panels were analyzed by Py-GC/MS, and the lacquer species used in them was identified as *Toxicodendron succedaneum*.<sup>366</sup>

<sup>&</sup>quot;Thermal degradation of the lacquer film by pyrolysis gas chromatography mass spectrometry," *Bulletin of the Chemical Society of Japan* 9 (1995): 724-729, and N. Niimura, T. Miyakoshi, J. Onodera and T. Higuchi, "Characterization of *Rhus vernicifera* and *Rhus succedanea* lacquer films and their pyrolysis mechanisms studied using two-stage pyrolysis-gas chromatography/mass spectrometry," *Journal of Analytical and Applied Pyrolysis* 37 (1996): 199-209.

<sup>&</sup>lt;sup>365</sup> The Py-GC/MS analysis was performed by prof. Tetsuo Miyakoshi, Meiji University. Barbara Piert-Borgers, "Untersuchungen zum Fassungsaufbau von Koromandellacken – Vorüberlegungen zu einem Projekt," in *Ostasiatische und europäische Lacktechniken* (München: Bayerisches Landesamt für Denkmalpflege, 2000), 101.

<sup>&</sup>lt;sup>366</sup> For and image and more on the history of this object, please refer to Barbara Piert-Borgers, "East Asian lacquerwork on French furniture," in *Japanische und europäische Lackarbeiten/Japanese and European Lacquerware* (München: Arbeitshefte des Bayerischen Landesamtes für Denkmalpflege, 2000), 493, 499-504.

In 2009, Frade applied Py-GC/MS to the study of two lacquered shields.<sup>367</sup> Although the origin of these objects is still open to discussion, the relationship of their black and gilded lacquer coating with Chinese export lacquerware work is acknowledged by other authors.<sup>368</sup> Leather shields, such as the ones studied, have been reported to be made in several Indian locations such as Gujarat or Bengal, and then sent to be lacquered in Japan.<sup>369</sup> The lacquer of one of the shields in Frade's study was identified as being *Toxicodendron succedaneum* and the other as *Gluta usitata*.

The same shields, as well as other hybrid objects, were included in the later study developed by Körber and Frade in 2011. This study included other objects with debatable origin but with Chinese related black and gold lacquer coatings. One of these objects was the lacquered shield that belongs to the Kunsthistoriches Museum (accession number A915), Vienna, and mentioned in the estate inventory of Archduke Ferdinand II in 1596. This shield presents in the front a ray-skin decoration, *same-*

<sup>&</sup>lt;sup>367</sup> J. Frade, M. Ribeiro, J. Graça and J. Rodrigues, "Applying pyrolysis-gas chromatography/mass spectrometry to the identification of oriental lacquers: study of two lacquered shields," *Analytical and Bioanalytical Chemistry* (2009): 2167-2174.

<sup>&</sup>lt;sup>368</sup> Pedro M. Carvalho, "Oriental export lacquerwares and their problematic origin," *Jahrbuch des Kunsthistorischen Museums Wien* 3 (2001): 247-261, and Ulrike Körber, "Reflections on cultural exchange and commercial relations in the sixteenth-century Asia: a Portuguese nobleman's lacquered Mughal shield," In *Portugal, Jesuits and Japan: Spiritual Beliefs and Earthly Goods*, edited by Victoria Weston, 45-56 (Boston: McMullen Museum of Art, Boston College, 2013.)

<sup>&</sup>lt;sup>369</sup> Oliver Impey and Christiaan Jörg, *Japanese export lacquer 1580-1850*, 252-264.

*kawa-nuri* technique, covering the entire surface. In the back, the shield is decorated with black lacquer with gilded decoration. The back had a second campaign of lacquering at some point in its history. Nonetheless, the gilded decoration seems similar in both coatings presenting birds and squirrels among different flowers and foliage, with a noted Chinese influence. Py-GC/MS analysis identified lacquer from *Toxicodendron vernicifluum* species in the front of the shield, and on the black and gold decoration of the back, *Toxicodendron succedaneum* was identified for both lacquering campaigns.<sup>370</sup>

The first in-depth study of Chinese export lacquerware from Canton was carried out in Lisbon between 2009 and 2011. A group of eleven pieces was sampled and different analyses were performed to identify the materials applied in both ground and lacquer layers as well as the ones used in the gilded decoration. Analytical techniques included micro-FTIR, micro-XRD, SEM-EDS, and Py-GC/MS to characterize the lacquer coatings applied in all 11 objects. This investigation revealed that *Toxicodendron succedaneum* alone was used in nine of the 11 pieces and in the remaining two the same species was used in combination with *Toxicodendron vernicifluum*.<sup>371</sup> At that point, lacquer layer separation was not performed thus it is not

<sup>&</sup>lt;sup>370</sup> Körber *et al.*, "A study of 16<sup>th</sup>- and 17<sup>th</sup>-century Luso-oriental lacquerware," in *Preprints of the ICOM-CC 16th Triennial Conference*, *19-12 September*, 2011, *Lisbon, Portugal* (Lisbon: Críterio, 2011.)

<sup>&</sup>lt;sup>371</sup> Maria João Petisca *et al.*, "Chinese Export Lacquerware: characterization of a group of Canton lacquer pieces from the 18th and 19<sup>th</sup> centuries," in *Preprints of the* 

possible to say if the sap from the two species was used in a mixture or applied in different layers of the same lacquer coating.

Two examples of French furniture with incorporated Chinese export lacquerware panels were studied at the J. Paul Getty Museum in 2014. One is a cupboard (from a pair, accession number 78.DA.119),<sup>372</sup> and the other a *sécretaire* (accession number 65.DA.3),<sup>373</sup> both dated from circa 1750. The pieces have marks for Jacques Dubois (1694 – 1763), who became a master in 1742. The front of the cupboard is veneered with Chinese black and gold lacquer panels, while the *sécretaire* displays red and gold Chinese lacquer panels. Separate samples of top and bottom lacquer layers of these objects were taken for analysis. Analyses performed at the Getty Conservation Institute have shown that lacquer coatings of both of these objects were made using sap from the *Toxicodendron succedaneum* species.<sup>374</sup>

In recent years, lacquer conservation projects in different countries provided further insight on Chinese export lacquer formulations. At the international workshop

*ICOM-CC 16th Triennial Conference, 19-12 September, 2011, Lisbon, Portugal* (Lisbon: Critério, 2011), Paper 2106.

<sup>&</sup>lt;sup>372</sup> For an image, please refer to

http://www.getty.edu/art/collection/objects/5650/jacques-dubois-pair-of-cornercupboards-french-about-1755/?artview=dor673074&dz=0.5000,0.5046,0.56

<sup>&</sup>lt;sup>373</sup> For an image, please refer to

http://www.getty.edu/art/collection/objects/5374/jacques-dubois-secretaire-french-about-1755/

<sup>&</sup>lt;sup>374</sup> Michael Schilling *et al.*, "Chinese lacquer: Much more than Chinese lacquer," *Studies in Conservation* 59, S1 (2014): S131-S132.

"The Conservation of East Asian Cabinets in Imperial Residences (1700-1900)" held in 2013, new information on several larger-dimension sets of Chinese black and gold lacquered panels (used to furnish royal palaces and houses) was presented. The previously mentioned eighteenth-century panels at the Chinese Pavilion, in Drottninghölm, Stockholm, constitute one of those sets. No layer separation was performed, and THM-py-GC/MS analysis of panels both in the Red and the Yellow Room showed that the lacquer layers are constituted of a mixture of laccol, a drying oil, and cedar oil. Blood was also detected as a binder for the ground layers.<sup>375</sup> The other set of panels also discussed previously in Chapter 3 is the one from Schönbrunn Palace, Vienna. Five types of lacquer panels from the "Chinese Cabinets" at Schönbrunn were analyzed: Chinese polychrome lacquer with birds and flowers (*miaoqi*), Chinese lacquer panels with black and gold (*miaojin*), Chinese Coromandel lacquer (kuancai), Japanese black and gold lacquer (makie), and European japanned panels. The panels decorated in the *miaoqi* and *miaojin* techniques are dated from the first-half of the eighteenth century and relate closely to Cantonese production. For the samples collected from these panels, py-GC/MS identified lacquer layers composed of laccol, a drying oil, and cedar oil. As in the case of the Drottninghölm panels, no layer

<sup>&</sup>lt;sup>375</sup> Václav Pitthard *et al.*, "Stratigraphy and material analyses of the 18<sup>th</sup> century Asian lacquer panelling from the Chinese Pavillion, Drottningholm Palace, Stockholm," in *Investigations and Conservation of East Asian Cabinets in Imperial Residences (1700-1900), Conference 2013 Postprints*, edited by Gabriela Krist and Elfriede Iby (Wien: Böhlau Verlag Ges.m.b.H., 2015), 210-219.

separation is reported. DNA analysis showed the presence of pig's tissue in the ground layers. In the case of the Coromandel panels, laccol and urushi were both detected mixed with a drying oil and cedar oil. As for the Japanese panels only urushi was identified together with a drying oil most probably tung oil.<sup>376</sup>

Another group of panels from the eighteenth century was also analyzed with py-GC/MS, and related results were published at the same time as the previously mentioned sets of panels. In this case, the Chinese lacquer panels were most probably brought from Paris and are presently located at The Elms mansion, in Newport, RI. The Elms was built after the Chateâu d'Asnières-sur-Seine, an eighteenth-century country house outside Paris, and several of its furnishings were provided by the Parisian firm Jules Allard and Sons. The Breakfast Room is decorated with three eighteenth-century Chinese black and gold lacquer panels, and a fourth panel was most probably provided by Allard to match the other three. Sample cross-sections showed that the Chinese panels present the characteristic construction of two ground layers separated by a layer of fibers with two black lacquer layers applied on top. The lacquer species used was *Toxicodendron succedaneum* confirmed by py-GC/MS.<sup>377</sup>

<sup>&</sup>lt;sup>376</sup> Silvia Miklin-Kniefacz *et al.*, "First investigations of the Asian lacquer panels in the "Chinese cabinets", Schönbrunn Palace, Vienna," in *Investigations and Conservation of East Asian Cabinets in Imperial Residences (1700-1900), Conference* 2013 Postprints, edited by Gabriela Krist and Elfriede Iby (Wien: Böhlau Verlag Ges.m.b.H., 2015), 158-166.

<sup>&</sup>lt;sup>377</sup> Charles J. Moore, Melissa H. Carr, Maria J. Petisca, "Inspired by Schönbrunn:
18th century Chinese lacquer panels in an American Beaux-Arts mansion," in Investigations and Conservation of East Asian Cabinets in Imperial Residences (1700-

In 2016, three Chinese export objects were analyzed at the Getty using THM-Py-GC/MS. The group included an eighteenth-century tea caddy, an early nineteenthcentury sewing box, and a screen from circa 1820. Cross-sections of the samples collected showed that all objects presented the typical stratigraphy for this kind of pieces: two ground layers with a layer of fibers in between, and two to three black lacquer layers applied on top. Blood was identified as a binder in the ground layers. In the case of the tea caddy and the sewing box, it was not possible to isolate the different lacquer layers, so the samples were constituted by adjacent lacquer layers. Laccol from *Toxicodendron succedaneum* was identified in these two objects lacquer layers. In the case of the nineteenth-century screen, layer separation was performed prior to analysis. The bottom lacquer layer was identified as laccol, and the top lacquer layer identified as urushi from *Toxicodendron vernicifluum*.<sup>378</sup>

Analytical studies confirmed that the use of *Toxicodendron succedaneum* is not exclusive to export lacquerware from China. Included in the donations made by Sir Harry Garner and his wife to the V&A museum was a sixteenth-century Chinese red lacquer dish (accession number FE.87-1974).<sup>379</sup> The dish, with filled-in polychrome

*<sup>1900),</sup> Conference 2013 Postprints*, edited by Gabriela Krist and Elfriede Iby (Wien: Böhlau Verlag Ges.m.b.H., 2015), 230-231.

<sup>&</sup>lt;sup>378</sup> Marianne Webb, Michael Schilling and Julie Chang, "The reproduction of realistic samples of Chinese export lacquer for research," *Studies in Conservation* 61, S3 (2016): 155-156.

<sup>&</sup>lt;sup>379</sup> For an image, please refer to https://collections.vam.ac.uk/item/O495646/dish/.

lacquer and gold, is decorated with a five-claw dragon and bears the mark of Emperor Jiajing (reign 1521-1567). Analyses performed at the Getty — with layer separation — identified laccol as binder for the ground layers with addition of cedar oil and camphor, and a mixture of laccol and urushi was used for the upper lacquer layers.<sup>380</sup> *Toxicodendron succedaneum* was also the lacquer species identified on a Song dynasty (960-1279) sample of carved lacquer excavated from Zhejiang province. THM-py-GC/MS, with prior separation of sample layers, identified a mixture of laccol and heat-bodied tung oil in the lacquer layers.<sup>381</sup>

A study on manufacturing techniques of Coromandel lacquerware also revealed important information related to materials used in Guangzhou lacquerware production. A Coromandel screen from the Metropolitan Museum of Art (MMA)<sup>382</sup> was studied together with two other examples of this technique — a screen and wall paneling (previously a screen) — that belong to the Rijksmuseum. The front of the MMA screen depicts a palace scene related to Guo Ziyi (697-781), a famous general during the Tang dynasty, framed by a border of cartouches with the "Hundred

<sup>&</sup>lt;sup>380</sup> Arlen Heginbotham, Julie Chang, Herant Khanjian and Michael R. Schilling, "Some observations on the composition of Chinese lacquer," *Studies in Conservation* 61, S3 (2016): 29.

<sup>&</sup>lt;sup>381</sup> Xinying Hao *et al.*, "Use of THM-PY-GC-MS technique to characterize complex, multilayered Chinese lacquer," *Journal of Analytical and Applied Pyrolysis* (article in press).

<sup>&</sup>lt;sup>382</sup> I wish to thank Christina Hagelskamp for calling my attention to this object.

Antiques" and landscapes. The back of the screen presents several inscriptions that allowed dating of the screen, identify the occasion that it marks, and determine the place of manufacture. The screen marks the celebration of the birthday of a government official from Guangxi province. Together with a poem in his honor, the list of contributors for the gift is also noted as is the year of the occasion, 1689. Another inscription, in the front of the screen, provides the name of the lacquer artist, and the name of his workshop in Foshan, a district next to Guangzhou. Analytical results for this screen showed that a proteinaceous binder was used for the ground layers, and laccol was identified in all three lacquer layers applied on top. This result confirms that Toxicodendron succedaneum was used in the Guangzhou area for both domestic as well as export lacquer. It also confirms that it was used in Guangzhou as early as the seventeenth century. It is interesting to note that the two Coromandel lacquerware objects belonging to the Rijksmuseum analyzed for this study were manufactured with Toxicodendron vernicifluum. In the case of these two objects, the area of provenance could not be as precisely determined as in the case of the MMA screen.383

An extensive study on Chinese export lacquerware began at the Winterthur Museum in 2014. The study encompassed material analyses and selective treatment of

<sup>&</sup>lt;sup>383</sup> Christina Hagelskamp, "Aspects of the manufacture of Chinese *kuancai* screens," in *Postprints of the Wooden Artifacts Group* (Washington, D.C.: The American Institute for Conservation of Historic & Artistic Works, 2016), 27-31.

a group of objects from the collections of the Winterthur Museum (WM), the Peabody Essex Museum (PEM), and the Philadelphia Museum of Art (PMA). The majority of the objects date to the nineteenth century. In 2016, some preliminary analytical results were published together with conservation treatments developed.<sup>384</sup> In 2017, THMpy-GC/MS results for the lacquer layers of all 22 objects analyzed were published. Results showed that eight objects have laccol in the bottom lacquer layer and urushi in the top lacquer layer, four objects have a mixture of urushi and laccol in the bottom lacquer layer with an urushi top lacquer layer, six objects have a laccol bottom lacquer layer with a mixture of urushi and laccol in the top lacquer layer, and four objects contain laccol for both the top and bottom lacquer layers.<sup>385</sup> All objects from this study are included in the present research as well as related analytical results. Eighteen additional pieces were added to the initial 22 Chinese export objects making for the 40 objects that constitute the study group focused in this dissertation. The additional pieces belong to collections of: the São Roque Museum (SRM), the National Palace of Ajuda (NPA), and a private collector, all in Lisbon; in Lisbon and in London, to Jorge

<sup>&</sup>lt;sup>384</sup> Maria J. Petisca *et al.*, "A hint of Orient in an Americana collection: investigations into Chinese export furniture at Winterthur Museum," *Studies in Conservation* 61, S3 (2016): 85-90.

<sup>&</sup>lt;sup>385</sup> Catherine Matsen, Maria J. Petisca and Stéphanie Auffret, "When science reveals craft practices: recent findings in the py-GC/MS analysis of Chinese export lacquer," in *ICOM-CC 18th Triennial Conference Preprints, Copenhagen, 4–8 September 2017,* edited by J. Bridgland, art. 2102 (Paris: International Council of Museums, 2017).

Welsh Works of Art (JWWA); to the Victoria & Albert Museum (V&A), also in London; and to the Agency for Culture and Palaces (ACP) in Copenhagen.

All this published research confirms that traditional notions regarding the materials used for Chinese export lacquerware manufacture are not entirely correct, i.e. the lacquer species used is different from what it was originally assumed, and the number of additives in the lacquer mixture is higher than supposed. These findings contribute to knowledge about the pieces and also to ways to develop better conservation treatments. Conservation methods selected to treat lacquer coatings with one composition might not be the most appropriate to treat lacquer coatings with a different composition, as is the case of Chinese export lacquer.<sup>386</sup> The analyses performed in this study contributes to a more exact understanding of the lacquer coating applied in Chinese export pieces and thus permit the establishment of improved future conservation protocols.

## 4.1 Analytical Techniques

The analytical study started with a thorough visual examination of each object followed by sampling. Since the goal was to properly identify the original manufacturing techniques and materials, careful examination was necessary to differentiate original areas from areas of restoration that might interfere with the interpretation of the results. Whenever possible, samples were collected from areas

<sup>&</sup>lt;sup>386</sup> Michael Schilling *et al.*, "Chinese Lacquer: Much more than Chinese Lacquer", in *Studies in Conservation* Vol 59, 1 (2014), S132-S133.

with cracks and losses in order to minimize further damage to each piece. The lacquer coatings often differ with regard to the number of layers applied in various areas of the object (exterior versus interior, front versus back, etc.); therefore, samples were collected from various areas in order for the results to be more representative of the object being studied. Samples should ideally be collected with the entire stratigraphy intact, i.e. all the ground layers and lacquer layers that constitute the complete lacquer coating in a single sample. If that was not possible, visual observation of the object as well as other samples collected from it permitted evaluation of the original stratigraphy of each area to be studied. The minimum sample size is 2mm x 2mm which is particularly beneficial for Py-GC/MS purposes. The collected samples were sorted and separated according to the techniques to be performed. A representative sample of each selected area of the object was cast in resin for cross-section microscopy examination.

As noted previously, Chinese export black and gold lacquer coatings present a multi-layered stratigraphy composed of the ground layers, the lacquer layers, and gilt decorations, mainly gold and metallic alloys, applied on top. A multi-technique approach was used to analyse and identify the structure and varying constituents. Different analytical techniques were used to investigate how these objects were manufactured.

#### 4.1.1 Optical Microscopy (OM)

Optical microscopy both under visible and ultraviolet light can provide extensive information about the lacquer coating stratigraphy in order to understand how the different materials were applied during the manufacture of the piece. OM provides immediate information about the number of both ground and lacquer layers

and whether there are reinforcement fibers in the coating. The fluorescence of the materials under UV helps to distinguish the different lacquer layers (in the cases where visible light is not sufficient) and was used to study the nature of the different materials.

The samples were cast separately in mini-cubes, of approximately half-inch widths, with polyester resin (Extec polyester clear resin (methyl methacrylate monomer) with methylethyl ketone peroxide catalyst (10mL:8 drops), Extec Corporation<sup>®</sup>, Enfield, CT, USA). The resin was allowed to cure for 12 hours at room temperature and under ambient light. Excess casting medium was removed from the cube just up to the surface of the sample with a jeweler's saw (Rio Grande saw blades, laser gold). The cubes were then allowed to dry, hand-polished successively with 400and 600-grit Buehler Carbimet paper (silicon carbide) and 1500- to 12,000-grit Micro-Mesh Inc. polishing cloths (silicon carbide or aluminum oxide) to expose the crosssection. The cross-section sample was examined and digitally photographed using a Zeiss Axio Imager M2m binocular microscope (5,  $10\times$ ,  $20\times$ , and  $50\times$  objectives with 10× ocular) equipped with a Kübler Codix HXP 120C mercury lamp for reflected visible and ultraviolet light. The sample was viewed in dark field reflected light and using the Zeiss 05 AF 430 cube (excitation 395-440nm, barrier 470nm, beam splitter 460nm). Images were taken with the Zeiss AxioCam HRc digital camera in conjunction with Zeiss AxioVision software.

## 4.1.2 Fourier-transform infrared (FTIR) spectroscopy

In the set of nesting tables from the National Palace of Ajuda (58252-5) it was possible to isolate red lacquer used to draw the decorative motifs. Nonetheless, the amount of material collected was not enough to perform py-GC/MS analysis as could

be done for other objects. For this set of nesting tables, analysis was performed using Fourier-transform infrared (FTIR) spectroscopy, which allows for characterization of organic and most inorganic materials and requires significantly less material (a few micrograms) as compared to GC/MS (in the range of  $50\mu g$  to  $100\mu g$ .)<sup>387</sup> This technique was preferred given the extreme thinness — of only a few microns — of the red lacquer in this set of tables.

Material was gently scraped from a bulk sample with a stainless-steel scalpel and under a stereomicroscope and then placed directly on a diamond cell. The material was rolled flat on the cell with a steel micro-roller to decrease thickness and increase transparency. The sample was analyzed using the Thermo Scientific Nicolet 6700 FT-IR with Nicolet Continuµm FT-IR microscope (transmission mode); data was acquired for 128 scans from 4000 to 650cm<sup>-1</sup> at a spectral resolution of 4cm<sup>-1</sup>. Spectra were collected with Omnic 8.0 software and interpreted in this program with various IRUG and commercial reference spectral libraries.

# 4.1.3 Scanning electron microscopy with energy dispersive x-ray spectroscopy (SEM-EDS)

Scanning Electron Microscopy-Energy Dispersive X-Ray Spectroscopy (SEM-EDS) provides elemental and morphological information about lacquer coatings. In some cases, it is difficult to distinguish the number of lacquer layers in one sample

<sup>&</sup>lt;sup>387</sup> Arlen Heginbotham and Michael Schilling, "New evidence for the use of Southeast Asian raw materials in seventeenth-century Japanese export lacquer," in *East Asian Lacquer: Material Culture, science and conservation*, edited by Shayne Rivers, R. Faulkner and B. Pretzel (London: Archetype Books, 2011), 94. Other authors refer an amount in the range of the 200µg-500µg, in Pitthard et all, "Scientific Investigations of Antique Lacquers from a 17<sup>th</sup>-Century Japanese Ornamental Cabinet," *Archaeometry* 52, 6 (2010).

even under UV light. SEM images are most useful as a complementary aid in order to do so. SEM-EDS was used to analyse one sample of a gilded area of each object. That provided information on the way the stratigraphy was built up in order to create the decoration as well as on the pigment used for the red lacquer frequently used as a mordant for the gold. SEM-EDS elemental detection helped to identify pigments in the different pieces. Furthermore, it allowed identification of the metals used in the alloys that constitute the gilded decoration.

The cross-sections were first reduced in width in order to provide better imaging once mounted in the SEM chamber. The excess casting medium was cut off the back of each sample with a jeweler's saw. The cross-sections were mounted to an SPI Supplies Zeiss aluminum slot head stub ( $12.7 \times 3.1$ mm) with SPI Supplies doublesided carbon tabs (12mm diameter). SPI Supplies conductive carbon paint (colloidal graphite in isopropanol 20% solids) was applied to the side and top surfaces of the casting medium, without covering the cross-section itself, to prevent charging. The sample was examined using a Zeiss EVO MA15 scanning electron microscope with LaB<sub>6</sub> source at an accelerating voltage of 20kV for the electron beam, working distance of approximately 10mm, and sample tilt of 0°. The EDS data was collected with the Bruker Nano X-flash® detector 6 30 and analyzed with Quantax 200/Esprit 1.9 software.

# 4.1.4 Pyrolysis-gas chromatography/mass spectrometry with thermally-assisted hydrolysis and methylation (THM-py-GC/MS)

Asian lacquer is obtained from the sap of three species of lacquer trees that grow in different areas of Asia: *Toxicodendron vernicifluum*, *Toxicodendron succedaneum* and *Melanhorrea usitate*. As previously mentioned, Asian lacquer polymerizes by a chemical enzyme-catalyzed reaction followed by physical drying, creating high cross-linking films. These films are insoluble in the majority of conservation solvents and very difficult to analyze. Only solid-state methods can be used for this analysis. Analytical techniques such as solid Nuclear Magnetic Resonance (NMR), Fourier-transform infrared (FTIR) spectroscopy, and X-ray photoelectron spectroscopy (XPS), have been successfully applied to the study of lacquer coatings but frequently require several sample pretreatments, are time consuming, and do not produce clear results as in the case of FTIR.<sup>388</sup> Pyrolysis-Gas Chromatography/Mass Spectrometry (Py-GC/MS) is the only technique currently known to be able to distinguish the species of tree from whence the lacquer was harvested. The pyrolyser pyrolyses the sample, and the resultant gases are separated by chromatography; the mass spectrometer detector attached to the gas chromatograph allows identification of the separated compounds. For better results a derivatization of the sample with TMAH (tetramethylammonium hydroxide) was performed prior to analysis. This converts the carboxylic acids, alcohols, and phenols into more volatile products prior to analysis in a technique that is known as thermally assisted hydrolysis and methylation-Py-GC/MS (THM-Py-GC/MS). The phenol derivatives that result from this analysis will allow for the correct identification of the lacquer species: the catechol urushiol will correspond to the *Toxicodendron vernicifluum* specie; the laccol to the *Toxicodendron succedaneum* and the thitsiol to the *Melanhorrea usitate*. This technique allows for the identification of the lacquer species as well as any additives

<sup>&</sup>lt;sup>388</sup> T. Honda *et al.*, "Applied analysis and identification of ancient lacquer based on Pyrolysis-Gas Chromatography/Mass Spectrometry," *Journal of Applied Polymer Science*, 118 (2010): 897.

that were mixed in the lacquer sap, like oils and resins. Py-GC/MS can not only detect the presence of these additives but can also suggest the type of oil or resin used e.g. linseed oil, walnut oil, or tung oil etc., based on the ratio of palmitic acid and stearic acid (P/S) present in the sample.

As previous research has shown, separation of the lacquer layers in a sample is crucial for further research on lacquer formulations. Lacquer samples for Py-GC/MS were prepared in order to isolate the different layers. In order to do so the sample was adhered to a glass slide, and the different layers were excavated carefully with a scalpel avoiding contamination between them. THM-py-GC/MS was performed on lacquer layers using the RAdICAL (Recent Advances in Characterizing Asian Lacquer) and ESCAPE (Expert System for Characterization using AMDIS Plus Excel) protocols developed by the Getty Conservation Institute (GCI).<sup>389</sup>

Samples were placed into a 50-µL stainless steel Eco-cup fitted with an Ecostick, and 3µL of a 25% methanolic solution of tetramethylammonium hydroxide (TMAH; Sigma) was introduced for derivatization. After about one minute, the cup was placed into the pyrolysis interface where it was purged with helium. Samples were pyrolyzed using a single-shot method at 600°C for 12 seconds with pulsed pressure of 30 psi for 30 seconds. The Frontier Lab EGA/PY-3030D system was interfaced to a Hewlett-Packard 6890 gas chromatogram equipped with 5973 mass selective detector (MSD). A J&W DB-5MS Agilent 19091S-433 capillary column was

<sup>&</sup>lt;sup>389</sup> The RAdICAL and ESCAPE protocols developed by the Getty Conservation Institute are connected with the institutions' project *The Characterization of Asian and European Lacquers* that aims to develop a comprehensive analytical method to identify organic materials present in Asian and European lacquers.

used for separation ( $30 \text{ m} \times 250 \text{ }\mu\text{m} \times 0.25 \text{ }\mu\text{m}$ ) with helium carrier gas set to 1.2 mL/minute. The split injector was set to  $280^{\circ}\text{C}$  with a split ratio of 10:1 with no solvent delay (18 psi). The GC oven temperature program was  $40^{\circ}\text{C}$  for 30 seconds then ramped at  $6^{\circ}\text{C/minute}$  to  $320^{\circ}\text{C}$ , followed by a nine-minute isothermal period. The MS transfer line was at  $320^{\circ}\text{C}$ , the source at  $230^{\circ}\text{C}$  and the MS quad at  $150^{\circ}\text{C}$ . The mass spectrometer was scanned from 33-550 amu.

Lacquer identification using the GCI's ESCAPE protocol is assisted by the generation of a Gestalt graph that shows the amount of catechols, phenyl catechols, acid catechols, hydrocarbons, alkyl benzenes, phenols and phenyl phenols. Urushi is identified with C-15 catechol as the maximum side-chain length (1,2-dimethoxy-3pentadecenylbenzene) and with C-8 acid catechol (methyl 8-(2,3dimethoxyphenyl)octanoate) as the most abundant acid catechol. Laccol is identified with the C-17 catechol as the maximum side-chain length (1,2-dimethoxy-3heptadecenylbenzene) in addition to the C-15 catechol (in lower quantity) and with C-10 acid catechol (methyl 10-(2,3-dimethoxyphenyl)decanoate) as the most abundant acid catechol. Layers where the Gestalt graph showed both C-15 and C-17 catechols, yet with C-17 in equal or greater quantity than C-15, and with close to equal amounts of C-8 and C-10 acid catechol, were identified as mixtures of urushi and laccol. In instances where results indicated a mixture of urushi and laccol in one layer, and either pure urushi or pure laccol in the other, it was considered that there may have been inaccuracy in cleanly isolating the two layers. In these cases, the procedure was repeated with heightened attention to clean isolation. The results of the repeated analyses were the same as the original in all the samples.

#### 4.2 Analytical results and discussion

The analytical results for the 40 objects in this study are compiled in charts in Appendix A. These forms present a similar two-page structure. The first page shows images of the objects, both overall views as well as detailed pictures of each object's gilded decoration. Furthermore, the first page presents three sections with information related to the object. The first section includes the object identification, its proprietary, the inventory/accession number (if applicable), the time period of the piece, and finally, its dimensions. The second section has information related to the sampling of that object: how many samples were collected, which analytical techniques were performed in those samples, and relevant observations related to sampling. This includes information about the number of layers observed in different sampling locations, constraints during the sampling procedure, identification of sample number for SEM-EDS analysis, and any information that seems relevant for an accurate understanding of the lacquer coating applied on the object. In the cases where analyses were performed at other institutions other that the SRAL at Winterthur Museum, that is also described in the section dedicated to sampling. The third and final section of the first page, is dedicated to documentary information related to the object. This section compiles information found in museum archives related to the object as well as relevant information provided by the object's own decoration, such as dates, landmarks, and inscriptions.

The second page of the chart, includes information related to the lacquer coating stratigraphy and the analytical results. In the top section, two microphotographs of the same cross-section (from a representative area of the object) are included, one taken in reflected light dark field (RLDF) and the other taken with ultraviolet light (UV). The chosen wavelength for the UV images was 405nm. This

wavelength provided the best results in distinguishing the different layers present in the lacquer coating. There is only one exception to this wavelength, which is the picture of the WM nesting table 1959.0575D that was captured with UV365nm. This object was the first to be sampled and analyzed. Following the microphotographs acquisition, the sample was polished and stained, thus not allowing for a similar photograph with different UV wavelength. Improved results were later obtained in with UV405 in other cross-sections, and this wavelength was chosen for the remaining pieces to be analyzed. Below the sample's microphotographs is a short description of the sample stratigraphy detailing the number and nature of the different layers, and with some considerations regarding their fluorescence in UV light. On the bottom section of the second page, the analytical results from THM-py-GC/MS and SEM-EDS are presented in a table form. The results are organized by layers starting with the ground layers (bottom row), followed by the black lacquer layers, red lacquer, and gilding (top row). The layers are numbered, and this number indicates the corresponding layer in the images in the top section. In the cases where the layer exists in the object but is not pictured in the cross-section microphotographs, its designation and analytical results are presented in the table but without numeration since it does not have a corresponding image. A note should be made regarding the designation of the red lacquer applied before the gilding. It was decided to not designate this step of the lacquer coating as a layer due to the intermittent characteristics of the red lacquer. This red lacquer is applied in the areas where there is a decorative motif which is frequently gilded. For that reason, it does not constitute a layer covering the totally of the object, as is the case of the layers of black lacquer. Although in the cross-section images the red is most often perceived as a layer, in reality it corresponds to a

delimitated area of the object, a decorative motif as previously mentioned. Thus, the designation for this step of the lacquer coating was defined as "red lacquer." For each row there is a corresponding column with the result obtained for that layer, either with THM-py-GC/MS or with SEM-EDS, or both if applicable. These were the two techniques employed to identify the constituents of the ground layers, lacquer layers, and gilding. In the specific cases where another analytical technique, such as FTIR or XRD, was used that is registered together with the material that was identified. The materials identified are organized by specific colors for an immediate recognition and easier comparison between layers. Materials applied in previous restoration campaigns were not considered for analyses and are not represented in the analytical results. When there is doubt whether a material is original to the manufacture of the object or applied in a restoration campaign it is signaled with a question mark next to its designation.

Included in Appendix A, and following all the charts presenting the individual analytical results for each object, an extended chart that compiles all the results for all the objects is included. This chart was created to facilitate and complement the reading of the section 4.2 - Analytical results and discussion. Materials are identified in different colors, and organized in corresponding lines to each one of the objects thus allowing for easier comparison between the materials that constitute the different pieces.<sup>390</sup>

In the following discussion of results, the SRM chest will be addressed separately. Due to the singularity of the object, and to the fact that it is not firmly

<sup>&</sup>lt;sup>390</sup> Due to the enlarged dimension of this table, for printing purposes a US Tabloid or Ledger size (11" X 17") or a European A3 size (29.7cm X 42 cm) should be used.

classified as Chinese in this study, even if manufactured in Macao, the results for this object will be presented prior to the rest of the study group, and not integrated into the following discussion.

For the interpretation of the results, this dissertation uses RADICAL 558 mass spectral library. This was the most recent available library in use when the first analyses were performed and the one used for its interpretation. For consistency, it was used in all samples analyzed during the research. Today the most recent mass spec library available is RADICAL 1455.

A note should be made regarding the presentation of the py-GC/MS results. The ESCAPE protocol presents analytical results in the form of pie charts (Figure 37). These pie charts show the peak area percent compositions of the chromatograms. These percentages do not correspond to weight percent compositions of the materials or to the exact original lacquer layer formulations. The goal of this study was to identify materials and technology of application only, and considering those percentages would require a different approach. Thus, all results from py-GC/MS analysis will be presented in different colors from what is provided in the ESCAPE Excel template corresponding to each different material identified, and with no reference to percentages.



Figure 37 Pie chart of peak area percent composition of sample 2, bottom lacquer layer, WM dressing table (2004.0030.001).

## 4.2.1 São Roque Museum chest

The seventeenth-century SRM chest presents a stratigraphy constituted by two ground layers, a thin black layer, and two black lacquer layers applied on top. Above this — and under a regilding campaign — red lacquer with gilding on top. Although constituted by the same number of ground layers as well as lacquer layers as the majority of the studied objects, the appearance of the chest's cross-section is not similar to those objects. The bottom ground layer is grey in color, and the top ground layer presents a reddish color. Between the ground layers and the lacquer layers, a black opaque and extremely thin layer was observed. Above this layer, a thicker bottom lacquer layer was applied followed by a thin top lacquer layer.

Layer separation was performed for the ground layers. The results were identical indicating the presence of a drying oil, pine resin, and starch in both ground layers. No markers for either proteins or lacquer could be detected. The opaque black layer between ground layers and lacquer layers was not possible to analyze. In the case of the lacquer layers, and due to the extreme thinness of the top lacquer layer, layer separation was not performed. The lacquer applied in the chest contains thitsi, a drying oil, cedar oil, and pine resin. No other additive was detected for these layers. Vermillion was the pigment used for the red lacquer under the gilding. Gold was identified in the gilded decoration. This is the only object in which lacquer from *Gluta usitata* species was used exclusively. As will be discussed in the following paragraphs thitsi was detected in three other objects; this is an unprecedent finding in objects related to Cantonese manufacture. As previously discussed in Chapter 3, several features of this chest relate closely with Japanese namban lacquerware. Urushi has been reported in Japanese *namban* objects such as a pair of stirrups<sup>391</sup> and a lectern. In the case of the lectern, urushi was mixed with a drying oil (Perilla frutescens L.), and a black opaque lacquer layer was also observed between the ground layers and the lacquer layers.<sup>392</sup> Thitsi has also been found together with urushi in Japanese namban lacquerware.<sup>393</sup> Furthermore, a pottery container used to store thitsi was found to have been used around the sixteenth/seventeenth centuries in Kyoto indicating the use of

<sup>&</sup>lt;sup>391</sup> José C. Frade, Isabel Ribeiro, José Graça, and José Rodrigues, "Estudo da laca vermelha de um par de estribos Namban por Py-GC/MS," *Conservar Património* 9 (2001): 65.

<sup>&</sup>lt;sup>392</sup> Stefania Pandozy *et al.*, "The Asian Lacquer Collection in the Vatican Museums: the experiences of the Ethnological Materials Conservation Laboratory," *Lo stato dell'arte 12, Milano Accademia di Belle Arti di Brera 23-25 ottobre 2014* (2014), 7.

<sup>&</sup>lt;sup>393</sup> José C. Frade, José Rodrigues, António Candeias, "A New Perspective on the Lacquer of Namban Objects," Presentation, 2nd International Workshop: Physical and Chemical Analytical Techniques in Cultural Heritage, Centro de Física Atómica, Universidade de Lisboa, Lisboa, June 2012.

this sap in Japanese lacquerware.<sup>394</sup> Nonetheless, this object hybrid characteristics indicate a different provenance and this analytical result correlates it with other pieces with similar hybrid features. As discussed previously in this chapter, *Gluta usitata* was identified in a black and gold lacquered shield of unknown origin, and has been used also in other sixteenth-century as well as seventeenth-century objects with Chinese features but not yet related to a specific production center. These pieces, such as coffers, shields, writing boxes, and cabinets, present hybrid characteristics — in some of the objects, carved gilded woodwork is combined with gilded lacquered surfaces — and py-GC/MS analysis results revealed that their lacquer coating contain *Gluta usitata*.<sup>395</sup> This result will be further discussed, together with the remaining 3 objects where thitsi was detected; section 4.2.3 referring to lacquer layers.

## 4.2.2 Ground layers

The group of 39 objects — excluding the SRM chest — usually had two ground layers separated by a layer of fibers. Twenty-eight objects had two ground layers with a layer of fibers in between. Thirteen objects had only one ground layer. The number 13 should be considered with caution. In some objects it was possible to verify the presence of one ground layer only, either by visual observation and/or observation of other cross-sections. But for some of these 13 objects it is not possible

<sup>&</sup>lt;sup>394</sup> Takayuki Honda *et al.*, "Applied Analysis and Identification of Ancient Lacquer Based on Pyrolysis-Gas Chromatography/Mass Spectrometry," *Journal of Applied Polymer Science* 118 (2010): 897-901.

<sup>&</sup>lt;sup>395</sup> Ulrike Körber *et al.*, "A study of 16<sup>th</sup>- and 17<sup>th</sup>-century Luso-oriental lacquerware." in *Preprints of the ICOM-CC 16th Triennial Conference*, 19-12 September, 2011, *Lisbon, Portugal* (Lisbon: Critério, 2011).

to guarantee that the stratigraphy has only one ground layer due to the limited number of samples collected. Also, for results regarding the ground layers and the lacquer layers, the total number of objects is 40. This happens due to the singularity of PEM game table with a view of Canton (AE85753), that, as discussed in Chapter 3, combines a top and legs not made with the same layering; the table was probably created by combining parts of other pieces of furniture. In this table, legs were found to have two ground layers and were included in that group. The top has only one ground layer and is thus included in the one-ground-layer group of objects. Also, the top in this object, contains a different lacquer specie in the top lacquer layer from the legs' top lacquer layer. Thus, for the ground layers and lacquer layers, this object was then counted twice for those reasons. One exception to these two major groups, is the PEM shawl box (AE85997) that has three ground layers with two layers of fibers in between. It should be noted that the sample was collected from an area of wood joint, where it is common to apply extra layers of fibers and ground materials to provide reinforcements of the area and to compensate for the wood movements. In the other two samples of the same object, it was possible to detect only two ground layers.

Thirty-eight grounds contain a proteinaceous binder; four objects have laccol as well as proteins as binders, and in one object, laccol was detected in the ground layers. These four objects that present laccol in combination with proteins in the ground are the V&A chair (FE116-1978), the Fredensborg cabinet (SE-F6), and the PEM two game tables (E82447 and AE85753). The JWWA chest has laccol in the ground layers and no markers for proteins were detected. Regarding the PEM game table (AE85753) laccol was found on the ground layers of the lacquer coating on the legs. The top has a ground with a proteinaceous binder. All five objects that have

lacquer in the ground layers are dated from the eighteenth century (the JWWA chest to the end of the seventeenth, beginning of eighteenth century). No laccol was detected in the ground layers of objects attributed to the nineteenth-century. In earlier published results for ground layers composition in Chinese export lacquer objects, laccol was detected in a writing desk from the eighteenth century and in two game boxes dated to the end of the eighteenth/beginning of the nineteenth century.<sup>396</sup>

Due to the similarity of ground layers in both granulometry and color within a single object, no layer separation was performed; the material from only one ground layer was analyzed for each object. In the five pieces where laccol was detected in the ground layers, the color of the grounds is slightly darker than the color of the grounds containing a protein-based binder. The appearance of grounds with laccol is also somewhat more translucent than the ones where only proteins were detected. In UV light, it is possible to observe that the fluorescence of some areas of the laccol grounds is similar to the fluorescence of the lacquer layers above them. The PEM game table (AE85753) is a good example of these differences, due to the fact that it is assembled with a top and legs that feature two different lacquer coatings. The difference in color and opacity is visible in the cross sections and its different constitution confirmed with Py-GC/MS analysis. A note should be made regarding the ground layers of the WM miniature cabinet (1966.0779). The bottom ground layer is black-brown and completely distinguishable from the yellow-reddish top ground layer. In this case, no

<sup>&</sup>lt;sup>396</sup> Maria João Petisca *et al.*, "Chinese Export Lacquerware: characterization of a group of Canton lacquer pieces from the 18th and 19<sup>th</sup> centuries," in *Preprints of the ICOM-CC 16th Triennial Conference, 19-12 September, 2011, Lisbon, Portugal,* Paper 2106 (Lisbon: Críterio, 2011), 8-9.

laccol was detected for the ground layers, and difference in color must be explained from other organic materials or inorganic components added to the ground.

In several samples it is possible to see a translucent layer between the ground and the lacquer layers. This layer usually fluoresces in a slightly orange color under UV light, and in some cases, seems to have a similar appearance to lacquer. Due to its thinness it was not possible to isolate this layer. Nonetheless, a note should be made regarding the Fredensborg cabinet (SE-F6). The cabinet has two ground layers; the bottom layer is much lighter in color than the top one. The top layer is also extremely translucent when compared to the bottom layer, and from cross-section observation seems to have lacquer in its constitution as well as inorganic particles. For this reason, it was considered as a top ground layer. Py-GC/MS results for both layers showed that these grounds are constituted with laccol, proteins, a drying oil, and cedar oil. It is not possible to say if the laccol is present in the top ground layer only, but from the visual observation of the sample in both visible and UV light, it seems this is the case.

Proteinaceous-based binders are the majority found in the grounds of the objects included in this study. Py-GC/MS analysis detects several markers that can help determine the source of the proteins. For the protein classifications, compounds specific to blood, egg, fish glue, glue, and "various" have been identified. For most of the markers classified as "various" proteins, there is no additional knowledge about them, but some of the "various" proteins are associated with egg, glue, and blood. Thus, the classification of protein markers as "various" means they cannot be associated only with blood or only with glue, but they can come from a number of different protein sources. In other words, these markers may reinforce other protein

classifications such as blood, egg, fish glue, and/or glue, or include compounds that can be detected in proteins, but their exact source is unknown at this point.

All 39 objects with proteins in the ground layers have markers for blood. Twelve objects contain markers for glue. In 26 pieces, protein markers are included in the "various" category. In the case of the PEM Eccleston screen (E84093) and the JWWA Macao panel, markers associated with egg were detected. Animal blood and animal glue are the two materials used mostly as binders in Chinese export grounds. Literature related to Cantonese production refers specifically the use of ox and pig's blood or gall, to thicken the material applied over the wood to smooth the surface, and prepare it to receive the lacquer layers.<sup>397</sup> Extensive research has been carried out over the past 20 years on the presence of blood in Chinese lacquerware. Different analytical techniques were performed and tested, and as referenced previously, DNA analysis was able to identify the presence of pig's blood in Chinese export lacquer grounds.<sup>398</sup>

The ground layers of the lacquer coatings contain several other additives mixed together with the laccol and/or the proteinaceous binder. In these mixtures several materials were detected such as a drying oil, cedar oil, starch, gum benzoin, camphor, shellac, and pine resin, in different combinations.

All 39 objects have a drying oil mixed in the ground layers. Interpretation of the azelaic acid to palmitic acid (A/P) ratio and palmitic acid to stearic acid (P/S) ratio

<sup>&</sup>lt;sup>397</sup> Gray, *Walks in the City of Canton*, 201, and Rondot, "Une promenade dans Canton. La manufacture de laque d'Hip-qua et l'atelier de tabletterie de Ta-Yu-Tong,"
47.

<sup>&</sup>lt;sup>398</sup> Silvia Miklin-Kniefacz *et al.*, "Searching for blood in Chinese lacquerware: zhú xiě huī," *Studies in Conservation* 61, 3 (2016): 45-51.
for all ground layers supports the conclusion that use of these ratios does not provide identification of the drying oil present.<sup>399</sup> They do not follow A/P and P/S ratios of drying oils documented for Chinese export lacquer production such as linseed, perilla, or rapeseed, although based on the present results, their presence cannot be completely ruled out. These A/P and P/S ratios are likely complicated due to complex mixtures used to formulate the layers and fatty acid contribution from other sources in the mixture. Nonetheless, results show that the predominant derivatized marker for tung oil, 9-(o-propylphenyl) nonanoic acid methyl ester, was not detected in any of the samples analyzed. These results indicate that neither tung oil nor a heat-bodied oil was a source used in the manufacture of these objects.<sup>400</sup> As will be discussed further ahead, a drying oil is also present in all lacquer layer samples.

Thirty-two objects have cedar oil mixed in the ground layers. In this group of 32 objects, 11 objects contain this resin additive in combination with a drying oil only. For the remaining 21 objects, a mixture of cedar oil, a drying oil, and other additives is found. Cedar oil is composed sesquiterpenes, that is relatively volatile compounds that are produced by several species of hardwood trees of the family Cupressaceae, and not necessarily obtained from resin trees of the *Cedrus* genus, as its name would seem to

<sup>&</sup>lt;sup>399</sup> Arlen Heginbotham and Michael Schilling, "New evidence for the use of Southeast Asian raw materials in seventeenth-century Japanese export lacquer," in *East Asian Lacquer: Material Culture, science and conservation*, edited by Shayne Rivers, R. Faulkner and B. Pretzel (London: Archetype Books, 2011), 99.

<sup>&</sup>lt;sup>400</sup> Catherine Matsen, Maria J. Petisca and Stéphanie Auffret, "When science reveals craft practices: Recent findings in the py-GC/MS analysis of Chinese export lacquer,"
6.

imply. Cedar oil is obtained through the distillation of the wood core of these trees.<sup>401</sup> The addition of cedar oil lacquer grounds has been reported previously both in Japanese export lacquers<sup>402</sup> as well as in Chinese export examples.<sup>403</sup>

In 15 objects starch was added to the ground layers. Together with anacard carbohydrates associated with laccol, starch was the only carbohydrate found in the ground layers. The use of flour to make a ground layer is mentioned in Chinese Yuan dynasty literature, with no indication of its specific purpose.<sup>404</sup> In this study, starch was detected in ground layers only.

In ten objects gum benzoin was detected in the ground layers. Five pieces have pine resin mixed in the grounds. In three objects, shellac was detected in the ground layers. In the case of the JWWA Macao panel, and the two PEM sets of nesting tables (E80758 and 126018), shellac seems to be part of the ground layers mixture and was considered as an additive. Camphor was found in the ground layers of one object only, the JWWA chest. Gum benzoin, pine resin, and camphor were detected in both the ground layers and the lacquer layers, and will be discussed in the next paragraphs.

<sup>&</sup>lt;sup>401</sup> Maria J. Petisca, "Chinese export lacquerware," in *Voyages, Namban and other lacquers* (Lisboa: Museu Nacional de Arte Antiga, 2011), 17.

<sup>&</sup>lt;sup>402</sup> Arlen Heginbotham and Michael Schilling, "New evidence for the use of Southeast Asian raw materials in seventeenth century Japanese export lacquer," 104.

<sup>&</sup>lt;sup>403</sup> See Petisca *et al.*, "Chinese Export Lacquerware: characterization of a group of Canton lacquer pieces from the 18th and 19<sup>th</sup> centuries," and Matsen, "When science reveals craft practices: Recent findings in the py-GC/MS analysis of Chinese export lacquer."

<sup>&</sup>lt;sup>404</sup> Arlen Heginbotham, Julie Chang, Herant Khanjian, and Michael Schilling, "Some observations on the composition of Chinese lacquer," *Studies in Conservation* 61, 3 (2016): 34.

Some notes on the combinations found on the ground layers should be made: Gum benzoin is detected in combination with starch in several objects. Gum benzoin is not detected in combination with pine resin (except for the previously discussed SRM chest). Pine resin is found in combination with shellac in one object (JWWA Macao panel). No combination of pine resin and starch was found in any ground layer mixture. The lectern, dated from the seventeenth century, has a combination of drying oil and pine resin in the ground layers. The same combination was found in the SRM chest also dated from the seventeenth century (with addition of starch). As mentioned previously this object is executed with materials and technology associated with Japanese traditions, although displaying some decoration features more related with Chinese influence. Both objects, the chest and the lectern are thought to have been made in Macao.

As discussed previously for SEM-EDS results, some considerations should also be addressed for TMH-py-GC/MS results. Also in this case, the fact that some additives were not detected is not a confirmation of their absence. For the majority of the objects only one sample from each layer was analyzed. This may not be a representative sample size for the object. Furthermore, in some cases only extremely small amounts of sample could be isolated that were at the lower end of the detection limit. In these cases, some materials present in low concentrations may not be detected.

#### 4.2.3 Lacquer layers

Most of the objects contain two lacquer layers. Thirty-one pieces present a bottom and a top black-brownish lacquer layer. In nine objects, three black-brownish lacquer layers were observed. In one object, the lectern, only one black-brown lacquer

layer was observed. Different areas of the same object may show a different number of lacquer layers e.g. the front and back of a screen, the interior and exterior of a desk. Also, if a sample is collected from the edge of an object it is not infrequent to detect an extra layer as if created by what seems to be an extra brushstroke to fully cover the ground layers with the lacquer. With these variations taken into account, the number of lacquer layers in each object corresponds to what was considered the most accurate to characterize its lacquer coating. In general terms, top and bottom lacquer layers present a somewhat translucent black color under reflected light. Under UV light the bottom lacquer layer fluoresces in a lighter tone of brown than the top one(s).

Six combinations of top and bottom black lacquer layer compositions were found in the 39 objects. One of the combinations present the same lacquer species, laccol, used in the top and bottom lacquer layers. Other combination presents a mixture of thitsi and laccol in both top and bottom lacquer layers. The other four combinations make use of a different top versus bottom black lacquer layer types, these are: *urushi* applied over laccol, *urushi* applied over a *urushi* and laccol mixture, *urushi* and laccol mixture applied over laccol, and thitsi and laccol mixture applied over laccol. Fifteen of the objects present laccol in the top and bottom lacquer layers. Ten objects have *urushi* and laccol mixture applied over laccol. In eight of the pieces *urushi* was applied over laccol. In four objects, *urushi* was applied over an *urushi* and laccol mixture. Two pieces have a thitsi and laccol mixture over laccol and the remaining object has a mixture of thitsi and laccol in both bottom and top lacquer layers. From these combinations it is noticeable that *urushi* is never used alone in the bottom layer, or used as the only lacquer species in any object.

All 39 objects contain a drying oil in the lacquer layers. Drying oil was a component detected in all black lacquer layers based on mono- and dicarboxylic fatty acids. In the same way as for the ground layers, the interpretation of the azelaic acid to palmitic acid (A/P) ratio and palmitic acid to stearic acid (P/S) ratio for all lacquer layers does not provide identification of the drying oil present. As mentioned in Chapter 1, in the literature related to Cantonese lacquerware production, Rondot wrote that in Hipqua's workshop the recipe for lacquer included *camellia sesanqua* or *oleifera*, referring most probably to the oil extracted from these plants. For the lacquer used to draw the decorative motifs where gold would be applied, Rondot mentioned the addiction of oil from *vernicia montana* L., also referenced by Incarville.<sup>405</sup> The seeds of *Vernicia montana* Loureiro are a source of drying oil, used in paints and varnishes.<sup>406</sup>

Regarding the top black lacquer layer, 39 objects contain a drying oil in its constitution, 28 objects have cedar oil, camphor was detected in eight pieces, two objects have gum benzoin, and one object has pine resin. In seven objects, drying oil was the only additive mixed in with the lacquer. In 21 objects, a drying oil together with cedar oil were added to the top lacquer layer. This was the combination found in the largest number of objects.

Regarding the bottom lacquer layer, 39 objects contain a drying oil in its constitution, 36 objects have cedar oil, five have added camphor, one object has pine resin, and another has gum benzoin. In the case of these layers only one object has

<sup>&</sup>lt;sup>405</sup> Rondot, "Une promenade dans Canton. La manufacture de laque d'Hip-qua et l'atelier de tabletterie de Ta-Yu-Tong," 51-54.

<sup>&</sup>lt;sup>406</sup> http://www.efloras.org/florataxon.aspx?flora\_id=620&taxon\_id=220014131

drying oil as the only additive, and 31 objects have drying oil and cedar oil combined with no further additives. As with the top black layers, this was also the combination found in the largest number of objects in the bottom lacquer layers.

Considering the top and bottom layers, four objects — the JWWA chest, the Fredensborg cabinet (SE-F6), WM circular table (1963.0096), and the PEM Davenport desk (E80268) — have camphor in both layers. In the case of the V&A screen (W37-1912) as well as the V&A sewing table (FE.27-1981), camphor was detected only in the top lacquer layer. In the WM tea caddy (1962.0219), camphor was detected in the bottom lacquer layer only. As for pine resin, it was detected in both top and bottom lacquer layers of the same object, the lectern. Gum benzoin was also detected in both layers of the same piece, in this case the PMA sewing table (1931-42-6), and in the top lacquer layer only of the PMA circular table (1940-34-1).

Due to the relatively lower laccase concentration and activity in laccol, it requires drying conditions of high temperature (30°C) and high humidity ( $\geq$ 80%), and has a very slow drying time. Experiments performed by Japanese and Vietnamese scientists have shown that the addition of urushi to laccol (30wt.% urushi to 70wt.% laccol) improved the drying properties of the lacquer film as well as its hardness.<sup>407</sup> Other experiments, performed to replicate Chinese export lacquer formulations, also identified differences in the gloss of laccol and urushi films as well as the advantages of some additives. Unadulterated laccol produced higher gloss surfaces than unadulterated urushi. Nonetheless, laccol is viscous and difficult to apply, benefiting

<sup>&</sup>lt;sup>407</sup> Kenichiro Anzai, Rong Lu, Bach Trong Phuc, Tetsuo Miyakoshi, "Development and characterization of laccol lacquer blended with urushiol lacquer," *International Journal of Polymer Analysis and Characterization* 19, 2 (2014): 139.

from the addiction of a drying oil (perilla oil) and cedar oil for easiness of application.<sup>408</sup> Recent research demonstrates the improvement of laccol films by the addition of different drying oils. Experiments included tung oil, linseed oil, and dehydrated castor oil in different proportions, and demonstrated that all oils acted as a diluent reducing viscosity thus improving workability, and shortened the drying time of the lacquer film. Results show that addition of oils reduced the hardness, mass retention, glass transition temperature (Tg), tensile strength, abrasion resistance, and lightfastness of the films. Conversely, oil addition enhanced the bending resistance, elongation at break, and impact resistance. Gloss was greatly improved by the addition of drying oil. Laccol with added 20wt.% linseed oil resulted in the highest gloss, lowest viscosity, and shortest coating drying time.<sup>409</sup>

The addition of gum benzoin, camphor, and pine resin, although not fully understood, is thought to relate also to improvements in workability and gloss enhancement of the lacquer films.<sup>410</sup>

<sup>&</sup>lt;sup>408</sup> Marianne Webb, Michael Schilling, and Julie Chang, "The reproduction of realistic samples of Chinese export lacquer for research," *Studies in Conservation* 61, 3 (2016): 157.

<sup>&</sup>lt;sup>409</sup> Chia-Wei Chang, Hsiu-Ling Lee, and Kun-Tsung Lu, "Manufacture and characteristics of oil-modified refined lacquer for wood coatings," *Coatings* 9, 11 (2019): 1-12.

<sup>&</sup>lt;sup>410</sup> Arlen Heginbotham and Michael Schilling, "New evidence for the use of Southeast Asian raw materials in seventeenth century Japanese export lacquer," and Arlen Heginbotham, Julie Chang, Herant Khanjian, and Michael Schilling, "Some observations on the composition of Chinese lacquer," *Studies in Conservation* 61, 3 (2016).

In the case of the two PEM shawl boxes (AE85997 and E18314), the top lacquer layers are red and not black, as in the rest of the objects. In this pair of shawl boxes, vermillion was added to the lacquer mixture to obtain the red color of the top lacquer layer.

From these combined results, it is apparent that all objects from this group dated from the eighteenth century were produced with laccol-based lacquer layers. No urushi was detected in either the grounds or in the lacquer layers of pieces from this time period. There is one exception, the WM miniature cabinet (1966.0779) that has both laccol and urushi in its top lacquer layer. Although the shape of this miniature follows the shape of eighteenth-century cabinets as well as decoration, the assigned date for this piece should be taken with caution considering it may have been used as a toy. Another exception in this group are the legs of the PEM game table (AE85753) that contain a mixture thitsi and laccol in the top lacquer layer applied over a laccolcontaining layer.

Transition pieces from circa 1800s, as the two dressing tables from WM and the PEM, also have laccol in all ground and lacquer layers. Layers with urushi and layers that combine laccol and urushi were detected in nineteenth-century objects. In all the objects of this period, urushi was detected together with laccol either the first applied over the latter or mixed in the same layer. Only one example from the nineteenth century follows the laccol-only formulation detected in the previous century objects and that is the NPA musical instrument box (51171) with the coat of arms of King D. Pedro V of Portugal (reign 1853-1861). One nineteenth-century object uses a mixture of thitsi and laccol in both top and bottom lacquer layers, the

WM Philadelphia screen (1962.0224); in the PEM set of nesting tables (126018) a mixture of thitsi and laccol was used in the top lacquer layer and applied over laccol.

The analytical study of this group of 39 objects revealed the use of a material not yet reported in pieces related to Cantonese manufacture. The use of lacquer from *Gluta usitata* species was detected in the legs from the PEM Canton game table (AE85753) dated to the eighteenth century, and in two nineteenth-century objects, the WM Philadelphia Bedroom screen (1962.0224) and the PEM set of nesting tables (126018). Although the legs of the PEM game table have a complete distinct decoration — the only object with this feature so far — the WM Philadelphia screen and the PEM nesting tables have decoration features related to Cantonese manufacture. As previously discussed, Gluta usitata was also detected the SRM chest dated from the seventeenth century. Gluta usitata (Wall.) Ding Hou is a synonym of Melanorrhoea usitata Wall., and the specie is native to Assam, Laos, Myanmar, and Thailand.<sup>411</sup> This specie is identified by the thitsiol derivative, and is related with lacquerware production in Thailand and Myanmar (former Burma.) As discussed previously, analysis of Japanese *namban* objects indicate the use of urushi in their manufacture.<sup>412</sup> Gluta usitata or thitsi has also been detected in namban pieces relating its use with Japanese *namban* production. One of these objects is a unique

<sup>&</sup>lt;sup>411</sup> http://www.plantsoftheworldonline.org/taxon/urn:lsid:ipni.org:names:69645-1#distribution-map.

<sup>&</sup>lt;sup>412</sup> Ulrike Körber, "Reflections on cultural exchange and commercial relations in the sixteenth-century Asia: a Portuguese nobleman's lacquered Mughal shield," in *Portugal, Jesuits and Japan: Spiritual Beliefs and Earthly Goods*, edited by Victoria Weston (Boston: McMullen Museum of Art/Boston College, 2013), 46.

namban bed frame, made in the first half of the seventeenth century most probably for the Portuguese market. The lacquer coating of the bed was analyzed using py-GC/MS and the lacquer specie identified was *Gluta usitata*.<sup>413</sup> Nonetheless, the use of thitsi can be related with both Japan and China. The VOC archives document the trade of *Gluta usitata* — *namrack* in period records — that was being shipped by both the Dutch and the Chinese from Southeast Asia to Japan.<sup>414</sup> Furthermore, a Chinese lacquer screen dated from the second half of the seventeenth century, from the collection of the Museu do Oriente in Lisbon (accession number FO/1229) also contains *Gluta usitata* in its lacquer coating. The decoration of this screen is painted in flat and relief polychrome motifs over a brown lacquered surface; a composition similar to the one achieved with the Coromandel technique although not carved. The central scene features a scene of a boat arriving to the coast where European men disembark bringing gifts and various merchandise most probably representing a tributary embassy. This central scene is organized like the compositions found on *namban* screens. However, the decoration techniques and decorative motifs relate to China.<sup>415</sup> No lacquer layer separation was performed prior to analysis, and Py-GC/MS

<sup>&</sup>lt;sup>413</sup> For an image and more information on this bed see Alexandra Curvelo, "Nanban Art: what's past is prologue," in *Portugal, Jesuits and Japan: Spiritual Beliefs and Earthly Goods*, edited by Victoria Weston (Boston: McMullen Museum of Art/Boston College, 2013), 76.

<sup>&</sup>lt;sup>414</sup> Arlen Heginbotham and Michael Schilling, "New evidence for the use of Southeast Asian raw materials in seventeenth century Japanese export lacquer," 98-99.

<sup>&</sup>lt;sup>415</sup> For a detailed description of this screen and images please refer to Jorge Welsh Works of Art, *Art of the Expansion and Beyond*, edited by Jorge Welsh, 88-104 (London/Lisbon: Jorge Welsh Books, 2009).

of the lacquer coating detected a mixture of *Toxicodendron vernicifluum*, *Gluta usitata*, a drying oil, and cedar oil.<sup>416</sup>

# 4.2.4 Red lacquer

A sample of the red lacquer under the gilding with the minimum required size for py-GC/MS analysis could be collected only from five objects. In four of these objects, the PEM Eccleston screen (E84093), the Fredensborg cabinet (SE-F6), the WM tray (1969.5368), and the PMA circular table (1940-34-1), the red lacquer is composed of a mixture of laccol, a drying oil, and cedar oil, with the addition of camphor in the case of the PEM Eccleston screen and the Fredensborg cabinet. As discussed in Chapter 1, camphor was referenced by Rondot as an addition to the red lacquer used to draw the decorative motifs to be gilded later.<sup>417</sup> In the fifth object, the WM desk (1862.0222) a mixture of urushi, laccol, a drying oil, and cedar oil was detected. The three eighteenth-century objects in this group (screen, cabinet, and tray) contain laccol in the black lacquer layers as well as laccol on red lacquer on top. The two objects dated from the nineteenth century (desk and circular table), have the same combination of the black lacquer layers with laccol in the bottom layer followed by *urushi* on the top layer, but a different combination for the red lacquer on top. The

<sup>&</sup>lt;sup>416</sup> This object was analyzed together with other 16 objects in a project for the study and conservation of Chinese export lacquer developed at the Instituto dos Museus e da Conservação, in Lisbon, between 2009 and 2011, and presented in the 16th Triennial ICOM-CC Conference in Lisbon, 2011.

<sup>&</sup>lt;sup>417</sup> Rondot, "Une promenade dans Canton. La manufacture de laque d'Hip-qua et l'atelier de tabletterie de Ta-Yu-Tong," 51-53.

PMA circular table red lacquer has laccol and the WM desk a mixture of laccol and *urushi*.

As referenced previously, in the case of the NPA set of nesting tables (58252-5,) it was not possible to collect enough material to perform py-GC/MS analysis. FTIR was used for this analysis since it requires a much smaller sample and would help indicate if this red is Asian lacquer, or if materials associated with Western japanning were used instead. As discussed in Chapter 3, this was particularly important to understand in the case of these objects because their central scenes — with images copied from Portuguese prints dated to 1861 — constitute a unique case of Western prints used in the decoration a Chinese lacquered object. Samples of red lacquer were analyzed from three of the four nesting tables and the spectra are consistent with Asian lacquer – with stretches at 3377, 2921, 2851, 1717, and 1375cm<sup>-1</sup> – as opposed to resin stretches characteristic from European resins used for japanning.<sup>418</sup>

One sample of an area with red lacquer and gilded decoration from each object was analyzed with SEM-EDS to acquire information on the pigments used to obtain the red color and, on the metals applied to create the gilded motifs. This result indicated that the red could be categorized in two main groups: one where vermillion/cinnabar was used to obtain the red color, and the other rich in iron oxides. In the first case, elements like mercury (Hg) and sulfur (S) were detected indicating the use of mercury sulfide (HgS), also known as vermillion or cinnabar. As for the

<sup>&</sup>lt;sup>418</sup> Heginbotham, A., H. Khanjian, R. Rivenc, and M.R. Schilling, "A procedure for the efficient and simultaneous analysis of Asian and European lacquers in furniture of mixed origin," in *15th Triennial Conference, New Delhi, 22-26 September 2008: Preprints (ICOM Committee for Conservation)*, edited by Janet Bridgland (New Delhi: Allied Publishers, 2008), 608-616.

second group, elements like iron (Fe), oxygen (O) or silicon (Si) were detected, indicating iron oxides as coloring agents. Twenty-one objects have red lacquer which only vermillion was used. Twelve objects have iron oxides only in the red lacquer mixture. In three of the pieces the red lacquer was created with a mixture of vermillion and iron oxides. For the remaining three objects, it was not possible to analyze this red lacquer due to the small amount or total absence of red lacquer in the sample. This is the case for PEM set of nesting tables (E80758) and the V&A chest (FE.38.1981.) In the case of the PEM red shawl box (E18314) no red lacquer was detected between the top red lacquer layer and the gilded decoration.

The only two examples of seventeenth-century production in this study, the SRM chest and the lectern, feature a red lacquer containing vermillion. All the objects attributed to the eighteenth century, except one, have iron oxides in the constitution of the red lacquer. The exception is the PEM game table (E82447), in which vermillion was identified. This result however refers to the table top gilding only since a sample of the gilded motifs on the legs was not analyzed. In the case of the PEM Eccleston screen (E84093), the raised motifs such as rocks were created with iron oxides. In areas of flat gilded motifs, such as that continuous pattern that frames the central scene, the red contains a mixture of iron oxides and vermillion. Red lacquer containing vermillion was found mainly in objects attributed to the nineteenth century. For this time period, only two objects contained an iron oxide red lacquer: the WM screen (2004.0030.02) and the NPA musical instrument? box (51171). The WM dressing table (2004.0030.001) from circa 1800 and the nineteenth-century WM screen (1961.0821) are the only two pieces to contain a mixture of vermillion and iron oxide in the red lacquer.

In previous analyses of Chinese export lacquer pieces, it was also reported that this red was created either with vermillion/cinnabar (mercuric sulphide) or iron oxides. Furthermore, for some of the red iron oxides-based lacquer samples, micro-XRD analysis identified hematite, goethite, kaolinite, quartz and calcite.<sup>419</sup>

### 4.2.5 Gilded decorations

As previously mentioned, the same samples that provided information about the red lacquer were also used to investigate the gilded decorations applied on top. Gold was found in all the analyzed samples from the study group, except in the PEM set of nesting tables (E80758). As mentioned previously, due to the small amount of red lacquer and gilding in the samples it was not possible to obtain any results for the red lacquer and gilded alloy used for these pieces. Gold was used alone or as an alloy with other metals such as silver and copper. From visual observation of the objects as well as microscope sample observation, the gold seems to be applied in the form of a powder in the majority of the samples. In several samples, microscope observation permitted observation of individual gold particles with a round shape. The use of gold leaf was detected by visual observation in several gilded motifs of the WM screen (1961.0821). Since it was not possible to make thorough observation of all gilded areas in all objects it is likely that gilded motifs in more objects could have been created using gold leaf as well.

<sup>&</sup>lt;sup>419</sup> Maria João Petisca *et al.*, "Chinese Export Lacquerware: characterization of a group of Canton lacquer pieces from the 18th and 19<sup>th</sup> centuries," in *Preprints of the ICOM-CC 16th Triennial Conference, 19-12 September, 2011, Lisbon, Portugal,* Paper 2106 (Lisbon: Críterio, 2011), 8-9.

The presence of silver was confirmed in 25 of the objects. The fact that silver was not identified for the remaining objects is not a confirmation of its absence. The cross-section used for SEM-EDS analysis may come from an area where the amount of silver used in the alloy is below detection levels or even from a decoration area where silver was not used. A considerable number of gilded decorations make use of a yellow gold and a greenish gold to create different colored areas. The greenish tones of gold are achieved by the amount of silver added to the alloy. Copper was also detected in the metallic alloy used for the gilded decoration of seven of the objects.

Tin was identified in gilded decorations in the WM tray (1959.2891) and in the PEM Eccleston screen (E84093). Analysis combined with visual observation permitted the identification of the presence of tin as part of the original gilding and not applied as a later restoration campaign. In the PEM Eccleston screen (E84093,) tin was detected in the brownish-green gold used in the lines of the bottom frieze (Figure 38).



Figure 38 Brownish-green bottom frieze on the Eccleston screen where tin was detected.

As for the WM tray (1959.2891,) tin was also identified in an area of original gilding, specifically on rocks drawn with a reddish-brown color. SEM-EDS images verification that these rocks were built up with a first layer of vermillion, followed by a gilded layer where tin (Sn) and silver were detected. On top of this another layer of vermillion was applied followed by another metallic alloy where gold, silver, and tin were detected. Tin was also detected in the V&A chest (FE.38-1981). Tin was identified by x-ray fluorescence in the tiny flakes that constitute the *nashiji* decoration on the inside of the chest.<sup>420</sup> SEM-EDS later performed at the WM on the same sample also detected tin.

 $<sup>^{420}</sup>$  Analysis performed at the V&A by Dr. Lucia Burgio and Valentina Risdonne, June 2015.

These results are consistent with previous SEM-EDS analyses on the gildings of Chinese export lacquer objects. Alloys of gold and silver had been reported for the eleven objects analyzed in Lisbon between 2009 and 2011. In this case, gold was also identified for the yellow areas of gilding and a mixture of gold and silver for the greenish areas in the gilded motifs.<sup>421</sup>

It is interesting to compare the results of all layers in objects with related shapes and decoration. In the case of the two WM nineteenth-century shawl boxes (1964.0083D and 1964.0084D), their similar shape and decoration — supported by the fact that they were bought together as a supposed gift — indicates a probable execution in the same Cantonese workshop. Analyses show that their material composition and method of application are identical thus reinforcing that theory (Table 4).

<sup>&</sup>lt;sup>421</sup> Maria João Petisca *et al.*, "Chinese Export Lacquerware: characterization of a group of Canton lacquer pieces from the 18th and 19<sup>th</sup> centuries," in *Preprints of the ICOM-CC 16th Triennial Conference, 19-12 September, 2011, Lisbon, Portugal,* Paper 2106 (Lisbon: Críterio, 2011), 9.

Table 4Comparative analyses results from the Winterthur Museum pair of<br/>shawl boxes (1964.0083D and 1964.0084D).



With slight differences in the number of additives in the ground layers and pigments used for the red color, the same can be said for the PEM and WM museum pair of dressing tables (WM 2004.0030.001 and PEM 133000) (Table 5). The fact that they have a related history of provenance contributes to presuming an associated history of commission and acquisition in Canton.

Table 5Comparative analyses results from the Winterthur Museumdressing table (2004.0030.001) and PEM dressing table (133000).

Object	Dressing Table (2004.0030.001)	Dressing Table (133000)	
Museum	Winterthur Museum	Peabody Essex Museum	
Date	1800's	1800's	
Gilded Decoration			
Red Lacquer			
Top Lacquer Layer			
Bottom Lacquer Layer			
Ground	B,G	B,G	
Gold Iron o Silver Vermi	xide Laccol	Proteins Drying Oil Cedar Oil	Gum Benzoin Starch

The results from the study of two of the sets of nesting tables (PEM E80758 and NPA 58252-5) and the one nesting table from a fourth set (WM 1959.0575D) also revealed a similar lacquer coating applied to all objects. It is interesting to note that the combination of lacquer used in the different layers is the same — laccol in the bottom

lacquer layer and a mixture of laccol and urushi in the top lacquer layer — even between the two sets from the nineteenth century and the WM nesting table, with date of production that may extend into the twentieth century.

# Chapter 5

### CONCLUSIONS

This research combined scientific analysis, archival research, and stylistic comparison to investigate how Cantonese lacquerware objects were created and traded. The study focuses on wooden pieces coated with black lacquer decorated with gold with manufacture attributed to South China, namely the area of Guangzhou (Canton).

Black lacquered furniture decorated with gold from the Guangzhou region is produced in the *miaojin* technique; the wooden pieces would be smoothed, covered with coarse ground layers that could be reinforced with paper or fabric, and then polished. The lacquer layers were applied in the next step of the process. For the gold decorations, the artisans transferred the motif they wished to reproduce with the design outlined in pierced paper. This paper was applied to the object to be decorated and a powder applied through the holes, thus defining the drawing on the black lacquer surface. The artisans would then scratch the lines with a sharp pointed utensil, and the complete motif would be painted in red lacquer, to which the gold dust would adhere before the red lacquer completely dried. Two lacquerware manufacturers with workshops in Canton are documented: Hipqua and Fiqua. Several foreigners mention visits to these workshops during their sojourn in the city. The French Adolph Barrot is one of them; while visiting Hipqua's workshop, Barrot expressed his disappointment with vague answers regarding the recipe of the varnish the Chinese manufacturer used. Hipqua told him that the varnish was prepared with a mixture of several gums and juices of different plants. Based on the results from this study, that show the lacquer used in Canton was a mixture of lacquer tree sap, as well as oils and resins extracted from different plants among other additives, Hipqua's answer may have been more accurate than what was perceived by Barrot.

Cantonese lacquerware makers were also sellers with shops in the area surrounding the hong factories where foreigners would stay during their time in Canton. Lacquerware produced in other provinces such as Fujian, Zhejiang, and Jiangsu, was also sold in Canton. Hipqua's shop had different locations in Canton, and the lacquer manufacturer also sold his products in Hong Kong in the 1860s. His Cantonese shop seems to have relocated to Honan in 1867. Descriptions of foreigners that visited both Hipqua — as well as Fiqua's — shop and workshop, show that their locations were different but reachable walking. Foreigners could buy lacquerware in Hipqua's different shops; these objects were available and ready to sell. Nonetheless, Hipqua also took special commissions as shown by the orders from Nathaniel Kinsman. Hipqua would visit some of his clients, bringing them samples of gilded decorations so that the final product could be manufactured to the client's taste. This procedure was probably also followed by other Cantonese manufacturers.

Lacquerware sellers are also documented; in the eighteenth century Attay (Chinese name Liang Diguan, also called Bao Diguan), Sewqua, Suchin Tiauquon, Echong, and Howqua, are mentioned to sell lacquerware to various East India Companies. In the nineteenth century, lacquerware merchants such as Yinqua, Esching, Washing, and Nanchong, are documented. All these men would sell various commodities to the foreigners, one of them being lacquerware. The supercargoes buying lacquerware for third parties in Canton would take private orders describing

the quantity and shape of the articles to be purchased. In some cases, the details included measurements, gilding decoration, and inclusion of monograms or coats of arms. In an order dated 1817, the request included "three times lacquered" indicating that the buyer had the idea that more lacquer layers would create a better product. Unfortunately, drying times — probably unknown to the commissioner — were not considered and were far from appropriate thus compromising the quality of the final product.

In this research a group of study pieces was analyzed to identify materials and techniques employed in the manufacture of these works. A total of 40 objects, lacquered black with gilded decoration were selected to be representative of Cantonese manufacture. These objects belong to both North American and European collections. The group of study included: 14 pieces from the collection of the Winterthur Museum; 11 objects from to the Peabody Essex Museum; two objects held by the Philadelphia Museum of Art; four objects from the collections of the Victoria and Albert Museum; three objects from the National Palace of Ajuda; two pieces are from the collection of Jorge Welsh Works of Art; one object from a private collection in Lisbon; one piece from the collection of the São Roque Museum; and two objects from Fredensborg Palace, property of the Agency for Culture and Palaces. Other pieces of the same production were used as comparison objects and combined data was used to create a timetable for the objects and to define comparative styles.

The lacquer coating of the 40 objects was sampled and analyzed with a multitechnique approach that included cross-section optical microscopy (OM), thermally assisted hydrolysis and methylation pyrolysis-gas chromatography/mass spectrometry (THM-Py-GC/MS), and scanning electron microscopy-energy dispersive X-ray

spectroscopy (SEM-EDS). Archival research focused on reinforcing connections of the objects with the city of Canton by identifying primary sources and other documentary references with information about the original owners of the pieces in the study, about Cantonese lacquer workshops, and information about the lacquer trade from that city.

Analytical results show that regarding the ground layers the majority of the objects has two ground layers separated by a layer of fibers. In several objects, only one ground layer was detected, and others had three ground layers with fibers in between. Animal blood and animal glue were most probably the favored binders used in Cantonese workshops. Markers for egg were found in two objects. A drying oil was added to all the 40 objects' ground layers. Results indicate that neither tung oil nor a heat-bodied oil was a source used in the manufacture of these objects but the specific oil used could not be identified. Cedar oil was mixed in the ground layers of 32 objects. Eleven objects contain this resin additive in combination with a drying oil only. For 21 objects, a mixture of cedar oil, a drying oil, and other additives is found. These additives include starch, gum benzoin, pine resin, shellac, and camphor.

Analytical results for the lacquer layers show that most of the objects contain two lacquer layers. Thirty-one pieces present a bottom and a top black-brownish lacquer layer. In nine objects, three black-brownish lacquer layers were observed, and in the lectern, only one black-brown lacquer layer was observed. Observation under UV light shows that the bottom lacquer layer fluoresces in a lighter tone of brown than the top one(s). All 40 objects contain a drying oil in the lacquer layers. A mixture of drying oil and cedar oil in the lacquer layers was the combination found in the largest

number of objects. Additives such as gum benzoin, pine resin, and camphor, were also detected in the lacquer layers of several objects.

In the cases where the red lacquer used to draw the decorative motifs could be cleanly isolated and analyzed results indicate it is of a mixture of laccol, a drying oil, and cedar oil, with the addition of camphor in the case of the PEM Eccleston screen and the Fredensborg cabinet. The red color was obtained with either vermillion/cinnabar or with iron oxides. Twenty-one objects have red lacquer in which only vermillion was used. Twelve objects have only iron oxides in the red lacquer mixture. In three of the pieces the red lacquer was created with a mixture of vermillion and iron oxides.

The gilded decorations are painted with gold used alone or as an alloy with other metals such as silver and copper. In the majority of the samples the gold seems to be applied in the form of a powder. The presence of silver was confirmed in 25 of the objects and the greenish tones of gold in various decorative motifs are achieved by the amount of silver added to the alloy. Copper was detected in the metallic alloy used for the gilded decoration of seven of the objects. Tin was identified in gilded decorations of three objects.

The SRM chest piece does not follow the selection criteria followed for the study group. This piece presents characteristics similar to seventeenth-century Japanese *namban* chests but also features that relate it with Chinese production. Macao was considered by various scholars as the most probable manufacturing center for this object as well as others that display these hybrid characteristics. This was the only object studied where the lacquer coating contains thitsi exclusively. *Namban* objects have been reported to contain urushi, a urushi and thitsi combination, or thitsi

only for lacquer layers. Furthermore, a pottery container carrying thitsi was found to have been used around the sixteenth/seventeenth centuries in Kyoto. The use of thitsi is reported for a group of sixteenth-century and seventeenth-century objects with undetermined provenance that feature carved decorations associated with India and black and gilded lacquer surfaces with Chinese characteristics. The use of thitsi can be related with both Japan and China since it has been reported in both Japanese and Chinese lacquered objects. The recent finding of the use of thitsi in Cantonese manufacture, based on this research, reinforces the theory of a Chinese manufacture of the SRM chest. Nonetheless, from visual observation of the object one cannot exclude the hypothesis that some of the boards used to build the chest and table were repurposed from a *Namban* object; most probably followed by re-lacquering and regilding of the surface. The ground layers of the chest contain similar materials such as a drying oil and pine resin also found on the lectern thought to have been made in Macao.

The seventeenth-century lectern analyzed for this study was most probably made in Macao to serve the missionaries who settled there. A combination of drying oil and pine resin was found in the ground layers of the lectern; as in the SRM chest (in this case with addition of starch). The lacquer layers of the lectern contain laccol, the main species found for lacquerware attributed to Cantonese manufacture. The is also the case for the JWWA chest, where laccol was detected in the lacquer layers as well as in the ground layers. This object's decorative features — combining Chinese with European elements — is comparable only with a Chinese black and gold writing desk dated circa 1680 and most probably made in Canton. The analytical results reinforce the connection of the chest to Southern Chinese lacquerware production,

with Canton being one of the most likely manufacturing centers. Results from both the lectern and the chest seem to indicate that laccol was used in Cantonese lacquerware manufacture since as early as the seventeenth century.

Eighteenth century objects in this research included cabinets, chairs, screens, game tables, and a tray; these are among the most imported shapes during the referred century. Objects from this period often display as a central theme gilded landscape composition over the black lacquered background. In these scenes, islands with pavilions and pagodas are set in water represented by stylized waves that partially fill the black background. Usually the various elements that compose the scene are dispersed throughout the decorative composition in a way that gives the observer a sense of horizon. Rocks and architectural elements are often present in these compositions and are frequently executed in relief compared to the remaining gilded decoration. In particular rocks are often depicted with black lines painted over the gold to enhance the relief and provide depth. This effect is also achieved with shading creating a juxtaposition of the rock shape. In this case, the rock is created with flat gold decoration and the effect of relief is provided by the shading. This shading is also used to create details such as texture in roofs and grounds. Floral and foliage motifs are often created using what seems to be similar to a stamp. This would allow to repeat the same motif such as a petal and create an entire flower in a shorter period of time than with painting. These central landscapes are frequently surrounded by bands displaying cartouches — with floral motifs, animals or insects, and landscapes — on a geometrical background. The geometrical background usually displays a diamond pattern or "clock" pattern. This combination of central landscapes and cartouche frames is commonly found from this time period in the decoration of screens, chests,

chairs, and cabinets, following contemporary porcelain decoration. In some cases, bands of stylized lotus surrounded by scrolling foliage are also used as decorative friezes to frame central motifs. Motifs are often reproduced in a similar style and reproduced in pieces from various dates making it challenging to date objects based only on decoration patterns. In larger objects such as screens, the various decorative motifs display a different quality in their execution. The motifs were probably painted by different hands which is consistent with the foreigners' accounts that describe some steps of the gilded decoration made by the workshop master while other phases would be executed by craftsman or apprentice.

The materials used to make objects dated to the eighteenth century are similar. The majority of these objects uses a proteinaceous-based binder; the V&A chair (FE116-1978), the Fredensborg cabinet (SE-F6), and the two PEM game tables (E82447 and AE85753) have laccol as well as proteins as binders. Objects where laccol was detected on the ground layers date to the eighteenth century (as well as the JWWA chest dated to the end of the seventeenth century). Although these objects are examples of unique productions made most probably for an exclusive clientele, no correlation could be established between the use of laccol and commissioned pieces. A drying oil and cedar oil are also found in the ground layers of several of these objects and other additives such as pine resin, gum benzoin, camphor, shellac, and starch. These additives are used in different combinations throughout the eighteenth century in the various pieces analyzed. Comparison of these combinations did not determine any specific manufacture pattern.

All objects from this group dated from the eighteenth century were produced with laccol-based lacquer layers. All these objects present the same lacquer species,

laccol, used in the top and bottom lacquer layers. There are two exceptions: one is the WM miniature cabinet (1966.0779) that has both laccol and urushi in its top lacquer layer. The fact that this object is a miniature and not a full-size example of this shape has the assigned date for this piece to be taken with caution. The object might have been made as a toy reproducing a piece from a previous time period. The other exception in this group are the legs of the PEM game table (AE85753) that contain a mixture thitsi and laccol in the top lacquer layer applied over a laccol-containing layer. The legs were built from various lacquered panels with a unique gilded honeycomb pattern over a black lacquer background. No other piece of Cantonese manufacture was found with comparable decoration. Although decoration features could indicate a different provenance, the fact that thitsi was also found in two other objects that most likely relate to Cantonese production (as well as in the Macao chest from SRM) still connects the legs to this city's production. As for the other PEM game table example (E82477), with a unique decoration of European figures and ships, analytical results for both ground and lacquer layers are consistent with Cantonese manufacture from the eighteenth century. As in the case of the ground layers, a drying oil and cedar oil are most frequently found mixed in the lacquer layers. Camphor was the additive detected for eighteenth-century lacquer layers used both in the bottom as well as in the top lacquer layers.

This is also the case for the red lacquer used to draw the decorative motifs. In the three eighteenth-century objects where it was possible to analyze this layer, all objects contain a drying oil and cedar oil and two of them added camphor. The red color is mostly obtained with red oxides in the objects dated for this time period. Vermillion was detected in three objects; vermillion in combination with iron oxides

was detected in two of them. Regarding the gilding applied over the red lacquer, all three objects where tin was identified date to the eighteenth century.

In the nineteenth century the same shapes can be found as in previous centuries. Still, more examples of ordinary objects such as boxes and fans can be found in shipping documents. Regarding boxes, its uses also seem to have diversified and specific boxes can be found for various activities such as writing, painting, and sewing. The objects' decoration continues to display landscapes with islands, figures, and buildings, but in this century the enlarged dimension of the motifs makes them seem closer to the observer. The horizon perspective is very rarely used. The distribution of the gilded motifs also expanded to cover a larger area. In some pieces the black lacquer background is almost indiscernible. The central motifs are frequently surrounded by bands of gilded flowers, bats, butterflies, and coins, on diapered backgrounds. Outside borders diversify displaying different continuous and scrolling motifs that tend to repeat throughout the century. As in the eighteenth century the same patterns are repeated throughout different time periods making it difficult to date objects. These borders of continuous patterns are now in some cases used as part of the main decoration and not just as a frame. The motifs tend to be executed in a less detailed way than the ones displayed in objects dated from the previous century. Shading of the gilding continues to be used and is frequently applied to create patterns in grounds and architectural elements as before.

Nineteenth-century objects show the use of the same materials as the ones dated from the previous century. The major difference found is the introduction of the *Toxicodendron vernicifluum* species in the lacquer layers.

All objects dated to the nineteenth century uses a proteinaceous-based binder. A drying oil is present in all object grounds and cedar oil is also found in the ground layers of several of these objects. Additives such as gum benzoin, pine resin, shellac, and starch were detected in these layers. As in the objects from the previous century no specific manufacture pattern could be determined based on the composition of these layers.

As previously mentioned, urushi is found mainly in nineteenth century objects in combination with laccol. Lacquer layers in objects dated from this century present six different combinations of lacquer species: four combinations make use of a different top versus bottom black lacquer layer types; urushi applied over laccol, urushi applied over a urushi and laccol mixture, urushi and laccol mixture applied over laccol, and thitsi and laccol mixture applied over laccol. Another combination presents the same lacquer species, laccol, used in the top and bottom lacquer layers. And the remaining combination presents a mixture of thitsi and laccol in both top and bottom lacquer layers. From these combinations it is noticeable that *urushi* is never used alone in the bottom layer, or used as the only lacquer species in any object.

The laccol over laccol combination is used in only one nineteenth-century object, the PNA musical instrument[?] box of King D. Pedro V of Portugal. The mixture of thitsi and laccol in both top and bottom lacquer layers is used only in the WM Philadelphia Bedroom screen. The remaining combinations are used throughout the nineteenth century in more exclusive pieces as well as ubiquitous objects with no apparent correlation. Nonetheless, in objects such as the WM pair of shawl boxes, the analytical results are identical. The combined data from their decoration characteristics, similar provenance, and identical use of materials and manufacturing

techniques, indicates that the pair was most probably made in the same Cantonese workshop.

Analyses were performed on the red lacquer used in two nineteenth-century objects. In one object laccol was used for this lacquer, and in the other piece a combination of laccol and urushi was detected. In both cases, the red lacquer also contained a drying oil and cedar oil. Vermillion was the pigment used to obtain the red color in the majority of the objects from this time period. Iron oxides were detected in five objects; in two of them iron oxides were used in combination with vermillion.

The metallic alloys applied in the gildings of these objects all contained gold. Silver and copper were also detected in a similar composition to the gildings analyzed in objects dated from the eighteenth century.

The first lacquered objects to be registered in Europe were most probably of Chinese origin and several of those pieces were described as having gilded decoration. Dated to the sixteenth century, these objects were introduced in European courts through the Portuguese, who established the first contacts with China in 1513 and with Japan in 1543. Following that, several countries established their own commercial routes with China and Japan; lacquerware was one of the commodities imported. After the partial closure of Japan to international trade — the Dutch were allowed to stay and trade — access to Japanese lacquerware became increasingly difficult. This situation allowed the Chinese workshops to begin creating replacements for the Japanese products. The lacquer produced in Canton increased as a replacement for the Japanese black and gold *makie* lacquer and Cantonese workshops followed that decorative pattern. Japanese export lacquerware was most appreciated and considered in Europe to be the best quality lacquer.

By the 1700s black and gold lacquerware was already one of the Cantonese specialties. Nonetheless, lacquered pieces painted with gold, the gold-outlined or *miaojin* decoration, have been found in China since at least the Song dynasty. Lacquerware production in Canton has been reported since at least the sixteenth century and black and gilded lacquered objects, most probably manufactured in Canton or Macao, were part of the diplomatic gifts taken by the Portuguese missionaries to Nagasaki. Research presented that in the case of China and Japan, the appreciation for black and gold lacquerware was mutual. Chinese lacquer decorated with gold was already popular in Japan during the Song (960-1279) and Yuan (1279-1368) dynasties. Japanese lacquer was also collected by the Ming Chinese literati as a symbol of connoisseurship, and during the Qing Dynasty (1644-1911), Japanese black and gold *makie* was so appreciated that Emperor Yongzheng set up an imperial workshop for its manufacture.

In 1979, Sir Harry Garner, a scholar known for his extensive research on domestic Chinese lacquer, raised the hypothesis that lacquerwares made in South China would use *Toxicodendron succedaneum* and not *Toxicodendron vernicifluum* as commonly accepted. Garner focused his theory in the geographical proximity with the border of present-day Vietnam, where *Toxicodendron succedaneum* is the main lacquer species used for lacquerware production, at that point not being aware that the distribution of *Toxicodendron succedaneum* tree is far wider in southern Chinese provinces. In 1790, *Toxicodendron succedaneum* was distinguished from *Toxicodendron vernicifluum* as the tree species that produced varnish in the region of South China by the Portuguese Jesuit João de Loureiro, who lived in Cochinchina and Canton between 1742 and 1781. Loureiro documented the tree used for varnish production in Canton as *Augia Sinensis*. *Augia Sinensis* Loureiro is classified as *Toxicodendron succedaneum* var. *succedaneum* and is also designated as *Rhus succedanea* Linnaeus and *Rhus succedanea* var. *japonica* Engler. The tree is widely distributed in the province of Guangdong of which Canton city is the capital.

Nineteenth-century authors such as Natalis Rondot and Samuel Wells Williams also distinguished *Augia Sinensis* as the species used in Canton, indicating that a mixture of *Augia Sinensis* and *Toxicodendron vernicifluum (Rhus vernicifera)* saps would be used for lacquerware production of lower quality. As analysis results show, in fact, *Augia Sinensis* or *Toxicodendron succedaneum* was the main tree species used in Canton throughout the eighteenth century, and *Toxicodendron vernicifluum* seems to have been used in combination with *Toxicodendron succedaneum* primarily in the nineteenth century. The reasons for this change are not known; it may relate to increasing availability of *Toxicodendron vernicifluum*, market prices for raw lacquer, or improved material properties that the combination of the two species would provide such as hardness or faster drying time. Still, some of the objects with noted quality in both the gilded painting as well as lacquer coating conservation state, such as the PEM Eccleston screen, were made in the eighteenth century exclusively with *Toxicodendron succedaneum*.

The influence of time constraints in Cantonese lacquerware production is also addressed by different authors. As early as 1730, the French Jesuit Jean-Baptiste Du Halde, writes about the consequences of time restrictions in Cantonese lacquerware manufacture. It is interesting to note that this author is to referred by François Gersaint — who wrote one of the first essays on Japanese lacquer dedicated to collectors and *connoisseurs* — to validate his opinion that Japanese lacquer is superior in quality to the Chinese. Nonetheless, it was also Du Halde who documented that "Though the varnish'd works, made at Kan-ton, are neither so beautiful nor serviceable by a great deal, as those that come from Japan, Ton-king, and Nan-king; it is not that the workmen do not employ the same sort of varnish or gilding, because they fit them up too hastily," demonstrating awareness of the influence of hurried manufacture on the final product. This consciousness was shared by others authors such as the British Edward Charles Bowra in 1873. Lacquer coatings produced with different tree species have different physical and chemical characteristics; consequently, objects made with different lacquer species will also have different characteristics reflected on their appearance and conservation. The short production time allowed for lacquerware manufacture in Canton, so as to fulfill demands during the trading season, did not allow for a proper polymerization of the lacquer coating and thus generated unstable and quick deteriorating lacquer films. Discussions and comparisons on lacquerware and lacquer coatings should take these differences into account.

The results compiled from all the analyses performed on this group of 40 objects, associated with the research on the *Toxicodendron succedaneum* species geographic distribution, have proved that Garner was correct regarding Cantonese lacquerware manufacture. *Toxicodendron succedaneum* seems to have been used since as early as the seventeenth century. It was the main lacquer species used for lacquerware manufacture in Canton in the eighteenth century, and continued to be used throughout the nineteenth century in combination with *Toxicodendron vernicifluum*. The use of *Gluta usitata*, reported for the first time in Cantonese lacquerware, relates this production with several of the first lacquered objects that arrived in Europe in the sixteenth and the seventeenth century. These objects, with

hybrid characteristics, have not been attributed to a specific region so far but their Chinese influence was always recognized by various scholars. The recent finding of *Gluta usitata* in objects related to Cantonese production contributes to the discussion on hybrid objects' provenance.

This dissertation investigated Chinese export lacquerware specifically Cantonese objects made of wood, presenting shapes suitable for the Western market, coated with black lacquer, and decorated with gold. Nonetheless, interpretation of "export objects" should be taken carefully. Classification of pieces that present shapes not associated specifically with one country such as boxes, may require detailed investigation of their decoration to provide extra clues regarding its use. Even objects such as round tilt-top tables — a European shape — need to be interpreted with caution. The tilt-top table shape was introduced in Canton by the English merchantseafarers trading there. These tables were originally made for the export market but were adopted and became part of Cantonese interiors during the High-Qing dynasty; some of the lacquered examples today named "export" may indeed have been made to be used in China. The challenge to distinguish domestic from export also relates to the production from other areas of Guangzhou Province. The black and gold lacquered surfaces displayed in pieces of Chaozhou lacquerware — painted in the *miaojin* technique and often combined with gilded carved wood elements — when not applied in a combined piece, are at times difficult to distinguish from Cantonese production. And, as in Cantonese objects, it is also not obvious to classify them as domestic or export. Other objects classified as export because they reached Western countries from China, may in fact have been produced for domestic use and traveled to other locations for various reasons.
Shape is not a definitive clue for the classification of an object as export production. The material composition of lacquered pieces also is not as demonstrated by the analytical results from the 40 objects included in this study. The same lacquer specie is used both in domestic as well as export lacquerware and the application technique, for gold decorated lacquerware, is similar. Furthermore, the provenance of the objects, Canton or Guangzhou, is also not a definitive indication that the object was made for the export market. As previously discussed, lacquerware was produced in Canton for both foreigners shopping in the city as well as for domestic consumers. The use of the classification "export lacquerware" frequently attributed to the production of Canton reveals itself reductive considering these parameters. The designation Cantonese lacquerware or Guangzhou lacquerware for black and gold pieces produced in that city of South China seems more appropriate and accurate considering all the discussed constraints.

Preservation of Cantonese lacquerware is fundamental for further research. The studied objects embody knowledge about materials used in China as well as on how trade influenced the use of those materials in the eighteenth and nineteenth century. Furthermore, these pieces represent the social and economic relations established in the meeting of cultures between Europe countries, the United States, and China. Collections in all these countries include pieces of Cantonese lacquerware that hold in themselves fundamental information about those countries' history and about the global history of trade, as this dissertation is dedicated to show.

# REFERENCES

## Manuscripts

#### **Baker Library – Harvard Business School**

MSS 766 William Shepard Wetmore papers, 1821-1846, W 541.

## **Massachusetts Historical Society**

MHS Thomas Wren Ward family papers, 1717-1943, Box 5, Folder 1799. MHS Thomas Wren Ward family papers, 1717-1943, Box 5, Folder 1800-1802.

#### **Phillips Library - Peabody Essex Museum**

MH20 Benjamin Shreve Papers, 1793-1848, Box 1, Folder 9.
MH20 Benjamin Shreve Papers, 1793-1848, Box 3, Folder 5.
MH20 Benjamin Shreve Papers, 1793-1848, Box 4, Folders 2, 4, 7.
MH20 Benjamin Shreve Papers, 1793-1848, Box 8, Folder 6.
MH20 Benjamin Shreve Papers, 1793-1848, Box 10, Folder 4, 8.
MH20 Benjamin Shreve Papers, 1793-1848, Box 11, Folder 9.
MH178 Joseph Peabody Family Papers, 1721-936, Box 112.

## **Rhode Island Historical Society**

MSS1078 Wetmore-Sherman Family Papers, Box 1, Folder 30. MSS333 Carrington Papers, Box 150.

- Alves, Jorge Santos and Luís Filipe Barreto. *Macau: The First Century of an International Port/Macau: O Primeiro Século de um Porto Internacional.* Lisboa: Centro Científico e Cultural de Macau, 2007.
- Anzai, Kenichiro, Rong Lu, Bach Trong Phuc, Tetsuo Miyakoshi. "Development and characterization of laccol lacquer blended with urushiol lacquer." *International Journal of Polymer Analysis and Characterization* 19, 2 (2014): 130-140.
- Bae, Kyoungjin. Joints of Utility, Crafts of Knowledge: The Material Culture of the Sino-British Furniture Trade during the Long Eighteenth Century. Ph.D. dissertation. New York: Columbia University, 2016.
- Bae, Kyoung. "Around the Globe: The Material Culture of Cantonese Round Tables in High-Qing China." In *China, Europe, and the Transcultural Object: 1600-1800*, edited by Anna Grasskamp and Monica Juneja, 37-56. Cham, Switzerland: Springer, 2018.
- Baird, Christina Jane. *Liverpool and the China Trade: 1834-1880*. Ph.D. dissertation. London: School of Oriental and African Studies, 1997.
- Ball, J. Dyer. *Things Chinese or Notes connected to China*. Hong Kong: Kelly & Walsh, Limited, 1903.
- Barrot, Adolphe. "Voyage en Chine." Revue des Deux Mondes 20 (1839): 213-235.
- Bastos, Celina. "*Things from China*: trading, disclosure and ownership of Chinese furniture in Portugal. 16<sup>th</sup> to 18<sup>th</sup> century." *The exotic is never at home? The presence of China in the Portuguese faience and azulejo (17<sup>th</sup> to 18<sup>th</sup> centuries)*, edited by Alexandra Curvelo, 145-160. Lisboa: Museu Nacional do Azulejo, 2013.
- Berg, Maxine. "In Pursuit of Luxury: Global History and British Consumer Goods in the Eighteenth Century." *Past & Present* 182 (2004): 85-142.
- Björdell, Ewa and Carmen Romero. "A description of the conservation project on the 18th century Asian lacquer paneling from the Chinese Pavilion, Drottningholm Palace, Stockholm." *Investigations and Conservation of East Asian Cabinets in Imperial Residences (1700-1900), Conference 2013 Postprints*, edited by Gabriela Krist and Elfriede Iby, 195-206. Wien: Böhlau Verlag Ges.m.b.H., 2015.
- Bonanni, Filippo. *Techniques of Chinese lacquer, the classic eighteenth-century treatise on Asian varnish.* Translated by Flavia Perugini. Los Angeles: The J. Paul Getty Museum, 2009.

- Bowra, Edward C. "Chinese Manufactures suited to English markets." Reports on the Vienna Universal Exhibition of 1873: presented to both houses of Parliament by command of her Majesty IV, 701-721. London: G. E. Eyre and Spottiswoode for H. M. Stationery Office, 1874.
- Bainbridge, Tristram. "Imitating aventurine: an eighteenth-century technique of lacquer imitation." *Material Imitation and Imitation Materials in Furniture Conservation, Thirteen International Symposium on Wood and Furniture Conservation*, edited by Miko Vasques Dias, 207-211. Amsterdam: Stichting Ebenist, 2017.
- Burmester, Andreas. "Far Eastern lacquers: classification by pyrolysis mass spectrometry." *Archeometry* 25, 1 (1983): 45-58.
- Burmester, Andreas. "Technical studies in Chinese lacquer." Urushi: Proceedings of the Urushi Study Group, June 10-27, 1985, Tokyo, edited by N. S. Brommelle and Perry Smith, 163-187. Marina del Rey, CA: The Getty Conservation Institute, 1985.
- Bushell, Stephen W. L'Art Chinois. Paris: Henri Laurens, 1910.
- Campen, Jan van and Ebeltje Hartkamp-Jonxis. Asian Splendour: Company Art in the Rijksmuseum. Amsterdam: Walburg Pers, 2011.
- Carvalho, Pedro de Moura. "Macao as a Source for Works of Art of Far Eastern Origin." *Oriental Art* 46, 3 (2000): 13-21.
- Carvalho, Pedro de Moura. "As Lacas Chinesas de Exportação e o Papel Pioneiro de Portugal na sua Difusão." In *O Mundo da Laca: 2000 Anos de História*, edited by Pedro M. Carvalho, 41-53. Lisboa: Fundação Calouste Gulbenkian, 2001.
- Carvalho, Pedro de Moura. "Oriental export lacquerwares and their problematic origin," *Jahrbuch des Kunsthistorischen Museums Wien* 3 (2001): 247-261.
- Carvalho, Pedro de Moura. "The Circulation of European and Asian Works of Art in Japan, circa 1600." In *Portugal, Jesuits and Japan: Spiritual Beliefs and Earthly Goods*, edited by Victoria Weston, 37-43. Boston: McMullen Museum of Art, Boston College, 2013.
- Curvelo, Alexandra. "Nagasaki. A European artistic city in early modern Japan." In *Bulletin of Portuguese-Japanese Studies* 2, 23-35. Lisboa: CHAM, Universidade Nova de Lisboa, 2001.

- Curvelo, Alexandra. "Nanban Art: what's past is prologue." In *Portugal, Jesuits and Japan: Spiritual Beliefs and Earthly Goods*, edited by Victoria Weston, 71-78. Boston: McMullen Museum of Art/Boston College, 2013.
- Chang, Chia-Wei, Hsiu-Ling Lee, and Kun-Tsung Lu. "Manufacture and characteristics of oil-modified refined lacquer for wood coatings." *Coatings* 9, 11 (2019): 1-12.
- Chang, Julie and Michael R. Schilling. "Reconstructing lacquer technology through Chinese classical texts." *Studies in Conservation* 61, 3 (2016): 38-44. http://dx.doi.org/10.1080/00393630.2016.1227115.
- Chippendale, Thomas. *The Gentleman and cabinet-maker's director: being a large collection of the most elegant and useful designs of household [sic] furniture in the Gothic, Chinese and modern taste ... and other ornaments...* London: printed for the author, and sold at his House in St. Martin's-Lane, 1754.
- Choi Jr, Kee Il. "Canton: Center of Trade." In *Encounters: The Meeting of Asia and Europe 1500-1800*, 154-155. London: Victoria & Albert Publications, 2004.
- Clemmensen, Tove and Mogens B. Mackeprang. *Kina og Danmark 1600-1950, Kinafart og Kinamode*. Kobenhann: Nationalmuseet, 1980.
- Clemmensen, Tove. "Some furniture made in China in the English style, exported from Canton to Denmark 1735, 1737 and 1738." *Furniture History* 21 (1985): 174-180.
- Clunas, Craig. *Chinese Export Art and Design*. London: Victoria & Albert Museum, 1987.
- Comissão Nacional para as Comemorações dos Descobrimentos Portugueses. *Os Construtores do Oriente Português*, edited by Mafalda soares da Cunha. Lisboa: CNCDP, 1998.
- Cossigny, Joseph-François Charpentier de. Voyage a Canton, capitale de la province de ce nom, a la Chine; Par Gorée, le Cap de Bonne-Esperánce, et les Isles de France et de la Réunion; suivi d'observations sur le voyage à la Chine, de Lord Macartney e du Citoyen Van-Braam, et d'une esquisse des arts des Indiens et des Chinois. Paris: André, 1798.
- Crossman, Carl. *The Decorative Arts of the China Trade: Paintings, furnishings and exotic curiosities.* Suffolk, UK: Antique Collectors' Club, 1991.

- Cruz, Gaspar da. Tratado em que, se contam muito por extenso as cousas da China com suas particularidades e assim do reino de Ormuz composto por el r. Padre Frei Gaspar da Cruz da Ordem de São Domingos... Translated by Fan Weixin. Macau: Museu Marítimo/Instituto de Promoção do Comércio e do Desenvolvimento de Macau, 1996.
- D'Argence, Rene-Yvon Lefebvre. "Chinese lacquerware of the late medieval period." *Apollo CVII*, 221 (July 1980): 6-19.
- Derry, Julianne. "Investigating Shellac: Documenting the Process, Defining the Product. A study on the processing methods of Shellac and the analysis of selected physical and chemical characteristics." MA thesis, University of Oslo, 2012.
- Dias, Pedro. "O Estabelecimento dos Portugueses e os Primeiros Contactos com a China." In *História da Arte Portuguesa no Mundo, 1415-1822: O Espaço do Índico*. Lisboa, Círculo de Leitores, 1998.
- D'Incarville, Pierre Nicholas. "Mémoire sur le Vernis de la Chine." *Mémoires de mathématique et de physique, présentés à l'Académie royale des sciences, par divers savans, & lûs dans ses assemblées* Tome 3 (1760): 117-149.
- Dossie, Robert. *The handmaid to the arts- 2d ed., with considerable additions and improvements.* Vol. 2. London: Printed for J. Nourse, 1764.
- Downs, Joseph. "The Mary Wilcocks Campbell Memorial Gift." *Bulletin of the Pennsylvania Museum* 27, 144 (1931): 50-53.
- Du, Yumin. "The production and use of Chinese raw urushi and the present state of research." Urushi: Proceedings of the Urushi Study Group, June 10-27, 1985, Tokyo, edited by N. S. Brommelle and Perry Smith, 189-197. Marina del Rey, CA: The Getty Conservation Institute, 1985.
- Du Halde, Jean-Baptiste. A description of the Empire of China and Chinese-Tartary, together with kingdoms of Korea, and Tibet: containing the geography and history (natural as well as civil) of those countries. Enrich'd with general and particular maps, and adorned with a great number of cuts. From the French of P. J. B. Du Halde, Jesuit: with notes geographical, historical, and critical; and other improvements, particularly in the maps, by the translator. Vol. 2. London: Printed by T. Gardner in Bartholomew-Close, for Edward Cave, at St. John's Gate, 1738.

- Duckett, William (dir). Dictionnaire de la conversation et de la lecture, inventaire raisonné des notions génerales las plus indispensables a tous par une société de savants et de gents de lettres sous la direction de M. W. Duckett. Vol. 4. Paris: Firmin-Didot frères, 1876. http://gallica.bnf.fr/ark:/12148/bpt6k97701246.
- Duer, John K. "Chinese Sketches." *The Knickerbocker or New-York Monthly Magazine* LV (1860): 298-308.
- Dyke, Paul A. Van. *The Canton Trade: Life and Enterprise on the China Coast, 1700-*1845. Hong Kong: Hong Kong University Press, 2005.
- Dyke, Paul A Van. Merchants of Canton and Macao. Politics and Strategies in the Eighteenth-Century Trade. Hong Kong: Hong Kong University Press, 2011.
- Dyke, Paul A Van. Merchants of Canton and Macao. Success and Failure in the Eighteenth-Century Chinese Trade. Hong Kong: Hong Kong University Press, 2016.
- Dyke, Paul Van and Maria Kar-Wing Mok. *Images of the Canton Factories 1760-*1822: Reading history in art. Hong Kong: Hong Kong University Press, 2015.
- *Exposition Universelle de 1851: Travaux de la Comission Française sur l'Industrie des Nations, públies par ordre de l'Empereur*, tome VII. Paris: Imprimerie Impérial, 1855.
- Fan, Fa-Ti. "Science in a Chinese Entrepôt: British Naturalists and their Chinese Associates in Old Canton." *Osiris* 18 (2003): 60-78.
- Fang, Jingyun, Zhiheng Wang, and Zhiyao Tang. Atlas of woody plants in China: distribution and climate. 2 vols. Beijing: Higher Education Press; New York: Springer, 2011.
- Farris, Johnathan Andrew. Enclave to Urbanity: Canton, Foreigners, and Architecture from the Late Eighteenth to the Early Twentieth Century. Hong Kong: Hong Kong University Press, 2016.
- Ferrière Le Vayer, Théophile de. Un Ambassade Française en Chine. Paris: Librairie D'Amyot, Éditeur, 1854.
- Figueira, Francisca, Philip Meredith and Ana Clara Rocha. "A Sino-Japanese-Portuguese byôbu: its conservation and contextualization." ICOM Committee for Conservation 11th Triennial Meeting, Lisbon Preprints, edited by J. Bridgland, 1-9. Almada: Critério, 2011.

- Figuier, Louis (dir.). La Science illustrée: journal hebdomadaire / publié sous la direction de Louis Figuier 16, 418 (1895): 419-420.
- Fogelmarck, Stig, Bo Gyllensvärd, and Åke Setterwall. *The Chinese Pavilion at Drottningholm*. Malmö: Allhem Publishers, 1974.
- Forbes, H. A. Crosby. *Shopping in China: The Artisan Community at Canton, 1825-*1830. Baltimore: International Exhibitions Foundation, 1979.
- Frade, José C., Isabel Ribeiro, José Graça, José Rodrigues. "Estudo da laca vermelha de um par de estribos *Namban* por Py-GC/MS." *Conservar Património* 9 (2001): 57-66.
- Frade, J., M. Ribeiro, J. Graça and J. Rodrigues. "Applying pyrolysis-gas chromatography/mass spectrometry to the identification of oriental lacquers: study of two lacquered shields." *Analytical and Bioanalytical Chemistry* (2009): 2167-2174.
- Frade, José Carlos. *A laca: Identificação das origens e das técnicas*. PhD diss., Instituto Superior de Agronomia, 2011.
- Frade, José C., José Rodrigues, and António Candeias. "A New Perspective on the Lacquer of Namban Objects." Presentation, 2nd International Workshop: Physical and Chemical Analytical Techniques in Cultural Heritage, Centro de Física Atómica, Universidade de Lisboa, Lisboa, June 2012.
- Frick, Patricia. "Simplicity and Restraint: Lacquer of the Song Dynasty." *Production, Distribution and Appreciation: New aspects of East Asian lacquer ware*, edited by Patricia Frick and Annette Kieser, 85-106. Amsterdam: Brill, 2018.
- Galle, Léon. Natalis Rondot, sa vie et ses travaux. Lyon: Bernoux, Cumin & Masson, 1902.
- Garner, Harry. "Technical studies of Oriental lacquer." *Studies in Conservation* 8, 3 (1963): 84-98.
- Garner, Harry. "The export of Chinese lacquer to Japan in the Yuan and early Ming dynasties." *Archives of Asian Art* 25 (1972): 6-28.
- Garner, Harry. Chinese Lacquer. London: Faber, 1979.
- Garret, Valery M. Heaven is High, the Emperor Far Away: Merchants and Mandarins in Old Canton. Oxford: Oxford University Press, 2002.

- Goded, Cristina Ordóñez. *De lacas y charoles en España: siglos XVI-XIX*. Ph.D. dissertation. Madrid: Universidade Complutense de Madrid, 2016.
- Gomes, Paulo Varela. "Portuguese Settlements and Trading Centres." In *Encounters: The Meeting of Asia and Europe 1500-1800*, 128-133. London: Victoria & Albert Publications, 2004.
- Gray, Edward. *William Gray, of Salem, Merchant: A Biographical* Sketch. Boston/New York: The Riverside Press, 1914.
- Gray, John Henry. Walks in the City of Canton. Hong Kong: De Souza & Co., 1875.
- Grosier, Jean Baptiste. *De la Chine, ou Description Générale de cet Empire, redigée d'après les mémoires de la mission de Pé-kin.* Tome 2. Paris, Chez Pillet Imprimeur-Libraire, 1818.
- Gschwend, Annemarie Jordan. "O Fascínio de Cipango: Artes decorativas e lacas da Ásia Oriental em Portugal, Espanha e Áustria (1511-1598)." Os Construtores do Oriente Português, edited by Mafalda Soares da Cunha, 195-223. Lisboa: Comissão Nacional para as Comemorações dos Descobrimentos Portugueses, 1998.
- Hagelskamp, Christina. "Aspects of the manufacture of Chinese *kuancai* screens." In *Postprints of the Wooden Artifacts Group*, 25-35. Washington, D.C.: The American Institute for Conservation of Historic & Artistic Works, 2016.
- Hao, Xinying, Michael Schilling, Xin Wang, Herant Khanjian, Arlen Heginbotham, Jing Han, Stephanie Auffret, Xianjun Wu, Beisong Fan, Hua Tong. "Use of THM-PY-GC-MS technique to characterize complex, multilayered Chinese lacquer." *Journal of Analytical and Applied Pyrolysis* (article in press).
- Heginbotham, A., H. Khanjian, R. Rivenc, and M.R. Schilling. 2008. "A procedure for the efficient and simultaneous analysis of Asian and European lacquers in furniture of mixed origin." 15th Triennial Conference, New Delhi, 22-26 September 2008: Preprints (ICOM Committee for Conservation), edited by Janet Bridgland, 608-616. New Delhi: Allied Publishers, 2008.
- Heginbotham, Arlen and Michael Schilling. "New evidence for the use of Southeast Asian raw materials in seventeenth-century Japanese export lacquer." In *East Asian Lacquer: Material Culture, Science and Conservation*, edited by Shayne Rivers, Boris Pretzel and Rupert Faulkner, 92-106. London: Archetype Publications, 2011.

- Heginbotham, Arlen, Julie Chang, Herant Khanjian and Michael R. Schilling, "Some observations on the composition of Chinese lacquer," *Studies in Conservation* 61, S3 (2016): 28-37.
- Heng, Geraldine. "An ordinary ship and its stories of early globalism: World travel, mass production, and art in the global middle ages." *Journal of Medieval Worlds* 1, 1 (2019): 11-53.
- Hidaka, Kaori. "Maritime Trade in Asia and the Circulation of Lacquerware." In *East Asian Lacquer: Material Culture, Science and Conservation*, edited by Shayne Rivers, Boris Pretzel and Rupert Faulkner, 5-9. London: Archetype Publications, 2011.
- Hiraoka, Yuishiro, Ichiro Tamaki, and Atsushi Watanabe. "The origin of wild populations of *Toxicodendron succedaneum* on mainland Japan revealed by genetic variation in chloroplast and nuclear DNA." *Journal of Plant Research* 131, 2 (2018). https://doi.org/10.1007/s10265-017-0992-7.
- Honda, Takayuki, Lu, R., Sakai, R., Ishimura, T., Miyakoshi, T. "Characterization and comparison of Asian lacquer saps." *Progress in Organic Coatings* 61 (2008): 68-75.
- Honda, T., R. Lu, N. Kitano, Y. Kamiya, T. Miyakoshi, "Applied analysis and identification of ancient lacquer based on Pyrolysis-Gas Chromatography/Mass Spectrometry." *Journal of Applied Polymer Science* 118 (2010): 897-901.
- Horie, Velson. *Materials for conservation: organic consolidants, adhesives and coatings*. Amsterdam; Boston: Butterworth-Heinemann, 2010.
- Hornby, Joan. *Chinese Lacquerware in the National Museum of Denmark*. Copenhagen: The National Museum of Denmark, 2012.
- Hu, Desheng. A Treasury of Ming and Qing Dynasty Palace Furniture from The Palace Museum Collection. Translated by Curtis Evarts. Beijing: Forbidden City Pub. 2008.
- Huang, Hongwen. "The plants of John Bradby Blake." *Curtis's Botanical Magazine* 34, 4 (2017): 359-378.
- Hunter, William C. *The "Fan Kwae" in Canton Before Treaty Days: 1825-1844.* Taipei: Ch'eng-wen Pub. Co., 1965.

- Hurd, Duane Hamilton. *History of Essex County, Massachusetts: with biographical sketches of many of its pioneers and prominent men / compiled under the supervision of D. Hamilton Hurd Vol. 1. Philadelphia: J.W. Lewis, 1888.*
- Hutt, Julia. "Asia in Europe: Lacquer for the West." *Encounters: The Meeting of Asia and Europe 1500-1800*, edited by Anna Jackson and Amin Jaffer, 234-49. London: Victoria & Albert Publications, 2004.
- Johnson, Graham E., and Glen D. Peterson. *Historical Dictionary of Guangzhou* (*Canton*) and *Guangdong*. London: The Scarecrow Press, Inc., 1999.
- Jörg, Christiaan. "De handel van de V.O.C. in Oosters lakwerk in de 18e Eeuw." Nederlands Kunsthistorisch Jaarboek 31 (1981): 360-61.
- Jorge Welsh Works of Art. Art of the Expansion and Beyond, edited by Jorge Welsh. London/Lisbon: Jorge Welsh Books, 2009.
- Jorge Welsh Works of Art. A Time and a Place: Views and Perspectives on Chinese Export Art, edited by Jorge Welsh. London: Jorge Welsh Research and Publishing, 2016.
- Jourdain, Margaret and R. Soame Jenyns. *Chinese export art in the eighteenth century*. London: Country Life Limited, 1950.
- Kamiya, Y. and T. Miyakoshi. "Synthesis of urushiol components and analysis of urushi sap from Rhus vernicifera." *Journal of Oleo Science* 50, 11 (2001): 19-28.
- Kamiya, Y., W. Saito and T. Miyakoshi. "Synthesis and identification of laccol components from *Rhus succedanea* lacquer sap." *Journal of Oleo Science* 51, 7 (2002): 473-483.
- Kilpatrick, Jane. *Gifts from the gardens in China: the introduction of traditional Chinese garden plants to Britain 1698-1862.* London: Frances Lincoln, 2007.
- Kircher, Athanasius, S.J. *China Illustrata*. Translated by Dr. Charles D. Van Tuyl from the 1667 original Latin edition. Muskogee, Oklahoma: Indian University Press, 1987.
- Kristina Kleutghen, "Chinese Occidenterie: The diversity of "Western" Objects in Eighteenth-century China," *Eighteenth-century Studies* 47, 2 (2014): 117-135.

- Kleutghen, Kristina. "Imports and Imitations: The taste for Japanese lacquer in eighteenth-century China and France." *Journal for Early Modern Cultural Studies* 17, 2 (2017): 175-206.
- Kopplin, Monika, ed. *Lacquerware in Asia, Today and Yesterday*. Paris: UNESCO Publishing, 2002.
- Kopplin, Monika. European lacquer: selected works from the Museum für Lackkunst, Münster. Munich, Hirmer Verlag, 2010.
- Körber, U., J. Frade, M. Cavaco, I. Ribeiro, J. Graça and J.Rodrigues. "A study of 16<sup>th</sup>- and 17<sup>th</sup>-century Luso-oriental lacquerware." *Preprints of the ICOM-CC 16th Triennial Conference, 19-12 September, 2011, Lisbon, Portugal.* Lisbon: Críterio, 2011.
- Körber, Ulrike. "Reflections on cultural exchange and commercial relations in the sixteenth-century Asia: a Portuguese nobleman's lacquered Mughal shield." *Portugal, Jesuits and Japan: Spiritual Beliefs and Earthly Goods*, edited by Victoria Weston, 45-56. Boston: McMullen Museum of Art, Boston College, 2013.
- Koyama, Mayumi S. "Due Leggii della Santa Casa di Loreto." *Il Messagio della Santa Casa* 10 (2012): 384-386.
- Kumanotani, Ju. "Laccase-catalyzed polymerization of urushiol in precisely confined Japanese lacquer system." *Die Makromolekulare Chemie* 179 (1978): 47-61.
- Kumanotani, Ju. "Urushi (oriental lacquer) a natural aesthetic durable and futurepromising coating." *Progress in Organic Coatings* 26 (1995): 163-195.
- La Barbinais Le Gentil, De. Nouveau voyage autour du monde, par Le Gentil, enrichi de plusieurs plans, vûës et perspectives des principales villes et ports du Pérou, Chily, Brésil et de la Chine, avec une description de l'Empire de la Chine... Tome 2. Amsterdam: P. Mortier, 1728.
- Lavollée, Charles-Hubert. *Voyage en Chine*. Paris: Imprimerie de Pommeret et Mobeau, 1852.
- Le Hô, AS., M. Regert, O. Marescot, C. Duhamel, J. Langrois, T. Miyakoshi, C. Genty, M. Sablier. "Molecular criteria for discriminating museum Asian lacquerware from different origins by pyrolysis gas chromatography/mass spectrometry." *Analytica Chimica Acta* 710 (2012): 9-16.

- Li, T., Y. Xie, Y. Yang, C. Wang, X. Fang, J. Shi, Q. He. "Pigment identification and decoration analysis of a 5th century Chinese lacquer painting screen: a micro-Raman and FTIR study." *Journal of Raman Spectroscopy* 40 (2009): 1911-18. DOI 10.1002/jrs.2340.
- Liu, Yan. "Emblems of Power and Glory: the Han-Period Chinese Lacquer Wares Discovered in the Borderlands." In *Production, Distribution and Appreciation: New aspects of East Asian lacquer ware*, edited by Patricia Frick and Annette Kieser, 30-63. Amsterdam: Brill, 2018.
- Loureiro, João de. Flora Cochinchinensis: sistens plantas in regno cochinchina nascentes: quibus accedunt aliae observatae in sinensi imperio, africa orientali, indiae que locis variis omnes dispositae secundum systema sexuale linnaeanum. Ulyssipone: Typis et expensis Academicis, 1790.
- Low-Beer, Fritz. "Chinese Lacquer Wares." East and West 5, 4 (1955): 285-290.
- Lowe, Kate. "Foreign descriptions of the global city: Renaissance Lisbon from the outside," in *The Global City, on the streets of renaissance Lisbon*, edited by Annemarie Jordan Gschwend and K.J.P. Lowe, 37-55. London: Paul Holberton, 2015.
- Lu, R., T. Honda, M. Sung, J. Jung, and T. Miyakoshi. "Analysis of fresh sap collected from Ryukyu lacquer tree." *Analytical Sciences* 33 (2017): 1253-1257.
- Lu, Rong and Tetsuo Miyakoshi. *Lacquer Chemistry and Applications*. Amsterdam: Elsevier, 2015.
- Luckhurst, Gerald. "Monserrate: Sir James Cook and the acclimatisation of exotic plants in 1861." *The Garden as a Lab Where Cultural and Ecological systems meet in the Mediterranean Context*. Coordination by Ana Duarte Rodrigues, 91-108. Évora: CHAIA, 2014.
- Ma, X., R. Lu and T. Miyakoshi, "Application of Pyrolysis Gas Chromatography/Mass Spectrometry in lacquer research: a review." *Polymers* 6 (2014): 132-144.
- Matsen, Catherine, Maria J. Petisca, and Stéphanie Auffret. "When science reveals craft practices: recent findings in the py-GC/MS analysis of Chinese export lacquer." *ICOM-CC 18th Triennial Conference Preprints, Copenhagen, 4–8 September 2017*, edited by Jane Bridgland, Paper 2102. Paris: International Council of Museums, 2017.

- Mayers, W. F., N. B. Dennys, and C. King. *The Treaty Ports of China and Japan. A complete guide to the open ports of those countries, together with Peking, Yedo, HongKong and Macao.* London: Trubner and Co. Paternoster Row, 1867.
- Mcsharry, C., R. Faulkner, S. Rivers, M. Shaffer and T. Welton. "The chemistry of East Asian lacquer: a review of scientific literature." *Studies in Conservation* 52, 1 (2007): 29-40.
- Mendonça, Isabel M. Godinho. "O Fascínio do Oriente: Salas chinesas em palácios de Lisboa no século XIX." *Oitocentos. Intercâmbios Culturais entre Portugal e o Brasil*, edited by Arthur Valle, Camilla Dazzi and Isabel Portella, 218-232. Rio de Janeiro: Edur-UFRRJ, 2014.
- Merril, E. D. "Loureiro and his botanical work." *Proceedings of the American Philosophical Society* 72, 4 (April 1933): 229-239.
- Mills, John and Raymond White. *The Organic Chemistry of Museum Objects*. Oxford; Boston: Butterworth-Heineman, 1994.
- Miklin-Kniefacz, Silvia, Richard Miklin, Susanne Käfer, Florian Schwetz, Václav Pitthard, Sabine Stanek, Martina Griesser and Walther Parson. "First investigations of the Asian lacquer panels in the "Chinese cabinets", Schönbrunn Palace, Vienna." *Investigations and Conservation of East Asian Cabinets in Imperial Residences (1700-1900), Conference 2013 Postprints*, edited by Gabriela Krist and Elfriede Iby, 149-168. Wien: Böhlau Verlag Ges.m.b.H., 2015.
- Miklin-Kniefacz, Silvia, Václav Pitthard, Walther Parson, Cordula Berger, Sabine Stanek, Martina Griesser and Štěpánka Hrdličková Kučková. "Searching for blood in Chinese lacquerware: zhú xiě huī." *Studies in Conservation* 61, 3 (2016): 45-51.
- Missão de Macau em Lisboa. Artesão Chinês, Cliente Europeu: O Móvel Chinês de Influência Ocidental em Colecções Reais e Particulares Portuguesas. Lisboa: Ministério da Cultura, 1999.
- Mok, Maria Kar-Wing. "Trading with traders: the wonders of Cantonese shopkeepers." *Revista de Cultura* 54 (2017): 103-115.
- Montfort, Auguste François Marie. Voyage en Chine du Capitaine Montfort, avec un appendice historique sur les derniers événements, par George Bell. Paris: Victor Lecou, 1854.

- Moore, Charles J. Melissa H. Carr, Maria J. Petisca. "Inspired by Schönbrunn: 18th century Chinese lacquer panels in an American Beaux-Arts mansion." In *Investigations and Conservation of East Asian Cabinets in Imperial Residences (1700-1900), Conference 2013 Postprints*, edited by Gabriela Krist and Elfriede Iby, 223-238. Wien: Böhlau Verlag Ges.m.b.H., 2015.
- Musée D'Histoire de Nantes. *La Soie et le Canon: France et Chine 1700-1860*. Nantes: Gallimard/ Musée D'Histoire de Nantes, 2010.
- Museu de São Roque. *Oriental art in the collections of the Museum of São Roque*. Lisboa: Santa Casa da Misericórdia, 2010.
- Museu do Oriente. Namban Commissions: The Portuguese in the Modern Age Japan/Encomendas Namban: Os Portugueses no Japão da Idade Moderna. Lisboa, Fundação Oriente, 2010.
- Niimura, N., T. Miyakoshi, J. Onodera and T. Higushi. "Identification of ancient lacquer film using two-stage pyrolysis-gas chromatography/mass spectrometry." *Archaeometry* 41, 1 (1999): 137-149.
- Niimura, N., T. Miyakoshi, J. Onodera and T. Higuchi. "Characterization of Rhus vernicifera and Rhus succedanea lacquer films and their pyrolysis mechanisms studied using two-stage pyrolysis-gas chromatography/mass spectrometry." *Journal of Analytical and Applied Pyrolysis* 37 (1996): 199-209.
- Noordhout, Henry Maertens de. Porcelaines Chinoises "Compagnie des Indes" décorées d'armoiries belges. Andenne: S.A. Magermans, 1997.
- Nunes, Fillipe. Arte da pintura, symmetria e perspectiva, Arte Poetica, e da Pintura, e Symmetria, com princípios da Perspectiva, Pedro Crasbeeck, Lisboa: 1615.
- Palácio Nacional da Ajuda, *D. Luís, Duque do Porto e Rei de Portugal*, edited by Isabel Silveira Godinho. Lisboa: Instituto do Património Cultural, 1990.
- Palácio Nacional de Queluz, Musée National des Arts Asiatiques. *Do Tejo aos Mares da China: Uma Epopeia Portuguesa*. Paris: Reúnion des Musées Nationaux, 1992.
- Pandozy, Stefania Catherine Rivière, Serenella Cici, Barbara Cavallucci, Fortunatina Cuozzo, Alice Rivalta, Nadia Fiusselo, Ulderico Santamaria, Fabio Morresi, Francesca Cibin. "The Asian Lacquer Collection in the Vatican Museums: the experiences of the Ethnological Materials Conservation Laboratory." *Lo stato dell'arte 12, Milano Accademia di Belle Arti di Brera 23-25 ottobre 2014* (2014): 1-10.

- Parke-Bernet Galleries. Furniture, Porcelain, Silver and other works of art at Chateau-sur-mer Newport residence of the late Edith M. K. Wetmore & Maude A. K. Wetmore. New York: Parke-Bernet Galleries, 1969.
- Parsons, W. T., William Thomas Parsons, and E. G. Cuthbertson. *Noxious Weeds of Australia*. Collinghood: CSIRO Publishing, 2001.
- Petisca, Maria João. "A laca de Cantão: um estudo sobre biombos chineses de exportação nos séculos XVIII e XIX." MA thesis. Lisboa: Universidade Católica Portuguesa, 2009.
- Petisca, Maria João. "Canton lacquer: a study of export Chinese lacquer screens from the 18<sup>th</sup> and 19<sup>th</sup> centuries/ A laca de Cantão: um estudo sobre biombos chineses de exportação dos séculos XVIII e XIX." *Revista de Artes Decorativas da Universidade Católica Portuguesa* 4 (2010): 65-100.
- Petisca M., Frade, J., Cavaco, M., Ribeiro, I., Candeias, A., Graça, J., Rodrigues, J. "Chinese Export Lacquerware: characterization of a group of Canton lacquer pieces from the 18<sup>th</sup> and 19<sup>th</sup> centuries." *ICOM Committee for Conservation 11th Triennial Meeting, Lisbon Preprints*, edited by Jane Bridgland, Paper 2106. Almada: Critério, 2011.
- Petisca, Maria J. "Chinese export lacquerware." *Voyages, Namban and other lacquers*, 16-18. Lisboa: Museu Nacional de Arte Antiga, 2011.
- Petisca, M. J., S. Auffret, C. Matsen, C. Petersen, J. Mass and M. Anderson. "A hint of Orient in an Americana collection: investigations into Chinese export furniture at Winterthur Museum." *Studies in Conservation* 61, S3 (2016): 85-90.
- Petisca, Maria João and Catherine Matsen. "Lisbon as Seen from China: Conundrums Posed by a Set of Lacquered Nesting Tables." *Studies in Conservation* 64, 1 (2019). https://doi.org/10.1080/00393630.2018.1564592.
- Piert-Borgers, Barbara. "Untersuchungen zum Fassungsaufbau von Koromandellacken – Vorüberlegungen zu einem Projekt." In Ostasiatische und europäische Lacktechniken, 93-106. München: Bayerisches Landesamt für Denkmalpflege, 2000.
- Piert-Borgers, Barbara. "East Asian lacquerwork on French furniture." In Japanische und europäische Lackarbeiten/Japanese and European Lacquerware, 479-515. München: Arbeitshefte des Bayerischen Landesamtes für Denkmalpflege, 2000.

- Pitthard, Václav, Shuya Wei, Silvia Miklin-Kniefacz, Sabine Stanek, Martina Griesser, Manfred Schreiner. "Scientific Investigations of Antique Lacquers from a 17<sup>th</sup>-Century Japanese Ornamental Cabinet." *Archaeometry* 52, 6 (2010): 1044-1056.
- Pitthard, Václav, Sabine Stanek, Martina Griesser, Shuya Wei, Manfred Schreiner, Silvia Miklin-Kniefacz. "Stratigraphy and material analyses of the 18th century Asian lacquer panelling from the Chinese Pavillion, Drottningholm Palace, Stockholm." *Investigations and Conservation of East Asian Cabinets in Imperial Residences (1700-1900), Conference 2013 Postprints*, edited by Gabriela Krist and Elfriede Iby, 207-222. Wien: Böhlau Verlag Ges.m.b.H., 2015).
- Prendergast, Hew DV, Helena Jaeschke, and Naomi Rumball. A lacquer legacy at Kew – The Japanese collection of John J Quin. Kew: Royal Botanic Gardens, 2001.
- Prüch, Margaret. "From East to West: The journey of Han-dynasty lacquer boxes to the Crimean Peninsula." *Production, Distribution and Appreciation: New aspects of East Asian lacquer ware*, edited by Patricia Frick and Annette Kieser, 10-29. Leiden: Brill, 2018.
- Rivers, Shayne and Nick Umney. *Conservation of Furniture*. Oxford: Butterworth Heinemann, 2003.
- Rondot, Natalie. "Une promenade dans Canton. La manufacture de laque d'Hip-qua et l'atelier de tabletterie de Ta-Yu-Tong." *Journal Asiatique* 11 (January 1848): 34-65.
- Rondot, N., I. Hedde, A. Haussman, and E. Renard. *Étude pratique de commerce d'exportation de la Chine, revue et complétée par Natalis Rondot*. Paris: Imprimérie Administrative de Paul Dupont, 1849.
- Royal Academy of the Arts. *China: The Three Emperors 1662-1795*, edited by Evelyn S. Rawski and Jessica Rawson. London: Royal Academy of the Arts, 2005.
- Sargentson, Carolyn. Merchants and Luxury Markets The merchants-merciers of eighteenth-century Paris. London: Victoria & Albert Museum, 1996.
- Schellmann, Nanke. "Delamination and flaking of East Asian export lacquer coatings on wood substrates." *East Asian Lacquer: Material Culture, Science and Conservation*, edited by Shayne Rivers, Boris Pretzel, and Rupert Faulkner. 107-120. London: Archetype Publications, 2011.

- Schilling, M.R., H. Khanjian, J. Chang, A. Heginbotham and N. Schellman. "Chinese lacquer: Much more than Chinese lacquer." *Studies in Conservation* 59, S1 (2014): S131-S133.
- Séguy, Emille-Allain. Les Laques du Coromandel. Paris: Éditions Albert Lévy, 1926.
- Sharma, Yuthika and Pauline Davies. "A jaghire without a crime', The East India Company and the Indian Ocean Material World at Osterley, 1700-1800." *The East India Company at Home, 1757-1857*, edited by Margot Finn and Kate Smith, 88-107. London: UCL Press, 2018.
- Smith, Philip Chadwik Foster. *The Empress of China*. Philadelphia: Philadelphia Maritime Museum, 1984.
- Thomas, Eunice T. "Foochow lacquer" *Fukien Arts and Industries*, 81-97. Fukien: Christian Herald Industrial Mission Press, 1933.
- Tiffany, Osmond. *The Canton Chinese or the American's sojourn in the celestial empire*. Boston/Cambridge: James Munroe and Company, 1849.
- Treasures from Imperial China: The Forbidden City and the Danish Royal Court, edited by Ole Villumsen Krog. København: Sølvkammer, 2006.
- Watt, James C. Y. and Barbara Ford. *East Asian Lacquer The Florence and Herbert Irving collection*. New York: Metropolitan Museum of Art, 1991.
- Weaver, P. K. Skippers on the Pearl: Yankee ships in Chinese waters. Newport: Society for the Care and Preservation of the Old State House in Newport, Rhode Island, Inc, 1949.
- Webb, Marianne, Michael Schilling and Julie Chang. "The reproduction of realistic samples of Chinese export lacquer for research." *Studies in Conservation* 61, S3 (2016): 155-165.
- Williams, Samuel Wells. *The Middle Kingdom: a survey of the geography,* government, education, social life, arts, and history of the Chinese Empire and its inhabitants. New York: C. Scribner's Sons, 1913.
- Wu, Hung. *The Double Screen: Medium and representation in Chinese painting*. London: Reaktion Books Ltd, 1996.
- Wu, Z. Y., P. H. Raven and D. Y. Hong, eds. Oxalidaceae through Aceraceae. Vol.11 of Flora of China. Beijing: Science Press; St. Louis: Missouri Botanical Garden Press, 2008.

Yu-kuan, Lee. Oriental lacquer art. New York: Weatherhill, 1972.

- Zhao, Gang. *The Qing opening to the ocean: Chinese maritime policies 1684-1757*. Honolulu: University of Hawaii Press, 2013.
- Zhu, Jiajin. "Yongzheng lacquerware in the Palace Museum, Beijing," *Orientations*, 19, 3 (1988): 28-39.

Appendix A

**OBJECTS, SAMPLES, AND RESULTS** 



292

ID: Namban Chest Property: São Roque Museum, Lisbon. Dimensions: 122 cm (L) x 71cm (W) x 87cm (H).

Inventory N: 328. Period: 17<sup>th</sup> century.

#### SAMPLING

Samples collected: 11.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

Observations: Samples 3, 6, and 9, were used for SEM. Analysis presented here relate to the chest only. Copper was used in regilded areas applied over a red vermillion layer. Underneath this, gold was detected over a thin red lacquer layer. Only thitsi was detected in this object.

Notes: The chest is constituted by different parts that seem to have been assembled at different moments. Several authors have pointed to a Chinese origin, and not Japanese. The table is said to have been done later, in 1875, in Lisbon. It presents an inscription "G. Ferreira. Painted. Year 1875. Rua Do Cordoeiros Workshop, Lisbon". Nonetheless, the table top was also repurposed from a namban object and repainted in several parts.

# SRM Namban Chest 328 - RESULTS



Description: Grey bottom ground layer followed by a reddish top ground layer. A thin black layer between ground layers and lacquer layer. Bottom thicker black lacquer layer, followed by an thin, less translucent, black lacquer layer. Above this, a red lacquer layer with original gilding applied over it still visible. Above, red layer and gilding most probably from a restoration campaign (not considered in these analytical results).

		TH	M-py-GC/MS	SEM-EDS		
7 Gilded decoration				Gold		
6 Red lacquer				Vermillion		
4, 5 Black lacquer layers	Thitsi	Drying oil				
3 Thin black layer						
2 Reddish ground layer		Drying oil				
1 Grey ground layer		Drying oil	Pine resin			



Property: Private collection, Lisbon, Portugal. Dimensions: 29cm (W) x 29cm (H) x 21cm (D) (open). Inventory N: 1931-42-6. Period: 17th century.

#### SAMPLING

Samples collected: 2.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

Observations: Sample 1 was used for SEM. The ground is greyish. There is a thin black layer (granulated appearance) between ground and lacquer layers. In some areas this black material is mixed with the ground. Only one lacquer layer. Above the black lacquer layer there is a an extremely thin brownish layer that looks similar to lacquer, and fluorescence's in black. Granulated appearance. Not possible to isolate. In the areas with gilded decoration, this layer is pigmented with red and yellow particles.

Notes: Lectern with manufacture location attributed to Macao to serve the Augustinian mission (Maria Antónia Pinto de Matos). Displays a heart pierced by arrows and the double-headed eagle, symbols of the Augustinian order.

# Lectern - RESULTS





# \_

ID: Chest Property: Jorge Welsh Works of Art, London & Lisbon. Dimensions: 127,5cm (L) x 55,5cm (W) x 59,5cm (H).

Inventory N: --Period: late 17th century/18th century.

#### SAMPLING

Samples collected: 3.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

Observations: Samples 3 was used for SEM. Ground layers darker in color compared with other objects. Contains "chunkier" crystals preventing the scalpel from sliding easily when separating the layers (silica – SEM).

Notes: This chest has an identical example at the Museu de Alberto Sampaio (inv. no. M-54-01-12-2/2) in Guimarães, Portugal.

# JWWA Chest - RESULTS





ID: Panel with a view of Macao. Property: Jorge Welsh Works of Art, London/Lisbon. Dimensions: 78,5 cm (W) x 52 cm (L).

Inventory: --Period: 1662-1722.

#### SAMPLING

Samples collected: 3.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light; THM-py-GC/MS: SEM-EDS.

Observations: Sample 3 used for SEM-EDS. Sample 2 was separated in two: one part of it was taken to the Getty RADICAL workshop (May 2017), the other part was analyzed in SRAL/Winterthur. Only in one sample, taken from an area of joint, two ground layers were detected. In all other samples, only one ground layer was present.

Notes: A similar panel, with a view of Macao, and depicting the date "1746" is part of the collection of the National Ancient Art Museum in Lisbon.

## JWWA MACAO PANEL - RESULTS





#### ID: Chair

Property: Fredensborg Palace, Agency for Culture and Palaces, Denmark. Dimensions: 98,5cm (H) x 54cm (W). Inventory N: SE-F47-10. Period: c. 1735.

#### SAMPLING

Samples collected: 3.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

**Observations:** Samples 1 and 3 were used for SEM. One ground layer is visible. Above this, a thin translucent brown layer that seems to contain inorganic particles. This seems to be acting as a second ground before lacquer application. The bottom ground was isolated for analysis. The translucent brown layer was not possible to analyze.

Notes: The chairs have been at Fredensborg Castle since 1755. In the 1860s and 1960s the chairs were refurbished. During the 1960s campaign some of the chairs' decorations were regilded.

# Fredensborg Chair SE-F47-10 - RESULTS



Description: One ground layer visible. Above this, a thin translucent brown layer that seems to contain inorganic particles. Seems to be acting as a second ground. Two black-brown lacquer layers. The bottom lacquer layer fluoresces a lighter tone of brown than the top one. Top lacquer layer extremely degraded. Restoration materials on top. Original red lacquer with some remains of gilding above covered with other regilding campaigns (not pictured).

		y-GC/MS	SEM-EDS		
Gilded decoration				Gold (Restoration?)	Silver (Restoration?)
Red lacquer				Iron	oxide
4 Top lacquer layer	Laccol	Drying oil			
3 Bottom lacquer layer	Laccol	Drying oil			
2 Translucent ground layer					
1 Ground layer	Proteins (blood & various)	Drying oil			



#### **ID:** Cabinet

Property: Fredensborg Palace, Agency for Culture and Palaces, Denmark. Dimensions: 238cm (H) x 106cm (L) x 61cm (W).

Inventory N: SE-F6. Period: c. 1738.

#### SAMPLING

Samples collected: 2.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

**Observations:** Sample 1 was used for SEM. One ground layer is visible. Above this, a thin translucent brown layer that seems to contain inorganic particles. This seems to be acting as a second ground before lacquer application. These two layers were considered ground layers and analyzed together (not possible to isolate them without contamination).

Notes: Arrived at Fredensborg Palace in 1738.

# Fredensborg Cabinet SE-F6 - RESULTS



Description: One ground layer visible. Applied over this, a thin translucent brown layer that seems to contain inorganic particles. Seems to be acting as a second ground before lacquer application. Two black-brown lacquer layers. The bottom lacquer layer fluoresces a lighter tone of brown than the top one. Above this, a thick red lacquer layer (from a rock motif) with gilding applied on top of it.

	THM-py-GC/MS					SEM-EDS		
6 Gilded decoration						Gold		
5 Red lacquer		Laccol	Drying oil		Camphor	Iron oxide		
4 Top lacquer layer		Laccol	Drying oil		Camphor			
3 Bottom lacquer layer		Laccol	Drying oil		Camphor			
2 Second ground layer	Proteins (blood & various)	Laccol	Drying oil					
1 First ground layer	Proteins (blood & various)	Laccol	Drying oil					



#### ID: Chair

Property: Victoria & Albert Museum, London, UK. Dimensions: ?cm (W) x ?cm (D) x 100cm (H). Inventory N: FE116-1978. Period: c. 1730.

#### SAMPLING

Samples collected: 3.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

Observations: Sample 1 used for SEM. Only one ground layer is visible in all samples. The gold in sample 1 seems to be applied as a leaf (not confirmed). Fibers were detected under the ground layer in samples 2 and 3. The shellac and pine resin detected on the top lacquer layer may be contamination from a previous restoration campaign.

Notes: One of a set, which were at Warwick Castle; there are old Country Life photographs showing the chairs at Warwick – Information from the V&A Archives.

# V&A Chair FE116-1978 - RESULTS





ID: Eccleston Screen

Property: Peabody Essex Museum, Salem, MA. Dimensions: 554cm (W) x 297cm (H) x 46cm (leaf). Inventory N: E84093. Period: 18<sup>th</sup> century (circa 1730).

#### SAMPLING

Samples collected: 8.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

**Observations:** Sample 1 was used for SEM. The screen appears to have two black-brown lacquer layers in both front and back. One sample from the back showed 3 lacquer layers but it was collected from a border area. It presents a translucent brown layer (that fluorescence orange) between the ground and lacquer layers. In some areas it looks like it has pigment particles in it. Beva was detected from a previous treatment. Seed lac detected for the clear varnish coating the surface. The red in the crest is vermillion. The green in crest presents orpiment. The red in raised motifs such as rocks, is iron oxide.

Notes: Ten central panels feature mantled arms of Eccleston, most probably for John Eccleston, director of the East India Company in the period of 1721-1735. Provenance: 6th Lord de Saumarez, Shrubland Hall, Barham, Suffolk.

# PEM Eccleston screen E84093 - RESULTS



Description: Two ground layers, separated by a layer of fibers. The sample separated and the bottom ground layer is not pictured here. Two black-brown lacquer layers. The bottom lacquer layer fluoresces a lighter tone of brown than the top one. Thick red lacquer (raised rock motif). Above this, thin red lacquer with gilding applied over it.

		THM-py-G	SEM-EDS			
5 Gilded decoration				Gold	Tin	
Thin red lacquer				Iron oxide	Vermillion	
4 Red lacquer	Laccol	Drying oil	Camphor	Iron oxide		
3 Top lacquer layer	Laccol	Drying oil				
2 Bottom lacquer layer	Laccol	Drying oil				
1 Ground layers	Proteins (blood, glue, egg & various)	Drying oil	Starch			


#### ŝŪŝ

Property: Victoria & Albert Museum, London, UK. Dimensions: 366cm (W) x 218cm (H).

Inventory N: W37-1912. Period: 1730-1770.

#### SAMPLING

Samples collected: 5.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

**Observations:** Samples 1 and 3 were used for SEM. Although some samples only present one ground layer, others indicate that the object has two ground layers over the substrate. Presents a translucent brown-orange layers between ground layers and lacquer layers. In areas with decoration, original gold is barely visible underneath regilding campaigns. V&A analysis: XRF and Raman show the presence of two different types of lead chromate for the yellow mordents; XRF detected brass, as zinc and copper, for the golden fillings. SEM analysis done at Winterthur confirmed these findings having also detected plumb. These layers were assumed as restoration campaigns. This is consistent with archival information.

Notes: Donation from Captain S. Mavrojani. "Immediately prior to the screen's donation to the V&A, it had been restored by H. J. Samuel, 484 Oxford Street, London. Following his examination of the screen at Samuel's premises, H. Clifford Smith of the V&A's Department of Furniture observed in a minute of 26 July 1912 that 'It appears to have been judiciously repaired by Mr. Samuel." – V&A Archives.

#### V&A screen W37-1912 - RESULTS

#### Stratigraphy RLDF UV405 Sample 3 Description: Two ground layers with a layer of fibers between them. Bottom ground layer is not pictured here. Translucent brown-orange layer between ground layers and lacquer layers. Three black-brown lacquer layers. The middle lacquer layer could not be safely isolated and was not considered for analysis. The bottom lacquer layer fluoresces a lighter tone of brown than the top one. Above this, red lacquer with gilding applied on top. The yellow layer and gilt applied over this are from a restoration campaign and were not considered. THM-py-GC/MS SEM-EDS 6 Gilded decoration Gold Iron oxide 5 Red lacquer (hematite) 4 Top lacquer layer Drying oil Laccol 3 Bottom lacquer layer Drying oil Laccol 2 Brown-orange layer Gum Proteins (blood, 1 Ground layer Drying oil Starch

benzoin

glue & various



#### ID: Game table

Property: Peabody Essex Museum, Salem, MA. Dimensions: 71cm (W) x 81cm (D) x 39cm (H) Inventory N: AE85753. Period: first half 18<sup>th</sup> century.

#### SAMPLING

Samples collected: 8.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

**Observations:** Sample 2 (top) and sample 6 (legs) were used for SEM. The legs are not original to the top but are coated with Asian lacquer as well. The top has 2 lacquer layers (except underneath where it has 3) but apparently only one ground layer. The legs present 2 lacquer layers, and 2 ground layers. In both top and legs, a translucent layer (that fluoresce orange) between the ground and lacquer is visible. In the case of the legs this layer is also visible between ground layers. The legs ground layers are darker than the top ground layers and contain laccol. Thitsi was detected in the legs only.

Notes: Museum purchase, 2000.

#### PEM Game Table E82477 - RESULTS

#### Stratigraphy Sample 3 - TOP



Description: Sample taken from the table top. One ground layer. Translucent layer, that fluoresces in orange, between the ground layer and the lacquer layers. Two black-brown lacquer layers. The bottom lacquer layer fluoresces a lighter tone of brown than the top ones. These layers were not possible to isolate and were analyzed together. In areas with decoration (not pictured here), there is red lacquer applied over the layers of black lacquer, followed by gilding.



#### PEM Game Table E82477 - RESULTS



Description: Sample taken from the table legs. Two ground layers. Translucent layer, that fluoresces in orange, between the ground layer and the lacquer layers, and between ground layers. Two black-brown lacquer layers. The bottom lacquer layer fluoresces a lighter tone of brown than the top one. Above this, red lacquer with gilding applied over it.

	THM-py-GC/MS			SEM-EDS		
8 Gilded decoration				Gold	Silver	
7 Red lacquer				Iron o	xide	
6 Top lacquer layer	Laccol	Drying oil	Cedaroll			
5 Bottom lacquer layer	Thitsi + Laccol	Drying oil	Eederol			
3, 4 Translucent layers						
1,2 Ground layers	Laccol	Drying oil	Cedaroll			



ID: Game table Property: Peabody Essex Museum, Salem, MA. Dimensions: 76cm (W) x 76cm (D) x 37,5cm (H)

Inventory N: E82477. Period: 18th century.

#### SAMPLING

Samples collected: 3.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

Observations: Sample 2 was used for SEM. The tops have 3 lacquer layers. The legs with Asian lacquer have two lacquer layers. There is regilding (leaf?) on the top that is decorated with foliage. This gold is applied on a white ground (Pb detected by SEM-EDS) on top of the original gold powder. The ground layers in the tops have laccol in their constitution. The legs ground layers do not. Shellac and pine resin were detected in the legs lacquer layers.

Notes: Gift of Michael Gillingham Sparks and J. Sparks, 1998.

#### PEM Game Table E82477 - RESULTS





#### ID: Low Cabinet

Property: Victoria & Albert Museum, London, UK. Dimensions: 120cm (W) x 107cm (H) x 58cm (D).

Inventory N: FE.38-1981. Period: 1730-1770.

#### SAMPLING

Samples collected: 3.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

**Observations:** Samples 2 and 3 were used for SEM. Only one ground layer is visible in all samples. Fibers were detected under the ground layer in sample 2. Sample 2 (from one of the interior shelfs with najishi/aventurine decoration) has tin (leaf?) between the lacquer layers (discussion and image in Chapter 4). XRF, performed at the V&A, confirmed the presence of tin. This sample also presents a thin black layer between ground layers and lacquer layers. On the remaining samples this layer is translucent brown-orange (as seen in other objects in this study). The shellac and pine resin detected on the top lacquer layer may be contamination from a previous restoration campaign.

Notes: Purchased from C. T. Loo & Cie., Paris.

#### V&A Cabinet FE.38-1981 - RESULTS



Description: One ground layer. Three black-brown lacquer layers. The middle one could not be isolated and is not represented in these results. The bottom lacquer layer fluoresces a lighter tone of brown than the top ones. Above this, clear lacquer [?] with gilding applied on top.





#### SAMPLING

Samples collected: 3.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light; THM-py-GC/MS: SEM-EDS.

Observations: The tray presents 3 black-brown lacquer layers. The top one is extremely thin and could not be isolated thus not considered for analysis purposes. Sample 3 used for SEM-EDS.

Notes: The tray has a border with the "western flower" design.

#### WM Tray 1969.5368 - RESULTS



Description: Two ground layers, separated by a layer of fibers. The sample separated when collected and the bottom ground layer is not pictured here. Three black-brown lacquer layers. Only the two lacquer layers applied following the ground are considered in these results since the one underneath the red was to thin to isolate. The bottom lacquer layer fluoresces a lighter tone of brown than the top ones. Above this, red lacquer followed by gilding applied over it. Varnish/resin and re-gilding on top most probably from a restoration campaign.

	Т	HM-py-GC/M		SEM-EDS			
5 Gilded decoration				Gold	Silver	Tin	
4 Red lacquer	Laccol	Drying oil			Iron oxide		
3 Top lacquer layer	Laccol	Drying oil					
2 Bottom lacquer layer	Laccol	Drying oil					
1 Ground layer	Proteins (blood & glue )	Drying oil					



ID: Miniature cabinet Property: Winterthur Museum, Winterthur, DE. Dimensions: 34,5cm (W) x 75,7cm (H) x 23,5cm (D).

Inventory N: 1966.0779. Period: 18<sup>th</sup> century (?).

SAMPLING

Samples collected: 2.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

Observations: The wood was identified as Chinese Swamp Cypress (Glyptostrobus pensilis/Taxodiaceae) by Alden Identification Services, in April 2015. Sample 2 was used for SEM.

Notes: Bequest of Henry Francis du Pont.

#### WM Miniature cabinet 1966.0779 - RESULTS



320

Description: Two ground layers, separated by a layer of fibers. The bottom ground layer presents a much darker color compared with the top ground layer. There is a thin, dark-brown layer between the ground and the lacquer layers. Two black-brown lacquer layers. The bottom lacquer layer fluoresces a lighter tone of brown than the top one. Above this, red lacquer with gilding applied on top.





321

ID: Dressing table Property: Winterthur Museum, Winterthur, DE. Dimensions: 99cm (W) x 82cm (H) x 56cm (D).

Inventory N: 2004.0030.001. Period: 1800's.

#### SAMPLING

Samples collected: 5.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, FTIR, THM-py-GC/MS, SEM-EDS.

Observations: Sample 5 was used for SEM. Wood identified as Glyptostrobus pensilis or Chinese Swamp Cypress, by Alden Identification Services in May 28, 2014.

Notes: Gift of Violet S. Thoron. The table descended through the family of Mrs. Violet Thoron, and was (family oral tradition) previously owned by merchant William Ward of Salem, MA.

#### WM Dressing table 2004.0030.001 - RESULTS





ID: Dressing table Property: Peabody Essex Museum, Salem, MA. Dimensions: 97,8cm (W) x 58,4cm (D) x 89cm (H)

Inventory N: 133000. Period: 1800's.

#### SAMPLING

Samples collected: 8.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

Observations: Samples 1 and 4 were used for SEM. The top has 3 lacquer layers. The top, sides, and feet have been stripped to the wood and japanned. Original lacquer under the handles. Some regilding on the drawers.

Notes: Donated by Miss Hope Gray in 1973. Brought back from China for the donor's great great grandfather William (Billy) Gray of Salem (1750-1825), on one of his ships probably before 1809 (Gray moved to Boston in 1809). Oral tradition.

#### PEM Dressing table 133000 - RESULTS



324



## 325

ID: Nesting tables (3)
Property: Peabody Essex Museum, Salem, MA.
Dimensions: 50,2cm (W) x 30,6cm (D) x 70,7cm (H) (largest).
Period: 19<sup>th</sup> century.

SAMPLING

Samples collected: 3.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

Observations: Sample 1 was used for SEM. The top has 3 lacquer layers. Sides have two lacquer layers. Inpainting detected in some areas of the tops gilded decoration. The SEM results were inconclusive because no original gilding was detected in the samples collected.

Notes: Donor – The China Trade Museum. Each one of the tops as a different view: Canton (largest), Macao, and Bocca Tigris (smallest). Should have been originally 4 (maybe a view of Whampoa?). The Macao table sides were adapted to fit under the Bocca Tigris table.

### PEM Nesting tables (3) E80758 - RESULTS

# Stratigraphy Sample 2 RLDF UV405

326

Description: Two ground layers separated by a layer of fibers. Two black-brown lacquer layers. The bottom lacquer layer fluoresces a lighter tone of brown than the top one. In areas with decoration (not pictured here), there is red lacquer applied over the layers of black lacquer, followed by gilding.

	THM-py-GC/MS				SEM-EDS		
Gilded decoration							
Red lacquer							
4 Top lacquer layer	Urushi + Laccol	Drying oil					
3 Bottom lacquer layer	Laccol	Drying oil					
1,2 Ground layers	Proteins (blood & various)	Drying oil		Shellac			





ID: Nesting tables (4) Property: Peabody Essex Museum, Salem, MA. Dimensions: 52cm (W) x 36cm (D) x 76cm (H).

Inventory N: 126018. Period: 19<sup>th</sup> century.

#### SAMPLING

Samples collected: 3.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS. Observations: Samples 3 was used for SEM. This is one of the four objects where thitsi was detected.

Notes: Essex Institute. On the side decoration, buildings that resemble Canton's landmarks of are represented: Five-storey Pagoda, Whampoa Pagoda (?), Flowery Pagoda, and Smooth Pagoda.

### PEM Nesting tables (4) 126018 - RESULTS



		THM-py-GC/MS			SEN	SEM-EDS		
6 Gilded decoration					Gold	Copper		
5 Red lacquer					Ven	Vermillion		
4 Top lacquer layer	Thitsi + Laccol	Drying oil				<sup>0</sup>		
3 Bottom lacquer layer	Laccol	Drying oil						
1,2 Ground layers	Proteins (blood)	Drying oil		Shellac				



ID: Sewing table Property: Philadelphia Museum of Art, Philadelphia, PA. Dimensions: 62cm (W) x 44cm (D) x 74,5cm (H).

Inventory N: 1931-42-6. Period: first half of the 19<sup>th</sup> century.

#### SAMPLING

Samples collected: 2.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS. Observations: Samples were collected at the PMA. Sample 1 was used for SEM.

Notes: The Mary Wilcocks Campbell Memorial Gift, bequest of Elizabeth Campbell Madeira, 1931. Obtained in China by Benjamin Chew Wilcocks (1776-1845), and given to the PMA by his granddaughter Betty Campbell Madeira. Benjamin Wilcocks started in the China trade as a supercargo and lived in Canton from 1812 to 1827.

#### PMA Sewing table 1931-42-6 - RESULTS



330



331

ID: Sewing table Property: Peabody Essex Museum, Salem, MA. Dimensions: 61,1cm (W) x 41,8cm (D) x 73,5cm (H).

Inventory N: E82997. Period: c. 1835.

#### SAMPLING

Samples collected: 5.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

Observations: Samples 1, 3, and 5 were used for SEM. Only one ground layer was detected in all samples. The piece has 3 lacquer layers on the outside. On the inside, 4 lacquer layers were detected. The top lacquer is more brown than usual and in some areas (mainly interior) is opaque brown. From cross-section observation and SEM results, it seems that vermillion was added to the top lacquer layer to make it that color.

Notes: Gift of Mr. and Mrs. Francis B. Lothrop. The inside of the lid is decorated with a view of Praia Grande, in Macao. The exterior of the lid depicts a monogram "W" for William Shepard Wetmore (1801-1862) of New York and Newport, RI. The table was part of a suit of lacquered furniture that originally furnished a room at Chateau-sur-Mer, in Newport.

#### PEM Sewing table E82997 - RESULTS



332

Description: One ground layer applied over a layer of fibers. Three black-brown lacquer layers. The bottom lacquer layer fluoresces a lighter tone of brown than the top ones. The middle one could not be isolated thus is not considered in these results. Above this, one a red lacquer layer with gilded decoration on top.

		THM-py-GC/MS			SEM-EDS		
5 Gilded decoration					Gold	Silver	
4 Red lacquer					Vern	nillion	
3 Top lacquer layer		Drying oil					
2 Bottom lacquer layer	Laccol	Drying oil					
1 Ground layer	Proteins (blood markers)	Drying oil					



ID: Sewing table Property: Winterthur Museum, Winterthur, DE. Dimensions: 62cm (W) x 48,3cm (D) x 63,5cm (H).

Inventory N: 1962.0223. Period: 19<sup>th</sup> century (1820-1840).

#### SAMPLING

Samples collected: 4.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS. Observations: The sample used as illustration was collected for the technical study of student Jessica Chasen. Sample 3 was used for SEM.

Notes: Gift of Mrs. G. Brooks Thayer.

#### WM Sewing table 1962.0223 - RESULTS



334



ID: Sewing table Property: Victoria & Albert Museum, London, UK. Dimensions: ?cm (W) x ?cm (D) x 73cm (H).

Inventory N: FE.27-1981. Period: 1830-1850.

#### SAMPLING

Samples collected: 4.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS. Observations: Sample 2 used for SEM. XRF analysis of the gilded areas, performed at the V&A, confirmed the presence of gold and mercury.

Notes: Donated by Miss E. P. Cross. A similar example was sold at Sotheby's on 19 December 1980 - Information from the V&A Archives.

#### V&A Sewing table FE.27-1981 - RESULTS





337

ID: Circular table

Property: Philadelphia Museum of Art, Philadelphia, PA. Dimensions: 91,5cm (Diameter) x 80,5cm (H). Inventory N: 1940-34-1. Period: c. 1839.

#### SAMPLING

Samples collected: 2.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS. Observations: Samples were collected at the PMA. No cross-sections mounted at SRAL. Sample 1 used for SEM.

Notes: Gift of Mrs. Joseph H. Burroughs (daughter of John A. Lewis), 1940. Made for Philadelphian John Alfred Lewis (1821-1904) while he was in China in 1839, and imported by his brother F. Mortimer Lewis. Lewi's father was in the China Trade and after his death, John and his brother George Albert Lewis took over the business (located at the southeast corner of Walnut and Front streets in Philadelphia) which they closed in 1856.

#### PMA Circular table 1940-34-1 - RESULTS



338



ID: Circular table	
Property: Peabody Essex Museum , Salem,	MA.
Dimensions: 91,4cm (Diameter) x 78,7cm (H	H).

Inventory N: E40994. Period: 19<sup>th</sup> century.

SAMPLING

Samples collected: 4.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS. Observations: Sample 3 was used for SEM.

Notes: Gift of Miss Jane E. Donlan, 1965.

#### PEM Circular table E40994 - RESULTS





ID: Tilt-top circular table Property: Winterthur Museum, Winterthur, DE. Dimensions: 91,4cm (Diameter) x 78cm (H).

Inventory N: 1963.0096. Period: 19<sup>th</sup> century.

SAMPLING

Samples collected: 5.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS. Observations: Sample 2 and 3 were used for SEM. Wood from the rear mortise of the table was identified as camphorwood (*Cinnamomum camphora*) by Alden Identification services in August 17, 2014.

Notes: Gift of Mrs. G. Brooks Thayer, 15 East 91 Street, New York City.

#### WM Tilt-top circular table 1963.0096 - RESULTS





ID: Philadelphia Bedroom Screen Property: Winterthur Museum, Winterthur, DE. Dimensions: 339cm (W) x 202cm (H) x 2,5cm (D).

Inventory N: 1962.0224. Period: 19th century (1820-1840).

SAMPLING

Samples collected: 5.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS. Observations: Sample 1 was used for SEM. This is one of the four objects where thitsi was detected.

Notes: Gift of Mrs. G. Brooks Thayer, 15 East 91 Street, New York city.
## WM Philadelphia Bedroom screen 1962.0224 - RESULTS





ID: Chinese Parlour screen Property: Winterthur Museum, Winterthur, DE. Dimensions: 437cm (W) x 211cm (H) x 2,5cm (D).

Inventory N: 1961.0821AB. Period: 19<sup>th</sup> century.

SAMPLING

Samples collected: 15.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, FTIR, THM-py-GC/MS, SEM-EDS. Observations: Sample 1 was used for SEM.

Notes: Bequest of Henry Francis du Pont. Tradition (oral) of having been imported for Elias Hasket Derby (1739-1799), Salem merchant.

## WM Chinese Parlour screen 1961.0821AB - RESULTS





ID: China Trade screen Property: Winterthur Museum, Winterthur, DE. Dimensions: 328cm (W) x 212cm (H) x 2,5cm (D).

Inventory N: 2004.0030.002. Period: 19th century.

#### SAMPLING

Samples collected: 5.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, FTIR, THM-py-GC/MS, SEM-EDS.

**Observations:** The screen has 3 lacquer layers in the front and 2 lacquer layers in the back. The middle lacquer layer (front) could not be isolated thus it was not used for analytical purposes. Sample 1,2,3, and 4 were used for SEM. Wood identified as *Glyptostrobus pensilis* or Chinese Swamp Cypress, by Alden Identification Services in August 17, 2014.

Notes: Gift of Violet S. Thoron. The screen descended through the family of Mrs. Violet Thoron, and was (family oral tradition) previously owned by Thomas Wren Ward (1786-1858), son of merchant William Ward of Salem, MA. Thomas Ward married William Gray's daughter, Lydia, in 1810.

## WM China Trade screen 2004.0030.002 - RESULTS





### ID: Desk

Property: Winterthur Museum, Winterthur, DE. Dimensions: 68,5cm (W) x 141,5cm (H) x 60cm (D). Inventory N: 1962.0222. Period: 19th century (1820-1840).

### SAMPLING

Samples collected: 3.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS. Observations: Sample 1 was used for SEM.

Notes: Gift of Mrs. G. Brooks Thayer, 15 East 91 Street, New York City.

### WM Desk 1962.0222 - RESULTS





ID: Davenport desk Property: Peabody Essex Museum , Salem, MA. Dimensions: 91 cm (H) x 74 cm (W) x 61 cm (D).

Inventory N: E80268. Period: 19<sup>th</sup> century, circa 1855.

SAMPLING

Samples collected: 4.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS. Observations: Sample 1 was used for SEM.

Notes: Museum purchase, date unknown.

## PEM Davenport desk E80268 - RESULTS





# 353

#### ID: Shawl box

Property: Winterthur Museum, Winterthur, DE. Dimensions: 51,44cm (W) x 50,17cm (L) x 6,35cm (H).

Inventory N: 1964.0083D. Period: 19th century (1820-1840?).

## SAMPLING

Samples collected: 5.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS. Observations: Sample 2 was used for SEM. Wood identified as Glyptostrobus pensilis or Chinese Swamp Cypress, by Alden Identification Services

in August 17, 2014.

Notes: Gift. William Hemphill, a Wilmington-area merchant active in the China trade, procured this shawl and its match, 1964.0084, for his daughter, Mary Hemphill, and it descended through the family. Oral tradition/Family history.

The decoration is identical between this shawl box and 1964.0084D, although after tracing the design the measurements are slightly different between the motifs.

## WM Shawl Box 1964.0083D - RESULTS





# 355

#### ID: Shawl box

Property: Winterthur Museum, Winterthur, DE. Dimensions: 51,44cm (W) x 50,17cm (L) x 6,35cm (H). Inventory N: 1964.0084D. Period: 19th century (1820-1840?).

#### SAMPLING

Samples collected: 5.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

Observations: Sample 3 was used for SEM. Wood identified as Glyptostrobus pensilis or Chinese Swamp Cypress, by Alden Identification Services in August 17, 2014.

Notes: Gift. William Hemphill, a Wilmington-area merchant active in the China trade, procured this shawl and its match, 1964.0083, for his daughter, Mary Hemphill, and it descended through the family (Oral tradition/Family history).

The decoration is identical between this shawl box and 1964.0083, although after tracing the design the measurements are slightly different between the motifs.

## WM Shawl Box 1964.0084D - RESULTS



356

Description: Two ground layers, separated by a layer of fibers. Two black-brown lacquer layers. The bottom lacquer layer fluoresces a lighter tone of brown than the top one. In areas with decoration (not pictured here), there is red lacquer applied over the layers of black lacquer, followed by gilding.

		THM-py-	SEM-EDS				
Gilded decoration					Gold	Silver	Copper
Red lacquer						Vermillion	
4 Top lacquer layer		Drying oil					
3 Bottom lacquer layer	Urushi + Laccol	Drying oil					
1, 2 Ground layers	Proteins (blood & glue)	Drying oil	Starch				



#### ID: Shawl box

Property: Peabody Essex Museum, Salem, MA. Dimensions: 43cm (W) x 43cm (L) x 6cm (H). Inventory N: AE85997. Period: 19<sup>th</sup> century.

#### SAMPLING

Samples collected: 3.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

Observations: Sample 3 was used for SEM. The piece has two lacquer layers; they are both black-brown where the object is black, and where the object is red the first is black-brown and the second is red. Above these, the gilding is applied over a thin red lacquer layer.

Notes: Purchased at Northeast Auctions sale, March 2, 2002. Name of the dealer in English and Chinese in gilt on lid "Shiu Ying Long/Canton/China". According to Daisy Wang, PEM, the second line of Chinese characters says that it is an embroidery in Shanghai style. The side papel label describes the shawl, "embroidered with fringes..."

## PEM Shawl box AE85997 - RESULTS





## ID: Shawl box

Property: Peabody Essex Museum, Salem, MA. Dimensions: 55cm (W) x 55,4cm (D) x 6,5cm (H). Inventory N: E18314. Period: 19<sup>th</sup> century.

#### SAMPLING

Samples collected: 2.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

Observations: Samples 1 was used for SEM. The object has two lacquer layers; where the piece is red, the bottom layer is black-brown and the top layer is red. Where the piece is black, both lacquer layers are black-brown. The top red lacquer layer on the exterior was toned using vermillion (SEM).

Notes: Gift of Miss Mary E. & Frank Hutchinson in April 27, 1921. Has inside the original wrappings, one bearing the stamped mark: "Woshing Hong Kong & Canton."

## PEM Shawl box E18314 - RESULTS





ID: Musical instrument (?) box Property: National Palace of Ajuda, DGPC, Lisbon. Dimensions: 115cm (W) x 28.5cm (D) x 11cm (H)

Inventory N: 51171. Period: c. 1850-60.

#### SAMPLING

Samples collected: 3.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

Observations: Sample 3 was used for SEM-EDS. Only one ground layer. There are two black-brown lacquer layers but the top one is so thin that it is barely detectable even under microscope. Could not be isolated. The red lacquer underneath the gold is not visible in the stratigraphy image but was confirmed by OM.

Notes: Two paper labels glued to the red paper that covers the interior compartments where the instrument would be placed: "Volong Canton". One paper label glued to the inside of the lid "Francisco Antonio Volong, Tienda nº 44, Calle de la Aduana, Macao". Several objects were detected fan boxes mainly with an identical "Volong-Canton" label. Francisco Antonio Volong was a Chinese naturalized Portuguese.

## PNA Musical instrument (?) box - RESULTS



Proteins (blood &

various)

Drying oil

1 Ground layers



#### ID: Nesting tables (4)

Property: National Palace of Ajuda, DGPC, Lisbon. Dimensions: From largest to smallest: 70cm (H) x 50cm (W) x 32cm (D), 68cm (H) x 43cm (W) x 28,5cm (D), 66cm (H) x 38cm (W) x 27cm (D), 64cm (H) x 32cm (W) x 25cm (D).

Inventory N: 58252-5. Period: c. 1861.

#### SAMPLING

Samples collected: 9.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS, and FTIR. Observations: Samples 2, 3, 4, 7, 8, and were used for SEM-EDS. Red lacquer below gold analyzed by FTIR and identified as Asian lacquer.

Notes: The table tops depict views of Lisbon during the celebrations of King Luís's and Queen Maria Pia's wedding (1862), each one presenting a different scene. Prints published in 1862 in the Portuguese illustrated magazine Archivo Pittoresco (Archivo Pittoresco 1862, 32, 33, 34, and 40) are the source for the views depicted on the tables.

## PNA Nesting tables (4) 58252-5 - RESULTS





365

**ID:** Numismatic box Property: National Palace of Ajuda, DGPC, Lisbon. Dimensions: 44cm (W) x 32,5cm (D) x 8cm (H).

Inventory N: 44543. Period: c. 1877.

#### SAMPLING

Samples collected: 4.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

Observations: Sample 1 was used for SEM-EDS. Only one ground layer was detected in all samples. Three black-brown lacquer layers. The middle one could not be safely isolated thus bottom and middle lacquer layers were considered together for analytical purposes.

Notes: The box holds a numismatic catalog offered to King D. Luís I by a Japanese Embassy in 1877 (?). The catalogue has drawings and explanations about all the coins issued in Japan between 480 and 1875.

## PNA Numismatic box 44543 - RESULTS





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ID: Tray Property: Winterthur Museum, Winterthur, DE. Dimensions: 82,60cm (L) x 52,70cm (W) x 3,80cm (H).

Inventory: 1959.2891. Period: 19th century.

## SAMPLING

Samples collected: 3.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS, ED-XRF, Raman spectroscopy, XRD.

Observations: The tray presents 3 black-brown lacquer layers. The top one is extremely thin and could not be isolated thus not considered for analysis purposes. Sample 2 used for SEM-EDS.

Notes: Bequest of Henry F. Du Pont.

## WM Tray 1959.2891 - RESULTS





ID: Tea caddy Property: Winterthur Museum, Winterthur, DE. Dimensions: 20,62cm (W) x 16,18cm (D) x 10,8cm (H).

Inventory N: 1962.0219A-E. Period: 19th century.

#### SAMPLING

Samples collected: 2.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS.

Observations: The tea caddy presents 3 lacquer layers. The middle one could not be isolated thus not considered for analysis purposes. Sample 1 was used for SEM-EDS.

Notes: Gift of Mrs. G. Brooks Thayer, New York, December 1962. The lid decoration represents the Five-storey Pagoda, a tower-watch in Guangzhou. There are Chinese characters inscribed in several elements of the decoration.

## WM Tea caddy 1962.0219A - RESULTS





371

ID: Nesting table Property: Winterthur Museum, Winterthur, DE. Dimensions: 51cm (W) x 34cm (D) x 69cm (H).

Inventory N: 1959.0575D. Period: 20th century (?).

#### SAMPLING

Samples collected: 4.

Analytical techniques performed: Cross-sections mounted, OM visible and UV light, THM-py-GC/MS, SEM-EDS. Observations: Sample 2 was used for SEM.

Notes: Bequest of Henry Francis du Pont. The table is part of a set of four. In 1959.0575D table top: "The buildings represent Cantonese traditional tea houses. The one on the right is Zhu Guan La tea-house, a well-know Cantonese tea-house located in Longevity Street in old Canton center area (the street name is also written on the tablet). Zhu Guan Lan did not exit until early 1900's. The other two buildings are Le Shan Yuan and Chang Ji, also famous Cantonese tea-houses." Translation and notes by Yang Xu.

## WM Nesting table 1959.0575D - RESULTS





2004.0030.02)	Desk China Trade 1962.0222)	Javenport Desk E80268)	shawl Box 1964.0083D)	Shawl Box 1964.0084D)	Shawl Box Label Canton AE85997)	shawl Box Red E18314)	Musical nstrument? Box 51171)	Vesting Tables (4) 58252-5)	Vumismatic Box 44543)	fray 1959.2891)	Fea Caddy 1962.0219)	Vesting Table (1) 1959.0575D)
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rious Cedar Oil		1		Pine Resin								
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