

# From Canton with love: historic investigation and conservation treatment of Chinese export paintings from the Pitti Palace Museum of Florence

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## ABSTRACT

Europe's passion for the Orient is a fascinating thread which can be traced back until the very beginning of Western art history. This passion may be seen nowhere more clearly than in artistic trends witnessed in the 18th century, including the appetite within Europe for Chinese export art: the product of a long, prolific interchange between two completely different worlds and their rich artistic traditions.

Commerce between Europe and China was at this time very intense. Trading ships sailing from Canton with cargoes of tea, silk and bulk pottery also carried, as subordinate parts of the commerce, skilfully crafted objects on paper, lacquer and ivory.

In Florence, the Grand Duke of Tuscany Pietro Leopoldo (ruled 1765-1790) enthusiastically adopted this Chinese fashion and decorated three of his villas, Villa del Poggio Imperiale, Villa di Castello and Villa della Petraia, with Chinese wallpapers and paintings, now largely conserved in the Pitti Palace Museum of Florence.

Focusing on this collection, consisting of about 180 items, this paper will delineate the technical and stylistic characteristics of Chinese export paintings compared to Chinese traditional pictorial art, and will examine the conservation treatment of one painting from the collection together with the considerations which directed the conservation choices.

## KEYWORDS

Chinese export paintings; albums; wallpapers; technique; materials; analysis; conservation.

## INTRODUCTION

In 1514 the arrival of the first Portuguese ship in Chinese waters broke the centuries of isolation in which the Ming dynasty (1368 – 1644) and its protectionism kept China. This can be also taken as a symbolic starting date for the trade of luxury goods between China and Europe. From the beginning of the 17th century, this commerce largely occurred under the control of the Dutch and English empires, which operated through royal joint stock companies, the Dutch and English East India Companies. On the Chinese side, this commerce was strictly under the control of the Cohong, the guild of Chinese merchants authorised by the central government to trade with Western merchants. In order to further strengthen this control, in 1729 the Chinese empire ordered that Canton be the only access point into China for foreign merchants.

The commerce between Europe and China followed two channels, one official and one private. Tea was by far the most important official trade item purchased both in terms of quantity and value, followed in importance by raw silk and bulk porcelain. In exchange, silver and at a later stage opium were exported to China. Together with these products, fans, lacquers, porcelains and paintings on silk and paper were loaded as private cargo of the captains and members of the crew, who were allowed to engage in a specified amount of private trade for their own profit. These items were then sold in auctions in the main centres of distributions of London, Vienna, Amsterdam and Brussels, thence entering European courts and villas.

In Tuscany, the Grand Duke Pietro Leopoldo di Lorena (ruled 1765-1790) enthusiastically adhered to the Chinese passion raging among the European courts. As recorded by archival documents, between 1769 and 1787 about three hundred Chinese paintings were purchased in Brussels on his behalf, arriving in Florence through the harbour of Livorno (Caterina & Porzio 2001; Mosco 2001). Probably not long after their purchase, all the paintings were mounted in European style: entirely pasted on a thick canvas, mounted on wooden stretchers and framed with gilded or black-painted wooden frames.

These items were then distributed to three formerly Medicean villas, Villa del Poggio Imperiale, Villa di Castello and Villa della Petraia. Even though some of them are still conserved at their original sites, the majority of the paintings once held at the Villa di Castello were moved to the warehouse of the Pitti Palace Museum at the beginning of the 20th century, and there lay, almost completely forgotten, for many years.

In the last fifteen years, a new interest in Chinese art, partially springing from the growing importance of China in the modern world, has led to the rediscovery and study of some important collections of Chinese art in Italy (Caterina & Porzio 2001; Caterina & Mossetti 2005; Morena 2005). The Pitti Palace Chinese paintings have benefited from this resurgence in interest.

In 2006, when my fourth and last year of training in paper conservation at the Opificio delle Pietre Dure arrived, I decided to dedicate my final project to the study of this collection from an historic-artistic, scientific and conservation stand-point. As the collection is so large (comprising 182 items), the project extended beyond my thesis work to become an on-going collaboration with the Pitti Palace Museum. The aim of this paper is to make a modest contribution to the understanding of Chinese export paintings based on the information gained through this close contact with the Pitti Palace collection. First, the various typologies of Chinese pictorial art for export and the subjects commonly represented will be delineated. The techniques and materials employed will also be examined. Finally, the paper will focus on a conservation treatment performed on one of the paintings, discussing ethical and technical considerations that influenced the conservation choices.

## CHINESE EXPORT PAINTINGS: ARTEFACTS AT THE BOUNDARIES BETWEEN THE EASTERN AND WESTERN WORLDS

The term 'Chinese export art' refers to the specific branch of Chinese art made on purpose to meet Western demand for Chinese handicrafts. It ultimately represents the attempt made by Chinese artisans to depict their own culture in a way that would be considered acceptable and charming by the Western 'other'. From this point of view, particularly in the context of the multiculturalism in which we live today, it is worthy of considerable attention.

This art is extremely different from the intellectual depth, technical skill and purpose of Chinese traditional pictorial art. The art produced by the Chinese intellectual elite and the art produced inside the workshops of Canton are as well separated as the two social environments within which artists in these respective spheres operated. In Chinese 'high' tradition, painting is not considered a separate branch of art, but rather one of the accomplishments required of members of the intelligentsia, together with calligraphy and poetry. The ultimate aim of an artwork is to capture the spirit of the subject. Ink and brush, handled with freedom and discipline on a flexible support of silk or paper, are the only tools necessary for the pursuit of this purpose. Nevertheless, the art produced by these Cantonese artisans drew from a common reservoir of national history and mythology, and shared many of its techniques, tools and materials with traditional art.

From a stylistic and technical point of view, Chinese export art more closely resembles another branch of Chinese pictorial tradition: the art produced by the Court Painting Academies. Court paintings had a similar function to photography. They documented political events and depicted the Emperor and his circle in formal portraits. Technically, they were very different from the free and quick execution of the artworks favoured by the intellectuals. The aim of these paintings was, in fact, a naturalistic rendering, and the style is therefore descriptive and detailed, with a wide range of pigments used.

Chinese pictorial art for export was largely made to meet the requirements of Western customers in style, subjects, conventions of representation and format. Chinese art for export was also greatly influenced by the adoption of Western artistic conventions, such as chiaroscuro, the 'fixed-point perspective, and the very idea of a 'design' as a graphic two-dimensional representation of a three-dimensional thing' (Cunias 1987, p. 18).

## TYPOLOGIES AND SUBJECTS OF THE CHINESE EXPORT PAINTINGS OF THE PITTI PALACE MUSEUM

Pictorial art for export was crafted in three main formats: albums, wallpapers and individual paintings. All these typologies are represented in the Pitti Palace collection. As the paintings have been cut, mounted on canvas and framed, their original formats are often not immediately detectable.

Among these three typologies, the album is the most ancient and the most closely related to Chinese tradition (Silbergeld 1982, p. 13). Album leaves provided the painter with a small-scale format for the creation of single unified images. Whether for the Chinese or the Western market, albums would usually contain eight, ten, twelve, sixteen, twenty or twenty-four leaves with a single theme or related subject matter. Unfortunately, due to the particular structure of the albums, scenes were easily disassembled to be sold or displayed individually. This is the case of the seven album leaves conserved in the collection, which have been framed in the same style as the other paintings in order to be displayed as single images.

Two of these leaves, having the same dimensions (330 x 370 mm) and perhaps originally belonging to the same album, are depicted with a 'birds and flowers' motif. This is a very traditional motif which, even when adopted in export art, exhibits fewer of the Western aesthetic conventions. Albums, paintings and wallpapers decorated with the birds and flowers motif were very popular among Western consumers because of the brightness of their colours and the realistic rendering of their subject matter.

The central element of the composition is always a flowering tree, generally a peony or a cherry-tree, surrounded by rocks. Around its branches are colourful birds and insects of various kinds standing out against a plain background. The small format of the albums calls for a minute and detailed representation, whereas

wallpapers are characterised by a richer and more decorative effect. These two paintings were executed with the technique *gong-bi*, literally 'detailed strokes', which is characterised by the application of minute parallel brushstrokes to obtain very detailed and refined representations (Figure 1).



Figure 1 – *Two parrots on a branch*, album leaf, China, 332 x 371 mm, second half of 18th century, Florence, Pitti Palace Museum. Detail of one of the parrots, executed with the *gong-bi* technique.

Five other album leaves, smaller in dimension (210 x 280 mm), represent various stages of the manufacture of pottery and cultivation of rice (Figure 2).



Figure 2 – *Cultivation of rice*, album leaf, China, 212 x 279 mm, second half of 18th century, Florence, Pitti Palace Museum.

Pottery, silk, tea and rice had become a very important part of the life of Western wealthy social classes and so paintings describing these industries were extremely popular. Although the portrayals of industrial techniques and tools in paintings with such motifs are generally faithful, the scenes are set in romantic landscapes of idyllic rural beauty, very different from the overcrowded workshops and unhealthy fields in which these products were actually processed.

About thirty paintings of the collection can be identified as wallpaper off-cuts. The presence in the collection of wallpaper off-cuts is confirmed by archival documents, from which we know that in 1785 many rolls of Chinese wallpapers were cut in order to obtain several smaller paintings to be used to decorate the villas (Mosco 2001, p. 385).

Wallpaper does not seem to have had a counterpart in the Chinese tradition and is likely to have been a product made solely for export. As opposed to Western tapestries and wallpapers, Chinese paintings used to decorate house interiors had an essentially temporary character. Hanging scrolls were used as light-weight changeable wall paintings, which could be easily removed from the wall and rolled up for storage. If a larger or

more permanent decorative surface was required, Chinese artists employed the more resistant technique of wall paintings, which were usually found in public rather than private settings.

To a certain extent, though, some precedents in Chinese tradition can be found. At the end of 17th century, the French missionary Father Louise le Comte described the inner walls of Chinese houses as fully covered by sheets of paper. William Chambers, a Scottish architect employed by the Swedish East India Company between 1740 and 1749, and Lord George Macartney (1737-1806), an Irish-born British diplomat, similarly noted that crimson and gold-coloured sheets of paper were pasted to the interior walls (Saunders 2002, p. 63). Despite their great cost, around twenty times higher than their European counterparts, Chinese wallpapers were hugely popular, reaching a peak of commerce between 1740 and 1790.

With the exception of four 'birds and flower' paintings which constituted one full length of wallpaper, the majority of the wallpaper off-cuts in the collection are illustrated with 'scenes of everyday life' motifs. Bustling Chinese villages are represented against mountainous landscapes of rocks, rivers and streams which recall traditional pictorial art. People of various ages are represented engaged in a wide range of recreational activities, such as hunting, dancing and smoking pipes.

The last typology, of individual paintings, has the greatest representation in the Pitti Palace collection (Figure 3).



Figure 3 – *Elephants and figures*, painting, Cina, 613 x 760 mm, second half of 18th century, Florence, Pitti Palace Museum.

This typology has characteristics in common with both albums and wallpapers. Like albums, this format demands the creation of single, independent scenes, but like wallpapers it has a strong decorative function. Paintings could, in fact, be framed and displayed individually, or pasted onto the wall as an alternative to the more expensive wallpapers. At least to a certain extent, this typology seems to be related in format and use to the single painted screens used to decorate the sides of beds, couches or sedan-chairs in Chinese traditional interiors (Silbergeld 1982, p. 12).

## MATERIALS AND TECHNIQUES OF THE WORKSHOPS

Unfortunately, the study of the technical aspects of Chinese export paintings has suffered from a total absence of related information in Chinese literary sources, which showed no interest in an art category considered by all means minor. To understand how these artefacts were created, we have therefore to look at the objects themselves.

Unlike Chinese traditional art, Chinese art for export was the product of entire workshops rather than single artists. These laboratories worked on an assembly line basis, with the workload divided to the point that each artisan was in charge of the

execution of one specific decorative motif or of the application of a single colour of the palette.

All Chinese paintings have a composite structure made up of several layers of paper pasted together. Due to its intrinsic characteristics, in fact, Chinese paper is too fragile to be used without the application of any support. The painting was generally executed on good quality white paper. Both *mian lian*, a high-quality white paper made of paper mulberry fibres (*Broussonetia papyrifera*), and *xuan*, a paper made of the fibres of the shrub (*Pteroceltis tatarinowii* Maxim) are found (Rickman 1988, p. 45; Webber & Huxtable 1988, pp. 53-54; Lambert & Laroque 2002, p. 125).

To improve the smoothness, whiteness and evenness of the support, the paper was generally coated with lead white, chalk white or shell white (Clunas 1984, p. 77). This coating also reduced the hygroscopicity of the paper, preventing the ink and colours applied from bleeding. Mica powder was also at times used to imitate the shine of silk.

As the paper was handmade, the dimensions of the sheets depended on the mould handled by the papermaker, generally 70-150 cm wide and 50-65 cm high (Needham 1985). In order to obtain the larger paper needed for the manufacture of wallpapers, several sheets were pasted together with wheat starch paste.

The collection of the Pitti Palace includes several pairs of paintings identical in drawing but different in colouring, demonstrating that standard models were used in order to create multiple copies of the same image. Two methods could be employed to transfer these templates. Due to the high degree of transparency of the paper, it was possible to simply outline the contours of the image with ink. Chinese ink (*mo*) is a carbon based ink composed of animal glue and either pine soot or lampblack, the residue obtained by burning oil extracted from the seeds of the tung tree. This second typology is characterised by a deeper degree of black and, if used undiluted, by a lustrous surface. The technique of outlining has been used for the execution of all the individual paintings present in the collection (Figure 4).



Figure 4 – Detail of one painting executed by the outlining technique: the under drawing in black ink is revealed by the abrasion of the pigment layer.

Another technique consisted of transferring the image outlines using wood-blocks. This technique seems to have been used almost exclusively for wallpapers, in which the large decorative style did not require great attention to detail. It can be detected in many of the wallpaper off-cuts of the collection. The use of heavily inked papers to obtain multiples of the same image has also been noted in literature (Clunas 1984, p. 74). In some instance, albums and other paintings of higher quality were executed free-hand with the *gong-bi* technique.

Once the template image was transferred, pigments were applied by brush within the outlines. We have no clear information about

the tools available to these artisans, but it seems likely that traditional Chinese brushes were used (Clunas 1984, p. 77; Silbergeld 1982, p. 5). These were made with different animal furs, such as weasel, rabbit, goat and deer, inserted into a bamboo tube. Different furs had a different degree of flexibility. Brushes made of weasel-hair were stiffer, and were therefore used for the execution of parts of the composition requiring more precision, such as outlines and details. Goat brushes were flabby and suitable for applying washes.

The pigment binder was traditionally animal glue (*chiao*) made from the bones and skin of oxen, donkeys and horses. Pigments were applied in layers. In order to harden the pigment to the binder and avoid layers of pigments blending into each other, a solution of alum was applied between each layer.

Technical information about pigments is scarce in Chinese literature. As hypothesised by Jennifer Giaccai and John Winter (Giaccai & Winter 2005) this lack of information can be ascribed to the influence of the literati, who decried the use of colour as vulgar and stated that ink alone could reproduce all the hues present in nature. Nevertheless, some information about the preparation of the painting materials can be found. *The Tian Gong Kai Wu* (Chinese Technology in the 17th Century) of Song Yingxing (1587-1666) describes the manufacture of paper, ink and cinnabar. At the end of the 17th century, the *Jie Zi Yuan Hua* (The Mustard Seed Garden Manual of Painting) by Wang Kai, Wang Shi and Wang Nie dedicated an entire section to Chinese pigments and their preparation. The work of the birds and flowers painter Yu Feian (1889-1959), *Chung-Kuo Hua Yen Se Ti Yen Chiu* (Chinese Painting Colors), is entirely dedicated to the manufacture and use of pigments for painting. Moreover, in recent years several technical and scientific studies have been published with the aim of gradually filling this gap in the literature (Wise & Wise 1997; Cooksey, Dronsfield & Kirby 2005; Giaccai & Winter 2005).

In collaboration with the University of Florence and the scientific department of the Opificio delle Pietre Dure of Florence, five paintings of the Pitti Palace collection were investigated using three non-invasive complementary techniques: XRF (X-Ray Fluorescence)<sup>1</sup>, micro-Raman<sup>2</sup> and FORS<sup>3</sup> (Fiber Optic Reflectance Spectroscopy). Results confirmed the use of the traditional Chinese palette as described in the technical literature. Both inorganic and organic pigments were identified. The first group included azurite (*shiging*), malachite (*shi lü*), cinnabar (*zhu sha*), minium (*zhangdang*), raw umber (*zhe shih*) and white lead (*qian fen*). The organic pigments indigo (*dianlan*) and gamboge (*teng huang*) were used both individually and mixed together to obtain warmer and more transparent greens. An organic red pigment was also found, but its composition could not be ascertained with these techniques.

Once the execution of a painting was complete, linings were applied on the verso with starch paste. The composition of paper used and the number of linings applied varied depending on the typology of painting. In the case of wallpapers, two linings were generally applied. The first was commonly *lian zhi*, a paper made by unbleached bamboo fibres (*Bambusa arundinacea* or *Dendrocalamus strictus*), and the second lining either *lian zhi* or *mian lian* (Rickman 1988, p. 45; Webber & Huxtable 1988, pp. 53-54; Lambert & Laroque 2002, p. 125). Albums generally comprised between three and seven layers of *mian lian* or *xuan* paper (Clunas 1984, p. 77).

Finally, the lined paintings were dried and flattened on wooden boards (*bi*). Once dry, the lengths of wallpapers were trimmed, numbered on the bottom on verso in order to indicate the order in which they should be placed on the wall, and sold in sets of 20 to 40 rolls.

## 'PEOPLE IN PAVILIONS ON THE RIVERBANK': ONE PILOT CONSERVATION TREATMENT FOR THE COLLECTION.

The conservation treatment applied to one such artwork will now be described. The primary focus of this treatment was to identify an ethical approach and technical methodology that could be applied, with appropriate modifications, to each of the paintings in the collection. This painting, like all others in the collection, was characterised by a dual identity: Chinese in manufacture but Western in function. Both these aspects of its character had to be respected.

In the conservation treatment, Oriental techniques were used and Chinese materials applied whenever possible. At the same time, the mounting of the painting on canvas and into frame, decided by the collector, was preserved and made compatible with a proper conservation.

### Conservation survey

The painting was a wallpaper off-cut measuring 937 x 627 mm, on which many of the characteristics described above could be identified. Three layers of paper were detectable. The first layer was a high-quality white paper, on which the outlines of the image had been transferred by xylography. The second layer was a short-fibered, orange-coloured paper, believed to be *lian zhi*. The third and last layer was a thin long-fibered paper, also noted in other wallpapers (Webber & Huxtable 1988, p. 54).

The condition of the painting was poor. The work was entirely adhered on a thick linen canvas having the same dimensions as the painting, which was in turn adhered on a poplar stretcher all along the edges. The work was inserted in a simple black fir frame, with no glazing.

The fabric support provided the painting with a mechanical strength it would not have otherwise had, allowing it to survive through centuries of display, inappropriate handling and storage. Conversely, this mounting method triggered severe degradation processes, the most important of which was biological degradation. A large amount of adhesive, identified with FT-IR to be starch paste with the addition of animal glue, had been used to adhere the painting to the canvas and the canvas to the wooden stretcher. Large areas of silverfish ingestion were visible all around the peripheral areas. In some cases the insect damage had involved all three layers of paper, leaving the canvas exposed. The majority of the losses, though, involved the painted layer alone, so that the orange-coloured first backing layer of the painting was visible.

The rigid bond between paper, canvas and wood, these having different behaviours in response to thermo-hygrometric fluctuations, had caused the paper to tear and delaminate. The paper support was discoloured overall, partly because of light exposure and partly because of the ageing of the amylose adhesive. A conspicuous amount of surface dirt blunted the polychromy.

Besides a slight overall fading of the organic pigments, the media were in good condition. The application of most of the pigments in thin washes favoured good penetration into the paper fibres, and only the inorganic green and blue pigments, applied in thicker layers, were affected by minor cracking and flaking.

### Preliminary operations and tests

The painting was easily removed from its frame and the conspicuous amount of dirt caught in the canvas was removed as much as possible with a small vacuum cleaner. The large amount of dust present on the painting was brushed away using natural soft brushes. Soft *Wishab* erasers were used to remove the thick layer of surface dirt deposited on the surface. The most thickly painted areas, such as the inorganic blues and greens,

were avoided and gently vacuumed through a light textured fabric. Already after this simple operation, the dulled colours regained brightness and depth.

The starch paste used to mount the artefact to both the fabric and the frame was very brittle, and it was therefore possible to separate the painting and the stretcher dry by inserting a thin spatula between the wood and the canvas. The solubility of the pigments was then tested with deionised water and a solution of deionised water and ethyl alcohol 50%. Some of the more thickly painted copper greens and blues were found to be slightly soluble in water.

Searching for an appropriate consolidant, the adhesives used by the *hōgushi* (Japanese scroll-mounters) were trialled. Chemical and physical stability, reversibility, flexibility and the absence of any chromatic change on the artefact are the characteristics required by the *hōgushi* in choosing the appropriate adhesive. Traditional Oriental adhesives can be divided in three classes: starch pastes (such as wheat starch paste, *shin-nori*, and aged wheat starch paste, *furu-nori*), widely used in both mounting and conservation; animal glues, among which *nikawa* is the most refined; and adhesives from seaweeds, such as *funori*, historically less relevant but extremely interesting from a conservation standpoint (Masuda 1984; Morita 1984; Winter 1984).

### Consolidation

After testing both *nikawa* and *funori* prepared at different concentrations, the decision was made to use *nikawa* because of its excellent penetration in the substrate, efficacy in consolidating the fragile areas and the absence of chromatic changes on the painted surface. Moreover, being animal glue, the traditional binder for Chinese paintings, this choice appeared the most appropriate from an ethical stand-point.

*Nikawa* was prepared at a concentration of 2% in deionised water. The gelatine beads were soaked overnight and cooked in a double boiler until completely dissolved. The consolidant, still warm, was applied locally with a thin brush (Figure 5).



Figure 5 – Consolidation of the pigment layer with *nikawa* 2%.

This operation was repeated twice, waiting for the first application to be dry before proceeding with the next one, and the painting was left to dry for two weeks.

### Facing

In order to remove the canvas from the verso, a temporary support needed to be provided to the painting. Facing is a very delicate operation from many points of view. The chosen adhesive has to be strong enough to give appropriate support to the artwork, but also flexible and easily reversible, without causing any visible change to the painted surface (Keyes 1986).

After testing with *funori*, wheat starch and methylcellulose, *funori* 2.5 % was chosen as the adhesive for the facing. The algae was soaked in water overnight, cooked in a pan over low heat until the

seaweed was dissolved and strained through a silk cloth.

A slightly damp sheet of medium-weight rayon-paper, chosen as a carrier, was laid on the painting, and using a *noribake*, the adhesive, still warm, was applied from the centre outwards. The work was then turned face down on *Reemay*®. Thanks to the moisture administered with the facing, the adhesive was released and it was possible to carefully remove the canvas from the verso of the painting in one single piece. A sheet of *Melinex*® was placed on the painting's verso in order to slow down the drying time until the removal was complete.

The painting's verso was carefully examined. The second long-fibered lining was extremely discoloured and imbedded with adhesive. It was therefore considered best to remove it from the verso. The lining comprised six small sheets of paper. An overlay at 1:1 scale of their positions on the painting and order of application was traced on a Mylar®. Once fully documented, the paper, still moist, was removed by gently peeling away the fibres with scalpel and tweezers. The first backing paper was very well adhered to the verso, and since this did not cause any tension to the painting it was preferred to leave it in place. Once the backing removal was completed, the painting was left to dry on felts.

### Blotters washing

In preparation for the lining, the painting was gently humidified with a *mizubake* on recto and verso, until fully relaxed and planar. The work, supported by two sheets of *Reemay*®, was laid face up on a damp blotter and the *mizubake* used to gain a perfect contact. Using a dahlia sprayer, the painted surface was sprayed with deionised water and the excess of water gently blotted away with dry blotters. A considerable amount of soluble degradation products was drawn into the blotters. The work was then laid face down on a *Reemay*® for the application of the first lining.

### Application of the first lining

A very thin Japanese 100% kōzo paper, Japico *kizuki kozo*, was chosen for the first lining because of its similarity in weight and appearance to the now-removed second support. The paper was cut into pieces to replicate the necessary structure. Following the same order of application, sheets were laid on the verso of the painting, and a very thin wheat starch paste was brushed through them with a *shigoke* (Figure 6).



Figure 6 – Application of the first lining of Japanese paper with wheat starch paste.

The *nadebake*, gently brushed through a *Reemay*® tissue, was used to guarantee the perfect adhesion of the lining to the verso of the painting.

The work was turned face up, and the facing of rayon-paper gently removed from the painted surface. The *funori* swelled very easily and the rayon-paper was peeled from the recto without causing any resistance on the pigment layer (Figure 7).

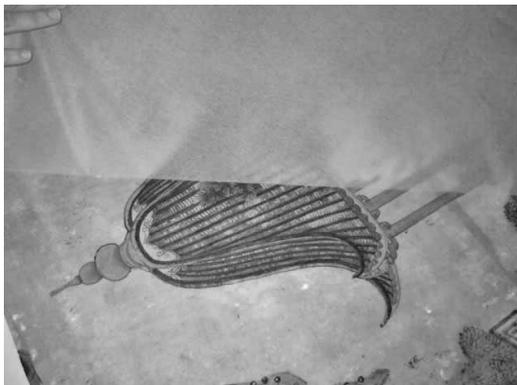


Figure 7 – Removal of the facing from the recto of the painting.

Moreover, the *funori* effected a very gentle cleaning and sizing of the paper, which once dry appeared noticeably more even and resistant.

The painting was then laid down on felts. A metallic frame covered with Reemay® and large strips of dampened blotting paper was placed on top of it, in order to slow down the drying time of the peripheral areas (otherwise shorter than the drying time of inner areas) and limit deformation.

### Application of the second lining

In order to provide additional strength to the fragile painting it was decided to apply a second lining of Japanese paper, this time Japico kinugawa. Compared to Chinese paper, Japanese paper has a higher mechanical strength. In consideration of the moderately large size of the painting, and of the need to mount it again on its original wooden stretcher, the application of a stronger paper was deemed preferable.

The painting was again humidified with the *mizubake* and a second backing of Japico *kinugawa*, slightly heavier than the paper used in the previous lining, was applied on the verso with thin wheat starch paste, using a drop-lining technique. The painting was then left to dry on felts.

### Tension drying on karibari

Once dry, the painting was again gently humidified with the *mizubake*. The lining paper, larger than the object, was pasted along the edges and the painting was fixed on a *karibari* board to dry and flatten.

### Loss infilling and retouching

Two types of losses were observed in the painting: losses of the painted paper, revealing the orange-coloured first lining, and losses of both the painted paper and the first lining. In order to replicate the opaque and dull appearance of the first lining, Chinese *xuan* paper was toned with Windsor & Newton gouaches before being shaped and secured in place as infillings with wheat starch paste.

Once the losses of the first lining were all infilled, repairs of the painted layer were carried out. The Chinese pigments raw umber (*zhe shih*), indigo (*dian lian*), gamboge (*teng huang*) and ink (*mo*) were diluted with a solution of nikawa 2% and brushed in layers on a sheet of xuan paper until the colour of the background of the painting was obtained. Losses of the painted paper which were able to be graphically and chromatically reconstructed were then infilled with this paper. However, the external area of the painting presented extensive losses which could not be graphically and chromatically reconstructed without making arbitrary interpretations of the design. Therefore, in these areas only the infilling and inpainting of the original backing paper, and not the infilling and inpainting of the painted paper, were carried out.

### Mounting

The old mounting on a fabric and wooden frame was certainly not appropriate for a good conservation, but it still had historic importance. Accordingly, the stretcher and frame were treated against woodworms and the canvas washed and deacidified. The canvas was then mounted on the wooden stretcher with false borders of polyester fabric, adhered along the edges with BEVA ORIGINAL FORMULA® 371 FILM, and an interleaving layer of high-weight Japanese paper was mounted with false margins on the stretcher. Finally the painting was mounted on the stretcher using the margins of Japanese paper extending beyond the second lining, and inserted in the original wooden frame (Figure 8).



Figure 8 – The painting after treatment.

## CONCLUSIONS

Between the beginnings of the 18th and 20th centuries, the arrival in Europe of numerous Chinese export artefacts exerted an influence on Western art and architecture that can be hardly underestimated. Nonetheless, very little is known about the workshops that produced this art, in regards to their organisation and operations as well as to the techniques and materials they employed. Large collections of Chinese export paintings, like the one of the Pitti Palace Museum, are therefore extremely important, since they provide a wide range of formats, motifs and techniques to be investigated.

In this context, the conservator plays a critical role. Through close examination of the technical aspects of these objects and the careful execution of conservation treatments, valuable information on the history of the artefacts and the techniques and materials employed in their production can be obtained. Equally important is that this information be shared, so that gradually a more complete understanding of Chinese export art can be gained.

## ENDNOTES

<sup>1</sup> XRF analyses have been carried out by Alessandro Migliori, Laboratorio di Tecniche Nucleari per i Beni Culturali, Department of Physics, University of Florence.

<sup>2</sup> For the FORS measurements I have to thank Marcello Piccolo, Istituto di Fisica Applicata "Nello Carrara" IFAC-CNR, Sesto Fiorentino, Italy.

<sup>3</sup> Micro-Raman examinations have been executed by Nuno Felipe Camameiro Mendes, LENS (European Laboratory for Non-Linear Spectroscopy), University of Florence.

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## MATERIALS

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