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# CHARM OF THE EAST: CONSERVATION OF A LACQUER CABINET

Abstract

At the end of 18th century Conte Carlo Francesco II of Masino acquired in Paris a pair of cabinets for his house in Turin, which was moved afterward to Masino's Castle. The thesis project involved the conservation treatment and the analysis of one of these 18th Century French cabinets made with Chinese lacquer and japanned decoration. The work of art is composed of a wooden structure on which two Chinese lacquer panels on the front and two other halves on the sides were mounted as decorations completed with brass ornaments and japanned surfaces. The project focused on the approach to this complex multilayered object using non-invasive and micro-invasive techniques, which allowed the identification of every different material and deepened the technique's knowledge. Non-invasive analysis, such as X-Ray, XRF, FORS and Raman spectroscopy showed how the cabinet was made and allowed us to better understand the Chinese lacquer technique used and the pigments involved. The micro-invasive analysis such as cross sections, GC/MS, FTIR and SEM-EDX permit us to identify both the original materials and the restoration layers used on the lacquer panels. The cabinet showed a severe flaking and delamination of the lacquer layers, on which most of the treatment focused. Due to the environmental conditions, various damages occurred, such as lacquer fading and cupping, in addition to a split in the wood in the center of both front doors. Moreover, previous restorations added different materials, which obfuscated the original surface. The japanned decoration presented flaking, missing areas and over gilding of the original flower motif, while the wooden structure of the cabinet showed missing veneers and needed wooden stabilization. Investigations and research on every part of the objects allowed us to find the best conservation materials and strategies, focusing on filling and retouching the multiple missing parts of lacquer. Mock-ups have been done to find the best solutions to fill the gaps using only compatible and reversible materials.

Keywords

French furniture, Chinese lacquer, Japanning, X-Ray, XRF, FORS, Raman spectroscopy, GC/MS, FTIR and SEM-EDX,

*Fig 1: Lacquer Cabinet, ca.1750, 175x155x45 cm, Castello di Masino. Front, sides, back and inside.*

## History of the object

As a consequence of the "Chinese taste" developed in the XVIII century in the Castle of Masino are conserved two French lacquer cabinets (fig. 1), measuring 175x155x45 cm. The cabinets arrived in Turin in 1780 and after they were located in the house of Carlo Francesco Valperga for some decades until they were moved to the Castle of Masino in the beginning of the XIX century by Eufrasia Solaro di Viallanova Solaro, a noble woman member of the family. They were placed there in the Goblein's Room where they still are today.

The cabinets arrived in Turin, acquired by Conte Carlo Francesco II Valperga of Masino, who was connected in particular to the French capital: there he probably met the man who sold him the cabinets, Pierre Joseph Reycend. Pierre Joseph Reycend is a complex figure and with Carlo Francesco they had an exchange of letters: in the Archive of the Castle of Masino around 20 letters are conserved. They are dated between March and June 1780, and were written by Reycend and addressed to Carlo Francesco. Written in French, they reported various information that let us understand his role better: he was selling artistic objects and also lending money.

The cabinets have been made with French and oriental ornaments: the structure and the red decorations with a red background have been made in France while the black panels are from China, decorated with Chinese lacquer. The object is completed with brass elements that have different shapes. Some of them evoke Oriental symbols, such as dragon scales and claws. Not coeval with the other parts of the object are the legs, made in Piedmont in 1784 after the acquisition of 1779. The front doors show birds and flowers on a black background: around this design we can find a frame with arabesque motifs. The right side and the left side are made with half of a panel of the same dimensions as the front panels. On every panel we can find many colours: red, gold, grey, brown, blue and green. On the corners of the cabinet and in the centre front there are some japanned decorations painted in gold, black and green, partially on relief.

The decorations on the cabinet can be compared to the ones on some objects present in Europe, in particular to two tables conserved in the castle of Steinhau in Germany, where the table tops were made in China in the first half of the XVIII century. More luxurious is a pair of cabinets sold at Christie's in 2014[1], made with Chinese lacquer and japanned decorations, dated 1720-1730 and made in Paris, estimated of high value. Also for these birds, trees and flowers are shown on the lacquer panels. The most important thing about these cabinets consists of the metal decorations: they are exactly the same, in terms of shape and dimension, as the ones found on the Cabinet of Masino. It is possible to suppose that the same workshop executed them.

1. Christie's sale https://www.christies.com/Lotfinder/lot_details.aspx?hdnSaleID=24618&LN=29&intsaleid=24618&sid=c99f4f34-43b2-410c-9cdf-660626a1c2a9

## Description

To study the materials and the condition of the objects photo documentation has been produced, such as photos in visible light, raking light, UVF, IR, IR-FC, X-Ray, XRF-Mapping and Photogrammetry, non-invasive and micro-invasive analysis such as XRF, FORS, FT-IR, Raman, SEM-EDX and Wood ID[2].

2. All the analysis has been executed by the ©LaboS of the "Centro Conservazione e Restauro la Venaria Reale" (TO). The wood ID was performed by dott. Flavio Ruffinatto. The XRF-Mapping were performed by laboratories Landis INFN-LNS/IBAM-CNR and by INFN CHNet-Istituto Nazionale di Fisica Nucleare Cultural Heritage Network.

A rectangular shape body with two front doors and four legs makes up the cabinet of Masino. The object is composed of different materials assembled together. The back of the object is made with two horizontal planks, one at the top and one at the bottom, four vertical planks made of oak joined together with a tenon-mortise system and wooden dowels. To complete the back there are ten vertical planks joined also with a tenon-mortise system. The bottom part of the object was realized in softwood, the panels of the front doors and the sides were made in China: the sides were made with half of a panel while the front doors were composed of an entire panel each. The cabinet shows an upper band and a lower band made in a linear shape with ebony veneers. The upper part is composed of a structure made of oak with ebony and rosewood veneers, with a thickness of 1.5 cm, as identified macroscopically with a 45x lens. In between the veneers there are some thin brass decorations. On the entire cabinet there are many metal elements, mainly made of brass. On the corner of the front doors there are some applications with a shape that reminds us of a Chinese dragon, while in the lower

centre a mask is applied. On the edges of the object it is possible to find many repetitive motifs like half moons, ovals and leaves.

The legs of the cabinet are made of apple wood: the two front legs are carved and made of one piece each, while the back legs are carved just in their half and glued on a vertical oak plank, joined with a mortise and tenon system to a horizontal walnut element which links the front and the back legs. The two front legs are joined to it with a circular dowel and the entire block is joined with screws to the cabinet. Two shelves and a secret drawer compose the inside.

Also analysing the second cabinet, it is clear how they were made using six Chinese panels. On cabinet A[3] we can find two panels that compose the front doors and half a panel on each side. On cabinet B we can find the second halves of the panels of cabinet A on the sides and two full panels that create the front door.

3. With Cabinet A is indicated the cabinet object of the article, while with Cabinet B is indicated the second untreated cabinet.

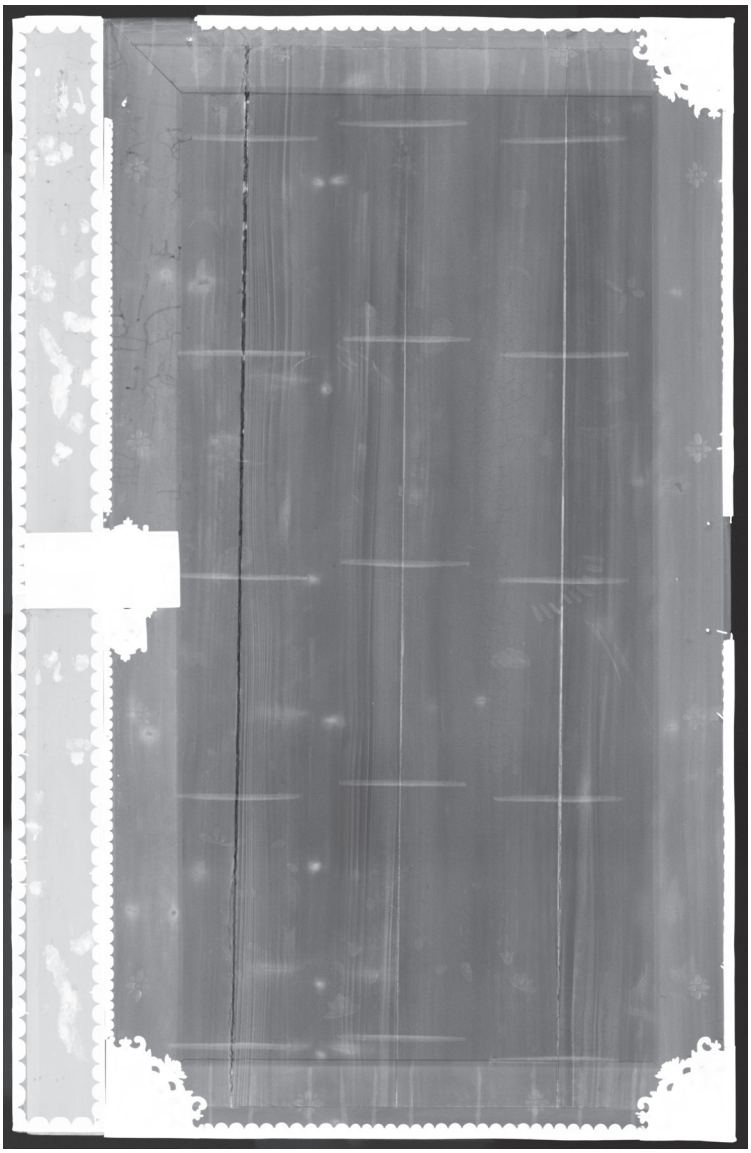

*Fig. 2: X-Ray right front doors. Four vertical wooden planks joined with bamboo dowels compose every lacquer panel. On the top and on the bottom two planks close the structure, secured with 13-15 bamboo dowels.*

## Construction and materials of the Chinese panels

To create the two front doors, two Chinese panels with a thickness of 1.8 cm each were used. Every panel was made joining four planks (each 15 cm large) with 5 bamboo wooden dowels, inserted every 20-25 cm. At the edges, on the top and on the bottom, two wooden planks were joined through 15 vertical bamboo dowels (fig. 2). After the removal of a metal mount it is possible to see how the edges on the inside of the panels were cut in depth at about a thickness of 7 mm, to allow the adhesion of a wooden frame. The wooden species has been identified as Pyrus/Malus, while the wood of the Chinese panels was identified as Chamaecyparis (fam. Cupressacee), probably Hinoki Cypress.

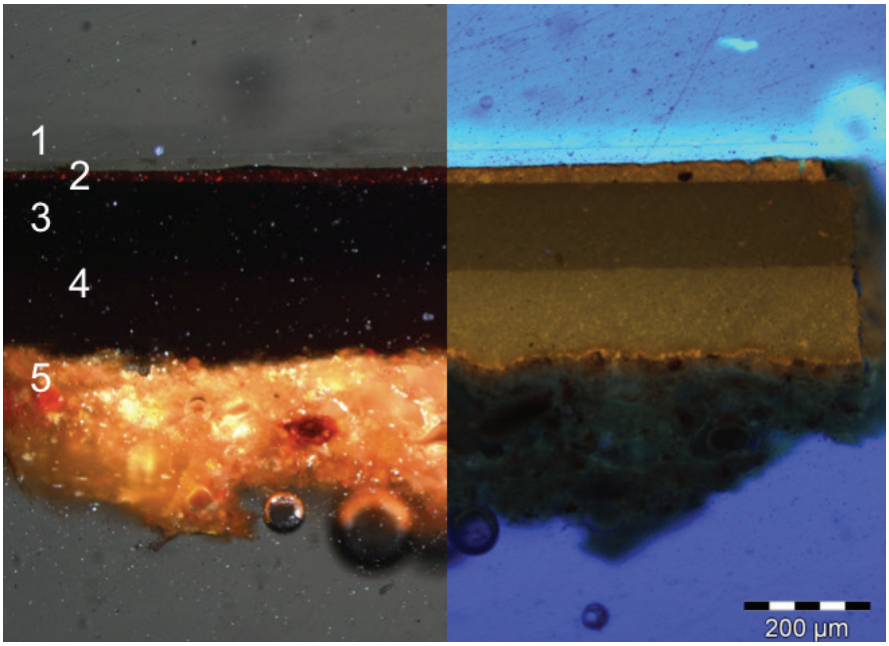


*Fig. 3: Cross section, Asian lacquer area. 5: ground layer; 4: lacquer layer composed by laccol, oil and urushi; 3: Lacquer layer composed by urushi, oil and a minor addition of laccol; 2: Organic preparatory layer containing possibly lacquer and Fe2O3 + cinnabar; 1: gold leaf.*

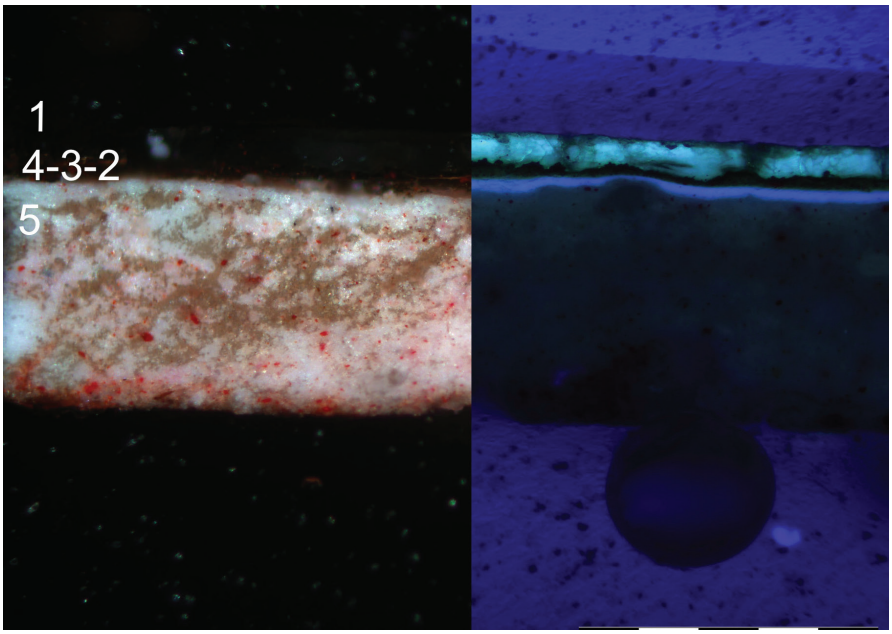


*Fig. 4: Cross section, japanning area. 5: Relief decoration composed of Lead White, SiO2 and cinnabar; 4: Organic sealing layer; 3: preparatory layer for the gold leaf, organic with some particles of Pb; 2: Brass leaf; 1: Organic layer.*

To analyse the materials present on the objects some cross-sections have been made, so that it was possible to understand the composition of all the layers. On top of 2-3 layers made with vegetable fibres, clay (Fe, Si, K, Ca) and paper two lacquer layers were applied (fig. 3). They were different under UV light: the first layer was identified (using GC/MS and FT-IR) as made possibly with laccol (Toxicodendron Succedanea), oil and a minor part of urushi, while the upper layer was identified as made with Toxicodendron Succedanea, Toxicodendron Vernicifluum and oil. Where the gold decoration was present, a layer of red bole containing possibly cinnabar, Fe, Ca, K, Si, Al, and Mg, was applied, and a gold leaf on top of it. Every other colour of the Chinese panels was analysed: the technique used has been identified as Miaoqui (painted lacquer) and Mituohui for the red and blue parts because of the presence of litharge. The golden parts were created in the Miaojin technique (applied gold).

Also some cross sections on the japanned areas were made. On top of the wood and two cinnabar layers, a relief (fig. 4) was created using lead white, SiO2 and rare cinnabar particles. A sealing organic layer was applied on the relief with a blue fluorescence in UV light. On top there is a non-fluorescent organic layer containing Pb and a copper leaf as well as a final organic layer to seal the decoration (fig. 5).

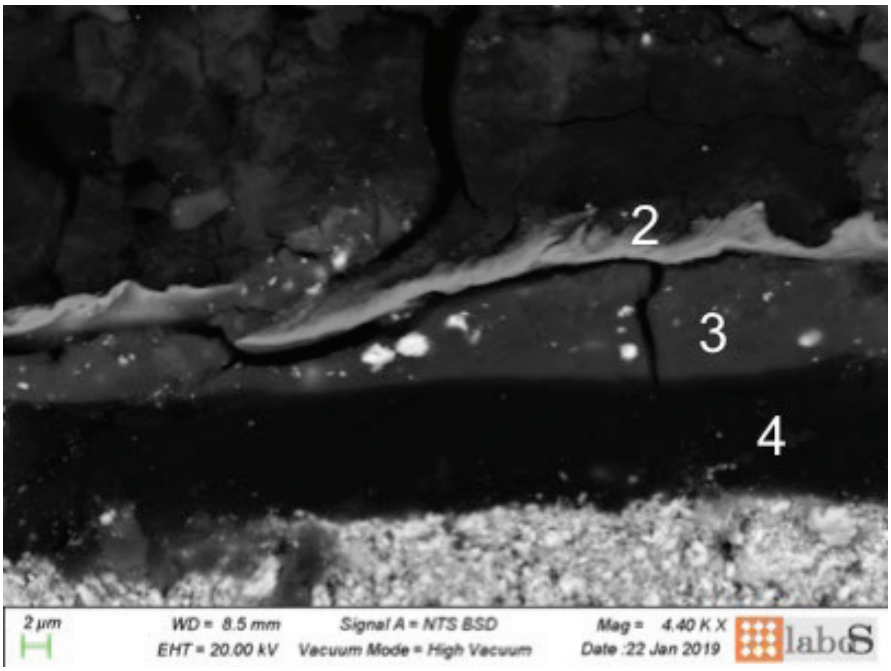


*Fig. 5: Cross section, japanning area, detail using SEM. 4: organic sealing layer; 3: preparatory layer for the gold leaf, organic with some particles of Pb; 2: Brass leaf.*

## Conditions and previous treatments

The general conditions of the object were really poor, in particular concerning the lacquer. The two front doors presented a wooden split, on all the structure there was the presence of dust and grime, an insect attack (in particular on the legs), some splits in the wooden structure, lifting and missing in veneers. The lacquer was in a very poor condition: the surface presented fading and cracking caused by exposure to UV light, a severe flaking and missing in lacquer (fig. 6 and 7). The japanned decoration presented diffuse abrasions, severe detachments of the relief and missing parts (fig. 8). Multiple previous treatments were made on both cabinets. The lacquer panels presented many applications of inhomogeneous beeswax (fig. 9), fillings made with gesso and pigments, beeswax fills, and the application of a new gold leaf and over painted layers, directly on top of lacquer. A previous massive treatment was made on the japanned areas, where it was possible to see many over painted layers, the addition of new gold decorations, the creation of a new relief and the application of a new gold leaf. On the wooden structure some fills had been made previously. On the wood, it was also possible to find many black over painted layers, the removal and renewal of the cabinet lock.

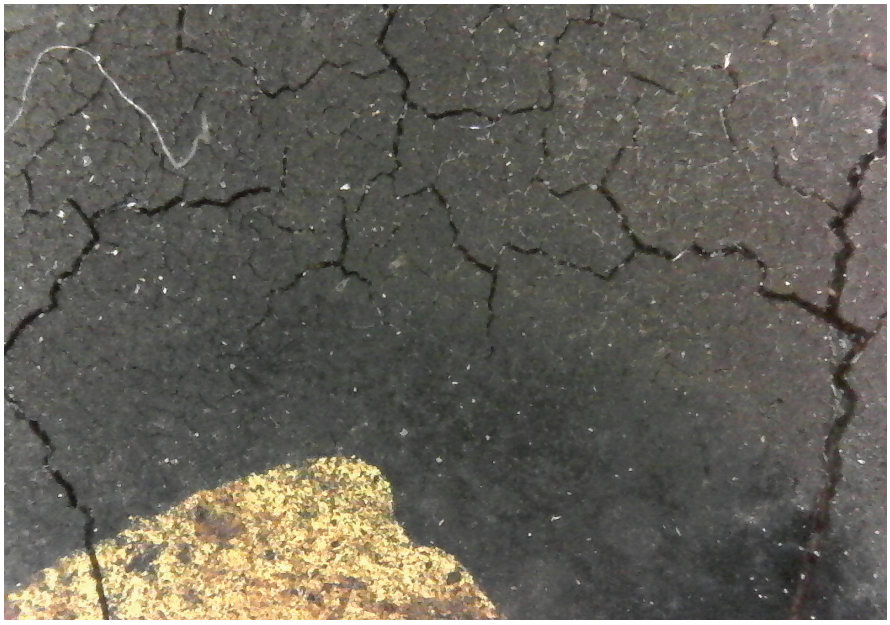

*Fig. 6: Detail of the lacquer surface. Micro cracking visible in the upper part, while the lower part (covered by the metal mounts) appears intact.*

*Fig. 7: Detail of the lifting lacquer.*

## Treatment

The first operation was the lacquer consolidation due to the condition of the surface. The consolidation was performed using first an application of sturgeon glue (10%) followed by an application of wheat starch paste (1:5) and sturgeon glue (10%) 1:1. The flakes were secured applying a "sandwich" on top made with Melinex®, silicon and Plexiglas using fibre glass sticks and a shimbari frame to press them down (fig. 10) (fig. 11). This operation was followed by the wax removal: after many tests on the lacquer surface it was decided to use Cyclohexane. Subsequently, the over painted layers were removed applying first Cyclomethicone D5 and on top, an ethyl-lactate gel over Japanese paper to prevent possible interactions. The removal of old fills was performed applying Cyclomethicone D5 and NanoRestore Gel® Extra Dry on top to swell the fills and then remove them mechanically. The wooden split was repaired applying first filler made with Arbocel® BWW40 and Evatane® 42/60 in Cyclohexane to create a support for the flakes and then filled with Balsa wood. For big lacquer lacunas a layer of Parafilm® M was applied in the missing area, followed by the application of Woodplaster® 427. The removable piece was then adjusted and glued in with sturgeon glue and retouched with Waterco-

*Fig. 8: Detail of the Japanning area. Multiple lacunas and over painted layers.*

*Fig. 9: Beeswax resin applied on top of lacquer.*

lours. On top of the panels a layer of Regalrez® 1126 10% in White Spirit with 2% of Tinuvin® 292 was applied to protect the surface (fig. 12). The japanned decorations were consolidated using sturgeon glue 10% and the over painted layers removed with a mix of Isooctane-Ethanol 7:3. It was decided not to fill the missing area because of the large amount of lacuna, therefore it was just retouched with watercolours.[4] The metal mounts were cleaned using a EDTA gel supported in Carbopol Ultrez 21® applied on Japanese paper and later a layer of Paraloid® B44 was applied to prevent further oxidation. The veneers were cleaned with a chelating solution and then glued in, while the missing areas were integrated with the same wooden species. The painted layers on the legs have been consolidated and then cleaned with a water-in-oil emulsion, the wood was consolidated with Paraloid® B72 and the missing areas were filled and retouched with watercolours.

4. This method was developed by Christina Hagelskamp at the Metropolitan Museum of Art and learnt by the author during her internship

## Conclusions

The Master's thesis and the treatment of one of the cabinets of the Castle of Masino have together been a unique opportunity to learn more about 17th century French lacquer cabinets, about how they were made and the technique used to create them. Because of the complexity of the materials a multiple approach was necessary to treat the object in the best way.

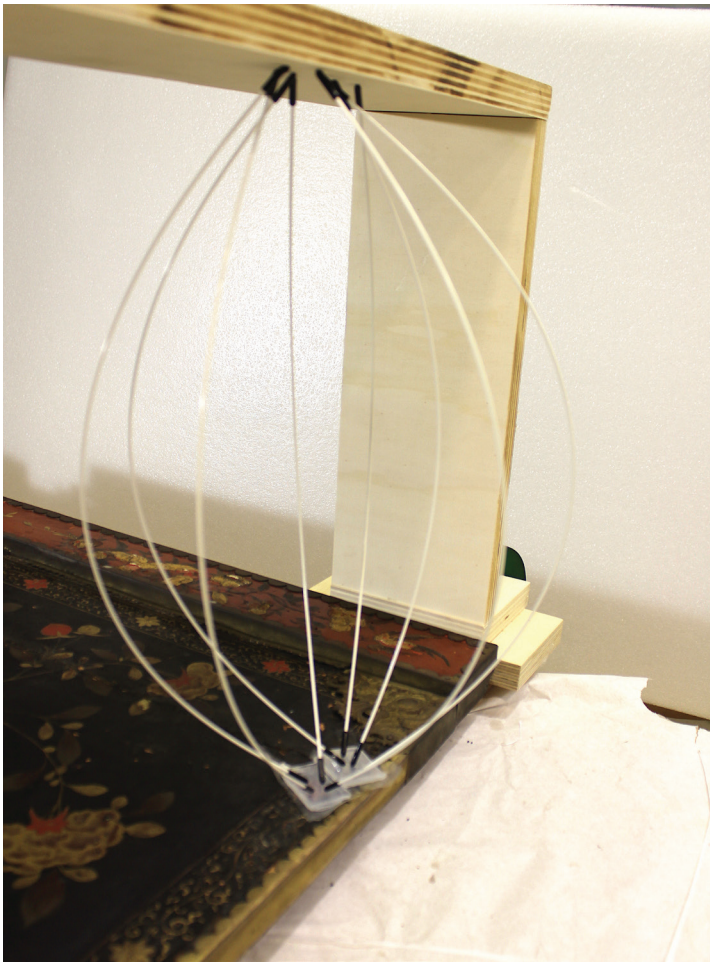

*Fig. 10: Consolidation using a shimbari frame and fiberglass sticks.*

*Fig. 11: Before and after consolidation - raking light.*

*Fig. 12: Before and after treatment.*

Acknowledgements

Other Project Participants:

Gianna Ferraris Di Celle, Eliano Diana, Paola Croveri, Alessandro Morandotti, Paola Manchinu, Paolo Luciani

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Materials & suppliers

Melinex® : Bresciani srl
Cyclomethicone D5. Bresciani srl
NanoRestore Gel® Extra Dry: CSGI, Consorzio per lo Sviluppo dei Sistemi a Grande Interfase
Arbocel® BWW40: Bresciani srl
Evatane® 42/60: Arkema
Parafilm® M: Heathrow Scientific
Woodplaster® 427: Bresciani srl
Regalrez® 1126: Bresciani srl
Tinuvin® 292: Bresciani srl
Carbopol Ultrez 21®: Bresciani srl
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Biography

Silvia Tagliante is a graduate student in paintings and furniture conservation at the University of Turin, Italy, specialising on Asian lacquer. After an internship at the Metropolitan Museum of Art working on a Coromandel lacquer screen she was awarded an internship at the Rijksmuseum to gain further experience in lacquer conservation. For her Master's thesis she worked on a French lacquer cabinet made with Chinese lacquer and japanned decoration.