RESTORATION OF THE FRIEZE BY ARISTIDE SARTORIO IN THE CHAMBER OF DEPUTIES OF THE ITALIAN PARLIAMENT

Gianluigi Colalucci*
Former head restorer of the Painting Restoration Laboratory of the Vatican Museums Rome, Italy

Daniela Bartoletti
Conservazione e restauro Snc.
Rome, Italy

Keywords: frieze, primer, frame, thermoplastic resin

1. Introduction

The frieze in the Italian Parliament was created by Giulio Aristide Sartorio between 1908 and 1911 and depicts a lyric and epic representation (an allegorical narrative history) of the Italian people (Figure 1). Inside the hemicircle, the lyric events culminate with a citation from the Renaissance, while on the side of the Presidency, the epic events culminate with the Risorgimento.

It is composed of 50 canvas panels mounted on wooden frames held together with iron pins, even though it was actually conceived as one long strip of seamless painting running along the entire perimeter of the Chamber [1].

The architect, Ernesto Basile, the undisputed master of Italian floral art, was commissioned to design the 'new' *Camera dei Deputati* (Plenary Hall) on the 11th July, 1897 and his wish was that the frieze act as a cornice above the tribunes.

The Chamber is semicircular in shape and is situated at the point where the old building by Fontana/Bernini joins the new building designed by Basile, the *Palazzo del Parlamento* (the Parliament building).

The space inside the Chamber is developed vertically, with a large velarium made of glass and iron which provides it with natural light. The wall panelling is made from Slavonian oak from the Ducrot workshops in Palermo, following Basile's own design (Figure 2).

The Chamber was inaugurated on 20 November 1918, at the end of the First World War, which was seven years later than the initially programmed 1911. Work on the *Palazzo del Parlamento,* however, continued until 1926.

* Corresponding author: g.colalucci@virgilio.it; daniela.bartoletti@virgilio.it

Figure 1. Two of the panels representing the lyric and epic events of the Italian people.

Figure 2. Partial view of the Chamber with frieze.

The task of creating the frieze for the Montecitorio Chamber was given to the Roman painter Giulio Aristide Sartorio, who, at the age of fifty, had reached full artistic maturity and had gained considerable experience from his work on large formats.

Sartorio was born in 1860 into a family of sculptors but trained at the Academy of Fine Arts. He soon expanded his knowledge of artistic culture by studying the great foreign masters such as Rubens, Delacroix, Courbet, as he was fascinated by decorative grandeur and had a taste for theatrical effect. A great traveler, he went to Paris twice, London and, years later, to Egypt, Syria and Latin America. After traveling to London, he became a popularizer of the late Pre-Raphaelite painting by Burne-Jones and Dante Gabriele Rossetti.

Between 1896 and 1900 he taught at the Weimar Academy of Fine Arts, in the chair that had once belonged to Lebach and Boeklin.

The tragic experience of the war, however, for which he enlisted in 1915, and the two years of imprisonment in Mathausen, marked him so deeply that on his return he had no strength to resume his teaching, feeling detached from the world of other artists. He consequently left the Academy of San Luca and his position as director (in Italian *Principe*).

He died in 1932 in Rome while he was working on the sketch of a mosaic for the Cathedral of Messina.

On the occasion of his death, his friend Ugo Ojetti remembered him with these words in the newspaper, "*Corriere della Sera*": "*He was a tireless worker of meticulous precision. He unaffectedly and dispassionately expressed admiration for the Parliament frieze, having painted the figures of the men and animals on the 450 meters of canvas in 930 days. He kept the canvas wrapped around a large upright roller, the painted canvas going one step forward each week*".

2. The pilot restoration

At the end of the 1990s, almost a century after its installation, Sartorio's frieze was examined up close for the first time during the restoration of the velarium that provides light in the Chamber. The examination highlighted the critical condition of the painting on which there were widespread areas of visibly raised color (cupping) (Figure 3).

It was ascertained that the frieze urgently needed conservative intervention. Thus, having assessed the complex problems it would entail, taking into account the place (the room is only available for just over a month a year), and the difficulty faced in accessing the frieze (positioned at about twenty meters from the floor), it was decided that a pilot intervention would be carried out on one of the 50 panels. This meant that the overall intervention on the entire frieze would therefore be based on concrete information.

At the end of 2003, on the basis of a preliminary project drafted by *Conservazione e restauro di GL. Colalucci and D. Bartoletti Snc.* in 1998, the "pilot" intervention was carried out on one of the 50 panels of the frieze. The intervention was organized so as to have the opportunity to study the piece in the laboratory without hurrying and to have all the necessary means and tools ready at hand. Studying and analysing the executive characteristics, known until then only from the author's writings, was an essential task in order to fine-tune the appropriate conservative strategy to adopt for such a complex work. The intervention also had the purpose of determining the possibility

of dismantling the panels, studying the anchoring system, finding a suitable protection for the painted surfaces during the removal of the panels from the wall and designing a light versatile packaging that would secure them safely during their transport from the Chamber to the laboratory.

The pilot intervention lasted one year, and the restored panel was the subject of an exhibition set up by the technicians of the Chamber of Deputies inside a large space known as the "*Transatlantico*" (an area outside the Chamber reminiscent of the ocean liners of the time).

The collected data made it possible to draw up the restoration project for the entire frieze, which took place from August 2006 to August 2007, under the direction of the Italian Ministry of Cultural Heritage and Activities.

Figure 3. Craquelure and raised paint colours.

3. Technical data

The Parliament frieze is composed of 50 panels (Figure 4).

The frieze, measuring 105 meters in length and 3.75 meters in height, runs along the entire perimeter of the hemicycle-shaped Chamber, the frames being designed to follow its curvature. The twelve canvases on the side of the Presidency and the four positioned at the ends of the hemicycle at the corners of the Chamber (two on the right and two on the left), are flat and consist of a perimetral structure reinforced in the center by two intersections composed of one vertical element and two horizontal crosspieces. The panels have varying widths: from a maximum of 2.61 m to a minimum of 1.55 m.

The frames, made of pine wood belonging to the *pinaceae* family and specifically that of the silver fir (*Abies alba* Mill) and the Norway spruce (*Picea abies* Karsten), are fixed and painted a gray-blue color with an artificial ultramarine base of very fine grain size, gypsum and oil.

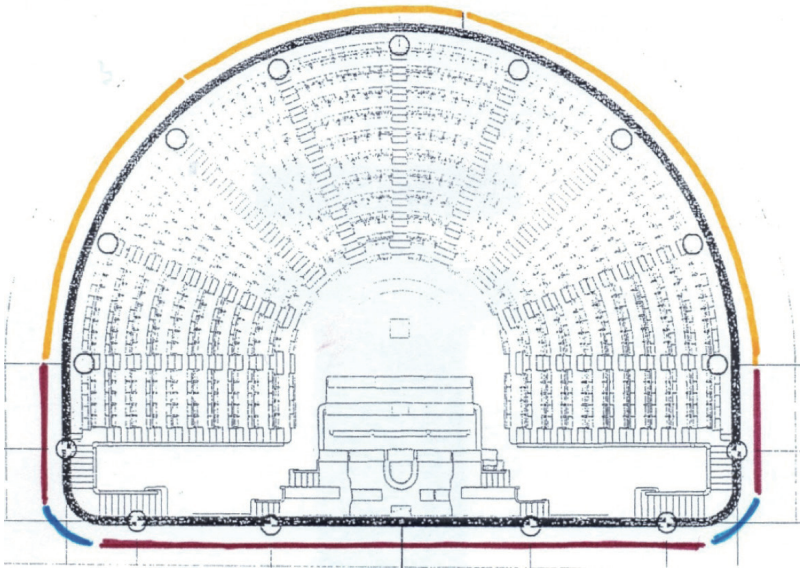


Figure 4. YELLOW = curved panels; RED = flat panels; BLUE = corner panels.

The hemicycle is formed of thirty lightly curved frames, whose perimetral structure is substantially similar to that of the flat frames and differs only in terms of the curvature of the horizontal elements and the use of five vertical axes to reinforce the structure. The four corner frames, that join the side of the Presidency to the hemicycle, have a very pronounced curvature and a more complex construction than that of the flat frames. The perimetral structure is in fact reinforced with two horizontal crosspieces and eight vertical axes (Figure 5).

The iron pins that connect the panels are of circular section with cut ends, inserted into specially made openings in the long sides of the frames and fixed with a bolt.

Sartorio purchased the canvas for the frieze in the form of a large roll on which the priming had already been applied mechanically. The analyses carried out on the samples of material revealed the vegetal nature of the fibres with morphological characteristics corresponding to those of a rough coarse linen, obtained from plants harvested when the fruit was at its ripest.

The canvas has a yellowish color and a twill weave.

The fibers vary in length and width with a twist of between 17.5 ° and 20 °; the number of threads are approximately 12.85 for the warp and 14 for the weft, with a thread density of 179.9 per cm².

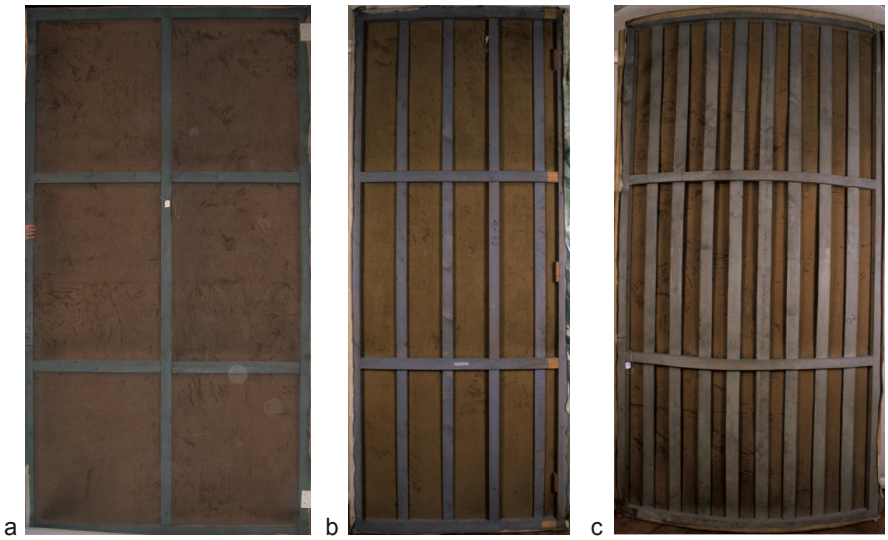


Figure 5. Fixed panel frames: flat (a); curved (b); angular (c).

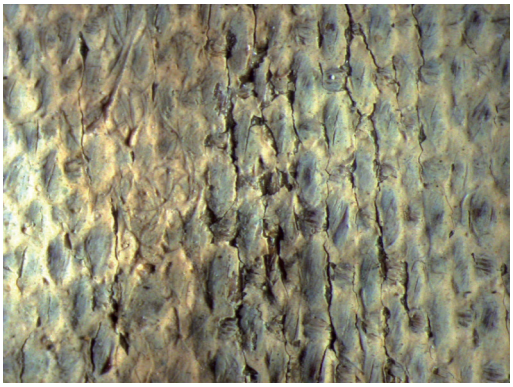


Figure 6. Canvas weave and texture. Figure 7. Industrially prepared canvas.

Between the canvas and the preparatory layer is a layer of animal protein which has penetrated the textile fibers due to the glue itself being spread on the surface to secure it to the preparatory layer (Figure 6). The preparatory layer is of a pale ivory color (Figure 7) and very thin, with a thickness between 0.01 and 0.25 mm.; the surface looks “trimmed” making the woven pattern of the textile visible.

The results of the chemical tests and the stratigraphic examination of polished thin sections carried out to identify the composition of the colors and mediums revealed an imprimitura consisting of very fine-grained white pigments and drying oil. Lead stands out from all the other elements, indicating the presence of a greater quantity of white lead. The analyses also highlighted the presence of zinc (white zinc), copper and traces of iron and calcium

The calcium comes from impurities in the calcite and / or gypsum which was added as an extender to the mixture. The traces of iron are instead attributable to the small amounts of pigments, such as ochers / earths which were used to give warmer colors.

The presence of protein substances highlighted by the analyses, both within the textile fibers and on the surface of the canvas, confirm that the application of the preparatory layer was not preceded by the preventive wetting of the canvas.

The 50 canvases were fixed to the frames with bent brad nails. As is usual, the canvases were mounted on the frames with the warp in a vertical position and the weft in a horizontal position, so as to provide greater resistance to the traction produced by the weight of the canvas and that of the pictorial film.

In order to transfer the design of the sketches to the canvases, Sartorio used photographic projection, a practice frowned upon by the academic world but which allowed him to speed up progress on the work to meet the very tight deadlines that had been set.

4. Painting the frieze

The frieze is wax painted using a technique deriving from the temperas used in France in the nineteenth century and which Hippolyte Flandrin adopted for the paintings in the church of Saint-Germain-des-Prés in Paris [4-5].

Sartorio writes:

"… *The mixture I used for the Parliament frieze, … is composed of three equal parts of purified wax, poppy oil and turpentine. The execution must be rapid because the painting is already dry by the evening and after four or five days you can paint over it*".

Opaque painting, which in those years was back in vogue, provided the artist with the possibility of painting on canvas and obtaining a final effect similar to that of mural painting. It should not be forgotten that the project had started out with a frescoed frieze, as fresco was seen as the only technique that would worthily celebrate Italian pictorial tradition. Indeed, it was Sartorio himself who, faced with a thousand difficulties and emphasizing the time factor, obliged his clients to change their mind.

Flandrin's technique consisted in the use of oil paints that had been '*smagrati*' on absorbent paper (i.e. oil paints from which the oil had been removed) and which were then mixed with wax in purified essence, also known by the name of America resin gluten (i.e. wax, turpentine essence and elemì resin). Sartorio however, as he himself liked to point out, deviated from the French recipe and developed his own method for purifying colors.

The analysis by infrared spectrophotometry with Fourier transform (FT-IR) [6-7] carried out on the samples of pictorial film revealed the presence of fatty organic substances (oils and / or waxes with ester groups similar to beeswax) and organic substances referable to natural resins, thus confirming the composition of the medium described by the artist.

Discussion revolving around this particular technique, wrongly defined in the contracting agreement as *encaustic on canvas*, fuelled many misunderstandings due to the fact that when speaking of wax, its presence is generally linked to the encaustic used in Roman painting. Sartorio himself on several occasions highlighted the substantial difference between a pure wax technique and his own particular mixed technique.

The palette used by Sartorio for the frieze was composed of both natural and modern pigments that the artist had manipulated from an early age at the Roman colourist's, Boni.

The chemical analyses and observation under a stereo-microscope of the pigment samples gave the following results: the white colors are lead-based (white lead) or zinc-based (zinc white) which the artist also used mixed together, probably to reduce the tendency of the zinc white to crack. Sartorio additionally used a wide range of iron-oxide based ochres, browns and reds with a high degree of oxidation (hematite, Mars red). The yellows are cadmium-based. The greens are chromium-based in the anhydrous form (chromium oxide) and hydrated form (viridian). The blues are artificial ultramarine and smalt (Figure 8).

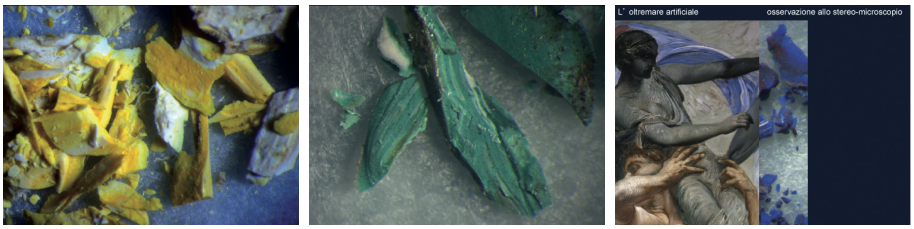


Figure 8. Yellow, green and blue colours seen under the microscope.

The blacks are obtained from the calcination of iron and copper salts. The analysis provided another interesting element confirming what had already emerged from the optical examination of the painting, namely, that the colors of the frieze are the result of extremely composite mixtures. Sartorio seems to have worked with the pictorial material directly on the canvas, using a brush as well as a spatula; for effects of maximum light, white was pressed onto the canvas directly from the tube. The artist also used very fluid pigments to go over the more densely applied colors again or spread them directly on the imprimitura, exploiting its coloured tones as a background to produce particular effects of transparency.

To preserve the concave shape of the canvases on the curved supports, the artist used drawing pins (Figure 9) fixed to the wooden crosspieces of the supports and then, in the finishing phase he incorporated them into the color making them an integral part of the painting. The retouching done by the artist on the pin-heads was done in oil and not wax.

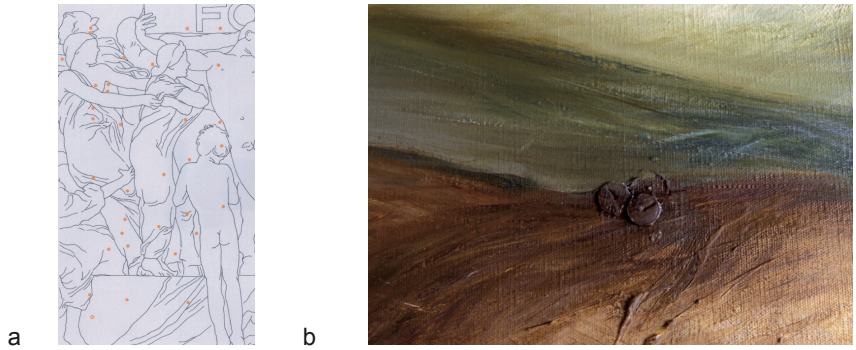


Figure 9. Drawing pins used to fix the curved canvases (a); a graphic representation of the pin points (b).

5. Restoration

At the time of our intervention, it was ascertained that the frames were in good condition with some minor damage located mostly along the edges of the lower sides; there was no sign of deformation or biological attack or presence of any xylophagous insects.

The canvas, on the other hand, had lost much of its elasticity due to the thermal stresses to which the Chamber is exposed. It appeared dry and, though it had not reached high levels of creep deformation, it was disfigured in several points by worrying deformations along the edges, and several tears of varying degrees at the point where the canvas is folded onto the frame.

The entire surface of the paintings was covered with a veil of homogenous particulate matter produced by the dust and fumes that had deposited and accumulated on it for over a hundred years and had given the original colour tones a greyish hue. The particulate matter was visibly thicker on the areas of the more densely applied mixture (Figure 10).

The partial loss of the load-bearing capacity of the support had, moreover, generated a widespread separation of the preparatory layer and the pictorial film and had given rise to the visibly evident craquelure of the pictorial layer. The denser pastes, including the thick-textured white-coloured lines of paint sqeezed straight from the tube onto the canvas, used by the artist to define the lighter tones, were in places detached and marked by missing pieces. Even the most fluid colors showed cracks and problems of adhesion. In this case, however, the problem derived from the excessive medium used which, in the execution phase, had prevented the color from adhering optimally to the preparatory layer or the underlying color. The loosening of a great many of the drawing pins was also evident, as they had become detached from the wood of the frames and remained pinned only to the pictorial layer.

Figure 10. Close-up of densely textured colors.

Having ascertained that the paintings of the frieze essentially needed the pictorial film to be re-adhered to the support and that we were dealing with an art work that had never before been restored, having reached us without any tampering, we opted for an intervention that responded to the logic of minimal invasiveness [8]. For this reason the lining was excluded, as it was considered more suited to

ancient canvases, and decided on a treatment that would allow the original canvas to recover its elasticity and to deal with the re-adhesion and consolidation of the detached pictorial film. The final result was obtained by using Beva 371 (Berger-ethyl-vinyl-acetate), a thermoplastic adhesive developed in the early 1970s by Gustav Bergher [9].

6. Treatment of the canvas

The work was carried out in four distinct stages and was repeated on each panel one by one: in the first phase the recto of the painting was protected with a veil of Japanese paper applied with Aquazol 500 [10]. Aquazol is a polymer with high reversibility. It can be used as an adhesive and as a consolidator for pictorial layers. It is soluble in water, but can also be dissolved in many solvents with medium and high polarity. Aquazol 500 compared to 200 is denser and has greater adhesive power. Used for purposes other than restoration, it was studied by Wolber back in 1994 for purposes related to restoration and for its use as a consolidant either in its pure form or mixed with other polymers, diluted in water and / or in 4% acetone.

In the second phase, the Beva, diluted in white spirit (40% white spirit: 60% BEVA) was heated and applied on the canvas, giving it two coats at a distance of about 24 hours between each. The third phase involved removal of the protective coating. In the fourth phase the Beva was reactivated on a low pressure thermal table.

This was a necessary phase for the pictorial film to adhere well to the imprimatura and to the canvas. This was achieved by heating to 65-70 ° C with the painting under pressure and keeping the temperature stable for a few minutes. Once the resin had been reactivated, the painting was left to cool while maintaining the pressure of the vacuum [11-12].

On the flat panels, the consolidation phases were carried out without removing the paintings from the frames. The curved paintings, on the other hand, were dismantled because the frames had many wooden crosspieces that prevented access to the canvas. The impregnation phase took place with the painting lying on a custom-built counterform lined with soft material.

In the absence of a curved [13] thermal table of industrial production, we created a thermal table with the same curvature as the canvases of the hemicycle (Figure 11).

Figure 11. Low pressure curved thermal table.

As for the flat panels, the vacuum-sealing process was carried out using a high vacuum pump capable of exerting a pressure of 9 kg per cm^2. In addition, instead of being generated from below, heat was generated from above using a sliding panel placed at a distance of 60 cm from the table top on which were mounted IR lamps able to reach the temperature necessary to reactivate the Beva. The presence of the wax was not a problem in the reactivation phase of the resin using heat and did not cause any softening of the surface during the heating process since the medium was made heat-resistant by the oil and elemì resin with which the wax had been mixed.

The strip lining (i.e. the application of bands of cloth along the perimeter of the painting, so as to hold it taut on the frame) was done by releasing one side at a time from the frame so as not to create too much imbalance in the tension of the support. This line of action was employed for all the flat panels situated on the Presidency side but not for the curved hemicycle panels, where the strip lining was performed on the edges of the canvas free from the frame. The application of the perimeter bands allowed the perfect re-tensioning of the canvases on the original frames, as well as reparation of the edges which, over the course of a hundred years, had been visibly damaged precisely along the lines where the canvases had been folded on the frames and appeared to have been weakened by the nail holes. The bands, in Lascaux synthetic polyester fabric, measuring 30 cm. in height, were applied with heat reactivated Beva 371.

Where necessary, the pictorial film was re-adhered using a thermocautery device (Figure 12).

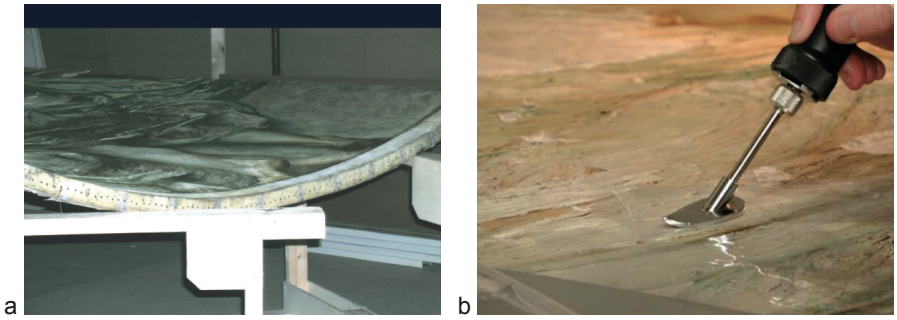


Figure 12. Detail of the curved panels (a); use of thermocautery (b)

7. Cleaning

Cleaning the paintings consisted in removing from the surface the fatty particulate matter deposited by the fumes and dust that had accumulated over almost a hundred years.

The cleaning was done in two separate stages. The first cleaning took place by removing the protective film. In fact, the distilled water together with the adhesive used for the Japanese paper, also removed most of the surface particulate matter. In the second stage, performed when consolidation had been completed, white spirit was used [15].

Another consideration, which had arisen from the initial study of the painting technique on the pilot panel, concerned the opaque quality of the wax painting that had to be preserved at all costs. In fact, opaque tempera does not require a final varnishing since the pigments diluted with the waxy medium acquire an appearance that may be compared to those of a mural painting. A final varnishing would have modified this aspect, exalting the tone of the colors, something not foreseen or wanted by Sartorio. Thanks to this information, we were able to firmly discard the initial proposal, made in an official report by the Superintendency in 1998, which included the final varnishing of the paintings after their restoration.

Pictorial reintegration was performed following a logic of optical-tonal attenuation of the lacunae. Tonal attenuation was performed on the surface of the canvas without any filling in, so as not to interfere with the thickness of the original brushstrokes which are extremely uneven and discontinuous. The chromatic tones of the canvas were retouched with paint colors used specifically for restoration [16].

At the end of the restoration, during the handling and transfer of the panels (Figure 13) the edges could not be protected with a traditional coating (Japanese paper), since the task of removing the coating would have been too demanding as well as risky. It was therefore decided to adopt an alternative type of protection which was compatible with the time needed for its application and removal so that the work inside the Chamber could be completed by the established deadline. All the bands of color along the joint lines of the panels, which were those subjected to more mechanical stress during handling, were treated with cyclododecane in white spirit in a proportion of 1:1. Cyclododecane is a cyclic, unsaturated, chemically stable hydrocarbon with a waxy consistency. This new-generation fixative has the property of sublimating (i.e. passing from the solid to the gaseous state after approximately 24/36 hours without leaving any residue on the work), making it particularly suitable for providing temporary protection.

On completion of the restoration, when the paintings returned to their place in the Chamber, only those joint lines that had necessarily been cut with a scalpel and a milling-machine during dismantling were stuccoed and repaired. The stuccoing was done using Bologna plaster and rabbit glue and the pictorial layer reintegrated with paint colors used specifically for restoration.

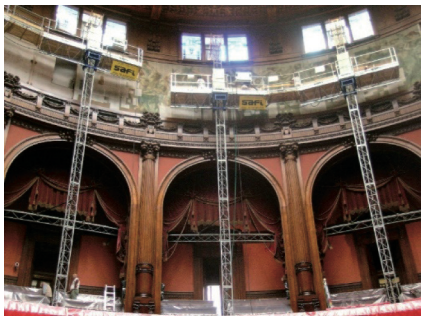
a  b 

Figure 13. Removing the panels from the Chamber (a); to the fully-equipped studio (b).

All the drawing pins were mapped, numbered and extracted from the canvas after being coated with Japanese paper treated with Aquazol.

Extraction of the drawing pins became necessary to facilitate consolidation operations. Taking into account the inefficacy of the anchoring system designed by Sartorio and having established that the minimal curvature of the canvases of the hemicycle did not need the central part of the paintings to be pinned to the crosspieces of the frames, it was decided to re-attach only the painted head of the pins to the paintings as they were an integral part of the work. Thus, after cutting all the drawing pins, the painted heads were then affixed in their original position using undiluted Beva gel.

8. Special provisions

Unlike the hemicycle panels, the four corner pieces required a specially constructed anchorage (Figure 14) which would allow the curvature of the canvas (more pronounced than in the frames) to remain unaltered. Since the tacks were no longer usable, pieces of synthetic canvas were applied to the back of the paintings near the horizontal crosspieces and made to adhere to the original support with heat reactivated BEVA gel. Some thin string was then used to make loops at one of the ends and the loops fixed to the centre of the pieces of synthetic canvas using the same synthetic canvas to keep them in place. The loose end of the strings were then fixed to the wood of the crossbars by means of small steel screws, so as to be able to pull the canvas towards the frame and adjust it to obtain the right tension.

The paintings were restored in a laboratory located in the center of Rome, specially equipped with movable racks for the panels, which were transported to and from their premises, protected by light metal and polycarbonate packaging as well as traditional packaging.

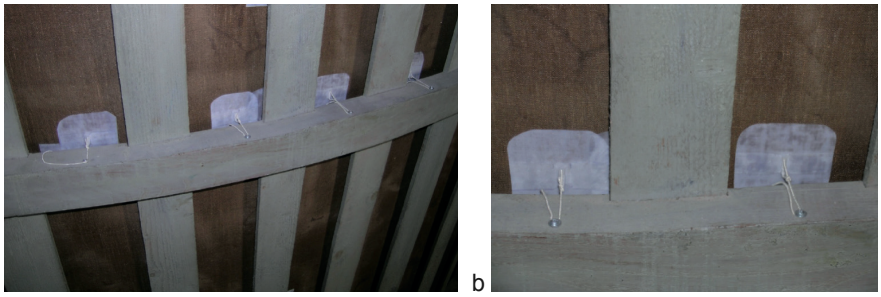


Figure 14. Series of tension ropes with cords (a); detail of the loops held in position by the screws to enable tension adjustment (b).

9. The team

Work on the entire cycle was carried out in the period from August 2006 to August 2007, under the direction of the Italian Ministry of Cultural Heritage and Activities.

− Sole Project Manager: Luciano Marchetti (engineer), Regional Manager for the *Beni Culturali e Paesaggistici del Lazio*;

− Project and Works Management for the architectural restoration in the Chamber: Paola Santilli (architect), Soprintendenza per i Beni Architettonici e Paesaggistici del Lazio;

− Works Supervisor for the historical-artistic restoration: Dr. Rossella Vodret, Superintendent for the *Patrimonio Storico-Artistico ed Etnoantropologico del Lazio*;

− Chief Operating Officer for the historical-artistic restoration: Dr. Claudia Tempesta, *Soprintendenza per il Patrimonio Storico-Artistico ed Etnoantropologico del Lazio*.

The historical and artistic restoration was carried out by a temporary business association (*Associazione Temporanea d'Impresa*) composed by the following:

− Leading company: *Gianluigi Colalucci e Daniela Bartoletti (Conservazione e Restauro snc)*;

− Associated enterprises: *Cecilia Bernardini, Bartoli restauro srl*.

Scientific analyses were performed by ARTELAB srl.

Graphic documentation by Francesca Gorini.

Photographic documentation by Felice and Simone Bono and Sandro Bracchetti.

The "pilot" restoration took place between December 2003 and October 2004 under the direction of the *Soprintendenza per i Beni Architettonici e Paesaggistici del Lazio* (Paola Santilli (architect) and Dr. Claudia Tempesta).

The pilot restoration was carried out by *Gianluigi Colalucci e Daniela Bartoletti (Conservazione e Restauro snc)*.

The scientific analyses were performed by *EMMEBICI* and *R&C Scientifica*.

Graphic documentation by *Conservazione e Restauro snc.*

Photographic documentation by Humberto Nicoletti Serra.

References

[1] Damigella A.M. 1987, Montecitorio, F.M.R. n° 53, Milano

[2] Miracco R. 2006, Giulio Aristide Sartorio 1860-1932, in catalogo mostra, Maschietto, Firenze

[3] Carrà C. 1932, Giulio Aristide Sartorio in "*L'Ambrosiano*", Milano, 8 ottobre 1932.

[4] Bartoletti D. 2009, Il fregio di Sartorio al Parlamento, La tecnica di esecuzione tra fonti e pratica in Effetto Luce. Materiali, tecnica, conservazione della pittura italiana dell'Ottocento, conference proceedings, ed. Edifir, Firenze.

[5] Secco Suardo G. 1870, Pensieri sulla pittura ad encausto, ad olio, e a tempera in Arte in Italia, UTET, Torino.

[6] Aldovrandi A., Picollo M. 1999, Metodi di documentazione e indagini non invasive sui dipinti, ed. Il Prato, Padova.

[7] Santamaria U. 2004, Analisi dei materiali finalizzata alla conservazione dei beni culturali: limiti e vantaggi, in Agathion, Università degli studi, Palermo.

[8] Bernardini C. 2009, Il restauro dei 50 dipinti di Giulio Aristide Sartorio che decorano l'Aula della Camera dei Deputati in Montecitorio in Roma" in Effetto Luce, Firenze.

[9] Berger, G. 1984, A Structural solution for the preservation of canvas paintings in Studies in Conservation n°29, London 1984.

[10] Arslanoglu J., Tallent C. 2003, "Evaluation of the use of Aquazol as an adhesive in paintings conservation, WAAC Newsletter 25, n° 2, May 2003, Los Angeles.

[11] Berger, G. 1974, Lining of a torn paintings with Beva 371 in Conference on comparative lining tecniques, National Maritime Museum, Greenwich.

[12] Berger, G. 1964 A vacuum envelope for treating panel paintings in Studies in Conservation n° 9, 1964, London.

[13] Cannizzaro C., Franceschini L. 1999, Un tavolo a bassa pressione, suggerimenti per la realizzazione e l'utilizzo, ed. Il Prato, Padova.
[14] Altofer H. 1991, Il restauro delle opere d'arte moderne e contemporanee, ed. Nardini, Firenze
[15] Bonomi Da Monte A., Meyer M., Miatello A. 1926 "Colori vernici e loro principali applicazioni, in Manuale ad uso dei Pittori, Verniciatori, miniatori, Ebanisti e Fabbricanti di colori e vernici, ed. Hoepli, 1926, Milano
[16] Wolbers R.C., McGinn M., Duerbeck D. 1994, Poly(2-Oxazoline): A new conservation consolidant, Paintend Wood: History and Conservation" Proceedings of the Williamsburg Symposium, 11-14 november 1994, The Getty Conservation Institute, Los Angeles

Biographical notes

Gianluigi Colalucci was born in Rome in 1929. In 1953, he graduated from the *Istituto Centrale del Restauro* (now ISCR) with Cesare Brandi. In 1954 he started working in Palermo. In 1960 he entered the Paintings Restoration Laboratory of the Vatican Museums and in 1979 he became its Chief Restorer. From 1980-1994 he was technical manager of the restoration of Michelangelo's frescoes in the Sistine Chapel which he personally carried out. The work lasted from 1980-1994. In 1991 he received an honorary degree in Fine Arts from New York University. In 1995 he received an honorary degree in Conservation and Restoration of Cultural Heritage from the Polytechnic University of Valencia. He has restored works by many artists including Michelangelo, Leonardo, Raphael, Titian, Giotto, Buffalmacco, Caravaggio, Mantegna, Crivelli, Lotto, Cranach, Sartorio, Ferrazzi, Sciltian, Morandi. He has lectured throughout Europe, India, Japan, the United States, Canada, Cuba, Argentina, Brazil, Colombia, Australia. He has published extensively on the restoration of Michelangelo's frescoes and on the restoration of paintings by other authors. In 2015, he wrote "*Michelangelo and I*", edited by Vatican Museums and 24 Ore Cultura, Rome. He is a Fellow of "*The Institute for Conservation of Historic & Artistic Works – London*". He is a *Miembro de Honor* of the CICOP *("Centro Internacional para la Conservaciòn del Patrimonio - Spagna"*). He is an external academic of the *Real Academia San Carlos de Valencia*. Since 2019 he is an honorary professor of the Roman Academy of Fine Arts.

Daniela Bartoletti was born in Rome in 1956; after high school she graduated from the *Istituto Centrale del Restauro* (now ISCR) in the field of paintings under the direction of Giovanni Urbani, and attended the post-graduate specialization course at the *Istituto Centrale del Restauro* on the theme of conservation and restoration of stone materials. She subsequently graduated in "Technologies for the Conservation and Restoration of Cultural Heritage" at the Faculty of Conservation of Cultural Heritage, University of Tuscia, Viterbo and did her doctoral degree in "Conservation of Cultural Heritage" at the Polytechnic University of Valencia – Spain. A former Member of the Corest and Eleazar Consortiums of Rome, she currently holds the position of Technical Director and Administrator of the company *Conservazione e restauro snc di Roma.* She has worked in Rome, Assisi, Padua, Venice, Naples and Paris on works by Giotto, Altichiero da Zevio, Giusto de 'Me-

nabuoi, Bernini, Tiziano, Mantegna, Campi, Carracci, Salviati, Sartorio, etc. She is currently engaged in the restoration of the fourteenth-century pictorial cycle by Giusto de' Menabuoi in the Baptistery of Padua.

She has published numerous texts on various topics related to restoration, its practice and techniques for intervention.

Summary

In 1897, the architect Ernesto Basile was commissioned to design the new Chamber in the Italian Parliament. Basile visualised a long painted frieze crowning the Chamber. The assignment was given to the painter Aristide Sartorio who executed it between 1908 and 1911. The frieze is 105 meters long, 3.75 high, and consists of 50 panels painted on canvas. In 1998 the frieze was examined closely and several problems regarding its state of conservation became evident, such as the loss of elasticity of the canvas and the widespread tendency of the paint film to become detached. In order to study the problem and plan the restoration for the entire frieze, it was decided to do a pilot restoration on only one of the 50 panels. The restoration was carried out in an equipped environment inside the Parliament, during the period 2003-2004. Based on the studies carried out over the two years, it was possible to plan the restoration of the entire frieze, which was completed in one year: from 2006 to 2007. The panels were taken to a Roman studio exclusively dedicated to this restoration. It was not possible to do the restoration in situ as it would have created a disturbance in the working of the Parliament. The panels painted by Sartorio with a particular technique based on oil and wax, were treated with BEVA 371, reactivated with heat using a flat, low pressure table, and with a heated curved low pressure table specially designed by us. Using the same system and cloth bands, the edges of the panels were reinforced and then placed on their original frames. Finally, the veil of greasy particulate matter that had deposited over a century was removed. The restoration, directed by the Architectural Superintendency of Rome, was preceded and accompanied by numerous scientific research studies on the colors, canvas, color medium, wood and microclimate of the frieze. An extensive detailed color photographic documentation recorded all the phases of the restoration.

Riassunto

Nel 1897 fu affidato all'architetto Ernesto Basile l'incarico di progettare la nuova aula del Parlamento Italiano. Basile immaginò un lungo fregio dipinto a coronamento dell'Aula. L'incarico fu dato al pittore Aristide Sartorio che lo eseguì tra il 1908 e il 1911. Il fregio è lungo 105 metri, alto 3,75, e si compone di 50 pannelli dipinti su tela. Nel 1998 il fregio fu controllato da vicino e apparvero evidenti alcuni problemi di conservazione come la perdita di elasticità della tele e la tendenza diffusa al distacco della pellicola pittorica. Allo scopo di studiare il problema e di progettare il restauro dell'intero fregio, fu deciso di fare un restauro pilota su uno solo dei 50 pannelli. Il restauro fu condotto in un ambiente attrezzato del Parlamento, dal 2003 al 2004. In base agli studi fatti in quella occasione, fu possibile progettare il restauro dell'intero fregio, che fu realizzato in un anno: dal 2006 al 2007. I pannelli furono portati in uno studio romano esclusivamente dedicato a questo restauro. Non era possibile fare il lavoro in situ anche per non disturbare i Lavori dell'Aula Parlamentare. I pannelli

dipinti da Sartorio con una tecnica particolare a base di olio e cera, sono stati trattati con BEVA 371, riattivata a caldo con l'ausilio di un tavolo caldo, piano, a bassa pressione, e con un tavolo caldo curvo a bassa pressione appositamente progettato da noi. Con lo stesso sistema e con fasce di tela sono stati rinforzati i bordi dei pannelli che poi sono stati ricollocati sui loro telai originali. Infine, è stata eseguita la pulitura dal velo di polvere grassa depositatosi durante un secolo. Il restauro, diretto dalla Soprintendenza architettonica di Roma, è stato preceduto e accompagnato da numerose ricerche scientifiche sui colori, sulle tele, sui medium dei colori, sui legni e sul microclima. Una ampia e dettagliata documentazione fotografica a colori ha documentato tutte le fasi del restauro.