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## MODIFICATION TO THE STRUCTURAL CONSERVATION METHODOLOGY OF LARGE FORMAT PAINTINGS: SOME CASE STUDIES

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### INTRODUCTION

It has been a long time that I have been thinking about participating in an AIC annual meeting, and today I'm really happy to be here and to feel part of your community. The AIC meetings represents a great opportunity for all conservators who want to update their knowledge, and who want to have an understanding of the most topical current issues, both in the general session and in the paintings specialty group.

Starting in 1994, after a great workshop held by Gustav Berger and organized by the West Lake Conservators in Skaneateles NY, I felt that it was time to create a deeper link between my Italian reality and my American background. My good friends Susan and Margaret Blakney and John Sutton gave me the opportunity in 2003 to lead a five day workshop that demonstrated the developments and perspectives of my personal experiences as well as those of the Italian community of paintings conservators. During that workshop I met Serena Urry and we went deep in discussion about the beautiful *Dreams of Men* by Tintoretto on display at the Detroit Institute of Arts. Thanks to the curiosity and professionalism of Serena, and the trust of Barbara Heller, it was possible to propose a project for the treatment of this big, ancient, and fragile painting.

For many years a general review of all of the methodologies applied to the conservation of paintings on canvas has been going on in Italy, and in the past few years a good partnership has been built between the *Opificio delle Pietre Dure*, university research centers, private scientists, and conservators, with most of them actively involved in *Cesmar7* programs. *Cesmar7* is a group of conservators, scientists, and art historians, that focus their interests on polychrome surfaces, with a special interest in materials research for paintings on panel and canvas. Our common objective is to systematically face the issues and the methodologies that drive conservation treatment towards a more gentle and respectful direction, looking at the philosophies of minimal treatment in a dynamic way. We organize an international meeting held every two years dedicated to specific problems in painting conservation with workshops, internships, courses and other initiatives related to specialized training programs. We focused our attention on cleaning issues, and the theory and practice of minimal treatment and in November 2006 our meeting in Milano will be completely dedicated to the consolidation of the painting structure and pictorial layers. Many important researchers will be with us, and several projects and posters will be presented on this very important and not particularly well studied topic. Also during the past few years, a small group of conservators and researchers started a collective review of the methods applied in structural paintings conservation, giving more attention to the re-evaluation and re-design of traditional methods and the uses of water based adhesives and glues.

The Italian artistic heritage is unbelievably rich and diffused throughout the country. In Italy we find large paintings decorating ceilings, walls, and altars, located in the historic towns and cities, in churches, convents, historical buildings, and in museums. The treatment of these kinds of objects pushes conservators to create case specific projects, many times using materials and supplies that they do not use everyday. With each of these projects we must change something in our procedures, and adapt the methods of treatment to the individual characteristic of the painting, related to the technique of execution and the state of preservation.

To represent the issues and discussions that I often have with my Italian friends and colleagues I chose to describe here the different ways in which we work, trying to design individual treatments that also take into consideration the other very important parameters: money, time, availability of materials, and quite often wrong mentalities.

Before getting to the technical descriptions I want to point out some information about how things work in Italy, otherwise it is not possible to understand how different our working conditions are.

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Fig. 1

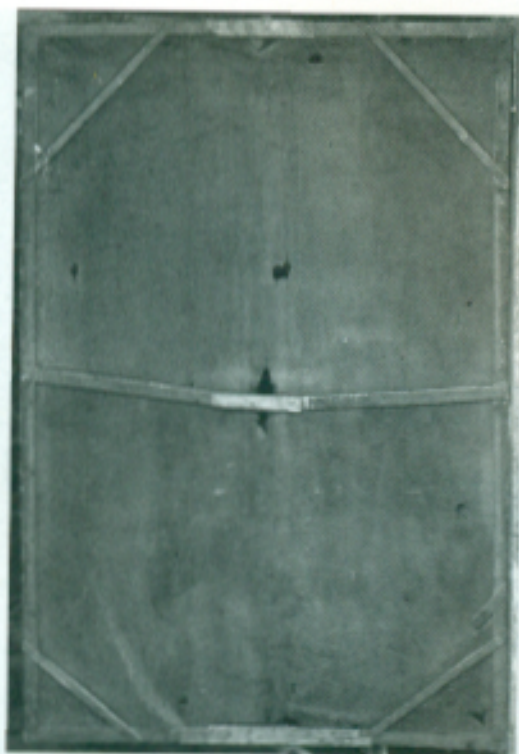


Fig. 2

As you probably know Italian cultural heritage is supervised by the Ministero Beni Culturali organized in local departments called Soprintendenze.

Every important painting is under the control of the state. Regulation and specific laws describe the process of a conservation intervention if needed. That means strict projects, designed by the technical offices of the Ministry, which are calculated by the square meter with no great difference if the painting is in good or poor condition, or if it is a masterpiece or a local minor painter.

It is therefore necessary to do a professional job and at the same time fit in low estimates and short working times. These conditions push conservators to find a satisfactory balance between each of the needs.

My technical presentation is divided in three sections:

No-lining, minimal treatment, and materials and solutions.

To cover the issues of no-lining and minimal treatment I chose two different projects to show.

The first involves a 500 year old painting that had never been restored, that was used by Cesmar<sup>7</sup> as a case-study (fig. 1, 2). We organized two meetings, held before and during the treatment where all participants had the possibility to look at the condition and discuss and test several treatment solutions. It was decided to work inside the church and to not detach the painting from its original stretcher.

The painting was in poor conditions. There were large tears and losses in the support. The paint layers were detached and large deformation were showing (fig. 3). The stretcher was broken and the tacking edges were damaged in many areas.

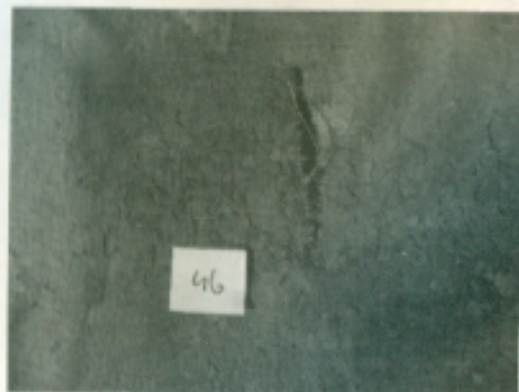


Fig. 3



The first action was to reinforce the stretcher and to support the painting with a grid of thin polyamide cording on the reverse. Missing parts were temporarily reinforced with an open polyamide net applied to the reverse with Plectol gel.

Consolidation and flattening of the deformations was carried out with the use of a locally applied low-pressure vacuum. Klucel G from the front and Plexisol from the reverse was applied to consolidate the weak paint layers (fig. 4).

It was then possible to work on the tacking edges, reinforce the original nails, and apply a gradual tension (fig. 5, 6) The tear repair and reconstruction of missing parts were the part of the project that involved more people, and several repair solutions were tested including ones studied by Winfred Heiber. In the end it was decided to use EVA and Polyamide resin using hot tools. The end phase of the structural treatment related to the restoration of the original stretcher. It was then possible to finally approach materials the cleaning and the aesthetic presentation.



Fig. 4



Fig. 5



Fig. 6





Fig. 7

The second case describes a no-lining treatment on five modern paintings (fig. 7), with mixed media techniques and very different consolidation issues (fig. 8, 9). The large paintings were part of a decoration of eighteen painted by Galileo Chini for the Biennale of Venice in 1914. They were painted following the vertical lines of the compositions using differently heavy impasto or very thin and sensitive paint layers.

To consolidate the paint layers we used Beva applied in different concentrations, application temperatures, and solvent mixtures, controlling in a selective way, the drying process of the consolidant (fig. 10). Heavy and rigid impasto was treated with a warm solution containing solvents with a slow evaporation rate and a higher penetration capacity. Thin and powdering paint layers were infused with a room temperature solution using highly volatile solvents such as hexane.

Structural reinforcement was achieved using monofilament polyester fabric pre-treated with diluted or flocked Beva, cut in strips and applied with a heated spatula. (Flocked Beva in various concentrations and quantities allows to control of the bonding capacity of linings, strip-linings, and local structural reinforcement).

#### Re-evaluation of water based lining adhesives.

As you all know *colla pasta* (or glue-paste) linings are still used in different countries in Europe, and in Italy many paintings are still lined following traditional methods. If we compare two traditional recipes and methods, the Roman and the Florentine, we can see that painting liners have historically adapted the methods of use and application to their needs in many different ways.

The first big advantage that traditional water based adhesive have is that they are non-toxic. Yet at the same time they can be exposed to biological deterioration under poor environmental conditions.

Many things can be said about this and other issues related to pasta linings, starting with the reactivity of certain type of painting supports to water. But, I want to focus on a re-

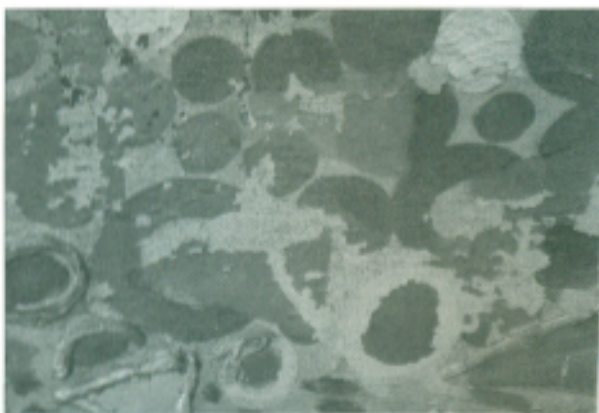


Fig. 8



Fig. 9



Fig. 10



evaluation of these methods, starting from the composition of water-based mixtures.

If we look at materials that have been traditionally used in historic recipes we find a short list of materials used as fillers, adhesives, and plasticizers. Wheat and rye flour, animal glues, molasses or honey or venice turpentine, a natural resin. Many of these materials are strongly hygroscopic and react quickly to environmental variations.

But we can include materials used in conservation that have different functions. They can be fillers but have also adhesive power, or be adhesives but also plasticizers. Wheat and rice starch, purified animal glues but also synthetic products such as carboxymethylcellulose (CMCs), Klucel and acrylic dispersions such as Plextol 500.

Modified recipes that I have tested in the past years, demonstrate that it is possible to design a specific adhesive for the needs of the individual painting that has to be lined (fig. 11). The choice of the adhesive goes with the choice of the new support, and can be defined in many different ways. It is also possible to regulate the amount of adhesive to be applied using screens (fig. 12), and following the cold lining techniques developed by Vishwa Mehra.

Low-pressure vacuums can be successfully used to speed the drying process and allow for even adhesion. It then possible to work on superficial deformations when the painting is still slightly humid, with cold tools or hot spatulas (fig. 13).

If we also consider that it is possible to avoid high pressures and temperatures, to eliminate procedures that are not necessary, and to mix successfully mix synthetic and natural materials, we have to admit that we must pursue further testing and research in order to update our current knowledge of pasta linings.

Getting to the lining process that we applied to the large Tintoretto painting at the Detroit Institute of Arts we gently applied a new light support without using any pressure or ironing, while allowing the lining to dry quickly. It was important to work with freshly made materials, and to make adhesive of a certain density. By hand, using wood tools or squeegees, it is possible to apply the appropriate amount of adhesive, and then remove the excess (see images in Serena Urry presentation).

Certainly these methods are not always the best choice, and many oversize paintings are lined with synthetics adhesives. For example large tempera decorations were treated by spraying Beva on different fabrics. The manual re-activation with local heat, unfortunately working in poor conditions, gave us the opportunity work slowly during the adhesive process. Weight is also a big concern when restoring large format paintings (fig. 14), and flocked Beva on light weight supports seems to be successful also in terms of tension control.



Fig. 11



Fig. 12

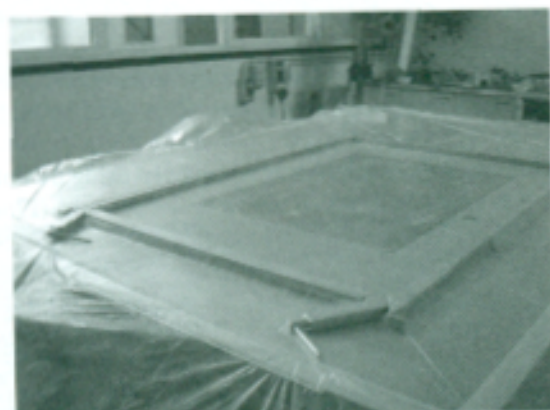


Fig. 13



Fig. 14



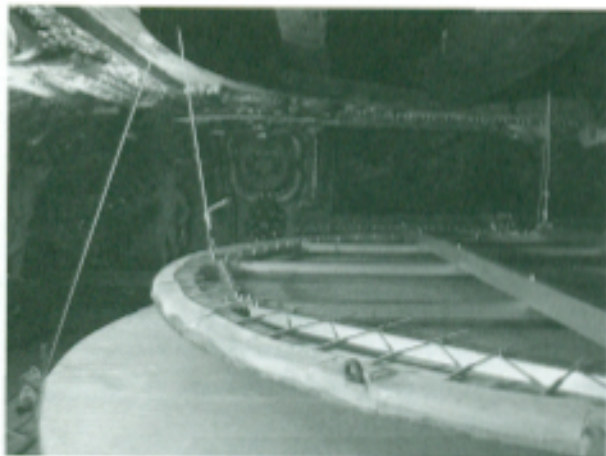


Fig. 15

### Constant tension and stretchers.

One of the big issues of oversize painting conservation is the choice of a satisfactory way of applying tension. It is true that in my experience very irregular or curved surfaces were applied to a rigid support system, but primarily my concern is to find a good solution that is compatible with all conditions.

In Italy, in last 40 years many different models for constant tension stretchers have been designed by several manufactures. We still have big discussions about constant tension issues, and people still develop new ideas. I will describe only some solutions. The first ones, designed by Carlo Serino and Antonio Iaccarino, are very good when I decided to re-use the original stretcher. The

desired tension can be accurately calculated and springs with different loading power are used depending on the size, weight, and shape of the painting (fig. 15).

The constant tension aluminum stretchers used for Detroit's Tintoretto (see Serena Urry presentation) and in many other cases is manufactured by Franco De Simone who bought Rigamonti firm. (Franco Rigamonti was the first Italian to design a metal stretcher. His stretchers were used for the Caravaggio paintings in S. Luigi dei Francesi in Rome, in 1963).



Fig. 16



Fig. 17

The central part of the stretcher is fixed and tension is given by spring with different loading power on the edges that can move easily.

Finally I want to discuss briefly the issues of re-installing large format paintings.

I will describe two cases where the primary difference was the money available for the project. The first painted decoration was reinstalled in the ceiling using sailing materials and pulley techniques, and the cost of manpower and materials was fairly low (fig. 16, 17). The second case was a well-funded project where, with Franco De Simone's help, it was possible to design and create a mechanism used to move the painting up and over the restored altar in automatically (fig. 18, 19). Both these solutions were designed to facilitate control and maintenance as oversized paintings in many cases have less routine care than other formats.



Fig. 18



Fig. 19

In conclusion, I would like to re-emphasize the point that the Italian conservation community is actively working, meeting, and discussing these issues, regardless of the current working environment in our country.

I want to thank all my American friends who encouraged me to be at this AIC meeting and especially Serena Urry and Eowyn Kerr.

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