



FABBRICA DI S. PIETRO
IN VATICANO

BALDACHIN ON THE HIGH ALTAR OF ST. PETER'S BASILICA IN THE VATICAN

RESTORATION OF WOODEN STRUCTURES

Though it is commonly known as a work made of bronze, over 20% of the Baldachin is made of wood, which is painted or gilded in the visible parts, and left unrefined in its structural parts. Wood being an extremely hygroscopic material, which is sensitive to temperature variations and to associated oscillations in humidity, the entire wooden part of the baldachin appears to be the most affected in the entire monumental structure, with lesions, detachments, cracks, disconnections, and deformations. A delicate situation that implies static considerations for the structural part and aesthetic aspects for the visible parts, such as the "sky" with the Holy Spirit, which archival documentation reveals was completely repainted and regilded in 1758 due to the strong degradation of the pictorial film.

Conservation treatments of the structure will involve the following phases:

- An initial inspection and evaluation of the static efficiency of the external upper covering, namely, of the perimetral cornice with its mixtilinear shelf and stepped ceiling and confirming the relative safety of any disconnected or detached portions from the supporting structure.
- Initial inspection and evaluation of the static efficiency of the ceiling/sky with the radiating Holy Spirit (panelling with carved elements attached to appliques) and securing any disconnected or detached portions from the supporting structure.
- Aspiration of any airborne particulate matter to be found on surfaces, prior to the targeted tapping of semi-coherent deposits compacted into grooves and recesses.
- Providing a preliminary biocide treatment for subsequent priming with a substance containing permethrin.

- Performing a re-adhesive consolidation of the deteriorated parts of wood by impregnating them with acrylic resins in solution.

- Performing a re-adhesive consolidation of cracked wooden elements contiguous to the face by infiltration of vinyl emulsion or epoxy resin, depending on the load-bearing requirements, and clamping.
- Disassembling and reassembling any disconnected or semi-detached applique elements from the supporting structure, after creating a numbered map of them, along with the correction and reinforcement of the support systems which are already in place.

- Restoring the original structure of the places where fissures are present by withdrawing contiguous faces in order to insert wooden dowels which will be made to adhere by using vinyl emulsion resins. This phase will be completed by a final levelling.

- Sealing fissures caused by the shrinking of wooden planks and boards in order to insert shock-absorbing thicknesses in sheets of cork or balsa wood glued together with vinyl emulsion resins, which is also used in order to prevent the fall of particulate matter.

- Reconstructing the missing parts which are found along the mixtilinear shelf, as to restore the structural continuity of the support planes. The new wooden elements, cut and shaped according to the profiles of the support, will be connected to the supporting structure by interlocking, gluing, and/or mechanical bonding (by the insertion of anti-rust screws).

- Plastic reconstruction using a Balsite-epoxidic putty of small lacunae within the modelled part of the wooden work.

- Second biocide treatment for subsequent priming with permethrin.

Surface conservation treatments will involve the following phases:

- Verification of the specific kind of binding agent used in the initial colour layer wash, after carrying out tests aimed at verifying its solubility at increasing polarity.

- Provisional application of a protective coating of portions of chromatic fillings and raised/high raise deadese gilding. This will be done after a general recognition of surfaces by employing raking light. Measures used to secure this part of the work will include the use of English vellum and cellulose ether.

- Re-adhesive consolidation of those parts protected by provisional veiling by infiltrating micro-acrylic resins (or organic ones, such as sturgeon glue). This part will follow a primarily executed comparative test. In any case, the re-adhesion of the artistic results which will be raised by comparison to their original level once this part of the work has been completed will be sealed and brought back to flatness by thermal induction (thermocautery).

- Unveiling of the re-adhered parts in order to proceed with reactivation of the colour by water.

- Cleaning the chromatic washes by absorbing the particulate matter which has settled on the work through English vellum and of the chelating solution (agent) (tri-ammonium citrate) and subsequent dry gumming.

- Removal of any layered repaints on polychromes and gilding using solvents. These are selected on the basis of solubility tests, which will be undertaken directly as well as through the support of compresses or gels. The decision regarding the maintenance or removal of any repaints on chromatic fillings will be taken in agreement with the Director of Works, making a critical assessment in order to find a satisfying/an appropriate balance which would take into consideration both aesthetic and historical aspects, with a view to overall harmony with the results obtained during the ongoing cleaning of bronze surfaces.

- Brush application of an initial saturation varnish layer, with opaque refraction characteristics.

- Compensating for depth gaps on polychromes and gilding by using Bolognese gypsum and rabbit-skin glue. This operation will be conducted at surface level, and will be followed by a subsequent colour reintegration with watercolour/tempera/paint colours, with the aim of achieving a mimetic match with the original contiguous colour fields.

- Reintegrating colours where they have been abraded, with visible preparation for a tonal lowering using watercolours and paint.

- Application of a final protective layer of varnish by nebulization, with satin refraction characteristics.